

## GEOLOGICALBRANCH ASSESSMENTREPORT


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August 30 th 1992
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## EXPLORATION STATUS REPORT

## TREATY 4, 5, 7 \& STAN 1, 2, 4 CLAIMS

SKEENA MINING DIVISION<br>NT MAP 104B \& 104C LAT 56035-41' N LONG 13002-12' W

### 1.0 INTRODUCTION

This report will describe the current status of the exploration of the Treaty and Stan Groups of mineral claims located at the divide between the headwaters of the Unuk River and upper Treaty Creek, a main western tributary of the Bell-Irving River, in northwestern British Columbia (Figure 1). It will briefly summarize the work carried out in previous years but concentrate on the most recent exploration carried out during the summer of 1991. This program will be described and the results presented in detail. These new data will be analysed and interpreted in the context of the gre-viously-collected information and models. The specific parpose of this work is as support for an assessment application made in June 1992.


Figure 1 - Map of Stewart-stikine Area showing Location of Treaty \& Stan Groups

### 2.0 PROPERTY

## Claim Data

The following tabulation shows the 6 claims, organized in two groups of 3 claims each, totalling 120 units.

| Groups | Claims | Numbers | Units |
| :--- | :--- | :--- | :--- |
| Treaty | Treaty 4 | 5415 |  |
|  | Treaty 5 | 5416 | 20 |
|  | Treaty 7 | 5418 | 20 |
| Stan | Stan 1 | 5419 | 20 |
|  | Stan 2 | 5420 | 20 |
|  | Stan 4 | 5422 | 20 |

The claim groups are located on NTS map $104 \mathrm{~B} / 9$ (John Peaks) and Mineral Claim Map M 104B/9E. They lie between latitudes 56030' and 56040' North, and between longitudes 130.3' and 13013' (Figure 2).



These claims are six of ten that were staked on the 25 th of June 1986 by $E$. Kruchkowski. During the subsequent five year period they were first owned by Catear Resources Ltd. and Elan Exploration Ltd., then held under option by Bighorn Development Ltd. for several years. The latter company earned an interest in the property under a joint venture with Wydmar Development Ltd. The original ten claims were subsequently split into two sets of six and four, interests in each of which were assigned to several companies. The six claims of the Treaty and Stan Groups shown above are now held in the name of James F. V. Millar in trust for Millar Western Engineering Ltd. Assessment work has previously been recorded on the claim groups for the years 1987 through 1991, consisting mainly of geochemical sampling and analysis. The report filed in the summer of 1991 coordinated and interpreted all the existing data collected by that time, and served to identify a number of specific targets in the otherwise very large area as warranting additional attention. In 1991, a field program was undertaken by Millar Western Engineering Ltd. In addition to the necessary increase in famiarity with much of the property, considerable new data were collected on those areas identified as primary targets.

This report will present the results of the exploration programme carried out during August last year. The information collected at that time revealed certain weaknesses in the data-set available at the time of the 1991 report, requiring a revision of last years analysis. The basis of the revision and updated data-set are included in this report. The status of each of the three main targets is described in terms of the additional geochemical and geological data collected during the 1991 field work.

## Hydrology and Topography

The Treaty Group is located at the headwaters of the main source of Treaty Creek, one of the main western tributaries of the Bell-Irving River that flows south into the Nass River (Figure 1). The claims cover the lower ends of both branches of the Treaty Glacier and the Drysdale Glacier, their outwash streams, and the intervening mountains. Streams from both combine to form Treaty Creek that flows easterly for a few miles and then southeasterly to join the Bell-Irving River (Fig.2).

The Stan Group lies a few miles northwesterly from the Treaty Group, covering the upper basins of the southeasterly branch of the Unuk River.

The claims cover an area of high peaks with steep to precipitous topography, and deep U-shaped valleys, that are either still occupied by glacial ice and permanent snowfields, or exhibit fresh scouring of recent glacial cover. Elevations vary from about 2500 feet asl in the valley of the Unuk River, at the north boundary of the Stan Group to nearly 6500 feet asl at the crest of the peak between the Drysdale and South Treaty Glaciers.

The steep valley-sides along the glaciers and upper Treaty creek are broken rather conveniently into upper and lower segments by a prominent system of kame terraces, representing a still-stand at a glacial maximum (Plates 1 \& 4). From the vegetation above and below the kames and the character of the valley bottom, this feature qute likely represents the short glacial advance between A.D. 1200 and 1400.

## Vegetation

The claim groups straddle the elevational forest limit, about 4500 feet asl, and no part of either group is in the full forest. Most of the area not covered by ice is an alpine tundra, with highly-variable overburden cover. Parts of the higher ground are covered by permanent snow or ice fields. The creek valleys are characteristically occupied by a ticket of tag alder, willow, and other shrubs, even well above limits of the full coniferous forest. Small patches of grass with White Moss and Red Heather, and Labrador Tea are found on mature slopes up into the higher elevations, separated by areas of talus or mixed talus and morainal remnants. For the most part, rock exposure is excellent in most of the upper elevations above the kame system and only slightly less so in the recently deglaciated zone between ther current ice front and the well-vegetated lower areas, where the forest obscures much of the region.

## Accessibility

Currently, access is only by aircraft to one of several lakes that are located in the valley bottoms, or by helicopter. The main supply bases for this part of the mountain area is a small settlements at Bell II and Bob Quinn on the Cassiar Highway, that follows the Bell-Irving River at this latitude (Figure 1). There are several helicopter bases at these locations, only about 20 to 40 miles east of the claims, providing rapid access to all parts of the groups. An airstrip is located at Bob Quinn. A resource access road has been built from Bob Quinn into the Unuk River valley and passes about 10 km north of the Treaty/Stan Groups.

## Review of Previous Exploration Work

The previous geological, geochemical and geophysical work (Millar 1991) was sufficient to show that the most attractive portion of both claim groups was that underlain by the western part of Treaty 4 and most of Treaty 5 and 7. The air photograph interpretation work showed that the favourable structures associated with the prominant Mount Dilwork Formation outcropped in a broad band across the latter two claims, and more importantly, were very highly contorted into a fairly tight fold structure. This feature coincided with the most interesting and favourable geochemical and geophysical results. In all, three zones and one geophysical anomaly were identified from this work as warranting further exploration. They were described as follows.

Zone 1 lies just to the north of Treaty Creek about a kilometer east of the toe of the glaciers, and on the eastern edge of the very highly contorted, heavily sheared and, in part, overfolded section of the upper Betty Creek and lower Salmon River. A modest geophysical anomaly (TC1) is recorded immediately to the west and upstream from the lower end tributary TT6, with anomalous readings in gold, lead, antimony and arsenic from both sediments and rocks. While not a particularly strong indication in either set of data, it warrants examination.

Zone 2 combines a set of high geochemical readings on sediment samples and a large zone of anomalous electromagnetic readings, extending from middle of Treaty 7 south to the edge of the South Treaty Glacier on Treaty 5. This coincides with the most intriguing geological structures - a system of folding in the lower Salmon River, the Mount Dilworth and the upper Betty Creek Formations, and very heavy local shearing in the Salmon River. All of the sediment samples from the three streams that drain this area returned high level anomalous values in copper and zinc, and several in antimony. As the geophysical anomaly extends for about 2 kilometers and over a width of 300 to 400 meters, there is ample scope for a reasonably large mineral deposit. The anomaly more or less coincides with a dark, pyritic mudstone/siltstone unit at the bottom of the Salmon River Formation. This is reported to be the same geological environment as the deposits at Eskay Creek. The consistency and coincidence of the anomalies with the favourable geology makes this zone an attractive target for further exploration work.

The 3rd zone on the Treaty Group is on the upper part of the southern tributary on the Drysdale Glacier, DT1. The linear geophysical anomaly, TC4, is recorded to cross the upper parts of the valley above the fairly consistent series of sediment anomalies found along the lower part of the creek.

One other geophysical anomaly was noted in the upper part of Treaty Creek tributary TT7. It is interpreted as a linear zone that is thought to follow the bottom of the creek valley. The only geochemical sampling done on the creek was at the mouth, where the results were not anomalous; this could easily be due to the masking effect of the recent till. (Millar 1991)

The exploration work carried out prior to 1991 was primarily geochemical sampling, typically carried out in two phases, a preliminary phase aimed at a broad coverage of a large area, that attempted to identify those areas or drainages that warranted further, more detailed work. The analyti-
cal section of the 1991 report attempted to establish certain reasonable areal background ranges for the elements selected for assay during previous sampling programs. Since the work had been done by other crews and the field notes available did not provide too much assistance, it was not possible to evaluate the significance of the samples, individually or as a group, other than to simply accept them as they were presented.

### 3.0 GEOLOGY

### 3.1 Regional Geology

The claim groups are located in the northeastern corner of the Sulphurets Map Area, one that extends from there south nearly to stewart at the north end of Portland Canal. The following geological framework has been summarized from Grove (1986), Britton and Alldrick (1987), Britton, Fletcher and Alldrick (1990), Henderson et al 1992, and Alldrick and Britton 1991. The map units used in this report and on the accompanying map (Figure 3) are those from the 1990 report.

The area is underlain by volcanics and sedimentary rocks of upper Triassic to Jurassic age, and included in the widespread Hazelton Group. These were highly-folded, faulted and metamorphosed during the Cretaceous and, during at least three episodes between the late Jurassic and early Tertiary, were intruded by small stocks, dykes and sills. Mineralization is often attributed to one or more of these phases of intrusive activity. The Hazelton Group has been tentatively divided into five stratigraphic units, of which the upper four are much more widespread, and more relevant to the northeastern region. All are sequences of volcanic and sedimentary formations, some units predominantly the former and others more commonly the latter. Unit 2, the Unuk River Formation, consists of a lower sequence of primarily sedimentary rocks and an upper one of mainly massive volcanics. Within the Sulphurets Map Area, the rocks of this unit seems to form a central core area, around which the Unit 3 units are arranged.

The contact between the Unuk River Formation and the overlying Betty Creek Formation (Unit 3) appears conformable, at least locally. The latter is made up of bedded sedimentary rocks, commonly hematitic, from tuffs to various fine sediments. These are interbedded within more-common, massive volcanics of intermediate to felsic in composition. The irregular topography and high relief during the period of its deposition make the sequence difficult to follow with differences in local erosion and deposition cycles. The overlying Unit 4, the Mount Dilworth Formation, is volcanic in origin, primarily felsic pyroclastic, and its distinctive appearance and consistency has made it a useful stratigraphic marker. Its relationship with the underlying Betty Creek Formation appears to vary, probably for the same reasons as those responsible for the variation in the local stratigraphy within the Betty Creek Formation. In at least one locality, noted by Henderson et al (1991:329), the upper Betty Creek is clearly truncated by an erosional period prior to the deposition of the Mount Dilworth. In the Treaty Creek ridge, the Mount Dilworth appears to be conformable with the top of the Betty Creek. Further, according to Henderson et al (1991:329-330),

The base of the Salmon River Formation is placed at the base of buff-weathering fossiliferous, limy sandstone unit (Fig. 2, lọcality F) that occurs locally above and interbedded with the Mount


Dilworth Formation. Toarcian age fossils have been collected from these limy beds (Anderson and Thorkelson, 1990). The fossiliferous beds are less the ten metres thick but are found locally over an area thousands of square kilometers (D. G. Anderson, personal communication, 1991).

Thin dark-, light- and rusty-weathering mudstone and tuffaceous siltstone occur in places above the Taorcian fossil beds, such as on the ridge north of South Treaty Glacier (the 'Treaty Creek Ridge' in this report) and on nunataks in the Knipple Icefield (Fig. 2, locality E). Similar rocks in the same stratigraphic position occur on Troy Ridge and form the distinctive "pajama beds" of the Salmon River Formation (Anderson and Thorkelson, 1990). Locally, thick units of pillowed- and columnar-jointed, amygdaloidal basalt and heterolithic breccia with mafic and felsic volcanic and sedimentary clasts occur in the Salmon River Formation.

Distinction between the Salmon River Formation and the rest of the Bowser Lake Group is based on the disappearance of submarine volcanic components characterizing the former, as well as a general increase of the sandy component in the succession. Salmon River Formation thinly-bedded mudstone and tuffaceous siltstone beds pass gradationally upward into interbedded grey sandstone and carbonaceous siltstone and mudstone locally containing plant fossil debris. The transition between Salmon River Formation and the rest of the Bowser Group is well exposed along Treaty Creek below the Treaty Glacier (Fig. 2, locality F).

The Salmon River Formation appears to be mainly a siltstone sandstone sequence representing sedimentation following the long period of volcanic activity during which the Betty Creek Formation was deposited. It extends far to the east and north of the map area. The basal unit is the limey sandstone, overlain by bedded siltstones that contain limey lenses, concretions and zones of pyritization. Certain units have been identified as mudstones that are occasionally graphitic and/or pyritic.

These rocks are all late Mesozoic in age and are cut be a series of small stocks and a variety of dykes and sills. Those intrusives that are roughly contemporary with the extrusive rocks are compositionally and tecturally similar, generally monzonitic to granitic. At least one group of these is thought to be related with some of the gold-copper mineralization.

Figure - Photocopy of Relevant Portion of sheet 3 of Alldrick \& Briton 1991 Covering the Treaty Group


Figure 5 - Photocopy of Relejant Portion of sheet 2 of Alldrick \& Britton 1991 Covering the 8 tan Group

Among the significant secondary structures of relevance are the regional anticlinal elevation of the older Unit 2 rocks in the central region. Superimposed on that basic structure is the dramatic outline of the relatively thin, but readily identifiable, Mount Dilworth formation (Figure 3) as it twists and turns around the periphery. In addition to periodic flexures, this feature is often displaced by a system of faulting that may, be much more complicated than it appears even now. Much more local mapping should provide a means of better understanding these features and their significance with respect to mineralization.

### 3.2 Local Geology

Although the region of the Treaty and Stan Groups is peripheral to the main areas of exploration activity in the map area, it has received some recent attention from both the Geological Survey and from the Mineral Deposit Research Unit an U. B. C. The main emphasis of this work has been concentrated on the Treaty Nunatak, which lies across the South Treaty Glacier from the property and from the Treaty Creek Ridge. Some of the results of this research activity has been published and additional information is expected after the current field season. It is understood that several small parties traversed the ridge this past summer. While the following description is based primarily on published sources, it includes the results of the geological prospecting work carried out during the 1991 field work.

The western edge of the Treaty Group and the southwestern corner of the Stan Group are underlain by sediments and interbedded andesitic volcanics of the upper part of the Betty Creek Formation (Figures $4 \& 5$ ). At the western edge of the Treaty Group they strike about north, or slightly northeasterly, and dip to the east at 55 to 70 degrees (Plates $1 \&$ 2). In that section they outcrop pretty well continuously across the ridge of the mountain and down onto the glacial-ly-scoured slope in the turn of the South Treaty Glacier. The sequence from the lowest exposed bed upward is as follows a green-brown andesite, a volcanic conglomerate, an grey andesitic flow or ash tuff, a band of mudstone and siltstone, and overlain by a mixed band of conglomerate, breccia and sandstone. At the top of the Betty Creek Sequence here there is a purple felsic lapilli tuff. This is overlain conformably by a felsic tuff some 25 to 30 m in thickness (Kruchkowski 1990:11)), a dacitic tuff and a rusty-weathering fragmental tuff; the latter two of which are thought to represent the Mount Dilworth Formation or its stratigraphic equivalent in this location. These are interpreted as the tops of the Lower Jurassic Hazelton Group. They, in turn, are overlain by the basal part of the Salmon River. Formation, the lowest of the Bowser Lake Group. Here they are represented by a limey siltstone, the thickness of which is difficult to estimate due to local very heavy deformation and shearing on the Treaty Creek Ridge. A traverse along the ridge showed a sequence of black and grey limy mudstones, with variable pyrite content. Further south, Kruchkowski (1990:i1) reports "...interbedded black argillite with coarse andesitic pyroclastics".



As noted by Grove (1982) and Kruchkowski (1990:11) and confirmed in both the photo interpretation and the field observations, the rocks of the Salmon River Formation to the east strike generally in a northerly direction, but with erratic dips. To the north of Treaty Creek the strike is more west northwesterly with dips fairly regular to the north. Current opinion seems to consider the Mount Dilworth Formation as an index, given its reasonably distinct but consistent character (Figure 3, $4 \& 5$ ). Recent discoveries at Eskay Creek have been directly associated with the hanging wall structures of the Mount Dilworth, making this structure an attractive exploration environment.

In the area underlying most of the Treaty 5 and 7 claims, there is evidence of some faulting and sharp folding of the formations, both on dip and on strike. A major fault is reported at the south extension (Figures $3 \& 4$ ) that is thought to have caused a major displacement to the Mount Dilworth and the adjacent formations. Other much more local faults are shown to cross the structure (Grove 1982: accompanying map) in an east-west direction, and still others in a northeasterly direction. The only fault that can be discerned on the photographs follows Treaty Creek (Figure 4), bifurcates about the centre of the Treaty 6 claim, with one branch cutting almost due west across the structure and the other following the fifth north tributary of Treaty Creek and heading across the low divide into the upper Unuk drainage. No particular displacement can be inferred from the photos; in fact, the beds seem to continue through the fault. This area was not covered in the 1991 field work, so nothing further can be added to the photo analysis.

The western parts of the Treaty 5 and 7 claims cover a very sharp flexure in the general sequence, made obvious by the distinctive Mount Dilworth Formation (Plates 2, 4b \& 5). The strike of the formations through the tops of the Betty Creek and through into the bottom of the Salmon River show a consistent sharp change from the regional trend of $\mathrm{N} 25^{\circ} \mathrm{W}$ to N $45^{\circ}$ E from the south side to the north side of the Treaty Creek Ridge. Dips also change from 55 to $60^{\circ}$ northeast to nearly vertical in that same distance. This feature was partly recognized by Grove (1982) and also noted by Kruchkowski (1990). It is shown on the series of maps in Henderson et el and in Alldrick \& Britton (1991: Sheet 3), but not as accurately as in Figure 3 of this report, probably due to scale.

An even sharper flexure is seen in the valley of the Treaty Creek at the toe of the combined Treaty glaciers. There the strike of structures shift from the $N 450$ E found at the top of the ridge to easterly orientation seen where it emerges from the Treaty Glacier several kilometers to the west. Dips also revert to the regional trend in this same distance.

Within a zone a thousand meters or so in width on the hanging wall of the Mount Dilworth Formation, the entire sequence of rock varieties is a confused mass of sheared and
folded rocks, seldom traceable for any distance. This lies in contrast to the rocks on the footwall, where the beds maintain their attitude and character quite well (Figures 4 \& 6). Immediately north of Treaty Creek the bedding of the lower Salmon River beds is confused, with overturned sections lying adjacent to discordant attitudes on both sides (Plate 1). There is evidence of some shearing and alteration but much less than that to the south, within the bend of the formations along the north side of the ridge.

The Mount Dilworth Formation stands out clearly along the flank of the South Treaty Glacier, across the ridge and down into the Treaty Creek valley (Plates 2 \& 4). It can be traced down to the edge of the morainal cover to the south of Treaty Creek not far from the toe of the glaciers (Figure 6). The formations immediately north of Treaty Creek are argillites of the Salmon River Formation, stratigraphically well up from the contact with the Mount Dilworth. Several possible explanations for this omission are suggested in the 1991 report.

