GEOLOGICAL MAPPING AND STREAM SEDIMENT GEOCHEMISTRY OF THE REGION AROUND THE EZ-JASPER CLAIM GROUP, HASSELBERG LAKE 105A-13.

YMIP TARGET EVALUATION PROGRAMME AND PART
OF GRASSROOTS PROSPECTING PROGRAMME
FIELDWORK JULY - SEPTEMBER 2001

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December 2001

HASSELBERG AREA 105A-13
PROPERTY EVALUATION AND PROSPECTING THE IMMEDIATE VICINITY OF THE EZ-JASPER CLAIMS 2001: GEOLOGICAL REPORT

INTRODUCTION

The Hasselberg Lake area is in the NW corner of map sheet 105A-13 It has been a region of prospecting and production of jade from glacially and fluvially transported boulders for at least 25 years Minor production of placer gold has also taken place from Bourget Creek, the main creek draining eastward to the north end of Hasselberg Lake Prospecting for hard-rock gold or base metal mineralization has not been hitherto attempted in any systematic manner, save that of a recent aerial geophysical survey by Cominco that covered much of the middle Palaeozoic rocks of the Yukon-Tanana terrane east of the Tintina Fault The current claim evaluation and prospecting under YMIP grants has been performed to investigate the possibility of gold / base metal and jade / talc occurrences in the vicinity of the EZ-Jasper claim blocks This report concerns geological and geochemical investigations over that immediate area A separate report of prospecting activities over a larger area is being prepared by Mrs Stella Hearty

The fieldwork carried out during the 2001 summer season has generally followed that outlined in the proposal for the YMIP All known areas of rock exposure have been mapped, using a G P S receiver to obtain UTM coordinates This work has been compiled at 1 25,000 scale The region of previously located anomalous gold assays has also been mapped in detail (1 1000 scale) and sampling of accessible quartz veins carried out It was originally proposed to lay out a soil sampling grid over this region This approach was rejected as impractical after an initial careful examination of the ground, however a series of soil samples were taken along a traverse crossing the known mineralized area to test whether anomalous metal values could be detected in soils This vicinity was subjected to close-spaced stream sediment and panned concentrate sampling That approach was extended to cover the entire region surrounding the claim blocks as such geochemistry is seen as the best method to detect possible mineralization since rock exposure tends to be either abundant or entirely absent Both geological mapping and geochemical sampling were extended outside of the immediate claim boundaries to cover the entire length of the drainages to obtain sufficient samples for interpretation of results and also as part of the grassroots prospecting of the open ground Reinterpretation of some aspects of the geology in the region since the 2000 season has also changed the opinion as to prospective ground