The most recent geological maps show the fold option (Alldrick \& Britton 1991) in which the formations continue through but are very sharply folded to the west, with the Mount Dilworth being covered by the lower end of the Treaty Glacier (Figure 5). There is no good evidence of major faulting, although there is considerable evidence of minor local shearing and faulting in the good rock exposure in the upper Treaty Creek valley. The evidence continues to support the folding as somehow the main process involved in the stratigraphic confusion.

The regional attitude of the Salmon River beds is more or less west northwest with dips from $50^{\circ}$ to vertical; the occasional southwesterly dip has been noted but is uncommon. This continues through the northern part of the stan Group where the rock types are predominantly greywacke and sandstone (Figure 7). In the southwest corner of Stan 2 there is a crystalline rock that has been alternatively interpreted as an intrusive (Grove 1982) and an extrusive (Britton et al 1990). It is described by Kruchkowski (1990) as a feldspar porphyry stock.

### 4.0 1991 FIELD RESEARCH PROGRAM

Objectives
The primary aims of the 1991 field work were the following -

- to collect additional geochemical samples according to a systematic plan to provide a better basis for estimating both the local background and threshold counts for the various elements of interest and for tracing more closely the distribution of the high readings to localize the probable sulfide deposit
- to prospect the main areas covered by the geophysical and geochemical anomalies
to collect sufficient localized geological data to provide a framework for evaluating the results of the more intense geochemical sampling
- to provide information that might provide some guidance on the most propitious and judicious selection of those parts of the claims that might be dropped
- to become more familiar with the general area and the specific area of the claims with respect to logistics and to the factors affecting effective field operations.

It had been the hope that the field program would provide satisfactory explanations for the geochemical and geophysical anomalies identified from previous work. Specifically, it was hoped that some good evidence of metallic sulfide deposits would be for

## Field Program

The 1991 field work commenced on the 7th of August and terminated on the 19th. The weather during the period was perfect and no time was lost from the program. The crew of 6 included 4 experienced prospectors, a geochemical and geophysical technician and a geologist/engineer. Three of the team had experience in steep terrain travel. Logistic support was provided by Northern Mountain Helicopters Ltd. from a base at Bell II where a Jet Ranger and Hughes 500D were based.

A camp was established at a small lake just north of Treaty Creek about a kilometer from the present toe of the Treaty Glacier. This camp was suitable for foot-access to the mountain range to the south of Treaty Creek, but not to the Stan Group, the Drysdale Glacier tributaries or to the steep cliffs to the northeast of the lower South Treaty Glacier. For the work on these locations, the helicopter was found necessary; however, where possible, foot travel was used for at least one direction to both control costs and to increase the exposure to as much geology as possible. While some flexibility in tasks was possible, the crew was generally divided into three two-man crews.

Based on the results of the work to date it seemed propitious to continue the geochemical sampling as a major ex-
ploration tool, combined with both concurrent prospecting and geological reconnaissance and special traverses. The data base was still insufficient to embark on a complete geological mapping survey. Long shallow trenches were excavated by hand on both the Treaty Creek and Stan Groups.

The main focus of the work was the Treaty Creek Ridge, separating the upper valley of Treaty Creek and the lower reaches of the South Treaty Glacier. This was the area covering the best geophysical and geochemical anomalies described in the 1991 report. A total of 42 man-days were spent carrying out this work. Three man-days was spent traversing the area immediately north of the headwaters of Treaty Creek. The geochemical traverse of TT7 and the upper eastern ridge took 5 man-days. The geochemical sampling and prospecting work on the southwestern three tributaries of the Drysdale Glacier was done by four men over two days, for another 8 man-days. Three men were flown over to the Stan Group for two days to check certain parts of the Stan 2 claim, in preparation for a more extensive program in 1992. The balance of the field work, some 8 man-days was spent prospecting and rock sampling the talus and lower cliffs along the northeast side of the South Treaty Glacier.

### 5.0 GEOCHEMICAL RESEARCH

### 5.1 Silt Sampling Programs

Silt sampling was carried out on the Target Zones 2 and 3, as defined from the library research last year and described on pages 5 and 6 of this report. A series of samples were also taken up TT7 to further explore the potential of the aerial geophysical anomaly identified in the 1991 flying.

## Methodology

Each two-man team was equipped with a specially designed screening tin into which a sample of stream sediments was trowelled or shovelled. The screened material, now minus 20 mesh, was then transferred to a labelled sample bag for transport. Each samples location was marked in the field by a labelled piece of flagging on the side of the creek channel. The samples were inventoried and matched with the sampling notes in the field. Following return to the office, the samples were again inventoried and submitted to Ecotech laboratories in Kamloops for assay. The location of each sample is shown on Figures $8 \mathrm{a} \& 8 \mathrm{~b}$ in the pocket of this report. A total of 46 samples were assayed out of a total of 67 samples taken. The remainder of the samples will be submitted prior to the next field season.

### 5.2 Rock Sampling Program

During the stream sampling program on the upper TT1 and it became apparent that the upper parts of the those intermittent streams contained little stream-transported material and that the clastic fines were probably becoming too local in representation to offer a useful tool for the kind of exploration that was desired. Similarly, the circumstances on the south side of the ridge along the South Treaty Glacier were not favourable for the retrieval of silt samples that are reliable indicators. Consequently, a series of 98 rock samples were taken, of which 78 were assayed. These were predominantly taken from all parts of the cirque area and from the talus and lower cliffs of the steep northeast side of the South Treaty Glacier.

Samples were taken to provide a picture of the distribution of various metallic and known indicator elements over the areas sampled, and to test specific sections, relatively continuously. It was hoped that it would provide a distribution map of those elements, that could be used with the silt sampling to locate a mineral deposit. Some samples were simply specimens of rock that represented an outcrop or, more commonly, a certain part of an outcrop. Others were chipped from a marked surface, in the form of a chip sample. All samples were labelled and stored in sample bags, and inventoried both in the field and in the laboratory. Over the fall and spring, most of the samples were submitted for assay. The location of each sample, with descriptions and resulting assays are shown in tabular form in Appendix II in which they are
appended to the previous sampling results from 1987, 1988, and 1990. Each sample is described in detail in the Appendix III, which includes notes as to significance of the samples.

### 5.3 Analysis

## Introduction

The analysis of the results of this years work has been done in the context of the previous sampling results from programs in 1987, 1988, 1989, and 1990. All field work was carried out by E. R. Kruchkowski Consulting Ltd. and reported in the following series of reports:

Horne, E. 1987
"Assessment Report on the Treaty $2 \&$ Stan 1-4 Claims: Treaty Creek Area, NTS 104B/9: Skeena Mining Division".

Stream silt and rock sampling during reconnaissance geological and prospecting program - unsystematic.

Horne, E. 1987
"Assessment Report on the Treaty 3 to 7 Claims: Treaty Creek Area: NTS 104B/9: Skeena Mining Division".

Stream silt and rock sampling during reconnaissance geological and prospecting program - unsystematic.

Konkin, K. \& E. R. Kruchkowski 1988
"Assessment Report on the Treaty and Stan Claim Groups: Stewart, British Columbia: Skeena Mining Division".

Detailed stream sediment sampling program based on results of 1987 work, and continued reconnaissance prospecting - systematic sampling of selected streams \& unsystematic general.

Kruchkowski, E. R. 1990
"Assessment Report on the Treaty and Stan Claim Groups: Stewart, British Columbia: Skeena Mining Division: NTS 104B/9".

Multi-element analysis of previous samples collected, and further reconnaissance sampling of areas not previously covered. Unsystematic.

A number of circumstantial factors are highly relevant to the efficacy of stream sediment and rock sampling programs aimed at finding and exploring mineral deposits. For an area such as the upper Treaty/Unuk drainages, the highly varied and intensely dissected topography, the glacial history, the mixture of stream profiles, its relatively young age and consequent time of exposure, and the vegetation combine to influence the nature of the elemental dispersion from a mineral deposit and how it might appear as a pattern from a silt sampling program.

The youthful topography and steep stream profiles favour the use of clastic over that of hydromorphic accumulations or depositions material as sampling media. Further, the topography does permit a fairly quick separation of some deposits into glacial outwash sediments and local stream transported deposits. The only exception this comment is the south side of the Treaty creek Ridge where glacial clay was found smeared on even the steepest parts of the hillside and contaminates most if not all the small streams that drain the cliffs, particularly those parts below the kame terraces. For the cirque area to the north of the ridge, the sharplydissected hillsides are a distinct advantage as it usually quite clear as to the source of the sediments found in the shallow and sometimes, dry creek channel. Thus, for the mountain sides, the area represented by a sample-set may be relatively small, it is usually well-defined and anomalies should be easily localized. It would be expected that the cline in metal concentration would drop off quickly as sampling proceeded from the older de-glaciated sections to the more recently de-glaciated areas underlain by fresher till.

Field work in 1991 showed that the middle saddle above TT1 has a thin mantle of glacial clay and fine rubble that obscures bedrock in the central section. A few erratics were identified among the rubble in the base of the cirque. Still, it was felt that the validity of the method above the kame terrace is probably good.

A series of 10 silt samples were taken on TT7 from the elevation of the kame terrace to the snow patch at elevation 1400 meters ( 4600 feet) a.s.l. (Figure 8b). These were taken to test this creek above the kame terrace and to check the area underlain by the reported geophysical anomaly TC2. Two small series of samples were taken in the cirque to the northeast of the Treaty Creek Ridge, from the small intermittent branches of TT1 creek (Figure 8a). This set was taken in the prime target area to test above and beyond the one anomalous reading reported in the 1990 sampling (Kruchowski 1989; Millar 1991:51), which also coincided with the north end of the large geophysical anomaly (Decarlo 1991; Millar 1991: Fig. 34). Three subsets of samples were also taken on three minor northern tributaries of the Drysdale Glacier, the target area 3 as identified in last years report (Millar 1991). These were taken to follow up on a number of anomalous readings received on samples taken the previous year.

In all cases the sampled material was from small streams; in the case of the cirque the streams were intermittent, probably mainly seasonal. Further, it seems likely that it consisted primarily of clastics rather than chemical depositions from solution. Hopefully, the clastics represent the products of erosion within- the stream catchment. The sampling, as reported in the field notes, was straightforward and the sampling can be considered adequate under the circumstances. In a few cases, it was not possible to be sure that the sample was made up entirely of stream-transported material and several samples may have included some local material.

## Procedure

The sampling results from each year were analysed as independent groups and reported in the yearly reports. The results from this years work were combined with these prior results for the purposes of determining background levels and thresholds for identification of anomalous readings. It should be noted that the assays of each previous year and of each set submitted during this past year, covered a different combination and number of elements.

As in last years analysis, the first step was to divide the samples into three categories, float/silt/rock, based on the kind of sample represented. In last year's analysis, several rock samples were obviously specimens that were undoubtedly collected as float. A number of other similar samples were suspected but not identified as such. Following the 1991 field work, it was apparent that many more of the 'samples' analysed as rock samples last year were actually float specimens; in this years analysis, these were changed to float and removed from the rock sample category. This produced three subsets, Float Specimens, Rock Samples, and Silt Samples, and subsequent analysis was carried out within each of those subsets.

The Float Specimens, given their nature, were not analysed further for the purpose of this report. It may be that some information may someday be extracted from these data but the glacial and alluvial transport are too poorly understood to make any speculative statements as to significance of any of these specimens.

The Rock Samples taken during the 1991 program came mainly from the cirque area, and most commonly from the ridge area of Treaty 5 and 7 claims. As no rock samples from the Stan Claims were felt worthy of analysis no further analysis of the Stan samples was done. The suite of samples were therefore divided into claim blocks, as a first step toward defining a realistic background and threshold. Looking at least years analysis, it was clear that the threshold for the samples from the Stan Group was lower than that for the Treaty Group. Thus, the rock samples from the Treaty Group were analysed separately and background and threshold levels established. For general suitability, these were then compared with regional geochemical results. As much of the sampling has been unsystematic, most of the results are difficult to interpret, much less evaluate. However, the sample is sufficient and, at least partly, systematic in distribution and worthy of detailed interpretation.

The results of the 1991 sampling were incorporated into the tabulation of results from previous work programs. They were digitized with data on the year taken, the sampler, the geological parent material, and with assay values for the each element (Appendix II). These were then used to obtain a series of simple statistics, first on the total sample (Table 1), then on those from the Treaty Claim Group subset (Table 2).

TABLE 1 - DESCRIPTIVE STATISTICS - TOTAL ROCK AND SILT SAMPLES FROM BOTH TREATY AND STAN CLAIM GROUPS

|  |  | COUNT | MAX | MIN | VAR | AVG | STDEV | STD |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALL |  | 688 |  |  |  |  |  |  |
| GOLD | ALL | 637 | 1,001.0 | 0.0 | 24,066.4 | 52.3 | 155.1 | 154. |
| SILVER | ALL | 684 | 31.0 | 0.0 | 3.1 | 0.7 | 1.8 | 1.8 |
| COPPER | ALL | 621 | 567.0 | 3.0 | 1,533.6 | 42.7 | 39.2 | 39.1 |
| LEAD | ALL | 620 | 1,001.0 | 1.0 | 6,130.6 | 28.7 | 78.3 | 78.1 |
| ZINC | ALL | 621 | 3,369.0 | 8.0 | 82,769.1 | 211.7 | 287.7 | 287. |
| ANTIM | ALL | 505 | 90.6 | 0.1 | 41.4 | 3.7 | 6.4 | 6.4 |
| ARSEN | ALL | 502 | 540.0 | 0.0 | 2,157.7 | 32.9 | 46.5 | 46.3 |
| BISMUTH | ALL | 75 | 5.0 | 3.0 | 0.1 | 3.0 | 0.2 | 0.5 |
| COBALT | ALL | 124 | 195.0 | 1.0 | 1,242.1 | 20.3 | 35.2 | 35.1 |
| IRON | ALL | 97 | 16.0 | 2.0 | 5.6 | 5.2 | 2.4 | 2.3 |
| MOLY | ALL | 97 | 122.0 | 0.5 | 381.0 | 15.6 | 19.5 | 19.4 |
|  |  | COUNT | MAX | MIN | VAR | AVG | STDEV | STD |
| GOLD | FL | 20 | 1,001.0 | 0.0 | 158,818.1 | 282.0 | 408.9 | 398. |
| SILVER | FL | 20 | 16.3 | 0.0 | 20.2 | 3.6 | 4.7 | 4.5 |
| COPPER | FL | 20 | 567.0 | 7.0 | 22,079.0 | 120.7 | 162.3 | 148. |
| LEAD | FL | 20 | 1,001.0 | 30.0 | 112,991.5 | 273.5 | 367.0 | 336. |
| ZINC | FL | 20 | 1,001.0 | 38.0 | 104,795.2 | 368.8 | 332.7 | 323. |
| ANTIM | FL | 20 | 90.6 | 1.4 | 533.6 | 17.8 | 25.4 | 23.1 |
| ARSEN | FL | 20 | 540.0 | 4.0 | 27,406.3 | 130.0 | 181.5 | 165. |
| BISMUTH | FL | 20 | 0.0 | 0.0 | 0.0 | - | - | 0.0 |
| COBALT | FL | 20 | 0.0 | 0.0 | 0.0 | - | - | 0.0 |
| IRON | FL | 20 | 0.0 | 0.0 | 0.0 | - | - | 0.0 |
| MOLY | FL | 20 | 0.0 | 0.0 | 0.0 | - | - | 0.0 |
|  |  | COUNT | MAX | MIN | VAR | AVG | STDEV | STD |
| GOLD | RX | 247 | 1,001.0 | 0.0 | 8,093.5 | 18.3 | 100.7 | 90.0 |
| SILVER | RX | 247 | 31.0 | 0.0 | 5.1 | 0.8 | 2.3 | 2.3 |
| COPPER | RX | 247 | 257.0 | 3.0 | 965.1 | 34.7 | 31.4 | 31.1 |
| LEAD | RX | 247 | 768.0 | 1.0 | 3,026.5 | 24.5 | 61.9 | 55.0 |
| ZINC | RX | 247 | 2,116.0 | 8.0 | 81,640.9 | 226.7 | 308.4 | 285. |
| ANTIM | RX | 247 | 15.7 | 0.1 | 6.6 | 3.2 | 3.0 | 2.6 |
| ARSEN | RX | 247 | 277.0 | 0.0 | 750.9 | 28.3 | 31.7 | 27.4 |
| BISMUTH | RX | 247 | 5.0 | 3.0 | 1.2 | - | - | 1.1 |
| COBALT | RX | 247 | 31.0 | 1.0 | 17.0 | - | - | 4.1 |
| IRON | RX | 247 | 16.0 | 2.0 | 5.0 | - | - | 2.2 |
| MOLY | RX | 247 | 0.0 | 0.5 | 66.8 | - | - | 8.2 |
|  |  | COUNT | MAX | MIN | VAR | AVG | STDEV | STD |
| GOLD | SI | 419 | 1,001.0 | 0.0 | 21,116.5 | 57.6 | 145.6 | 145. |
| SILVER | SI | 419 | 12.4 | 0.0 | 0.6 | 0.4 | 0.8 | 0.8 |
| COPPER | SI | 419 | 199.0 | 8.0 | 642.8 | 43.5 | 25.1 | 25.4 |
| LEAD | SI | 419 | 185.0 | 2.0 | 168.1 | 21.3 | 12.8 | 13.0 |
| ZINC | SI | 419 | 3,369.0 | 33.0 | 75,010.9 | 199.5 | 275.0 | 273. |
| ANTIM | SI | 419 | 40.0 | 0.1 | 17.4 | 3.2 | 4.3 | 4.2 |
| ARSEN | SI | 419 | 197.0 | 2.0 | 829.6 | 30.3 | 29.1 | 28.8 |
| BISMUTH | SI | 419 | 3.0 | 3.0 | 0.7 | - | - | 0.9 |
| COBALT | SI | 419 | 195.0 | 9.0 | 451.3 | - | - | 21.2 |
| IRON | SI | 419 | 11.0 | 3.0 | 3.5 | - | - | 1.9 |
| MOLY | SI | 419 | 122.0 | 1.0 | 94.2 | - | - | 9.7 |

## TABLE 2 - DESCRIPTIVE STATISTICS - TOTAL ROCR AND SILT SAMPLES FROM TREATY CLAIM GROUP

## TREATY ROCKS

| ELEM | N | MAX |
| ---: | ---: | ---: |
| AU | 96.0 | $1,001.0$ |
| AG | 144.0 | 31.0 |
| CU | 145.0 | 257.0 |
| PB | 145.0 | 768.0 |
| ZN | 145.0 | $2,116.0$ |
| SB | 90.0 | 15.7 |
| AS | 115.0 | 277.0 |
| BI | 38.0 | 5.0 |
| CO | 87.0 | 31.0 |
| FE | 60.0 | 16.0 |
| MO | 60.0 | 47.0 |

MIN
0.0
0.0
3.0
1.0
24.0
0.1
0.0
3.0
1.0
2.0
0.5

TREATY SILTS

|  |  |  |  |  |  |  |  |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| ELEM | N | MAX | MIN | VAR | AVG | STDEV | STD |
| AU | 322.0 | $1,001.0$ | 0.0 | $22,891.2$ | 61.3 | 151.3 | 151.1 |
| AG | 322.0 | 12.4 | 0.0 | 0.8 | 0.5 | 0.9 | 0.9 |
| CU | 321.0 | 199.0 | 8.0 | 754.6 | 46.1 | 27.5 | 27.4 |
| PB | 321.0 | 101.0 | 2.0 | 116.0 | 21.6 | 10.8 | 10.8 |
| ZN | 321.0 | $3,369.0$ | 33.0 | $96,917.0$ | 207.0 | 311.3 | 310.6 |
| SB | 289.0 | 40.0 | 0.1 | 20.5 | 3.4 | 4.5 | 4.5 |
| AS | 274.0 | 197.0 | 2.0 | $1,039.6$ | 32.4 | 32.2 | 32.2 |
| BI | 37.0 | 3.0 | 3.0 | 0.0 | 3.0 | 0.0 | 0.7 |
| CO | 37.0 | 195.0 | 9.0 | $2,490.1$ | 54.3 | 49.9 | 49.2 |
| FE | 37.0 | 11.0 | 3.0 | 4.8 | 6.2 | 2.2 | 2.2 |
| MO | 37.0 | 122.0 | 1.0 | 845.6 | 16.4 | 29.1 | 28.7 |

For the purposes of analysis, the statistics from the Treaty Group for both silt and rock were examined for each element to determine a local background, a reasonably practical estimate of a threshold value, and a set of three categories of anomalies. These values were then applied to each sample and tentative anomalous readings were identified. These were then plotted on separate maps.

A number of procedures have been developed to attempt to establish meaningful 'threshold' values; i.e., the concentration of an element above which a sample is considered anomalous. Few data are published on regional or local surveys in the upper Unuk River area, from which regional background assays can be derived, and the data set that is available is more a series of linear sample sets than a systematic survey. For an area at the stage of exploration of the upper Unuk River/Treaty Creek section the only practical method involves analysis of the data set itself, accepting the inherent weaknesses in the methods. The most common methods include -

1. calculation of threshold from mean plus two or three times the standard deviation.
2. graphical representation background and threshold from the shape of the resulting curve.
3. recognition of clusters of anomalous readings from two dimensional maps.

For the 1991 report, all three methods were used in analysing the data set for the claim groups. First, the data base was analysed for range, mean, and standard deviation for silt and rock samples for each element. These statistics were then used to group the sample results for each element based on the mean and standard deviation (SD). Group 1 in each case covered the range from 0 to the mean, often less than one SD. Group 2 extended from the mean to the mean plus one SD, Group 3 the mean plus two SD, Group 4 the mean plus three SD, etc. The 'threshold' used for this first data set was taken at mean plus two SD, or the top of Group 3. Thus, Groups 1 to 3 are considered to cover the background population with a low probability that any significant anomalous readings would be included (Rose, Hawkes \& Webb 1979:39). Any reading in the groups above Group 3 would be anomalous, at least to some degree.

In a population with a normal distribution, it would be expected that the background and high level anomalies would be clearly identifiable on graph of the distribution, the background as a large concentration in the lowest range and the anomalies as extensions, or even small concentrations, into the higher range. In between is a wide range where the higher background readings and lower anomalies overlap. For that reason, the data from the Treaty/Stan Blocks were analysed to sort out three levels of anomaly above the threshold. For each element, both the silt and rock assay populations were sorted to series of up to 19 groups (silver) representing multiples of $S D$, and the groups above Group 3 were then divided into three sets, with the lower set identified as Level C, the middle as Level B, and the upper as Level A anomalies. This method can be seen as somewhat arbitrary, but can be used as a tentative technique lacking any previous estimates for a region, and pending confirmation by additional sampling.

The Level $C$ anomalies are considered unimportant if they occur as isolated readings spatially and as the only one among the suite of elements. If found as one of a number of anomalous elements in a sample, or spatially related to other anomalous readings, the Level $C$ anomaly takes on more significance. Thus, these lie in that range of overlap between background and anomalies. Statistically, Level B and A anomalies represent readings that are among the top several percent of the population and are clearly anomalous.

For the 1991 report, the use of the multiple standard deviations to decide on backgrounds and thresholds was sup-
plemented with the second method of graphs. As the results were comparable, this second alternative was not repeated for this years data.

The identified anomalies of all levels were then plotted on maps of the two claim blocks, separated by element (Figures 8-26). These were then analysed for spatial clustering of values, that could then be considered anomalous areas, or geochemical targets.

### 5.4 Discussion

The raw data from all sampling programs is tabulated in Appendix II of this report. The maps of Figures $8 a$ and $b$ show the locations of all samples from the Treaty Group, of Treaty 4, 5, and 7 claims. As no samples from the Stan Group were analysed, no equivalent maps or tables are given for those claims. similarly, the analytical results from last years work were divided into several additional subsets, based on underlying geology and drainage basin. The nature of the sample this year obviates this exercise; thus the results of the analysis are simply the elemental analyses for each of the silt and rock subsets. In this table (Appendix II) the results are in PPM (parts per million) for all elements except iron, which is shown as a percentage, and gold, which is in PPB, parts per billion. In all cases the discussion below is concerned with the silt and rock samples; other statistics for ALL samples and the FLOAT samples are given for record only.

Like the results for the total sample (Table 1) from last years analysis, most of the statistics for each element show means that are very close to standard deviation, indicating a maximum frequency at the lower extreme; only the rock samples for lead and arsenic, and silt assays for copper and lead have means slightly greater than the respective standard deviations. Most of the figures for the silt/rock sets show sharp differences in those two statistics, and these are matched by the ranges. All show marked differences in the means or standard deviations for the sets. Thus, it is clear that separating the total sample along basic material lines is logical and advisable.

The sample from the Treaty Claim Group shows a slightly different pattern to that of the total with copper, antimony, bismuth, cobalt, iron, and molybdenum showing a higher mean than standard deviation among the rock samples, and copper, lead, bismuth, cobalt and iron among the silt samples, all showing a higher mean than standard deviation. This comparison for the Stan Group shows that copper, lead and arsenic among the rock samples have very slightly higher means than standard deviations, and all but arsenic among the silt samples are either equal or very slightly higher.

# TABLE 3 - ANOMALOUS RANGES - TOTAL ROCR AND SILT SAMPLING FROM TREATY CLAIM GROUP 

## ROCK SAMPLES

| ELEM'T | B/GRND | THR / LD | ANOMALIES <br> C | B | A |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Au | 0-30ppb | 30 | 310-450 | 450-730 | 730-1010 |
| Ag | 0-6.4ppm | 6 | 6-12 | 12-20 | 20-31 |
| Cu | 0-105.5pp | m106 | 106-139 | 139-206 | 206-273 |
| Pb | 0-161.7pp | m162 | 162-300 | 300-507 | 507-783 |
| Zn | 0-927ppm | 927 | 927-1261 | 1261-1595 | 1595-2263 |
| 8b | 0-9.9ppm | 10 | 10-13 |  | 13-16 |
| As | 0-98.2ppm | 98 | 98-165 | 165-198 | 198-298 |
| Co | 0-16.1ppm | 16 | 16-21 | 21-26 | 26-31 |
| Fe | 0-9.1\% | 9\% | 9-11\% | 11-14\% | 14-16\% |
| Mo | 0-35.5 | 36 | 36-46 |  | 46-56 |

BILT SAMPLE8
ELEM'T B/GRND THR/LD ANOMALIES

| C | B | $\mathbf{A}$ |
| :--- | :--- | :--- |
| $363-514$ | $514-816$ | $816-1118$ |
| $2.5-4$ | $4-8$ | $8-13$ |
| $101-129$ | $129-184$ | $184-211$ |
| $43-65$ | $65-86$ | $86-108$ |
| $829-1451$ | $1451-2384$ | $2384-3628$ |
| $12-21$ | $21-26$ | $26-44$ |
| $97-129$ | $129-161$ | $161-226$ |
| $154-204$ |  |  |
| $11-13$ |  |  |
| $75-133$ |  |  |

The above samples include all samples taken from the Treaty $4,5, \& 6$ Claims and analysed from all geochemical sampling programs.

No attempt to contrast the values with respect to the differences in the underlying bedrock as was done for the 1991 report. Virtually all of the rock samples were taken from outcrops of Salmon River sediments and the talus samples were from slopes and cliffs from the same source. The sediment samples were also almost entirely collected from stream beds with sources in the Salmon River for similar reasons there was no real point to comparing results from several drainage basins.

Table 3 provides the derived ranges for the three categories of anomaly present in the data, and based on the statistics shown in Table 2. The next tabulation, Table 4, shows the frequency of each anomaly for each element.

TABLE 4 - FREQUENCY STATISTICS FOR ROCK AND SILT SAMPLES FROM treaty claim group

## ROCX SAMPLES

ELEMENT
Au

Ag

|  | N |  | 96 |
| :---: | :---: | :---: | :---: |
|  | Range | 0-1001 |  |
|  | Var | 20373 |  |
|  | Mean | 30.0 |  |
|  | StDev | 140 |  |
|  | Groups |  |  |
| Bk | 1 | 0-30 | 91 |
|  | 2 | 30-170 | 4 |
|  | 3 | 170-310 |  |
| A | 4 | 310-450 |  |
|  | 5 | 450-590 |  |
|  | 6 | 590-730 |  |
|  | 7 | 730-870 |  |
|  | 8 | 870-1010 | 2 |
| Bk | N | 144 |  |
|  | Range | 0-31 |  |
|  | Var | 7.5 |  |
|  | Mean | 1.0 |  |
|  | StDev | 2.7 |  |
|  | Groups |  |  |
|  | 1 | 0-1.0 | 127 |
|  | 2 | 1.0-3.7 | 22 |
|  | 3 | 3.7-6.4 |  |
| B | 4 | 6.4-9.1 |  |
|  | 56 | 9.1-11.8 |  |
|  | 7 | 11.8-14.5 | 1 |
|  | 8 | 14.5-17.2 |  |
|  | 9 | 17.2-19.9 |  |
| A | 10 | 19.9-22.6 |  |
|  | 11 | 22.6-25.3 |  |
|  | 12 | 25.3-28.0 | 1 |
|  | 13 | 28.0-30.7 |  |

FREQ.

91
4

2

127
22

1

| Cu | Bk | N | 145 |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Range | 3-257 |  |
|  |  | Var | 1121 |  |
|  |  | Mean | 38.5 |  |
|  |  | StDev | 33.5 |  |
|  |  | Groups |  | 90 |
|  |  | 1 | 0-38.5 | 90 |
|  |  | 2 | 38.5-72.0 | 43 |
|  |  | 3 | 72.0-105.5 | 10 |
|  | C | 4 | 105.5-139.0 | 2 |
|  |  | 5 | 139.0-172.5 |  |
|  |  | 6 | 172.5-206 |  |
|  | A | 7 | 206-239.5 | 1 |
|  |  | 8 | 239.5-273 | 1 |
| Pb |  | N | 145 |  |
|  |  | Range | 1-768 |  |
|  |  | Var | 4790 |  |
|  |  | Mean | 23.7 |  |
|  |  | StDev | 69 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-23.7 | 119 |
|  | Bk | 2 | 23.7-92.7 | 23 |
|  |  | 3 | 92.7-161.7 |  |
|  |  | 4 | 161.7-230.7 | 1 |
|  | C | 5 | 230.7-299.7 | 1 |
|  |  | 6 | 299.7-368.7 |  |
|  |  | 7 | 368.7-437.7 |  |
|  |  | 8 | 437.7-506.7 |  |
|  |  | 9 | 506.7-575.7 |  |
|  |  | 10 | 575.7-644.7 |  |
|  |  | 11 | 644.7-713.7 |  |
|  | A | 12 | 713.7-782.7 | 1 |
| Zn |  | N | 145 |  |
|  |  | Range | 24-2116 |  |
|  |  | Var | 111000 |  |
|  |  | Mean | 259 |  |
|  |  | StDev | 334 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-259 | 97 |
|  | Bk | 2 | 259-593 | 35 |
|  |  | 3 | 593-927 | 7 |
|  | C | 4 | 927-1261 | 2 |
|  | B | 5 | 1261-1595 | 1 |
|  |  | 6 | 1595-1929 | 2 |
|  | A | 7 | 1929-2263 | 1 |
| Sb |  | N | 90 |  |
|  |  | Range | 0.1-15.7 |  |
|  |  | Var | 9 |  |
|  |  | Mean | 3.9 |  |
|  |  | StDev | 3 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-3.9 | 48 |
|  | Bk | 2 | 3.9-6.9 | 35 |
|  |  | 3 | 6.9-9.9 | 0 |
|  | C | 4 | 9.9-12.9 | 6 |
|  | B | 5 | 12.9-15.9 | 2 |


| As |  | N | 115 |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Range | 0-277 |  |
|  |  | Var | 1110 |  |
|  |  | Mean | 31.6 |  |
|  |  | StDev | 33.3 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-31.6 | 78 |
|  | Bk | 2 | 31.6-64.9 | 29 |
|  |  | 3 | 64.9-98.2 | 3 |
|  | C | 4 | 98.2-131.5 | 2 |
|  |  | 5 | 131.5-164.8 | 2 |
|  |  | 6 | 164.8-198.1 |  |
|  |  | 7 | 198.1-231.4 |  |
|  |  | 8 | 231.4-264.7 |  |
|  | A | 9 | 264.7-298.0 | 1 |
| Co |  | N | 87 |  |
|  |  | Range | 1-31 |  |
|  |  | Var | 26 |  |
|  |  | Mean | 5.9 |  |
|  |  | StDev | 5.1 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-5.9 | 53 |
|  | Bk | 2 | 5.9-11.0 | 23 |
|  |  | 3 | 11.0-16.1 | 9 |
|  |  | 4 | 16.1-21.2 |  |
|  | B | 5 | 21.2-26.3 | 1 |
|  |  | 6 | 26.3-31.4 | 1 |
| Fe |  | N | 60 |  |
|  |  | Range | 2-16 |  |
|  |  | Var | 5.1 |  |
|  |  | Mean | 4.5 |  |
|  |  | StDev | 2.3 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-4.5 | 37 |
|  | Bk | 2 | 4.5-6.8 | 16 |
|  |  | 3 | 6.8-9.1 | 6 |
|  |  | 4 | 9.1-11.4 |  |
|  |  | 5 | 11.4-13.7 |  |
|  | B | 6 | 13.7-16.0 | 1 |
| Mo |  | N | 60 |  |
|  |  | Range | 0.5-47 |  |
|  |  | Var | 103 |  |
|  |  | Mean | 15.1 |  |
|  |  | StDev | 10.2 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-15.1 | 36 |
|  | Bk | 2 | 15.1-25.3 | 14 |
|  |  | 3 | 25.3-35.5 | 6 |
|  |  | 4 | 35.5-45.7 | 3 |
|  | C | 5 | 45.7-55.9 | 1 |

FREQ.

| $A u$ | Bk | N | 322 |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Range | 0-1001 |  |
|  |  | Var | 23000 |  |
|  |  | Mean | 61.3 |  |
|  |  | StDev | 151 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-61.3 | 269 |
|  |  | 2 | 61.3-212.3 | 29 |
|  |  | 3 | 212.3-363.3 | 10 |
|  |  | 4 | 333.3-514.3 | 5 |
|  | C | 5 | 514.3-665.3 | 2 |
|  | B | 6 | 665.3-816.3 | 2 |
|  |  | 7 | 816.3-967.3 | 1 |
|  | A | 8 | 967.3-1118.3 | 4 |
| Ag |  | N | 322 |  |
|  |  | Range | 0-12.4 |  |
|  |  | Var | 0.8 |  |
|  |  | Mean | 0.5 |  |
|  |  | StDev | 0.9 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-0.5 | 249 |
|  | Bk | 2 | 1.4 | 60 |
|  |  | 3 | 1.4-2.3 | 7 |
|  |  | 4 | 2.3-3.2 | 4 |
|  | C | 5 | 3.2-4.1 | 2 |
|  |  | 6 | 4.1-5.0 | 0 |
|  | B | 7 | 5.0-5.9 | 1 |
|  |  | 8 | 5.9-6.8 | 0 |
|  |  | 9 | 6.8-7.7 | 0 |
|  |  | 10 | 7.7-8.6 | 0 |
|  |  | 11 | 8.6-9.5 | 0 |
|  |  | 12 | 9.5-10.4 | 0 |
|  |  | 13 | 10.4-11.3 | 0 |
|  |  | 14 | 11.3-12.2 | 0 |
|  | A | 15 | 12.2-13.1 | 1 |
| Cu |  | N | 321 |  |
|  |  | Range | 8-199 |  |
|  |  | Var | 755 |  |
|  |  | Mean | 46.1 |  |
|  |  | StDev | 27.5 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-46.1 | 239 |
|  | Bk | 2 | 46.1-73.6 | 46 |
|  |  | 3 | 73.6-101.1 | 22 |
|  | C | 4 | 101.1-128.6 | 6 |
|  |  | 5 | 128.6-156.1 | 5 |
|  | B | 6 | 156.1-183.6 | 3 |
|  | A | 7 | 183.6-211.1 | 1 |



| As |  | N | 274 |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Range | 2-197 |  |
|  |  | Var | 1040 |  |
|  |  | Mean | 32.4 |  |
|  |  | StDev | 32.2 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-32.4 | 189 |
|  | Bk | 2 | 32.4-64.6 | 64 |
|  |  | 3 | 64.6-96.8 | 5 |
|  | C | 4 | 96.8-129.0 | 9 |
|  | B | 5 | 129.0-161.2 | 1 |
|  |  | 6 | 161.2-193.4 | 5 |
|  | A | 7 | 193.4-225.6 | 1 |
| Co |  | N | 37 |  |
|  |  | Range | 9-195 |  |
|  |  | Var | 2500 |  |
|  |  | Mean | 54.3 |  |
|  |  | StDev | 49.9 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-54.3 | 27 |
|  | Bk | 2 | 54.3-104.2 | 1 |
|  |  | 3 | 104.2-154.1 | 8 |
|  | C | 4 | 154.1-204.0 | 1 |
| Fe |  | N | 37 |  |
|  |  | Range | 3-11 |  |
|  |  | Var | 4.8 |  |
|  |  | Mean | 6.2 |  |
|  |  | StDev | 2.2 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-6.2 | 25 |
|  | Bk | 2 | 6.2-8.4 | 4 |
|  |  | 3 | 8.4-10.6 | 5 |
|  | C | 4 | 10.6-12.8 | 1 |
| Mo |  | N | 37 |  |
|  |  | Range | 1-122 |  |
|  |  | Var | 846 |  |
|  |  | Mean | 16.4 |  |
|  |  | StDev | 29.1 |  |
|  |  | Groups |  |  |
|  |  | 1 | 0-16.4 | 31 |
|  | Bk | 2 | 16.4-45.5 | 1 |
|  |  | 3 | 45.5-74.6 | 3 |
|  |  | 4 | 74.6-103.7 | 0 |
|  | C | 5 | 103.7-132.8 | 2 |

### 6.0 INTERPRETATION

The Figures 9 to 26 are two sets of maps, one set for each of the rock and silt samples, separated as to assayed element. These show the location of all anomalous readings listed in Appendix IV. No maps are included if there were no anomalies present in the map area. Both silt and rock samples are shown on the same maps, and both locations (small squares) and anomalous readings (A solid circles, $B$ half-solid circles, and $C$ open circles) are shown with the same symbols for each. However, each kind of sample is clear from the numbering or location on or off a water course.