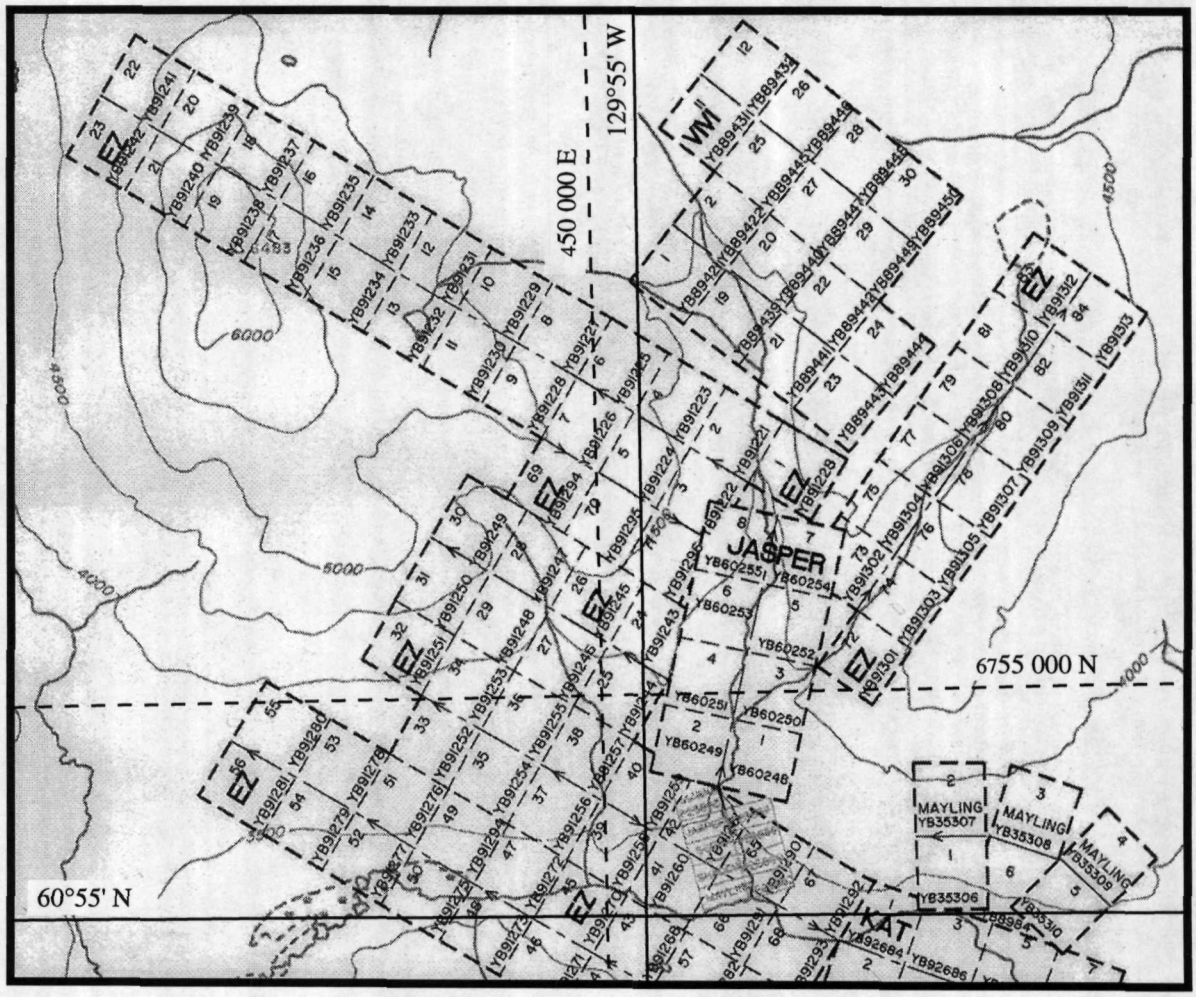


Figure 1. Portion of claim map 105A-13 showing the EZ and Jasper claim blocks. Scale 1:50,000.

CHANGES IN INTERPRETATION OF THE GEOLOGY OF THE EZ / JASPER REGION

The reconnaissance mapping carried out last year found several occurrences of fine grained to aphanitic mafic rocks that were called 'tuff', e g , U T M coordinates 51520E, 56600N, 'basalt', e g , 51100E, 55100N, and 'green volcanics', e g , 51200E, 54160N on the basis of hand specimen identification A more careful re-evaluation of these exposures this year indicated that these localities likely represent altered, often tectonised, fine-grained ultramafic lithofacies rather than volcanics (see geological map presented with the YMIP proposal and also the assessment report filed for the Jasper/EZ claim groups) This has been confirmed by an initial suite of thin sections prepared during mid season and further material (T1-T5) has recently been received from Vancouver Petrographic The lack of volcanics within the metasedimentary sequence in this area obviously diminished the possibility of finding VMS type base metal mineralization The possibility of finding gold-bearing quartz as fault fillings within the quartzite and slate sequence remained, hence the adoption of an expanded geochemical sampling programme The geology of the region and traverse routes are presented at 1 25,000 scale (Figures 2 & 3)

GEOLOGY

This mapping has demonstrated the existence of several ultramafic intrusions in the NW corner of 1 50,000 map sheet 105A-13, as follows from the NW corner (Fig 2)

(i) A sill of average 20 m thickness (but rather variable) that has been mapped for 3 km This body is uniformly serpentinised and was clearly originally an intrusion rather than a thrust sheet since andalusite and cordierite have been observed in the metasediments above The interval approximately 50 m below the lower contact may be sheared, however, as green, mafic, slaty rocks are observed at 48,300E, 58300N Thin sections of these rocks indicate they are likely thin (on the order of 3 metres thick) lower sills that are now of predominantly amphibole mineralogy (see petrographic notes sections T1, T3 and T4)

(ii) The majority of exposures of meta-gabbro, rare unaltered pyroxenite and ultrabasics in varying degrees of talc-carbonate alteration or serpentinisation are part of a large intrusion Those fine-grained rocks noted last year are serpentinised (and, in the case of the 'tuff' locality noted in 2000, carbonate altered) They are interpreted as a chilled margin along the SE contact of the main ultrabasic intrusion

(iii) Aphanitic mafic rocks noted last year at the lower end of the canyon in quartzite (see detailed map Fig 4) are now an amphibolite (thin section H2) These represent a further semi-concordant basic intrusion that is considerably thicker than the sill (i) Although the lower contact is not exposed the presence of 8 cm long crystals of andalusite in pelite cataclasite (thin section H4) at the canyon of Bourget Creek (51040E, 53720N) indicates its proximity