The sediment samples for 1991 were taken to test certain indications of interest contained in the 1991 report and to carry out exploratory tests of several stream beds that were not done before.

The sampling of the TT1 streams was successful in extending the anomalous readings for multiple elements from the stream bed below the kame up into the lower talus slopes of the upper section of the cirque. As well, the recent samples for both branches of TT1 showed anomalous readings for silver, lead, arsenic, iron and molybdenum, in addition to the copper, zinc and antimony values found last year. The present of obvious anomalous reading in iron suggest that an iron mineral may be a prominent constituent of the source.

The sediments from TT7 were uniformly disappointing, with no values above the background.

The sampling of the streams on the north slope of the lower Drysdale Glacier were very interesting. Of the three streams sampled only the last, DT7 responded to the test, but the values seen in the lower channel were extended to the headwaters. Anomalous readings in silver, copper, antimony, cobalt and iron were assayed, with zinc values well above the mean, but below the threshold.

Rock Sampling was concentrated in two parts of the zone that was last year identified by and with the large geophysical anomaly along the west side of Treaty 5 and 7. A large number of samples were taken in the upper reaches of the cirque drained by the several branches of TT1. A combination of heavy gossans and very intense fracturing and shearing made this area attractive as a place to search for the source or sources of the anomalous silt readings of TT1, as well as a possible explanation for the geophysical anomaly. The samples yielded some high zinc readings and a few high copper readings, but for the most part, were below the threshold values, except in antimony, less iron, some molybdenum, and a very few zinc and copper.


FIGURE 10 - MAP SHOWING COPPER ANOMALIES IN THE CIRQUE ZONE

figure 11 - map showing lead anomalies in the cirque zone








FIGURE 18 - MAP SHOWING SILVER ANOMALIES IN THE D T 7 ZONE


MAP OF TREATY 4 CLAIM \& EAST PART OF TREATY 5 SHOWING LOCATION OF SAMPLES TAKEN ON TT-7 AND DT-5 TO 7 IN 1991
SILVER ANOMALIES

Scale
$\qquad$
1000 m 2000 m

FIGURE 18 - MAP SHOWING SILVER ANOMALIES IN THE D T 7 ZONE


MAP OF TREATY 4 CLAIM \& EAST PART OF TREATY 5 SHOWING LOCATION OF SAMPLES TAKEN ON TT-7 AND DT-5 TO 7 IN 1991


# MAP OF TREATY 4 CLAIM \& EAST PART OF TREATY 5 SHOWING LOCATION OF SAMPLES TAKEN ON TT-7 AND DT-5 TO 7 IN 1991 COPPER ANOMALIES 



MAP OF TREATY 4 CLAIM \& EAST PART OF TREATY 5 SHOWING LOCATION OF SAMPLES TAKEN ON TT-7 AND DT-5 TO 7 IN 1991
scale. ZINC ANOMALIES
01000 m 3000 m


0 1000m $2000 \mathrm{~m} \quad 3000 \mathrm{~m}$






Very similar results were returned from the attempts to 'sample' the steep terrain on the south-west side of the ridge, above the South Treaty Glacier. In spite of preparations made for steep terrain work, it was not practical for any extensive prospecting of this area, much less sampling. An alternative, resorted to only after many attempts to climb the highly broken and sheared cliffs, was to collect talus from those cliffs. The assays from these rocks were uniformly poor. The one good exposure that was studied and sampled returned very interesting results in copper and zinc, the same association as the silt sample \# t5-1, taken in 1987, about 1000 feet to the northwest. No silt samples were collected from this region during this program due to the high glacial clay content noted in all of the depressions and stream banks. As noted previously, this clay was found to extend all the way to the ridge. The results of the 1991 sampling did very little to extend the confidence in this area beyond the geophysical data.

The results provide an good indication that there at least two parts of the Treaty Claim Group that continue to respond well to the exploration efforts; namely, the TT1 basin and DT7 stream valley. No work was done on the TT6 area and the work south of the ridge was inconclusive. For the purposes of future work the targets can be a little more clearly and logically defined (Figure 27). The TT 6 Zone can be defined according to the anomalous geochemical readings reported in 1991. The Cirque Zone includes the Treaty Creek Ridge and the adjoining basin of the two branches of TTI. The South Treaty Zone covers the steep terrain from the ridge down to the glacier from the Mount Dilworth Formation outcrop just below the ridge to the end of the favourable zone to the southeast of the where the Dilworth disappears under the South Treaty Glacier. The DT 7 Zone covers the drainage basin of the DT 7 stream and the adjoining ridge between it and the slope to the South Treaty Glacier to the west.

With respect to the effects of the glacial clay on silt sampling, it would be expected that it would decrease with elevation, even though some clay was noted as high as the ridge. If it is assumed that the presence of anomalous readings in a steep stream bed reflects the presence of a sulfide deposit, it follows that they would continue until the samples were taken above the deposit. The few sample sequences up a stream bed, discussed in this study, are fairly consistent between them. The sequence up TT1 shows a pretty good cline form the lower slopes, up across the kame into the lower part $f$ the upper basin. similarly, the results on DT7, particularly for copper, show the cline for the lower part and then a fluctuation up to about the 1700 m level, where they decline somewhat. At least some of this is difficult to distinguish when the effects of sampling error are considered.

In the 1991 report, several anomalous associations were recognized. In the samples.: from the Treaty Group there were two distinctive associations - $\mathrm{a} A u, \mathrm{~Pb}, \mathrm{Sb}$, and As , and a $\mathrm{Cu}, \mathrm{Zn}$, and Sb . It is possible that the first has a minor
tendency to be accompanied by a low level of Ag. The latter also shows a similar tendency for low levels of Pb and As , particularly with the inclusion of the float samples. The silver association in the first association became much clearer in this years results, and several other elements were added, lead, arsenic, iron and molybdenum. Zinc seems to have dropped out of the second association, but added to it were cobalt and iron.


### 7.0 NOTES ON TRENCHING AND PROSPECTING

The thin, but relatively continuous, surface layer pf clay, mixed with weathered rock and some low alpine shrubs obscured much of the southwest upper edge of the South Treaty Ridge. Since the northeast crest of the cirque was very steep and very heavily leached, due to the fracturing and shearing, it was hoped that a fresher surface could be exposed on the gentler southwest edge. A nearly continuous set of very shallow trenches was dug along the ridge from close to the claim posts at the extreme west end, easterly along the ridge and up across the top of the cliff outcrop (Figure 28). The total length of the trench was about 500 feet (150m).

During the traverses carried out on the Stan 2 claim, a number of small trenches and pits were dug to check shears and several clusters of small quartz veins. They were uniformly small, less than 15 feet (5m) in length and a foot $(30 \mathrm{~cm})$ or so deep. The prospecting work extended from close to the permanent snow down into the stream valley and consisted of traverses along the hillside at several elevations and periodically crossing the structure. The work was done almost entirely within the sediments of the Salmon River Formation, on the hanging wall of the dacitic volcanics band. These are mainly mudstone, siltstone and greywacke much the same as those exposed on South Treaty Ridge.


TRENCHING ON.TREATY RIDGE
Figure 28 - sketch Map of Trenching on South Treaty Ridge


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## APPENDICES

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## APPENDIX I

## PLATES

1 View to southwest from a helicopter over Treaty Creek. The two prominent small creek valleys (a \& b) are the two tributaries of TT1, that headwater in the cirque (c) that lies just below Treaty Ridge (d). The felsic volcanic bands (e) show at the right middle, curving to the west at the bottom of the mountain. This forms the boundary between the Betty Creek Fm. (f) on the right and the Salmon River Fm . on the left ( g ). The recent glacial activity has scoured the lower slopes and left a remnant of a kame terrace ( h ) in the middle left.

2 View from the lip of the cirque looking to the west-north-west across the lowest (a) of a series of natural trenches that occur up along the lip from here. Note the regional stratigraphy of the Salmon River Fm. (b) exposed on the hillside across the valley. The present toe of the two branches of the Treaty Glacier are in the valley directly in line with the orientation of the trench.

View from the edge of the kame terrace noted in Plate 1 looking to the north. Note the discordant stratigraphy in the Salmon River Fm (a) and the scoured valley floor.

View of cliffs on the southwest side of Treaty Ridge (a) and the north east side of the South Treaty Glacier (South Treaty Zone). Note the felsic volcanic bands and overlying Salmon River sediments (b).

5 View of lower part of the cliffs shown in Plate 4 showing the southern exposure of the felsic volcanic bands and the prominent white stain (a) that has precipitated from water coming down from the Salmon River sediments (b).

View from a helicopter of DT 6 and 7, two of the streams on the north side of the Drysdale Glacier that were sampled in 1991. Note the kame terrace (a) from the recent glacial recession. The 1991 sampling commenced at that point on each stream and continued to the ridge (b) above.



## LIST OF GEOCHEMICAL SAMPLES

 FROM TREATY AND STAN CLAIM GROUPS```
GUIDE TO ABREVIATIONS
NO Sample number from field
YR Year of sampling
MAT Material
SPR Sampler's name
CL Claim number
TOPO Rough idea of topographic
    location or drainage
GEO Underlying Geology
    SR Salmon River
    BC Betty Creek
    D Dilworth (?)
    SR/D Contact Zone - SR & D
        Float
RX Rock Samples
SI Silt Samples
```




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| 3 | 700 |
| :---: | :---: |
| 2 | 900 |
| 2 | 900 |
| 1 | 1,200 |
| 2 | 1,200 |
| 1 | 1,000 |
| 3 | 1,600 |
| 2 | 900 |
| 1 | 900 |
| 1 | 1,200 |
| 1 | 1,500 |
| 2 | 1,300 |
| 3 | 1,400 |
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| 1 | 1,700 |
| 2 | 2,300 |
| 1 | 1,300 |
| 2 | 2,100 |
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| 2 | 1,700 |
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| 2 | 1,400 |
| 2 | 1,400 |
| 1 | 1,500 |
| 1 | 0 |
| 0 | 2,700 |
| 1 | 600 |
| 4 | 200 |
| 1 | 3,700 |
| 0 | 3,400 |
| 0 | 300 |
| 0 | 300 |
| 0 | 500 |
| 0 | 100 |
| 1 | 900 |
| 0 | 800 |
| 0 | 2,200 |
| 0 | 0 |
| 0 | 200 |
| 0 | 100 |
| 0 | 300 |
| 1 | 1,000 |
| 0 | 500 |
| 0 | 200 |
| 0 | 200 |
| 0 | 300 |
| 1 | 900 |
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| 1 | 900 |








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| SR | 15 |
| SR | 5 |
| SR | 15 |
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| D/BC | 20 |
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| SR | 15 |
| SR | 10 |
| SR | 5 |
| SR | 0 |
| SR | 5 |
| SR | 40 |
| SR | 60 |
| SR | 5 |
| SR | 30 |
| SR | 15 |
| SR | 0 |
| SR | 0 |
| SR | 25 |
| SR | 20 |
| SR | 20 |
| SR | 45 |
| SR | 10 |
| SR | 20 |
| SR | 5 |
| SR | 35 |
| SR | 645 |
| SR | 5 |
| SR/D | 980 |
| SR/D | 15 |
| SR/D | 20 |
| SR/D | 30 |
| SR/D | 35 |
| SR/D | 10 |
| SR/D | 65 |
| SR/D | 35 |
| SR/D | 140 |
| SR/D | 15 |
| SR/D | 25 |
| SR | 10 |
| SR | 5 |
| SR | 0 |
| SR | 5 |
| SR/D | 10 |
| SR | 5 |
| SR/D | 10 |
| SR/D | 10 |
| SR/D | 30 |
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| SR/D | 5 |
| SR/D | 15 |
| SR | 10 |







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| 1 | 3,000 |
| 1 | 3,300 |
| 1 | 1,200 |
| 1 | 17,200 |
| 2 | 2,400 |
| 1 | 3,400 |
| 2 | 2,500 |
| 1 | 4,500 |
| 1 | 1,900 |
| 1 | 4,100 |
| 1 | 1,300 |
| 1 | 1,500 |
| 1 | 2,000 |
| 1 | 2,700 |
| 1 | 3,200 |
| 0 | 1,100 |
| 0 | 900 |
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| 0 | 1,000 |
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| 1 | 2,900 |
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| 1 | 2,000 |
| 1 | 3,000 |
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| 2 | 16 | 0 | 1,500 |
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| 2 | 17 | 0 | 1,500 |
| 3 | 45 | 0 | 1,600 |
| 2 | 15 | 0 | 1,400 |
| 3 | 41 | 0 | 1,700 |
| 2 | 23 | 0 | 1,600 |
| 2 | 18 | 0 | 1,500 |
| 0 | 60 | 0 | 1,600 |
| 1 | 19 | 0 | 1,400 |
| 2 | 43 | 0 | 1,400 |
| 2 | 18 | 1 | 1,000 |
| 4 | 59 | 0 | 1,400 |
| 1 | 22 | 0 | 1,000 |
| 4 | 56 | 1 | 1,600 |
| 4 | 50 | 1 | 1,300 |
| 2 | 39 | 0 | 1,500 |
| 3 | 47 | 0 | 1,800 |
| 2 | 26 | 0 | 1,200 |
| 3 | 60 | 1 | 1,500 |
| 2 | 174 | 0 | 1,500 |
| 3 | 61 | 0 | 1,600 |
| 3 | 54 | 1 | 1,500 |
| 3 | 72 | 0 | 3,900 |
| 3 | 55 | 0 | 1,400 |
| 3 | 43 | 1 | 1,500 |
| 3 | 62 | 0 | 1,500 |
| 2 | 42 | 1 | 1,800 |
| 2 | 37 | 1 | 1,200 |
| 1 | 35 | 1 | 1,400 |
| 2 | 20 | 1 | 1,200 |
| 1 | 34 | 1 | 1,400 |
| 2 | 35 | 1 | 1,300 |
| 1 | 34 | 1 | 1,300 |
| 1 | 37 | 2 | 1,100 |
| 2 | 37 | 1 | 1,500 |
| 2 | 41 | 1 | 1,700 |
| 2 | 44 | 2 | 1,700 |
| 2 | 43 | 1 | 1,461 |
| 2 | 39 | 1 | 1,600 |
|  |  |  |  |


| 31 | 90 | RX | EK |  |  |  | 0 | 0.0 | 16 | 5 | 96 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 32 | 90 | RX | EK |  |  |  | 0 | 3.0 | 9 | 39 | 54 |
| 33 | 90 | RX | EK |  |  |  | 0 | 0.1 | 28 | 6 | 38 |
| 34 | 90 | RX | EK |  |  |  | 0 | 1.0 | 10 | 24 | 31 |
| 35 | 90 | RX | EK |  |  |  | 0 | 2.8 | 10 | 136 | 302 |
| 36 | 90 | RX | EK |  |  |  | 0 | 0.9 | 15 | 22 | 20 |
| 37 | 90 | RX | EK |  |  |  | 0 | 2.3 | 10 | 32 | 42 |
| 38 | 90 | RX | EK |  |  |  | 0 | 0.0 | 7 | 9 | 33 |
| 39 | 90 | RX | EK |  |  |  | 10 | 0.0 | 20 | 13 | 43 |
| 10 | 90 | RX | EK |  |  |  | 5 | 0.2 | 8 | 19 | 17 |
| 19 | 90 | RX | EK |  |  |  | 25 | 1.4 | 31 | 25 | 59 |
| 20 | 90 | RX | EK |  |  |  | 35 | 2.2 | 22 | 35 | 28 |
| 37 | 90 | RX | PA |  |  |  | 0 | 0.0 |  |  |  |
| 38 | 90 | RX | PA |  |  |  | 0 | 0.2 |  |  |  |
| 1 | 90 | RX | CC | S1 | UT1 | SR | 0 | 0.2 |  |  |  |
| 1 | 90 | RX | BN | S1 | MTN | SR | 0 | 0.1 |  |  |  |
| 1 | 90 | RX | PA | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| 10 | 90 | RX | CC | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| ? | 90 | RX | PA | S1 | UT1 | SR | 10 | 0.0 |  |  |  |
| ? | 90 | RX | BN | S1 | MTN | SR | 0 | 0.0 |  |  |  |
| ? | 90 | RX | CC | S1 | UT1 | SR | 0 | 0.1 |  |  |  |
| 3 | 90 | RX | BN | S1 | MTN | SR | 0 | 0.0 |  |  |  |
| 3 | 90 | RX | PA | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| \% | 90 | RX | CC | S1 | UT1 | SR | 0 | 0.1 |  |  |  |
| 1 | 90 | RX | PA | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| $j$ | 90 | RX | PA | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| 5 | 90 | RX | CC | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| $j$ | 90 | RX | BN | S1 | MTN | SR | 0 | 0.0 |  |  |  |
| 5 | 90 | RX | BN | S1 | MTN | SR | 0 | 0.0 |  |  |  |
| 5 | 90 | RX | CC | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| 5 | 90 | RX | PA | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| 7 | 90 | RX | CC | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| 7 | 90 | RX | BN | S1 | MTN | SR | 0 | 0.0 |  |  |  |
| 3 | 90 | RX | CC | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| 3 | 90 | RX | BN | S1 | MTN | SR | 0 | 0.1 |  |  |  |
| 7 | 90 | RX | BN | S1 | MTN | SR | 0 | 0.0 |  |  |  |
| 3 | 90 | RX | CC | S1 | UT1 | SR | 0 | 0.0 |  |  |  |
| 10 | 90 | RX | BN | S2 | UT2 | SR/D | 0 | 0.0 |  |  |  |
| 11 | 90 | RX | BN | S2 | UT2 | SR/D | 0 | 0.0 |  |  |  |
| 11 | 90 | RX | CC | S2 | MTN | SR | 0 | 0.0 |  |  |  |
| 12 | 90 | RX | BN | S2 | UT2 | SR/D | 0 | 0.0 |  |  |  |
| 12 | 90 | RX | CC | S2 | MTN | SR | 0 | 0.0 |  |  |  |
| 13 | 90 | RX | CC | S2 | MTN | SR | 0 | 0.0 |  |  |  |
| 13 | 90 | RX | BN | S2 | UT2 | SR/D. | 0 | 0.0 |  |  |  |
| 14 | 90 | RX | BN | S2 | UT2 | SR/D | 0 | 0.0 | - | - | - : |
| 14 | 90 | RX | CC | - 52 | MTN. | SR | . 0 | 0.0 |  |  |  |
| 15 | 9.0 | RX, | BN ${ }^{-1}$ | S2. | UT2 | SR/D | 0 | 0.0 |  |  |  |
| ${ }^{1} 15$ | . 90. | RX | CC | S2- | MTN | SR | 0 | 0.0 |  |  | - |
| -16 | 90 | RX | BN | S2 | UT2 | SRID | 0 | -0.0 |  |  |  |
| 16 | $9{ }^{9} 0$ | RX: | CC | -S2 | MTN | $\mathrm{SR}^{2}$ | 0 | 0.0 |  |  | - |
| 17. | 90 | RX | CC. | St2 | -MTN | ${ }^{-} \mathbf{S R}$ - | 0 | 0.2 |  |  | - |
| 18 | 90 | RX | CC | S2. | MTN | -SR-. | 0 | 0.0 |  |  | - |
| 19 | 90 | RX | CC | S 2 | MTN | SR | 15 | 0.0 |  |  |  |
| 20 | 90 | RX | CC | S2 | MTN | SR | 10 | 0.0 |  |  |  |






## 

| MTN | SR | 0 |
| :---: | :---: | :---: |
| MTN | D | 0 |
| MTN | D | 0 |
| MTN | D | 0 |
| MTN | D | 0 |
| MTN | D | 0 |
| MTN | D | 0 |
| MTN | D | 0 |
| MTN | D/SR | 0 |
| MTN | D/SR | 0 |
| MTN | D/SR | 0 |
| UT2 | SR/D | 0 |
| UT2 | SR/D | 0 |
| UT2 | SR/D | 0 |
| UT2 | SR/D | 0 |
| MTN | SR | 0 |
| MTN | SR | 0 |
| MTN | SR | 0 |
| MTN | SR | 0 |
| MTN | SR | 0 |
| MTN | SR | 0 |
| MTN | SR | 0 |
| MPN | SR | 0 |
| MTN | SR | 0 |
| MTN | SR | 0 |
| MTN | SR | 0 |
| TT6B | D/SR | 0 |
| TT6B | D/SR | 0 |
| TT6B | D/SR | 1,001 |
| MTN | SR/D | 0 |
| TT6B | D/SR | 20 |
| MTN | SR/D | 0 |
| MTN | SR/D | 0 |
| TT6B | D/SR | 15 |
| TT6B | D/SR | 0 |
| MTN | SR/D | 0 |
| MTN | SR/D | 0 |
| TT6B | D/SR | 15 |
| MTN | SR/D | 1,001 |
| TT6B | D/SR | 40 |
| MTN | D/SR | 30 |
| MTN | D/SR | 0 |
| MTN | D/SR | 20 |
| NTN | D/SR | 15 |
| UT1 | SR | 0 |
| UT1 | SR | 0 |
| UT1 | SR | 0 |
| UT2 | SR/D | 0 |
| UT2 | SR/D | 0 |
| UT2 | SR/D | 0 |
| UT2 | SR/D | 0 |
| UT2 | SR/D | 0 |
| UT2 | SR/D | 0 |
| UT2 | SR/D | 0 |



[^1]
+
127791 1277 91 127791 127791
127791 127791
127791 127791
127991 1284 9 12859 128691 128891
129091 129191 129391 1293
129491 129491
129591 129591
129691 129691 129791 129891 142191
142491 142791 142891

1428 $\begin{array}{ll}1428 & 91 \\ 1451 & 91\end{array}$ 145391
145491
145591
145791 145891 1460
146191 146291
160891 160891
161191 161291 161591 165291
165391 165391 165491
166391 16649 128191 129291 141791 141991 142091 166191 166291 1.0
$\begin{array}{ll}1.0 & 91 \\ 1.0 & 91\end{array}$
1.0
1.0




| ST | SR/D |  | 0.8 | 87 | 6 | 1,814 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ST | SR/D |  | 1.0 | 69 | 2 | 1,627 |  |
| ST | SR/D |  | 1.4 | 99 | 2 | 2,116 |  |
| ST | SR/D |  | 1.8 | 76 | 4 | 1,237 |  |
| ST | SR/D |  | 1.4 | 38 | 2 | 716 |  |
| ST | SR/D |  | 0.2 | 49 | 6 | 133 |  |
| RIDG | SR |  | 0.2 | 32 | 14 | 92 |  |
| CLIF | SR |  | 1.4 | 14 | 2 | 161 |  |
| RIDG | SR |  | 0.2 | 31 | 6 | 99 |  |
| RIDG | GSR |  | 0.2 | 257 | 1 | 661 |  |
| TT3 | SR | 5 | 1.0 | 48 | 10 | 163 | 5 |
| TT1 | SR/D |  | 1.4 | 43 | 1 | 435 |  |
| CLIF | SR | 5 | 0.6 | 4 | 6 | 27 | 3 |
| ST | SR/D |  | 0.1 | 31 | 1 | 104 |  |
| TT13 | SR/D |  | 1.8 | 19 | 10 | 67 |  |
| ST | SR/D |  | 0.1 | 19 | 10 | 67 |  |
| ST | SR/D |  | 0.4 | 29 | 2 | 78 |  |
| TT7 | SR |  | 0.2 | 14 | 2 | 36 |  |
| TT1 | SR/D |  | 0.8 | 44 | 1 | 179 |  |
| RIDG | SR/D |  | 1.2 | 36 | 1 | 140 |  |
| RIDG | SR/D |  | 2.2 | 27 | 16 | 193 | 5 |
| RXTR | SR/D |  | 1.4 | 65 | 4 | 285 |  |
| RIDG | SR/D |  | 1.4 | 26 | 16 | 145 | 5 |
| CLIF | SR | 15 | 1.2 | 43 | 8 | 371 | 3 |
| CLIF | SR |  | 0.8 | 30 | 10 | 114 | 5 |
| CLIF | SR |  | 1.6 | 35 | 10 | 251 | 5 |
| CLIF | SR |  | 1.2 | 31 | 8 | 264 | 5 |
| CLIF | SR |  | 2.2 | 16 | 10 | 175 | 15 |
| TT3 | SR/D | 10 | 1.2 | 124 | 20 | 337 | 5 |
| TT3 | SR/D | 20 | 1.4 | 43 | 10 | 190 | 5 |
| TT1 | SR/D |  | 1.0 | 51 | 12 | 292 | 10 |
| TT1 | D | 10 | 2.2 | 44 | 12 | 273 | 3 |
| TT1 | SR/D |  | 1.2 | 68 | 12 | 432 | 5 |
| RIDG | SR |  | 2.2 | 39 | 8 | 484 | 5 |
| RIDG | SR |  | 0.8 | 35 | 2 | 199 |  |
| RIDG | D |  | 0.6 | 33 | 10 | 118 | 5 |
| RIDG | D |  | 0.8 | 21 | 10 | 105 | 3 |
| RIDG | D |  | 0.1 | 5 | 16 | 36 | 3 |
| RIDG | D |  | 0.1 | 5 | 14 | 44 | 3 |
| RIDG | D |  | 0.1 | 8 | 14 | 33 | 5 |
| TT3 | SR/D |  | 0.6 | 67 | 1 | 371 |  |
| TT3 | SR | 5 | 2.4 | 34 | 12 | 382 | 5 |
| TC1 | SR/D | 10 | 0.4 | 51 | 40 | 128 | 5 |
| TT3 | SR | 5 | 1.2 | 40 | 10 | 174 | 3 |
| KAME | SR |  | 0.2 | 30 | 40 | 162 | 5 |
| RXTR | SR | 5 | 2.4 | 51 | 14 | 414 | 5 |
| RXTR | SR | 5 | 1.8 | 35 | 6 | 269 | 5 |
| atrixi3 | SR/D |  | 1.0 | 34 | 60 | 132 | 5 |
| TT3 | SR/D |  | 1.0 | 87 | 6 | 725 | 10 |
| TT3 | SR/D |  | 0.1 | 216 | 16 | 313 | 3 |
| DT5 | SR | 3 | 0.6 | 96 | 14 | 205 | 5 |
| DT7 | SR | 10 | 2.0 | 140 | 14 | 331 | 5 |
| DT6 | SR | 5 | 0.4 | 57 | 8 | 177 | 10 |
| DT67 | SR | 5 | 0.6 | 30 | 8 | 109 | 10 |

जN.


| 2.0 | 91 |
| :--- | :--- |
| 2.0 | 91 |
| 2.0 | 91 |
| 3.0 | 91 |
| 3.0 | 91 |
| 3.0 | 91 |
| 4.0 | 91 |
| 4.0 | 91 |
| 5.0 | 91 |
| 5.0 | 91 |
| 5.0 | 91 |
| 6.0 | 91 |
| 6.0 | 91 |
| 7.0 | 91 |
| 7.0 | 91 |
| 8.0 | 91 |
| 9.0 | 91 |
| 1.0 | 91 |
| 1.0 | 91 |
| 1.0 | 91 |
| 2.0 | 91 |
| 2.0 | 91 |
| 2.0 | 91 |
| 3.0 | 91 |
| 3.0 | 91 |
| 3.0 | 91 |
| 4.0 | 91 |
| 5.0 | 91 |
| 6.0 | 91 |
| 7.0 | 91 |
| 8.0 | 91 |
| 9.0 | 91 |
| 10.0 | 91 |
| 1.422 | 91 |
| 1423 | 91 |
| 1426 | 91 |
| 1607 | 91 |
| 1607 | 91 |
| 1609 | 91 |
| 1609 | 91 |
| 1610 | 91 |
| 1610 | 91 |

以



| DT67 | SR | 10 |
| :--- | :--- | :--- |
| DT7 | SR | 10 |
| DT5 | SR | 3 |
| DT7 | SR | 3 |
| DT5 | SR | 3 |
| DT6 | SR | 5 |
| DT5 | SR | 3 |
| DT7 | SR | 10 |
| DT5 | SR | 10 |
| DT7 | SR | 10 |
| DT6 | SR | 3 |
| DT5 | SR | 3 |
| DT7 | SR | 10 |
| DT7 | SR | 3 |
| DT5 | SR | 3 |
| DT7 | SR | 10 |
| DT7 | SR | 5 |
| TT7 | SR | 3 |
| TT3 | SR/D | 3 |
| TT1 | SR/D | 3 |
| TT1 | SR/D | 5 |
| TT3 | SR/D | 5 |
| TT7 | SR | 5 |
| TT7 | SR | 10 |
| TT1 | SR/D | 3 |
| TT3 | SR/D | 3 |
| TT7 | SR | 10 |
| TT7 | SR | 5 |
| TT7 | SR | 3 |
| TT7 | SR | 3 |
| TT7 | SR | 3 |
| TT7 | SR | 3 |
| TT7 | SR | 5 |
| RIDG | SR/D |  |
| RIDG | SR/D |  |
| RIDG | SR1D |  |
| RIDG | SR | 10 |
| RIDG | SR | 10 |
| RIDG | SR |  |
| RIDG | SR |  |
| RIDG | SR |  |
| RIDG | SR |  |
|  |  |  |




| 30 | 3 | 25 | 4.0 | 5.0 | 10.0 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 275 | 3 | 107 | 8.0 | 7.0 | 10.0 |  |
| 115 | 3 | 88 | 7.0 | 10.0 | 10.0 | trench |
| 390 | 3 | 195 | 9.0 | 13.0 | 10.0 | trench |
| 85 | 3 | 43 | 5.0 | 7.0 | 10.0 | rx at kame |
| 85 | 3 | 15 | 5.0 | 5.0 | 10.0 |  |
| 80 | 3 | 34 | 5.0 | 2.0 | 10.0 |  |
| 215 | 3 | 126 | 8.0 | 8.0 | 10.0 | chan |
| 75 | 3 | 37 | 5.0 | 4.0 | 10.0 | chan |
| 230 | 3 | 153 | 9.0 | 10.0 | 10.0 | chan |
| 65 | 3 | 22 | 3.0 | 2.0 | 10.0 |  |
| 75 | 3 | 40 | 5.0 | 4.0 | 10.0 | chan |
| 290 | 3 | 117 | 9.0 | 11.0 | 10.0 | base |
| 225 | 3 | 111 | 7.0 | 8.0 | 10.0 | base |
| 105 | 3 | 40 | 4.0 | 5.0 | 10.0 | base |
| 325 | 3 | 151 | 9.0 | 4.0 | 10.0 | base |
| 160 | 3 | 118 | 7.0 | 3.0 | 10.0 | base A |
| 85 | 3 | 22 | 4.0 | 4.0 | 10.0 | tals up |
| 170 | 3 | 42 | 9.0 | 104. | 10.0 | tals up |
| 135 | 3 | 26 | 11.0 | 72.0 | 10.0 | tope |
| 160 | 3 | 14 | 10.0 | 63.0 | 10.0 | upr |
| 165 | 3 | 34 | 8.0 | 122. | 10.0 | upre |
| 85 | 3 | 21 | 5.0 | 2.0 | 10.0 | topA |
| 95 | 3 | 23 | 5.0 | 5.0 | 10.0 | topB |
| 130 | 3 | 21 | 8.0 | 29.0 | 10.0 | topA |
| 170 | 3 | 45 | 8.0 | 60.0 | 10.0 |  |
| 125 | 3 | 26 | 5.0 | 4.0 | 10.0 |  |
| 90 | 3 | 19 | 5.0 | 2.0 | 10.0 | topA |
| 70 | 3 | 16 | 4.0 | 2.0 | 10.0 |  |
| 115 | 3 | 16 | 4.0 | 1.0 | 10.0 |  |
| 70 | 3 | 15 | 3.0 | 3.0 | 10.0 | topa |
| 90 | 3 | 17 | 4.0 | 3.0 | 10.0 | top |
| 65 | 3 | 15 | 4.0 | 2.0 | 10.0 | esta |
|  |  | 6 |  |  |  | estB |
|  |  | 7 | 5.0 | 5.0 |  | west |
|  |  | 2 | 2.0 | 36.0 |  | west |
| 90 | 3 | 2 | 3.0 | 19.0 | 10.0 | west |
| 100 | 3 | 2 | 2.0 | 16.0 | 10.0 | top |
|  |  | 3 |  |  |  | tren |
|  |  | 1 |  |  |  | tren |
|  |  | 3 |  |  |  |  |
|  |  | 5 | 5.0 | 10.0 |  | OC |

## APPENDIX ITI

1991 GEOCHEMICAL SAMPLING

## SAMPLE DESCRIPTIONS

GUIDE TO DATA

## RECORD LAYOUT

Sample \# Sampler SampleRef\# Claim \#

Hydroref Outcrop \# Outcrop Desc.
Location
Sample Description
Mineralogical Description
Rock class
Mineralization Class
Purpose
Miscellaneous
Assays

## RECORD DESCRIPTIONS

Sample \# - Tag number used as field \& lal reference
Sampler - Person who took sample -
MM - Michael Millar
TN - Tom Nelson
JJ - James Johnson
SM - Stephen Millar
JM - James Millar
PP - Pat Post
Sample Reference - temporary number appljed by sampler \& used in his notes
Claim - Name \& number of claim from which the sample was taken
Hydrological Reference - Identification of the general and specific drainage from which the sample was taken.
Outcrop Description - short description of location of out crop or sample location
Location - sample location on outcrop or stream cut Sample Description - description of outcrop geology Mineral Description - description of any mineralization or alteration
Rock Class - short description of rock matrix Mineral Class - short description of mineralization type Purpose - suggestion as to why the sample was taken? Miscellaneous - any other notes felt to be relevant Assays - Except for Au, which is measured in ppb, the remainder are reported in ppm
easternmost, lowest strat'y, of series 1255-1262
8 - 12' thick section - bl \& $d k$ gr ms - very heavy sheared well-leached - good hem rime-
bl ms
fractfill
1 of series of 8 to smpl 42' thich section ms o/c specimen

ASSAY


1256
MM
TT1-3
302
302-6
TR5
middle stratig'y of series 1255-1262
6' section - bl ms - very heavy sheared
well-leached - good hem rime - white dust \& stain -
ms
6 th in seq \& at top of series
fractfill
Saddle 2 - rim over cirque

TT3
302
Saddle 2 - rim over curque
Third in series from east 1255-1262

```
3' section - mainly massive ms
minor leaching & iron staining - some white staining - minor rime
ms fractfill
3rd of series of 8
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline AS & & & & & & & & & & & & \\
\hline AU & 5 & AG & 2 & & 40 & BA & 105 & BI & \(<5\) & & CO & 4 \\
\hline CU & 40 & & FE & 5.25 & MO & 14 & PB & 10 & SB & 5 & & \\
\hline SN & <20 & Z & & & & & & & & & & \\
\hline
\end{tabular}
```

Fourth in series from east 1255-1262
3' section - mainly massive ms with minor shearing minor leaching - thin rime - flecks of white gossan
ms
fractfill
4 th of series of 8


Fifth in series from east 1255-1262
4' section - mainly fractured, massive bl ms minor hem rime - some pyr cubes - minor white gossan -
ms
fractfill
5 th of series of 8

ASSAY

| AU | 10 | AG | 1 |  | AS | 35 | BA | 60 |  |  | $<5$ |  | CO | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 27 |  | FE | 6.4 |  | MO | 13 |  | PB | 8 | SB | 5 |  |  |
| SN | <20 | ZN |  |  |  |  |  |  |  |  |  |  |  |  |

Seventh in series from east 1255-1262
4 ' section - very heavily sheared ms - coarse grained good hem rime and white gossan
ms
fractfill
\#7 of series of 8 across strata

| ASSAY |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | 5 | AG | 1.2 | AS | 30 | BA | 60 | BI | <5 | CO | 11 |
| CU | 48 |  | FE 5 |  | MO | 9 | PB | 8 | SB | 10 |  |
| SN | <20 | ZN | 412 |  |  |  |  |  |  |  |  |
| 1262 |  |  |  |  |  |  | 302-7 |  |  |  |  |
| TT3 |  |  |  |  |  | sad | le 2 | rim o | ver | urque |  |
| Eighth in series from east 1255-1262 |  |  |  |  |  |  |  |  |  |  |  |
| 6' section - very heavily sheared heavily leached - very good hem rime \& white staining |  |  |  |  |  |  |  |  |  |  |  |
| ms $\# 8$ | in s | es of | f 8 | ss | /c | fra | tfill |  |  |  |  |
| ASSAY |  |  |  |  |  |  |  |  |  |  |  |
| AU | 5 |  | 2.2 | AS | 45 | BA | 90 | BI | < 5 | CO | 16 |
| CU | 62 |  | FE 7 |  | мо | 29 | PB | 16 | SB | 10 |  |
| SN | <20 | ZN | 903 |  |  |  |  |  |  |  |  |

upper sample of series down the side of cliff
well-sheared bl ms of ms with lots of fe \& wh gossan - well sheared -well-leached - heavy iron and white gossan - good hem rime -some qtz with
ms
fractfill \& qtz vn
1st of series across side of clifff

ASSAY

second sample of series down the side of cliff
mainly blank grey ms, blocky fractured, sm amount of fe stain \& little w minor leaching - minor fe \& white stain
fractfill
ms
1st of series across side of clifff
smpl split in half $A$ \& $B-$
ASSAY


2nd smpl down side of cliff at base
as 1264 A - this smpl was sorted from A \& is about $1 / 2$ wt of $A \&$ should be unmineralized gray and black ms