(iv) A further locality noted last year (51213E, 54172N), where a 10 m high exposure in a

gully is of fine grained mafic rock might be an eastward extension of the same intrusion as (iii), but this probably does not extend past 54000E since there is no exposure of ultrabasics in the creek at that easting

Metasediments exposed above the NW sill are predominantly pelites that contain andalusite in places (e g , thin section T2), with one minor marble found halfway up the ridge and further decimetre-scale marble bands exposed immediately below the peak Quartzites are found on the lower slopes (below the sill) and slates predominate to the SE The presence of andalusite in the pelites indicates that the ultramafic is indeed intrusive, despite evidence of tectonised mafic rocks below

At the canyon mapped in detail (1 1000 scale map Fig 4) the cliffs are of micaceous quartzite which shows a general shallow SE dip One major (2 3 m thick) near vertical quartz vein crosses the canyon and shows arsenopyrite and trace chalcopyrite mineralization This is likely the source of the sample taken by the Heartys that yielded significant gold (≈2ppm) Further dm-scale semiconcordant quartz veins were noted at the base of the cliffs on the east side of canyon and two 15 cm veins in the creek bed were sampled (samples 25-1 &2 see 1 1000 scale map, Fig 2) Northeast of the canyon the metasediments are slates At Bourget Creek (the southernmost geological data point) the metasediments have comparatively coarse mica and very long (8 cm) andalusite crystals The coarse grainsize is likely due to contact metamorphism by the ultramafic intrusion immediately to the north, but cataclastic texture of the rock (T2) indicates that some shearing of the units has occurred, probably prior to intrusion since the cm-scale andalusite is euhedral and randomly oriented in the outcrop

EVALUATION OF THE QUARTZ VEINS AS A POSSIBLE GOLD PROSPECT

Part of the YMIP proposal was to evaluate the quartz veins in the quartzites as potential gold prospects Two anomalous analyses were reported by the Heartys from their earlier work (see assessment report for 2000) These were in specimens obtained about 1 5 km apart The eastern specimen was obviously from the canyon that has been mapped Before any soil sampling was attempted it was deemed advisable to try to relocate those quartz occurrences A line was traversed westward from the canyon to the location of the western sample as indicated on Mrs Hearty's map No sign of any outcropping quartz was found in that vicinity (although there are abundant float boulders in the adjacent creek bed around 49,800E) Since no exposure could be found it was considered inadvisable to locate a soil grid using a suspect location In addition much of the ground on the west side of the canyon is swampy or has obvious deep till cover that is expected to interfere with possible geochemical recognition of mineralization Instead of regular grid sampling a detailed stream sediment and panned concentrate sampling was used to cover the region Detailed mapping of the quartzite canyon (Fig 4) has shown that there is just one near vertical sulphide-bearing quartz vein of any size exposed Chip samples across this vein were taken at intervals of 0-0 5, 0 5-1 0, 1 0-1 5, 1 5-2 0 and 2 0-2 3 metres In addition, to test the