```
ms
to smpl the base of cliff
should test the blank ms for dissem sulf
```

| AS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | 5 | AG | . 8 |  | AS | 15 | BA | 130 |  | BI | $<5$ |  | co | 1 |
| CU | 29 |  | FE | 3.2 |  | мо | 15 | PB | 6 |  | SB | 5 |  |  |
| SN | $<20$ | 2N |  |  |  |  |  |  |  |  |  |  |  |  |

3 rd smpl down side of cliff at scree
highly oxidized, almost sintered - leached badly good thick rime with shiny sulf?
ms
3rd smpl in series to test base of cliff Specimen

ASSAY

| AU | 5 | AG | .6 | AS | 20 | BA | 100 | BI | $<5$ | CO | 4 |
| :--- | :--- | :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| CU | 92 | FE | 9.24 | MO | 9 | PB | 14 | SB | $<5$ |  |  |

4th smpl down side of cliff at scree
mostly gray ms, blocky \& massive with little shearing some white staining and little hem rime

```
ms
fractfill
```

4th smpl in series to test base of cliff specimen of wh stained grey ms


Talus
Talus
South of outcrop area 'D'
crystalline rock with scattered ba xtls
very heavy leaching \& lim stain with patches of white xtline stain
volc
test specimens from talus below ST cliff

ASSAY

| AU | 10 | AG | . 2 |  | AS | 24 | BA | 55 |  | BI | 65 | CO |  | 2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 3 |  | FE | 3.8 |  | мо | 2 |  | PB | 20 | SB | <5 |  |  |
| SN | <20 | ZN |  |  |  |  |  |  |  |  |  |  |  |  |

1268
ST

JM
Talus
Talus
Talus

North of outcrop area ' D'
black massive ms with blocky fracturing much white staining as dusting of wh xstls
ms
nil
Check of heavy white staining for mineralization probably no assay

ASSAY

| AU | AG | AS |  | BA |  | BI |  | CO |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | FE |  | MO |  | PB |  | SB |  |

massive ms
Barite vein

1270.1

ST
Collected from talus along edge of glacier
graphitic ms
heavy hem rime and well leached with much white staining, some dusting and bl ms oxidized
Test heaviest leached specimens of 1270 sample specimens

ASSAY

| AU | 5 | AG | 1.8 | AS | 39 | BA | 105 | BI | $<5$ | CO | 4 |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| CU | 62 |  | FE | 5 |  | MO | 24 | PB | 16 | SB | $<5$ |  |

SM
Talus
Talus
TR5
Collected from talus along edge of glacier
graphitic ms
minor hem rime and some leaching and white staining
bl ms oxidized
Test less-well-leached specimens of 1270 sample
specimens

| ASSAY |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | 10 | AG | 1.8 | AS | 52 | BA | 110 | BI | < 5 | CO |
| CU | 55 |  | FE 6 |  | MO | 28 | PB | 22 | SB | <5 |
| SN | <20 | ZN | 866 |  |  |  |  |  |  |  |

1271A

ST JM

Talus
Talus
Collected from talus along edge of glacier
graphitic ms
streaks of massive hem rime in heavily oxidized ms
bs
mass of hem rime
test of high grade ?

ASSAY

| AU |  | AG | 1.0 | AS | 70 | BA |  |  |  | CO | 13 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 115 |  | E |  |  |  | PB | 16 | SB |  |  |
| SN |  | Z | 15 |  |  |  |  |  |  |  |  |

1272
JM
Talus
ST6
TR5
ST
Talus

TR5
ST5

Collected from edge of ST glacier
cryst rx - poss volc? - resembles MDF heavy white staining with ca stringers

```
volc?
test white stain
```

ASSAY


Collected from edge of ST glacier
cryst rx - poss volc? - resembles MDF heavy white staining with ca stringers


1274
ST

SM
Talus

ST-A-1
Talus

Collected from edge of ST glacier
banded ms
pyritized ms with lim and white staining
ms
test banded ms

ASSAY


Talus
Collected from edge of $S T$ glacier just north area $D$
bl ms
white crust - wh $q t z \&$ ba veinlets - massive with little shearing \& scatt,

```
ms fractfill - qtz vn
to test white gossan
specimen of white stain
ASSAY
```



```
SN <20 ZN 224
```

Talus
collected from talus at edge of st glacier - Area 4
ms banded lt \& dark
heavy hem \& lim staining/leaching
ms
test ms
specimen
ASSAY


ST-B-1
TR5

ST
D
white-stained patch on cliff
100 m above o/c D (volc lens) top of section \& 1977 smpl set

10" section across wh stained bl ms
thin fract with thin hem rime \& white stain on surface \& cracks - tiny bal
bl ms
wh staining
second from top of 6 to test white stained ms specimens

ASSAY


D
white-stained patch on cliff
100 m above o/c D (volc lens) middle of 1977 smpl set
across $6^{\prime \prime}$ width of bl ms massive but banded with shiny sheen in some band some vitreous white crystals-no py
bms
third from top of outcrop

ASSAY


1277-3
ST
100 m above $0 / \mathrm{c} \mathrm{D}$ (volc lens) middle of 1977 smpl set
across $6^{\prime \prime}$ width of bl ms - heavy shearing
little wh staining - mostly barren bms with brown oxidized stain or sheen $w$
bl ms
fourth from top of outcrop

ASSAY

| AU |  | AG | 1.4 | AS | 30 | BA | BI |  |  | CO |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 99 | FE |  |  | M |  | PB | 2 | SB |  |
| SN |  | Z | 21 |  |  |  |  |  |  |  |

1277-4
JM

$$
S T-B-1
$$

TR5
$S T$

## D

white-stained patch on cliff
width 12" across bl ms
bms with hvy wh staining, but occasional hvy white rime, \& minor brown sheel
bl ms
fifth from top of outcrop

ASSAY

| AU |  | AG | 1 | AS | 30 | BA |  |  | BI |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| CU | 69 |  | FE |  | MO |  | PB | 2 |  | SB |

SN ZN 1627
D
ST-B-1
TR5
ST
white-stained patch on cliff
100m above o/c D (volc lens) bottom of 1977 smpl set
width $24^{\prime \prime}$ of bl ms
mostly fe staining from band of disseminated py - sm qv \& minor hem rime
bl ms
bottom sample of outcrop

```
```

ASSAY

```


1278
ST
JM
Talus
\[
\mathrm{ST}-\mathrm{B}-2
\]

Talus
```

collected from talus south of area $D$
miscellaneous specimens of bl ms variable
bl ms
specimens collected for study

```

```

1279
ST
collected from talus along edge of glacier
mainly bl and gr ms - miscellaneous specimens collected for their white st
variable
bl \& gr ms
collected for testing
ASSAY

```

Towards edge of Treaty 5 between TT7 \& ridge to Drysdale Gl
12" section of heavily sheared zone in gr ms -
hvy pyr with poss cp?? - hvy lim gossan -


float - collected on survey traverse
bl to dk gray ms
hvy lim staining \& possible sulf?
ms
test interesting specimen

ASSAY
\begin{tabular}{lcccccccc} 
AU & AG & AS & & BA & & \(B I\) & & CO \\
CU & FE & & MO & & PB & & SB &
\end{tabular}

CU
SN
```

ms
fractfill

```
test of specimen
ASSAY
\begin{tabular}{llllllllllllll}
AU & 5 & AG & \(<.2\) & AS & 15 & BA & 150 & BI & \(<5\) & CO & 4 \\
CU & 38 & & FE & 3.17 & MO & 14 & PB & 12 & SB & \(<5\) &
\end{tabular}
SN <20
    ZN 424
east of Saddle 3
blocky ms with moderate fracturing
scattered py with small pockets of more dense - clusters of wh columnar cr.

\section*{ms}
specimen collected

ASSAY


1285
Ridge
Saddle 2
moderately fractured ms good hem rime on fracture planes, with wh stain
bl ms

PP
SS2
TR5
edge of cliff at ridge

ASSAY
 some specimens well leached with moderate rime \& thin white staining on ri:
ms
test
fractfill

ASSAY

\begin{tabular}{lcc}
1287 & PP & SS7 \\
TT1 & 304 & ridge above TT1 \\
west of sadddle 1 across o/c \\
across outcrop of fragmental tuff or flow - vy dk gray \\
oxidized with lim staining and with white qtz vein some thin rime \\
Volc Frag \\
test MDF
\end{tabular}
\begin{tabular}{lccccccccc}
\(\operatorname{ASSAY}\) & & & & & & & & & \\
AU & AG & & AS & & BA & & & BI & \\
CU & FE & & MO & & PB & & SB &
\end{tabular}

1288
TT3

> PP

SS9
\[
\text { ridge in saddle } 3
\]
east of cliff
porous, leached ms
soft and well leached with minor white stain, but with vitreous streaks
ms fractfill/vns

ASSAY
\begin{tabular}{lccccccccccc} 
AU & AG & \(<.2\) & AS & 35 & BA & & & BI & & CO & 13 \\
CU & 257 & FE & MO & & & PB & \(<2\) & SB & &
\end{tabular}

TT1
306
north side of ridge
head of TT1/3
moderately well fract'd ms
veinlets of hem rime with dusting of wh xstls
ms
fractfill/veins
```

ASSAY

| AU | AG | AS |  | BA |  | BI |  | CO |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | FE |  | MO |  | PB |  | SB |  |
| SN | ZN |  |  |  |  |  | - |  |


| 1290 | JM | SS10 | TR5 |
| :--- | :--- | :--- | :--- |
| TT3 | Talus- | Talus |  |

collected from talus below 303 cliff
ms with moderate fracturing
fractures laced with thick hem rime \& possible cobalt bloom? generally feav
ms
fractfill

```


From below outcrop on east side of head of TT1
well fractured bl ms
thick hem rime on fracture planes
ms
fractfill
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{11}{|l|}{ASSAY} \\
\hline AU & AG & 1.4 & AS & 40 & BA & & & & CO & 3 \\
\hline CU 43 & \multicolumn{3}{|c|}{FE} & \multicolumn{2}{|l|}{MO} & PB & \(<2\) & \multicolumn{3}{|l|}{SB} \\
\hline SN & ZN & 435 & & & & & & & & \\
\hline
\end{tabular}
TT1 Talus Talus
From below outcrop on east side of head of TT1
well fractured bl ms as 1291
ms
fractfill
as 1291
```



```
\begin{tabular}{llcc}
1293 & JM & SS12A & TR5 \\
TT3 & 303 & top of cliff &
\end{tabular}
about half way up ridge above cliff
bl ms
qtz with Au? \& shiny silver colored sulf?
ms qtz veins
```

| ASSAY |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | 5 | AG | . 6 | AS | 3 |  | BA | 70 |  |  | BI | < 5 | CO |
| CU | 4 |  | FE | 1.67 |  | мо | 13 |  | PB | 6 |  | SB | <5 |
| SN | <20 | ZN | 2 |  |  |  |  |  |  |  |  |  |  |

1294
JM
SS12
TR5
Talus
collected from edge of glacier south of area D
bl ms
quartz $v n$ cutting $m s$ - poss mineralized with fine sulf? and leached with $B$
ms
Q-Ba vns

ASSAY

collected from upper part of TT1/3 cirque
bl ms both massive \& fractured
leached heavily with much lim sgtaining and some hem rime

## ms

fractfill
test heavy oxidization


1296B
ST
collected from edge of glacier
separated into three parts in lab
qtz veinlets in bms, several with small barite crystals -
bl ms
test qtz vn

ASSAY

| AU | AG | AS |  | $B A$ |  | $B I$ |  | $C O$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $C U$ | RE |  | MO |  | $P B$ |  | $S B$ |  |

collected from edge of glacier
separated into three parts in lab hem rime \& little disseminated py
bl ms
test hem rime hem

| ASSAY |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU |  | AG | . 4 | AS | 5 | BA |  |  | BI |  | CO |
| CU | 29 |  | E |  |  |  | PB | 2 |  | SB |  |
| SN |  |  | 78 |  |  |  | - |  |  |  |  |

```
headwaters of TT7
```

collected from several outcrops
qtz/ca veinlets cutting bms \& breccia - white staining and little lim stai
bl ms


| 1298 | MM | Spec D | TR5 |
| :--- | :--- | :--- | :--- |
| TT1 | talus | talus |  |

Part way up east side of TT1
bl ms with heavy fracturing
heavy brown rime and no wh staining
bl ms

| ASSAY |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | AG | . 8 | AS | 20 | BA |  |  |  | CO | 7 |
| CU 44 |  | FE |  | M |  | PB | <2 | SB |  | 7 |
| SN | 2N | 179 |  |  |  |  | <2 | SB |  |  |

TT3
Mike Showing
at heliport on kame east of TTl
channel smpl across 15 feet - bl ms well sheared med br rime, heavy shearing, very few pieces show any py or heavy leaching
bl ms
fractfill

Specimen
ASSAY


1418
TN
Sta 8
TR7

TT3 RockTr 3 deep natural trenches
on lower side of upper basin just west of TT1
across trench face - well fractured bl ms with gray clastic much of sample is well leached with moderate nem rime with gray-white stai
bl ms
fractfilling
one of series of samples to check trenches
specimens saved $A, B, C$
ASSAY


1419
TN

$$
7-12
$$

TR7
TT3
Rocktr
3 deep natural trenches
on lower side of upper basin just west of TTl
collected and cut from wall of trench
bl ms with fe stain and brown rime \& lots of white staining
bl msbms
test trenches
specimens $A$ \& $B$
ASSAY

| AU | 5 | AG | 1.8 | AS | 22 | BA | 100 |  | BI | $<5$ |  | CO | 2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 35 |  | FE 3 |  | MO | 37 | PB | 6 |  | SB | 5 | CO | 2 |
| SN | $<20$ | ZN | 269 |  |  |  |  |  |  |  |  |  |  |

TT1-3
bluff over creek cut
o/c between TT1 \& TT3 above Mike Showing
generally massive bl ms
Brown rime on fracture faces and heavy iron leaching
bl ms
fractfill
specimen


| ASSAY |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | AG | 1.2 | AS | 10 | BA |  |  |  | CO | 4 |
| CU 36 |  | FE |  | MO |  | PB | <2 | SB |  |  |
| SN | ZN | 140 |  |  |  |  |  |  |  |  |


| 1422 | TN | Ridge |
| :--- | :---: | :---: |
| TT1/3 | Ridge between TT1 \& ST |  |
| $6+40$ from MDF along ridge to east |  |  |
| chipped from hand trench 640 ft from MDF - mainly vuggy bl ms with variable |  |  |
| some fe staining \& wh gossan - lots of hem rime on the heavier fractured pi |  |  |
| bl ms |  |  |

Specimens A \& B
ASSAY


TT1/3 Ridge . outcrop along ridge
chipped from hand trench east of MDF
bl ms with much fracturing \& some shearing 10\% leached \& fe stained with lots of white stain \& hem rime on cracks
bl ms
fractfill
specimens $A=d k$ gr ms with hem rime - $B$ massive ms
ASSAY


TT1/3
Ridge
Ridge between TTI \& ST
6+00 from MDF along ridge to east
broken bl ms
heavy fe staining \& wh gossan - lots of hem rime on the fractured planes
bl ms
fractfill
Specimen A
ASSAY


25 ft so of claim posts on west ridge
5 ft chip sample from frag volc small patch of rime with white crust \& lots of heavy iron stain
MDF
test MDF
specimens 3
ASSAY

15 ft south of sta 2
5' width - Upper MDF
hvy to med fe staining \& some qtz
Volc - flow
test MDF
Specimen

| ASSAYAU |  |  |  |  |  |  |  |  |  | CO |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | AG | $<.2$ | AS | 35 | BA |  |  |  |  |  |
| CU 8 |  | FE |  | MO | 2 | PB | 14 | SB | 5 |  |
| .s | Z | 33 |  |  |  |  |  |  |  |  |Saddle 2 on ridge

```
in Saddle 2 along from MDF along ridge to east
```gray siltstonestained white \& yellow - little fe staining but minor hem rimeSinil
low grade
ASSAY
```



```
SN ZN 193
```

1427
TT3
\#2
Natural trenches above kame \& w TT1

```
Chip sample across wall of \# 2 trench
bl ms - fairly well fractured and some shearing heavy layer of hem rime on fracture planes, with poss sulf
bl ms
fractfill
Specimen
ASSAY
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline AU & & AG & 1.4 & AS & 20 & BA & & & & co & \\
\hline CU & 65 & & E & & & & PB & 4 & SB & & \\
\hline SN & & 2N & 285 & & & & & & & & \\
\hline
\end{tabular}
```

1428
TT3
JJ
Rocktr
\#3 trench wall
bl ms
heavy rime with white stain but quite variable
bl ms
fracture
specimen

## ASSAY

| AU |  | AG | 1.4 | AS | 30 | BA | BI |  | CO | 1 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

SN
ZN 145
JJ\#3
TR7
Natural trenches above kame \& w TTI
fracture
,

1451
MM
TT3
303
cliff at east end of Saddle 2
1st of series across structure along base of cliff
heavily fractured bl mss
heavly oxidized with much iron stain and laced with small qtz vns \& graphit
Bl ms
fractfill

ASSAY

| AU | 15 | AG | 1.2 | AS | 22 | BA | 60 |  |  | BI | $<5$ | CO |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 43 | FE | 4.54 | MO | 12 |  | PB | 8 |  | SB | $<5$ |  |
| SN | $<20$ | ZN | 371 |  |  |  |  |  |  |  |  |  |

$$
1454
$$

MM
TR5
TT3
303
cliff at east end of Saddle 2
4 th series across structure along base of cliff
bl ms heavily sheared
mainly heavily iron stained with white staining with sm ba vn
bl ms
fractfill

ASSAY


2nd series across structure along base of cliff
sheared bl ms with graphite in plates on shear planes
heavy fe and white staining with hem in vugs in qtz vns \& graphite on sh
bl ms
fractfill \& qtz vns
Specimen
ASSAY

| AU |  | AG | 2.2 | AS | 20 | BA |  |  |  | CO |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 109 |  | FE |  |  |  | PB | <2 | SB |  |  |
| SN |  | ZN | 675 |  |  |  |  |  |  |  |  |

1453
TT3
MM
303

TR5
cliff at east end of Saddle 2

3rd series across structure along base of cliff
mixed massive $\&$ heavily sheared and bl ms - few pieces of gray ms leached and iron stained with some white staining and xstals - some piec bl \& gr ms fractfill
specimen
ASSAY

| AU |  | AG | .8 | AS | 40 | BA |  | BI |  |  | CO |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 30 | FE | 3.28 | MO | 8 | PB | $10^{\mathrm{BI}}$ | SB | 5 |  |  |

$$
\text { cliff at east end of Saddle } 2
$$

5th in series across base of cliff - 30 ft chip sample
heavily-sheared bl ms
heavy leaching with iron staining and some white staining
bl ms
fractfill

ASSAY

| AU |  | AG | 1.2 | AS | 30 | BA |  | BI |  |  | CO |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 31 | FE | 3.71 | MO | 13 | PB | 8 |  | SB | 5 |  |

cliff at east end of Saddle 2
5 th in series across base of cliff - 20 ft chip sample
well sheared bl ms very heavy leaching with iron stain and some white xstals \& staining bl ms fract \& qtz veins

ASSAY

| AU |  | AG | 2.8 | AS | 55 | BA |  |  |  | CO | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 75 |  | E |  | M |  | PB | 4 | SB |  |  |
| SN |  | ZN | 502 |  |  |  |  |  |  |  |  |

1457A
MM
TR5
TT3
303
cliff at east end of Saddle 2
6 th in series across base of cliff - 25 ft chip sample
bl \& gr ms with most well-sheared - $75 \%$ of total sample poorly mineralized but few pieces with iron staining and little white stain
bl \& gr ms nil

ASSAY


1457B
MM
TR5
TT3
303
cliff at east end of Saddle 2
6th in series across base of cliff - 25 ft chip sample
bl \& gr ms with most well-sheared - $75 \%$ of total sample some good quartz veins with oxidized sulf? \& leached sheared ms with iron \& bl \& gr ms
possible?

ASSAY

| AU | AG | AS |  | BA |  | BI |  | CO |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | FE |  | MO |  | PB |  | SB |  |

collected from talus
mixed heavily fractured \& massive bl ms large pieces of ms with lots of rime and hematite bl ms
fractfill
Specimen

collected from talus below cliff
broken bl ms
heavy rime \& related iron staining
fractfill
collected from talus
bl \& gr ms with moderate shearing
few pieces of leached $q t z$ vns and some iron stained \& leached bl \& gr ms

ASSAY

heavily sheared ms - badly leached few pieces with little rime and some qtz vns with leached sulfides bl ms
specimens (2)

top of kame bluff
25\% well leached ms \& remainder massive leached to some extent with some hem rime \& few gtz vns bl ms

ASSAY

near TCI (geophysical anomaly) on upper TT7
fine gray greywacke with mod iron staining no wh stain
gr greywacke

ASSAY

| AU | AG | AS |  | $B A$ |  | $B I$ |  | CO |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | FN |  | MO |  | PB |  | SB |  |

edge of rim at ridge head TT3
specimen
med-fractured ms good hem rime on fracture planes with much iron \& white stains bl ms fractfill
specimen

| ASSAY |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | AG | AS |  | BA |  | BI |  | CO |
| CU | FE |  | MO |  | PB |  | SB |  |
| SN | ZN |  |  |  |  |  |  |  |
| 1605 |  | PP |  |  | B2 |  |  | TR5 |
| TT3 |  | 304 |  | sm | c ea | f | ff | saddle |

spec collected from o/c
mixed gr \& bl ms
mainly blank with fe stain - little min'd qtz?
bl ms
qtz vn

| ASSAY |  |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | AG | AS |  | BA |  | CO |  |  |
| CU | FN |  | MO |  | PB |  | SB |  |
| SN | ZN |  |  |  |  |  |  |  |

## TT7

small nunatak
near TC1 (geophysical anomaly) on upper TT7
fine gray greywacke with mod iron staining no wh stain
gr greywacke

| ASSAY |  |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | AG | AS |  | BA |  | BI |  | CO |
| CU | ZN |  | MO |  | PB |  | SB |  |

first of series in trench along crest of ridge
massive gr \& bl ms with minor fracturing white and gray gossan with some hem rime
bl \& gr ms
fractfill
to test heavy brown stained pieces


1607B
SM
S210W
TR5
Ridge
East along ridge from Saddle 2
first of series in trench along crest of ridge
massive gr \& bl ms with minor fracturing white and gray gossan with some hem rime
bl \& gr ms
fractfill
test heavy white staining pieces


1608A
SM
S220W
TR5
Ridge
East along ridge from Saddle 2
second of series in trench along crest of ridge
massive gr \& bl ms with minor fracturing
some heavy white gossan mixed with moderate iron leached gossan - smal amo
bl graph ms
fracture
half sample

ASSAY

| AU |  | AG | 2 |  | AS | 40 | BA |  |  |  |  | CO | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 39 |  | FE | 2.6 |  | MO | 15 | PB | 8 | SB | 5 |  |  |
| SN |  | ZN |  |  |  |  |  |  |  |  |  |  |  |

third of series in trench along crest of ridge
graphitic bl ms
some heavy white gossan mixed with moderate iron leached gossan - smal amo
bl graph ms
fracture
half sample

| ASSAY | AG | AS |  | BA |  | BI |  | CO |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | FE |  | MO |  | PB |  | SB |  |
| CU | ZN |  |  |  |  |  |  |  |

massive bl \& gr ms with minor fracturing
moderate iron staining on fracture faces - mostly massive with light dusti
bl \& gr ms
test heavy iron stained fraction
Specimen
ASSAY

bl \& gr ms
test white stained fraction
specimen
ASSAY

limonitic \& white gossan with qtz
specimen
ASSAY


```
1610B
                SM
                S240
TR5
ridgeEast along ridge from Saddle 2
sixth of se3 ies in trench along crest of ridge
light gray 1 s - porous -
heavy limon tic & white gossans - well leached - small qtz vns and some rin
gr ms
test massiv, ms
```

ASSAY

| AU | , G | 1 | AS | 20 | BA |  |  |  | CO | 3 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU 36 |  | FE |  |  |  | PB | 2 | SB |  |  |
| SN | ZN |  |  |  |  |  |  |  |  |  |

1611A
ridge

S250
East along ridge from Saddle 2
seventh of series in trench along crest of ridge
mainly bl ms with occas. calcareous banded ms
good hem rime on some, some leaching, sheared, but generally massive - cald
bl ms
test leached fraction 20\%

ASSAY

| AU |  | AG | .8 | AS | 15 | BA |  |  | BI |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 35 | FE |  | MO |  | PB | 2 |  | SB |  |
| SN |  | ZN | 199 |  |  |  |  |  |  |  |

eigth of series in trench along crest of ridge
bl ms massive \& dull lustre much iron stain \& leaching and some white xstals \& stain
bl ms

ASSAY


1616A
MM
TR5

TT3/5
rim of ridge near top of west peak
talus just below rim
ms with hvy leaching in some pieces, nearly sintered - well fract'd - few few sm qtz vns with min'n - leached \& min'd well
ms
fractfill/q vns
Part $A$ is well oxidized \& leached with min'n?

| ASSAY |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | 15 | AG | . 8 |  | AS | 45 | BA | 95 |  | BI | $<5$ | CO |
| CU | 96 |  | FE | 5.9 |  | MO | 32 |  | PB | 22 | SB | $<5$ |
| SN | <20 | ZN | 5 |  |  |  |  |  |  |  |  |  |

1616B
MM
TR5
TT3/5
rim of ridge near top of west peak
talus just below rim
ms with hvy leaching in some pieces, nearly sintered - well fract'd - few few sm qtz vns with min'n - leached \& min'd well
ms
fractfill/q vns
part $B$ of two - more massive specs with less fe stain

| AS |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | 5 | AG | . 4 |  | AS | 13 | BA | 130 | BI | $<5$ | CO |
| CU | 27 |  | FE | 3.5 |  | MO | 6 | PB | 12 | SB | $<5$ |
| SN | <20 | 2 |  | 2 |  |  |  |  |  |  |  |

ridge
East along ridge from Saddle 2
seventh of series in trench along crest of ridge
mainly bl ms with occas. calcareous banded ms
good hem rime on some, some leaching, sheared, but generally massive - ca
bl ms
test massive ms about $50 \%$


Ridge
East along ridge from Saddle 2
ninth of series in trench along crest of ridge
bl ms massive \& dull lustre
little leaching
bl ms

ASSAY

| AU | AG | AS |  | BA |  | BI |  | CO |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | FE |  | MO |  | PB |  | SB |  |

1652
JJ
501
TR5

TT1 304
hump west of saddle 1
across $10^{\prime}$ of MDF
frag flow or tuff -
some qtz with silver sulf \& patches of $f$ gr py - weathered and leached wi
MDF

ASSAY

o/c
ms with vugs \& br staining - sheen on fract \& med/hvy frat'gwell fe stained with lotsof colours \& ms is br stained \& no wh stain ms
?

ASSAY


1659 JJ

TR4
DT6
o/c 300'<summit of cirque
about 300 ft below summit in creek side
med fractured ms
fe stained fract with good rime - no wh stain
ms
fractfill

| ASSAY |  |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AU | AG | FE | AS | MO | BA |  |  |  |
| CU | FE |  | MO |  | SB |  |  |  |
| SN | ZN |  |  |  |  |  |  |  |

talus above natural trenches
talus
hvy fractured ms
hvy oxid'n with lots of wh stain \& some heavy hem rime
fractfill

ASSAY


```
TT3
talus
talus>nat trenches
talus from cliff east of saddle 2
agglomerate of ms cemented with fe rime -
fine gr hem & thin bands of sph?-
ms
second part of two - kept for study specimens
ASSAY
\begin{tabular}{lccccccc} 
AU & AG & AS & & BA & & BI & CO \\
CU & FE & & MO & & PB & & SB
\end{tabular}
```

1663A
JJ
TR5
TT3 talus talus below cliff
talus below cliff 303
mostly hvy fract'd ms
heavy hem rime on fracture planes with some pieces very highly leached
ms
fractfill
part A of two -
ASSAY


```
TT3
talus
talus below cliff
talus below cliff 303
mostly hvy fract'd ms
heavy hem rime on fracture planes with some pieces very highly leached
ms
    fractfill
part B of two - saved for study
ASSAY
\begin{tabular}{lcccccccc}
\(A U\) & AG & AS & & BA & & \(B I\) & & \(C O\) \\
\(C U\) & FE & & MO & & PB & & \(S B\) &
\end{tabular}
```

in mid cirque below cliff
mix of sheared \& mass ms very heavy leaching \& oxidization with much limonite staining
ms
test - selected mat
specimen
ASSAY

| AU | 5 | AG | 2.4 | AS | 35 | BA | 120 | BI | $<5$ | CO | 2 |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CU | 34 | FE | 4.2 |  | MO | 18 | PB | 12 | SB | 5 |  |
| SN | $<20$ | ZN | 382 |  |  |  |  |  |  |  |  |



## ECD-TECH LABORATORIES LTD.

ASSAYING - ENVIRONMENTAL TESTING
10041 East Trans Canada Hwy.. Kamloops, B.C. V2C 2J3 (604) 573-5700 Fax 573-4557

MILLAR WESTERN ENGINEERING LTD. JUNE 9, 1992
P.O. BOX 460

CLEARWATER, B.C.
vOE INO
andiytical results etk 92-212


ATTENTION: J. MILLLAR

SAMPLE IDENTIFICATION: 37 ROCK samples received JUNE 1, 1992 ---------------------PROJECT: TC. 91

VALUES IN PPM UNLESS OTHERWISE REPORTED

| ET\# | Description |  | AG | AS | CO | CU | PB | 2N |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | (\%) |  |  |  |  |  |
| 1 - | 1271- |  | 1.0 | 70 | 13 | 115 | 16 | 1513 |
| 2 - | 1271- |  | 1.2 | 15 | 2 | 9 | <2 | 445 |
| 3 - | 1271- |  | 1.6 | 25 | <1 | 16 | 6 | 54 |
| 4 - | 1271- |  | . 6 | 15 | 2 | 7 | 2 | 501 |
| 5 - | 1271- |  | <. 2 | 70 | 35 | 119 | 6 | 1445 |
| 6 - | 1274 |  | <. 2 | 25 | 9 | 35 | 6 | 108 |
| 7 - | 1277- | 1 | . 8 | 25 | 15 | 87 | 6 | 1814 |
| 8 - | 1277- |  | 1.4 | 25 | 4 | 38 | 2 | 716 |
| 9 - | 1277- |  | 1.4 | 30 | 7 | 99 | 2 | 2116 |
| 10- | 1277- | 4 | 1.0 | 30 | 6 | 69 | 2 | 1627 |
| 11- | 1277- |  | 1.8 | 40 | 7 | 76 | 4 | 1237 |
| 12- | 1279 |  | $<.2$ | 10. | 16 | 49 | 6 | 133 |
| 13- | 1284 |  | . 2 | 35 | 16 | 32 | 14 | 92 |
| 14- | 1285 |  | 1.4 | 20 | 1 | 14 | 2 | 161 |
| 15- | 1286 |  | <. 2 | 15 | 6 | 31 | 6 | 99 |
| 16 - | 1288 |  | <. 2 | 35 | 13 | 257 | $<2$ | 661 |
| 17- | 1291 |  | 1.4 | 40 | 3 | 43 | $<2$ | 435 |
| 18- | 1294 |  | <. 2 | 5 | 8 | 31 | $<2$ | 104 |
| 19- | 1295 | A | 1.8 | 20 | $<1$ | 19 | 10 | 67 |
| 20- | 1295 | B | <. 2 | 40 | 17 | 255 | <2 | 684 |
| 21- | 1296 | A | $<.2$ | 25 | 5 | 39 | $<2$ | 235 |
| 22- | 1296 | C | . 4 | 5 | 8 | 29 | 2 | 78 |
| 23- | 1297 |  | . 2 | <5 | 11 | 14 | 2 | 36 |
| 24- | 1298 |  | . 8 | 20 | 7 | 44 | $<2$ | 179 |
| 25- | 1421 |  | 1.2 | 10 | 4 | 36 | <2 | 140 |
| 26 - | 1422 |  | 2.0 | 15 | 6 | 44 | <2 | 290 |

ECO-TECH LABORATORIES LTD.
10041 EAST TRANS CANADA HIGHWAY
KAMLOOPS, B.C. V2C 2 J 3
PHONE - 573-5700
PAX - 573-4557

MILLAR WESTERN ENGINEERING ETK 91-881
BOX 460
CLEARNATER, B.C.
VOE INO

NOVEMBER 22, 1991
SAMPLE IDENTIFICATION: 22 ROCK SAMPLES RECEIVED NOVEMBER 6,1991
-.....-.-.-...........-. PROJECT: NONE GIVEN
VALUES IN PPM UNLESS OTHERWISE REPORTED

| ET\# | Description | AG | AS. | CD | CO | CO | $\begin{gathered} \text { FE } \\ (\%) \end{gathered}$ | MN | $\begin{array}{r} \text { MO } \\ (\%) \end{array}$ | NI | PB | SB | 2N |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 - | 1417 | <. 2 | 30 | <1 | 6 | 30 | 4.34 | 462 | <1 | 37 | 40 | 5 | 162 |
| 2 - | 1420 | 1.0 | 35 | <1 | 4 | 34 | 3.49 | 97 | 4 | 4 | 60 | 5 | 132 |
| 3 - | 1423 | . 6 | 40 | <1 | 7 | 41 | 4.94 | 269 | 5 | 11 | 12 | 5 | 216 |
| 4 - | 1424 | 2.2 | 45 | 1 | 5 | 27 | 2.75 | 136 | 13 | 13 | 16 | 5 | 193 |
| 5 - | 1426 | 1.4 | 35 | 1 | 2 | 37 | 2.16 | 91 | 36 | 16 | 14 | 10 | 186 |
| 6 - | 1428 | 1.4 | 30 | 2 | 1 | 26 | 1.65 | 67 | 29 | 12 | 16 | 5 | 145 |
| 7 - | 1453 | . 8 | 40 | $<1$ | 2 | 30 | 3.28 | 62 | 8 | 6 | 10 | 5 | 114 |
| 8 - | 1454 | 1.6 | 30 | 4 | 3 | 35 | 2.6 | 297 | 16 | 13 | 10 | 5 | 251 |
| 9 - | 1455 | 1.2 | 30 | 4 | 3 | 31 | 2.71 | 344 | 13 | 12 | 8 | 5 | 264 |
| 10- | 1457A | 2.2 | 50 | <1 | 1 | 16 | 2.17 | 30 | 47 | 15 | 10 | 15 | 175 |
| 11- | 1460 | 1.0 | 45 | 1 | 4 | 51 | 4.18 | 138 | 30 | 22 | 12 | 10 | 292 |
| 12- | 1462 | 1.2 | 50 | 2 | 7 | 68 | 5.46 | 364 | 16 | 25 | 12 | 5 | 432 |
| $13-$ | 1608A | 2.2 | 40 | 10 | 5 | 39 | 2.6 | 433 | 15 | 31 | 8 | 5 | 484 |
| 14- | 1610A | . 6 | 50 | <1 | 5 | 52 | 5.27 | 146 | 10 | 15 | 12 | 5 | 345 |
| 15- | 1612A | . 6 | 40 | <1 | 2 | 33 | 3.89 | 61 | 8 | 5 | 10 | 5 | 118 |
| 16 - | 1615 | . 8 | 25 | $<1$ | 2 | 21 | 2.18 | 70 | 5 | 5 | 10 | < 5 | 105 |
| $17-$ | '1652 | $<.2$ | 30 | <1 | 3 | 5 | 3.85 | 142 | 4 | 1 | 16 | < 5 | 36 |
| $18-$ | 1653 | <. 2 | 30 | <1 | 4 | 5 | 3.75 | 221 | 6 | 4 | 14 | < 5 | 44 |
| 19- | 1654 | <. 2 | 35 | $<1$ | 5 | 8 | 4.07 | 157 | 2 | <1 | 14 | 5 | 33 |
| $20-$ | 1657 | <. 2 | 30 | <1 | 3 | 18 | 4.24 | 1291 | 1 | 24 | 10 | 5 | 51 |
| 21- | 1661 | 1.0 | 65 | 19 | 13 | 87 | 6.02 | 742 | 10 | 32 | 6 | 10 | 725 |
| 22- | 1662 | <. 2 | 120 | <1 | 11 | 216 | $>15$ | 33 | 7 | 7 | 16 | < 5 | 313 |

NOTE:< = LESS THAN



CTREMATERA, B.C.