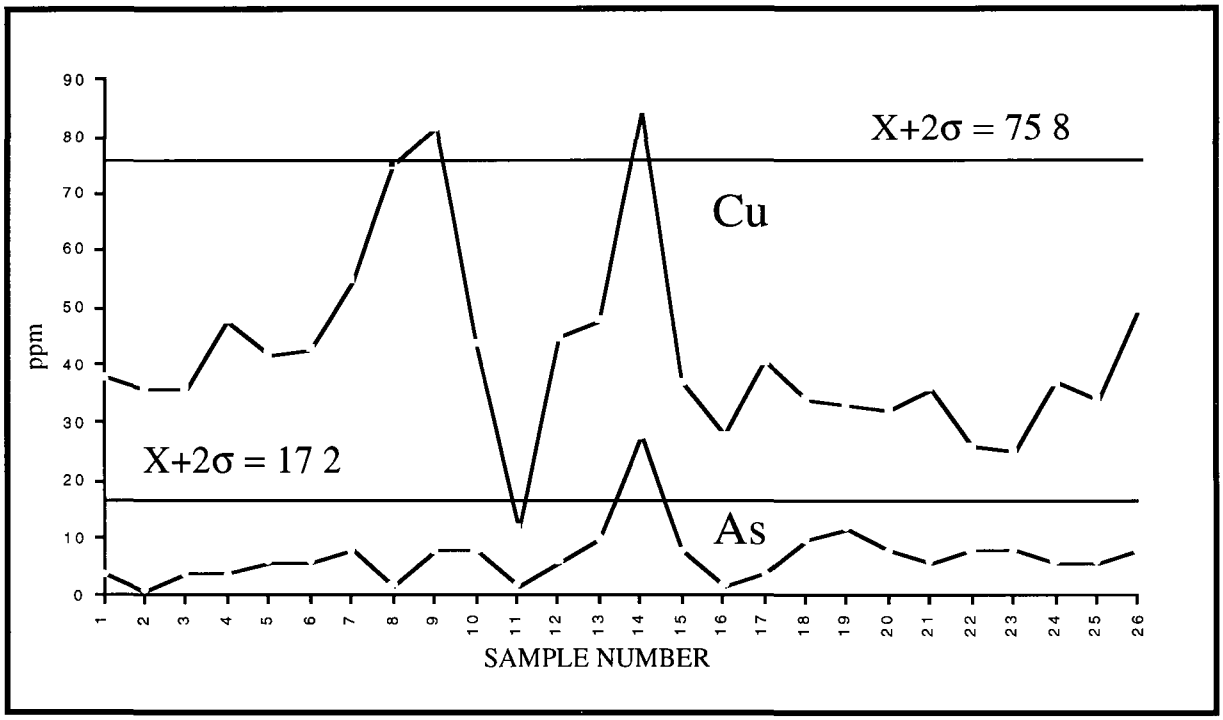
possible response of soil, geochemical samples were obtained at approximately 20 metre intervals along the hillside on the east side of the canyon The results for trace element analysis have been received

RESULTS ORIENTATION SOIL SURVEY

Of the trace elements only arsenic and copper show any interpretable variation in contents As has slightly elevated values over the vertical quartz vein (stations 18 and 19), but these would not be considered anomalous in any statistical treatment Taking mean + two standard deviations as threshold for anomaly would give (admittedly for a very small sample population of 26) values of 17 and 76 ppm as threshold for As and Cu There is a coincident, just anomalous response in both elements at station 14 (see following page) This location corresponds to that of several bedding parallel quartz veins at the base of the cliffs below, but no explanation for the anomalous Cu peak at site 9 can be given It would seem that there is a weak response to the sulphide content in these quartz veins At the location of the sample line there is under 2 metres of till / soil cover above bedrock Whether soil geochemistry would be effective in areas of greater cover is doubtful

RESULTS CHIP SAMPLING OF QUARTZ VEINS

Chip sampling of the quatz veins (samples 4-1, 6-1 to 6-5, 25-1 and 25-2) were analysed by fire assay / AAS by Chemex for Au and by ICP for Ag, Cu, Ni, Co, Fe, As, Pb, Zn and also S The highest Au value obtained was 280 ppb and Ag was 5 ppm at the highest Arsenic did not exceed 0 01%, despite there being visible scorodite in hand specimen The anomalous but decidedly not ore-grade gold contents of these quartz veins might be the source of occasional gold grains in the drainage system, but do not represent a target for further exploration



RESULTS OF SOIL GEOCHEMISTRY FOR THE TEST LINE SAMPLED ON THE EAST SIDE OF THE CANYON SAMPLE NUMBERS ARE THOSE SHOWN ON THE 1 1000 SCALE GEOLOGICAL MAP THE OUTCROPPING NEAR VERTICAL QUARTZ VEIN TRENDS BETWEEN NUMBERS 18 & 19 VALUES OF Mean + 2 s d ARE SHOWN FOR THE RESPECTIVE RESULTS

PROSPECTING FOR JADE

The current geological mapping has noted in situ jade at only one new locality at the waterfall on the east branch of the central creek (51,390E, 55230N) Figs 6 & 2 There one metre-sized boulder was seen in the creek at the top of the waterfall amongst other boulders of fine-grained serpentinised ultrabasics This part of the creek bed is considered to be sub-outcrop i e ,

movement downstream of only a few metres is expected The entire 3 km length of the western sill that was mapped is of fine-grained serpentinised ultrabasic, except for coarse (10 mm) talc alteration along joints at around (48,600E, 56,970N) The southernmost intrusion (50,800E, 54,400N) is poorly exposed and those exposures visited show very fine-grained slightly serpentinised rock It would seem that massive, coarse serpentinite is the most common host for lenses of jade in this region and that type of serpentinite is scarce in the area prospected this year

MINERALOGY OF PANNED CONCENTRATES

The location of stream sediment and panned concentrate samples that cover the EZ-Jasper claims (and overlap some of the adjacent ground held by J P Ross) is shown on a map at 1 25,000 scale (Fig 6) and notes are given in the appendix These concentrates were examined under the binocular microscope before sending them for analysis The main differences in mineral composition of the concentrates are variation in magnetite/chromite content and presence or absence of abundant, mostly euhedral red garnet The garnet is restricted to the westernmost creek sampled (i e , around 49,500E) and the lowest samples of the west fork of the next creek east (around 50,900E, 55,000N above the canyon) If the garnets found in the west fork were dispersed eastward in glacial till, then it is likely that the source is to the west of the area mapped This conclusion is supported by garnetiferous rocks being reported from the next creek to the west (around 46,000E, 58,000N and to the north) These were noted during prospecting by Mrs Hearty That particular creek drains the eastern side of the larger ultrabasic body found in the NE corner of map sheet 105B-16 Boulders in glacial till and verbal report (V Crickbaum, 2001) indicate also the presence of a syenite intrusion in that range Whether these might be a suitable prospect for any base / precious metal mineralization is uncertain until the region can be examined next season

Only the east fork of the central creek, draining the bog on the main ultrabasic intrusion contains just spinels (either or both of magnetite and chromite), along with occasional amphibole and jade (nephrite) in the concentrates The easternmost creek was not sampled for heavy minerals The following table summarises the minerals noted Locations are given in Appendix 1

PANNED CONCENTRATES	
390251	much euhedral-subhedral red garnet, rare ? olivine and pyroxene, much spinel, one jade fragment
390253	euhedral red garnet, a little spinel, rare amphibole
390260	Mostly slate fragments, only rare spinel and garnet
390263	euhedral red garnet, a little amphibole and pyroxene, mica, spinel
390301	much spinel, some red garnet, jade, feldspar
390302	euhedral red and brown garnet, amphibole, mica, much spinel
390303	spinel, rare amphibole
390304	spinel, amphibole, feldspar
390305	much spinel, feldspar, rare red garnet
390306	slate, spinel
390307	slate, spinel, amphibole
390308	much spinel, frequent jade, no garnet
390309	mostly slate, spinel and occasional amphibole
390310	much spinel, some red garnet, green ? jade, mica
390327	euhedral garnet, amphibole, mica, a little spinel

SUMMARY

Geological mapping during during the 2001 season has shown that the vicinity of the Jasper-EZ claims consists of a sequence of slate and lesser thickness of quartzite with very rare limestone bands of under 1 metre thickness near the (structural) top of the succession. The sequence is gently folded and dips are predominantly either to the west at <30° or gently easterly. Ultrabasic to basic igneous intrusions are found as one sill in the west, an irregular large discordant intrusion in the central northern part of the area and another semi-concordant intrusion in the south. Both the western sill and southern intrusion have produced a contact aureole in the pelites.

The sole metallic mineralization noted in this work has been trace arsenopyrite-chalcopyrite contained in one 2.3 metre thick, E-W striking quartz vein that cuts the quartzites. Evidence of new jade occurrence consists of the one locality at the waterfall (see geochemical location sketch, Fig. 6).

STREAM SEDIMENT GEOCHEMISTRY

In order to prospect the entire claim block above the region of heavy till cover the streams were sampled for sediment (-80 mesh) analysis and a number of panned concentrate samples obtained Since the region is quite small sediment samples were obtained at from 200-300 metre intervals, depending on suitability of the stream bed for sampling This has provided enough samples to allow interpretaion of results Heavy mineral samples were obtained by measuring a 20 litre bucketful of gravel, which was washed through a 20 mesh sieve and the sand then panned by hand to give a fairly 'dirty' heavy mineral concentrate Sediments were dried and sieved to -80 mesh before shipping to Chemex Labs for ICP trace element analysis Heavy mineral concentrates were analysed by Chemex using fusion then ICPMS for Au, Pt and Pd

This sampling also serves to indicate the geochemical response of the NW ridge and covers both the EZ 1-23 block and the vacant ground north and south of the two-claim wide strip that has been included as part of the grassroots prospecting programme

RESULTS STREAM SEDIMENTS

The stream sediment analyses reflect the local rock tyes quite distinctly and are best evaluated according to the detailed geology Plots are shown at 1 40,000 scale for each element of interest (Figures 7 to 12)

Ni

Indicates extent of the ultrabasic/basic intrusions by there being a sharp cutoff in contents above the upper fork of the central creek system Values drop from the 132-666 ppm range to under 66 ppm above the inferred contact of the main ultrabasic body Values in the SE creek (slate exposures only noted) at from 132 to 232 ppm in the upper section may reflect the presence of a continuation of one of the sills to the east, since that part of the NW creek draining sediments has values below 60 ppm