SEPYEMBER 24, 1991

## SALPTE IDEATIFICATIOA: 19 ROCR SAMPLES RECEYVED SEPTBEB


VALUES IA PPA OHLESS OTHERWISE REPORTED


NOTE: < = LESS TAAB


ECO-TRCE LABGRATORIRS LTD CLIMT AYERY
LABORATORY MAMAGER

100el sast trans camand aygenay
samicoles, B.C. V2C 233
pactars - $573-5700$
mx - 573-4557
 Box 40 Cryatimitrs, B.C
vos 130 -
$\because \cdots \because \because \cdot \because$


SEPTEMEER 5, 1991
SAMPIE IDENTIIYICATIOE: 21 BOCT SAMPIAS REBCBIVED AUGOSY 23,1991 psansct: HONB GIVEA

| ETI | Description | $\begin{array}{r} \text { AD } \\ (\mathrm{ppb}) \end{array}$ | $\begin{array}{r} A G \\ \text { (pph) } \end{array}$ | $\begin{array}{r} \text { As } \\ \text { (ppb) } \end{array}$ | $\begin{array}{r} \mathrm{BA} \\ \text { (ppb) } \end{array}$ | $\begin{array}{r} \text { BI } \\ \text { (ppb) } \end{array}$ | $\begin{array}{r} \infty \\ \text { (ppb) } \end{array}$ | $\begin{array}{r} c \sigma \\ \text { (ppb) } \end{array}$ | $\begin{aligned} & \text { P8 } \\ & \text { (\%) } \end{aligned}$ | $\begin{array}{r} 100 \\ (p p b) \end{array}$ | $\begin{array}{r} \text { PB } \\ \text { (ppb }) \end{array}$ | $\begin{array}{r} \text { SB } \\ \text { (ppb }) \end{array}$ | $\begin{array}{r} \text { SH } \\ \text { (ppb) } \end{array}$ | $\begin{array}{r} 288 \\ \text { (ppb) } \end{array}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 - | 1255 | 10 | 1.6 | $45^{\circ}$ | 140 | $<5$ | 8 | $75 \phi$ | 6.06 | 15 | 16 | 5 | $<20$ | 5429 |
| 2 - | 1256 | 5 | 1.4 | 20 | 130 | $<5$ | 1 | 32 | 3.43 | 39 | 8 | 5 | $<20$ | 3660 |
| 3 - | 1257 | 35 | 1.80 | 45 | 260 | < 5 | 3 | 45 | 4.56 | 22 | 10 | 100 | $<20$ | 4300 |
| 4 - | 1258 | 5 | 2.09 | 40 | 105 | $<5$ | 4 | 40 | 5.25 | 14 | 10 | 5 | $<20$ | 3240 |
|  | 1259 | 5 | 1.4 | 25 | 80 | $<5$ | 6 | 700 | 9.05 | 16 | 14 | $<5$ | $<20$ | 5180 |
| 6 - | 1260 | 10 | 1.0 | 35 | 60 | $<5$ | 4 | 27 | 6.40 | 13 | 8 | 5 | $<20$ | 3290 |
| 7 - | 1261 | 5 | 1.2 | 30 | 60 | < | 11 | 48 | 5.59 | 9 | 8 | 109 | $<20$ | 4129 |
| 8 - | 1262 | 5 | 2.26 | 45 | 90 | $<5$ | 16 | 62 | 7.13 | 29 | 26 | 100 | $<20$ | 09030 |
|  | 1263 | 30 | . 6 | 25 | 95 | < 5 | 12 | 790 | 7.77 | 14 | 14 | 5 | $<20$ | 08710 |
| 10- | 1264 | 5 | 2.48 | 35 | 120 | $<5$ | 2 | 34 | 4.20 | 18 | 12 | 5 | $<20$ | 3820 |
| 11- | 1264 A | 5 | 1.2 | 25 | 115 | $<5$ | 6 | 66 | 5.05 | 18 | 12 | $<5$ | $<20$ | 3750 |
| 12- | 1264 B | 5 | . 8 | 15 | 130 | $<5$ | 1 | 29 | 3.20 | 15 | 6 | 5 | $<20$ | 141 |
| 13- | 1265 | 5 | . 6 | 20 | 100 | $<5$ | 4 | 920 | 9.24 | 9 | 14 | $<5$ | $<20$ | 5060 |
| 14- | 1266 | 5 | 1.0 | 15 | 125 | $<5$ | 4 | 64 | 5.32 | 12 | 10 | 5 | $<20$ | 334 |
| $15-$ | 1280 | 30 | . 6 | 85 | 15 | $<5$ | 4 | 15 | 6.92 | 5 | $70 ¢$ | $<5$ | $<20$ | 53 |
| 16- | 1281 | 10 | . 4 | 135 ( | 35 | < 5 | 31 | S1 | 7.18 | 2 | 40 | 5 | $<20$ | 128 |
| 17- | 1283 | 5 | $<.2$ | 15 | 150 | $<5$ | 4 | 38 | 3.17 | 14 | 12 | $<5$ | $<20$ | 4240 |
| 18- | 1290 | 5 | 1.0 | 35 | 95 | $<5$ | 8 | 48 | 4.03 | 19 | 10 | 5 | $<20$ | 163 |
| 19- | 1292 | 5 | 1.2 | 25 | 85 | $<5$ | 2 | 40 | 4.46 | 10 | 10 | $<5$ | $<20$ | 174 |
| 20- | S1 | 5 | . 4 | 20 | 95 | < 5 | 24 | 57 | 5.13 | 4 | 8 | 100 | $<20$ | 177 |
| 21- | 53 | 5 | . 4 | 20 | 85 | $<5$ | 15 | 58 | 5.25 | 5 | 6 | 150 | $<20$ | 182 |

HOTR: < = LBSS THAX


SC9 1 /KAME


NOTE:< = LESS THAN


SC91/KAM4

ECO-TECH LABORATORIES LTD.
10041 east trans canada highway
KAMLOOPS, B.C. V2C $2 J 3$
PHONE - 573 -5700
FAX - 573-4557

SEPTEMBER 5, 1991
REVISED

MILLAR WESTERN ENGINEERING ETX 91-697
BOX 460
CLEARWATER, B.C.
voE 1NO

VALUES IN PPM UNLESS OTHERWISE REPORTED

| ET\# |  | Descr | tion | $\begin{array}{r} \mathrm{AU} \\ (\mathrm{ppb}) \end{array}$ | AG | AS | BA | BI | co | cu | $\begin{gathered} \text { FE } \\ \text { (8) } \end{gathered}$ | Mо | PB | SB | SN | 2N |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 - |  | 5 | S-1 | $<5$ | . 6 | 25 | 95 | <5 | 50 | 96 | 5.36 | 4 | 14 | 5 | $<20$ | 205 |
| $2-$ |  | 5 | S- 2 | $<5$ | 1.2 | 40 | 115 | $<5$ | 88 | 131 | 6.87 | 10 | 14 | 10 | $<20$ | 327 |
| 3 - |  | 5 | S-3 | $<5$ | . 4 | 20 | 85 | $<5$ | 43 | 84 | 5.29 | 7 | 14 | 5 | $<20$ | 232 |
| 4 - |  | 5 | S-4 | $<5$ | . 4 | 15 | 80 | $<5$ | 34 | 76 | 5.09 | 2 | 12 | 10 | $<20$ | 191 |
| 5 - | DT | 5 | S- 5 | 10 | . 6 | 20 | 75 | $<5$ | 37 | 77 | 5.40 | 4 | 14 | $<5$ | $<20$ | - 184 |
| 6 - | DT | 5 | S-6 | $<5$ | . 6 | 15 | 75 | $<5$ | 40 | 78 | 4.88 | 4 | 20 | 5 | $<20$ | 179 |
| 7 - | DT | 5 | S-7 | $<5$ | . 4 | 20 | 105 | $<5$ | 40 | 52 | 4.33 | 5 | 22 | 10 | $<20$ | 127 |
| 8 - | DT | 6-7 | S-1 | 5 | . 6 | 15 | 35 | $<5$ | 9 | 30 | 3.77 | 5 | 8 | 5 | $<20$ | 109 |
| 9 - | DT | 6-7 | S- 2 | 10 | 1.0 | 15 | 30 | $<5$ | 25 | 32 | 3.94 | 5 | 12 | 10 | $<20$ | 96 |
| 10- | DT | 7 | S- 1 | 10 | 2.0 | 35 | 255 | $<5$ | 132 | 140 | 8.08 | 6 | 14 | 5 | $<20$ | 331 |
| 11- | DT | 7 | S- 2 | 10 | 2.0 | 40 | 275 | $<5$ | 107 | 145 | 8.33 | 7 | 28 | 10 | $<20$ | 477 |
| 12- | DT | 7 | S- 3 | $<5$ | 4.0 | 60 | 390 | $<5$ | 195 | 199 | 9.40 | 13 | 28 | 20 | $<20$ | 650 |
| 13- | DT | 7 | S-4 | 10 | 1.8 | 40 | 215 | $<5$ | 126 | 136 | 8.43 | 8 | 36 | 10 | $<20$ | 441 |
| 14- | DT | 7 | S-5 | 10 | 2.0 | 45 | 230 | $<5$ | 153 | 167 | 9.03 | 10 | 30 | 15 | $<20$ | 451 |
| 15- | DT | 7 | S-6 | 10 | 2.2 | 45 | 290 | $<5$ | 117 | 140 | 8.83 | 11 | 24 | 10 | $<20$ | 491 |
| 16- | DT | 7 | S-7 | <5 | 1.4 | 25 | 225 | $<5$ | 111 | 121 | 7.07 | 8 | 34 | 10 | $<20$ | 330 |
| 17- | DT | 7 | S-8 | 10 | 1.6 | 30 | 325 | $<5$ | 151 | 108 | 8.58 | 4 | 38 | 5 | $<20$ | 353 |
| 18- | DT | 7 | S- 9 | 5 | 1.2 | 30 | 160 | $<5$ | 118 | 95 | 7.10 | 3 | 38 | 15 | $<20$ | 289 |
| 19 - | TT | 1 | S- 1 | $<5$ | 2.8 | 120 | 135 | $<5$ | 26 | 188 | 11.11 | 72 | 26 | 5 | $<20$ | 2108 |
| 20- | TT | 1 | S- 2 | 5 | 5.2 | 115 | 160 | <5 | 14 | 107 | 9.98 | 63 | 36 | 15 | $<20$ | 1204 |
| 21- | TT | 1 | S-3 | $<5$ | 1.8 | 60 | 130 | $<5$ | 21 | 103 | 8.45 | 29 | 24 | 15 | $<20$ | 1666 |
| 22- | TT | 3 | S- 1 | $<5$ | 3.2 | 125 | 170 | $<5$ | 42 | 181 | 9.43 | 104 | 36 | 20 | $<20$ | 3369 |
| 23- | TT | 3 | S- 2 | 5 | 2.6 | 180 | 165 | $<5$ | 34 | 120 | 8.01 | 122 | 44 | 35 | $<20$ | 1665 |
| 24- | TT | 3 | S- 3 | $<5$ | 3.2 | 135 | 170 | $<5$ | 45 | 165 | 8.26 | 60 | 36 | 40 | $<20$ | 2887 |
| 25- | TT | 7 | S-1 | < | . 2 | 20 | 85 | $<5$ | 22 | 51 | 4.49 | 4 | 26 | <5 | $<20$ | 233 |

page 1


## ECD-TECH LABORATORIES LTD.

ASSAYING - ENVIRONMENTAL TESTING
10041 East Trans Canatia Hwy.. Kamioops, B.C. V2C 2J3 (604) 573-5700 Fax 573.4557

PAGE TWO MILLAR WESTERN ENGINEERING LTD. ETK 92-212 JUNE 9, 1992

| ET\# | Description |  | (\%) |  |  |  | PB | ZN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 27- | 1425 |  | 3.0 | 20 | 5 | 50 | 2 | 430 |
| 28- | 1427 |  | 1.4 | 20 | 2 | 65 | 4 | 285 |
| 29 - | 1452 |  | 2.2 | 20 | 8 | 109 | <2 | 675 |
| 30- | 1456 |  | 2.8 | 55 | 4 | 75 | 4 | 502 |
| 31- | 1609 | A | 2.0 | 25 | 2 | 25 | $<2$ | 157 |
| 32- | 1609 | B | 2.4 | 20 | 1 | 17 | 2 | 95 |
| 33- | 1610 | B | 1.0 | 20 | 3 | 36 | 2 | 180 |
| $34-$ | 1611 | A | . 8 | 15 | 3 | 35 | 2 | 199 |
| 35- | 1614 | A | 1.4 | 10 | 2 | 32 | $<2$ | 147 |
| $36-$ | 1617 |  | . 4 | 15 | 6 | 43 | 2 | 126 |
| $37-$ | 1663 | A | . 6 | 30 | 6 | 67 | $<2$ | 371 |

QC DATA
==ニ=====

| GEO STD |  | 1.2 | 45 | 19 | 77 | 12 | 63 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| REPEAT \# |  |  |  |  |  |  |  |
| - | 1277-2 | 1.4 | 15 | 4 | 37 | <2 | 673 |
|  | 1610 B | 1.0 | 20 | 3 | 36 | 2 | 180 |

NOTE: < = LESS THAN

SC92/KAM1


## APPENDIX V

\section*{G

N
Y
M
S
C
T
G

R
R}


O ABBREVIATIONS -
Sample number from field
Year of sampling
Material
Sampler name
Sample
ROPO Rough idea of topographic loc'n $n$ or drainage
$\begin{array}{ll}\text { SR } & \text { Salmon River } \\ \text { BC } & \text { Betty creek } \\ \text { D } & \text { Mount Dilworth } \\ \text { SR/D } & \text { contact zone - Salmon River \& Dilworth }\end{array}$ SORTED BY YEAR MATERIAL, CLAIM, SAMPLER, SAMPLE NUMBER
RANGES FOR ANOMALIES ARE' GIVEN IN THE TEXT - ADDITION OF AN * INDICATES A VALUE ONLY SLIGHTLY BELOW THE INDICATED ANOMALOUS CATEGORY

| NO | YR | MAT | SPR | CL | TOPO | GEO | AU | AG | CU | PB | ZN | SB | AS | HG | BA |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 01 | 87 | FL | ? | T37 | TL | SR |  |  | C | A | C* | C |  |  | A |
| 01 | 87 | RX | ? | T2 |  |  |  |  |  |  |  |  |  |  |  |
| 01 | 87 | RX | ? | T2 |  |  |  |  |  |  |  |  |  |  |  |
| 04 | 87 | RX | ? | T3 | TL | TL |  |  |  |  |  |  |  |  |  |
| 01 | 87 | RX | ? | T4 |  |  |  |  |  |  |  |  |  |  |  |
| 01 | 87 | RX |  | T5 | MTN | D |  |  |  |  |  |  |  |  |  |
| 02 | 87 | RX | ? | T5 | MTN | $\mathrm{D} / \mathrm{BC}$ |  |  |  |  |  |  | B* |  |  |
| 03 | 87 | RX | ? | T5 | MTN | D/BC |  |  |  |  |  |  |  |  |  |
| 04 | 87 | RX | $?$ | T5 | MTN | D/BC |  |  |  |  |  |  |  |  |  |
| 08 | 87 | RX | ? | T5 | TC | SR/D |  |  |  |  |  | B |  |  |  |
| 05 | 87 | RX | ? | T57 | TT1 | D |  |  |  |  |  |  |  |  |  |
| 06 | 87 | RX | $?$ | T57 | TT1 | SR/D |  |  |  |  |  |  |  |  |  |
| 07 | 87 | RX | $?$ | T57 | TT1 | SR/D |  |  |  |  |  |  |  |  |  |
| 01 | 87 | RX | $?$ | T6 | TC | SR |  |  |  |  |  |  |  |  |  |
| 01 | 87 | RX | ? | T7 | TLT6 | SR |  |  |  |  |  |  | ${ }_{\text {A }}$ |  |  |
| 02 | 87 | RX | ? | T7 | MTN | $\stackrel{\text { D }}{ }$ |  |  |  |  |  |  |  |  |  |
| 02 | 87 | RX | ? | T7 | TLT6 | SR |  |  |  |  |  |  |  |  |  |
| 05 | 87 | RX | $?$ | T7 | TLT6 | SR |  |  |  |  |  |  |  |  |  |
| 06 | 87 | RX | $?$ | T7 | TLT6 | SR |  |  |  |  |  |  |  | C* |  |
| 08 | 87 | RX | ? | T7 | TT4 | SR/D |  |  |  |  |  |  |  |  |  |
| 09 | 87 | RX | ? | T7 | TT4 | SR/D |  |  |  |  |  |  |  |  |  |
| 10 | 87 | RX | ? | T7 | TC | SR/D |  |  |  |  |  |  |  |  |  |
| 11 | 87 | RX | ? | T7 | TC | SR |  |  |  |  |  |  |  |  |  |
| 01 | 87 | SI | ? | T3 |  |  |  |  |  |  |  |  |  | C |  |
| 02 | 87 | SI | ? | T3 |  |  |  |  |  |  |  |  |  |  |  |
| 03 | 87 | SI | ? | T3 |  |  |  |  |  |  |  |  |  |  |  |
| 04 | 87 | SI | ? | T3 |  |  |  |  |  |  |  |  |  |  |  |
| 07 | 87 | SI | ? | T3 |  |  |  |  |  |  |  |  |  |  |  |
| 01 | 87 | SI | ? | T4 | DT3 | SR | A |  |  |  |  |  |  |  |  |
| 02 | 87 | SI | ? | T4 | DT4 | SR |  |  |  |  |  |  |  | C* |  |
| 03 | 87 | SI | ? | T4 | DC | SR |  |  |  |  |  |  |  |  |  |
| 04 | 87 | SI | ? | T4 | DT5 | SR |  |  |  |  |  |  |  |  |  |
| 05 | 87 | SI | ? | T4 | DT6 | SR |  |  |  |  |  |  |  |  |  |
| 01 | 87 | SI | ? | T5 | DT7 | SR/D |  |  |  |  | C | C |  |  |  |
| 02 | 87 | SI | ? | T5 | ? | D? |  |  |  |  |  |  |  |  |  |
| 03 | 87 | SI | ? | T5 | ? | D? |  |  |  |  |  |  |  | C |  |
| 04 | 87 | SI | ? | T5 | ? | D? |  |  |  |  |  |  |  |  |  |
| 05 | 87 | SI | ? | T5 | TT1 | SR/D |  |  |  |  | C | C |  |  |  |
| 06 | 87 | SI | ? | T5 | TC | SR/D |  |  |  |  |  |  |  |  |  |
| 01 | 87 | SI | ? | T6 | TC | SR |  |  |  |  |  |  |  |  |  |
| 02 | 87 | SI | ? | T6 | TC | SR |  |  |  |  |  |  |  |  |  |
| 03 | 87 | SI | ? | T6 | TT9 | SR |  |  |  |  |  |  |  |  |  |
| 04 | 87 | SI | ? | T6 | TT9 | SR |  |  |  |  |  |  |  |  |  |
| 05 | 87 | SI | ? | T6 | TC | SR |  |  |  |  |  |  |  |  |  |
| 06 | 87 | SI | ? | T6 | TC | SR |  |  |  |  |  |  |  |  |  |
| 03 | 87 | SI | ? | T7 | TL6 | SR |  |  |  |  |  |  |  |  |  |
| 04 | 87 | SI | ? | T7 | TT4 | SR | A | C |  |  |  |  |  |  |  |
| 05 | 87 | SI | ? | T7 | TT4 | SR |  |  |  | C* |  |  |  |  |  |
| 06 56 | 87 88 | SI | $\stackrel{\text { ? }}{\text { D }}$ | T76 | TT7 | SR D/BC | A | C | B | A | C | A | C |  |  |
| 66 | 88 | ${ }_{F} \mathrm{~F}$ | DL | T7 | TC | D/BC | A |  |  |  |  |  |  |  |  |






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## CERTIFICATION

I, James F. V. Millar, of \# 1 Dunn Lake Road, British Columbia, do hereby certify that:

1. I hold a B. A. Sc. in Mining Engineering from the University of British Columbia.
2. I have been engaged in the mineral industry since 1947.
3. I am a member in good standing of the Associations of Professional Engineers in the provinces of Alberta, British Columbia and Saskatchewan.
4. This report was prepared by me from materials and information provided by the series of reports referenced in the body of the report.
5. I hold a $60 \%$ interest in the property described in this report in trust for Millar Western Engineering Ltd., in which company I hold a $60 \%$ interest.



MAP OF TREATT 4 CLAIM \& EAST PART OF TREATY 5 SHOWING LOCATION OF SAMPLEGO GGCALBRANCH TAKEN ON TT-7 AND DT-5.TO T IN 1991. 22.512



[^0]:    I - plates
    II - TABULATION OF SILT \& ROCK SAMPLES FROM BOTH TREATY AND STAN GROUPS
    III - DESCRIPTION OF 1991 SAMPLES - SILT AND ROCK
    IV - COPIES OF ABSAY CERTIFICATES - 1991 SAMPLING
    V - LIST OF ANOMALIES IN TREATY GROUP BAMPLES

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