Cr

Shows a similar response to Ni, with the upper parts of the central creek system having markedly lower contents The uppermost two samples from the SE creek are also relatively high in Cr

Cu, Pb, Zn

Have no clearly anomalous results Perhaps the northernmost sample from the central creek system (sample 372) is barely anomalous in Pb at 42 ppm

As

Is somewhat enigmatic in that only the east branch of the central creek system has relatively elevated values (to 488 ppm) but taking this branch of the creek as one population, a mean of the 16 analyses is 277 ppm Using the 'simple-minded criterion' mean + 2 s d is 492 ppm, so even the highest value obtained might not be anomalous It is suggested that the comparatively higher As contents of this creek may be due to trace sulphides in the fine-grained ultrabasic and basic intrusions that were noted in that valley

Other elements

Most of the other elements are below or just above detection limits Mo is elevated in samples 352-355, which are from the lowest part of the SE creek, where glacial till is obvious, so these values likely reflect transported material Specimen 376 has anomalous Sb at 10 ppm and the adjacent specimen 377 has somewhat elevated Ag at 0 8 ppm (but since many of the Ag results are below detection liomit at 0 2 ppm it is difficult to estimate a threshold for anomaly) Similar Ag is seen in the upper part of the SE creek (spec 351) The only Hg values above detection limit are from the upper part and right fork of the same creek These results may indicate weak sources of metals in this drainage, presumably in the contact aureole of the ultramafics, but are not obviously highly significant

RESULTS HEAVY MINERAL CONCENTRATES

Of the fourteen panned concentrates analysed for Au, Pt and Pd two results stand out as obviously anomalous 302 and 305 at 3800 and 540 ppb Au respectively (Fig 13) Pt contents are below 8 ppb Although these two Au values are anomalous, the low values indicated by the rest would tend to indicate that the region is not a significant source of the metal The two high results could be produced by single microscopic grains of gold in the concentrate and coming from an initial 20 kg gravel sample they are not so exciting!

SUMMARY

The geochemical results do not indicate an obvious target for further prospecting for Au or base metals The one (statistically) high gold value in panned concentrates is explainable by the 'nugget effect', which is this case requires only one tiny grain of the metal in the concentrate The regionally low Au-Pt values indicate that the ultramafics here are not an obvious source of gold or platinoids

CONCLUSIONS

Geological mapping and geochemical stream sediment sampling in the immediate vicinity of the Jasper and EZ claims has failed to detect any ore-grade mineralization Obvious exposed quartz veins carry trace gold only and the stream sediment / heavy mineral geochemistry would indicate that there is not an obvious source of gold or base metals within the ultramafic bodies mapped Anomalous mercury noted at the northern edge of the area investigated is not explained, but other metals are not indicative of mineralization

One minor occurrence of jade was found This part of the valley might be worth further prospecting however, the topography would make any removal of jade boulders very difficult Occurrences of talc have been noted to the NE by the Heartys and will be covered in their prospecting report

Timothy Lucita

16th January 2002

APPENDICES

APPENDIX 1	Table of coordinates of geochemical sample points
APPENDIX 2	Petrographic notes
APPENDIX 3	Analytical results
APPENDIX 4	Geological diary
APPENDIX 5	Estimate of breakdown of time spent on the YMIP target evaluation and grassroots prospecting programmes

FIGURES LARGE SHEETS (FOLDED)

Fig 2	Geology of the region of Jasper-EZ claims Scale 1 25,000
Fig 3	Geological traverses, Scale 1 25,000
Fig 4	Geology of the Jasper claims (canyon) Scale 1 1000
Fig 5	Data points geology and claim posts
Fig 6	Stream sediment - panned concentrate geochemistry location of sample points Scale 1 25,000

APPENDIX 1

HASSELBERG GEOCHEMICAL SAMPLES

NUMBER	EASTING	NORTHING	TYPE	NOTE / DUPLICATE OF
250	49983	54581	SS	
251	49983	54581	HM	
252	49983	54581		
253	49141	56356	HM	
254	49141	56356	SS	
255	49280	56266	SS	
256	49423	56206	SS	
257	49513	56089	HM	
258	49513	56089	SS	
259	49637	55836	SS	
260	49568	55711	HM	
261	49568	58711	SS	
262	49661	55684	SS	
263	49823	55242	HM	
264	49823	55242	SS	
265	49873	54995	SS	
266	51115	55792	SS	
267	51033	55573	SS	
268	50970	55432	SS	
269	50910	55183	SS	
270	52805	57144	SS	
271	52695	56997	SS	
272	52584	56810	SS	
273	52407	56646	SS	
274	52251	56511	SS	
275	52170	56307	SS	
276	52046	55967	SS	
278	51930	55791		
279	51708	55563	SS	
280	51630	55416	SS	
281	51390	55237	SS	
282	51321	55153	SS	
283	51164	55135	SS	
284	51027	55027	SS	
285	50904	54899	SS	
286	50893	54931	SS	
289	50928	54815	SS	
291	55236	52535	SS	
292	55045	52658	SS	
293	54911	52861	SS	
294	54766	52984	SS	
295	54530	53144	SS	
296	53967	55012	SS	
297	53937	54829	SS	
298	53968	54703	SS	

299	54010	54596	SS	
300	54097	54459	SS	
301	51115	55792	HM	
302	50910	55183	HM	
303	52805	57144	HM	
304	52407	56646	HM	
305	52170	56307	HM	
306	51930	55791	HM	
307	51321	55153	HM	
308	50975	54968	HM	
309	50904	54899	HM	
310	50893	54931	HM	
327	51155	57410	SS	
344	52019	55841	SS	
345			SS	390286
346			SS	390270
347			SS	390378
348			SS	390403
351	54016	54392	SS	
352	54077	54232	SS	
353	54186	53902	SS	
354	54320	53714	SS	
355	54384	53598	SS	
356	49204	57918	SS	
357	49390	57938	SS	
358	49724	57942	SS	
359	49866	57875	SS	
362	50356	57772	SS	
363	50553	57649	SS	
364	50648	57595	SS	
365	50758	57585	SS	
366	51021	57241	SS	
367	51114	57225	SS	
368	51156	57410	SS	
369	51076	57533	SS	
370	50922	57857	SS	
371	50686	58366	SS	
372	50576	58486	SS	
373	51069	56704	SS	
374	51053	56901	SS	
375	51117	56361	SS	
376	51131	56115	SS	
377	51170	56012	SS	
378			SS	
403	46319	60057	SS	
407	46266	59844	SS	

APPENDIX 2: PETROGRAPHY

HASSELBERG REGION: 105A-13		
	E	N
H1	49280	56256
H2	50780	54518
H3	50904	54949
H4	51040	53735
H5	51352	55184
H6	51883	55728
H7	51798	56496
H8	51799	56678
H9	52047	55884
H10	52060	55905
H11	52067	56074
H12	53064	58463
H13	53325	58501
H14	53561	58839
H15	53748	59004
H16	54400	59159
T1	47737	59309
T2	47909	58219
T3	47979	59098
T4	47985	58635
T5	48106	58173

H1

Unaltered. Distinctly foliated, composed of 90% amphibole (actinolite) crystals to a max. of 0.4 mm long with some interstitial feldspar (some twinned plagioclase discernable) and elongated aggregates of magnetite to 0.5 mm long alternating with up to 2 mm thick layers of feldspar with only a little amphibole. Occasional amphibole crystals are grown perpendicular to the foliation in the feldspathic layers.

H2

Unaltered A fairly homogeeous aggregate of actinolite and feldspar with possibly some quartz amphibole is in 0 1 mm laths The feldspars define a faint layering, but amphibole orientation is fairly random Opaques constitute ≈2% in 0 02 mm grains surrounded by some (?) sphene, forming 0,5 mm long aggregates

H3

Unaltered Euhedral, acicular actinolite to 0 4 mm long (50%) in very fine-grained anhedral feldspar (twins rare) and possibly some quartz (too fine for unequivocal identification) The rock has a very strong preferred orientation of minerals - only a few of the coarser ampiboles have grown across the foliation Opaques and (?) sphene form agregates to 0 8 mm long that follow the foliation

H4

Slightly altered cataclasite Ragged porphyroblasts of red biotite (to 1 2 mm) and partially disaggregated feldspars (1 5 - 4 mm) that contain much fine opaque minerals are in a matrix of 0 05 - 0 1 mm feldspar and quartz The matrix (or groundmass) shows an anastomosing foliation

H5

Talc-serpentine rock A 20 mm mass of talc is in contact with serpentine Serpentine invades the talc in flame-like forms

H6

Similar to H1 - 3 Acicular actinolite to 0 3 mm in feldspar Has somewhat less strong preferred orientation of minerals than (1) Opaques are 0 3 mm aggregates without any sphene

H7

A mass of 0 2 mm tremolite with some interstitial (?) quartz as 1 mm polygonised semi-elliptical shaped masses Both carbonate and quartz form 0 1 -0 2 mm thick veins

H8

Coarse actinolite - feldspar rock Actinolite is up to 6 mm long as ragged, anhedral forms Twinned plagioclase (2 mm, rarely to 4 mm) has relict euhedral forms, but is penetrated by the actinolite Euhedral magnetite to 1 mm (≈2% of the volume)

H9

A mass of 1 mm tremolite crystals with perhaps 15% groundmass of feldspar and (?) quartz

H10

Quartz-amphibole-epidote rock (hornfels?) Acicular tremolite, 1 mm long defines a distinct foliation Quartz grains are up to 0 3 mm across, anhedral, polygonised and interstitial to the amphiboles Epidote is anhedral and up to 0 3 mm size

H11

Coarser-grained variant of (10), but contains some plagioclase and biotite Has a fairly strong preferred orientation of minerals which is anastomosing 1 mm long aggregates of tremolite may be pseudomorphing pyroxenes Interstitial quartz is 0 1 mm grainsize, with the occasional plagioclase grain 0 3 mm euhedral crystals of epidote are associated with the tremolite The mica is pleichroic from colourless to pale brown and form occasional 2 mm anhedral grains in the quartz matrix Opaques are cubic forms from 0 05 - 0 1 mm size Tremolite 30%, opaques 1 %, biotite and epidote <1%

H12

Fine-grained amphibole-quartz rock Ampiboles are up to 0 3 mm long and constitute 50% of the bulk Opaques are <1% Very occasional 0 1 mm epidote crystals are seen

H13

Slightly serpentinised amphibole-rich rock Ragged, almost equidimensional tremolite is up to 0 6 mm across (70% of the bulk) in a serpentine matrix There are only rare opaques

H14

Meta-syenite? Amphibole-feldspar rock The amphibole is pleichroic from pale green to faint pink (tremolite-actinolite) and is in 3 mm masses The matrix is perthite and plagioclase with occasional masses of epidote

H16

Inhomogeneous epidote-chlorite-tremolite rock, with only occasional plagioclase Tremolite crystals are 4 mm long Epidote masses are up to 50% of the volume There are local concentrations of tremolite to 30% Chlorite can locally form 40% Opaques 1% No preferred orientation noted

T1

Elongate subhedral polygonised calcite masses up to 6 mm long may be pseudomorphing pyroxene phenocrysts The remainder of the rock is 70% tremolite-actinolite in acicular crystals to 0 7 mm long in a matrix of (?) quartz (0 1 mm grainsize) and similar-sized amphiboles A few opaques only are seen

T2

Andalusite-biotite-quartz schist Has a distinct foliation which does not especially anastomose or curve around the andalusite porphyroblasts Andalusite are 1 mm long by 0 5 mm in cross-section and constitute ≈20% Biotite (pleichroic from colourless to red-brown and near uniaxial -ve) is 15% of volume in 0 2 - 0 4 mm long anhedral forms The matrix is 0 1-0 2 mm quartz grains

T3

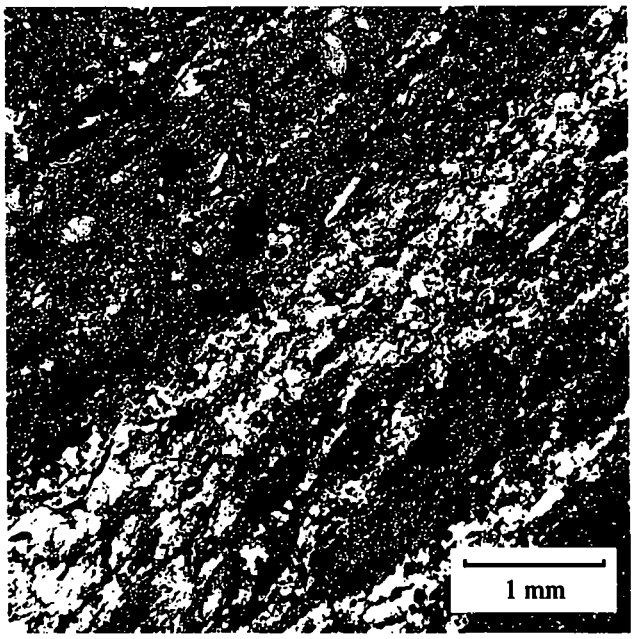
Tremolite-actinolite quartz biotite 'schist' 80% tremolite-actinolite as acicular crystals to 0 5 mm long with a strong preferred orientation Quartz is interstitial Opaques (≈1%) are 0 1 mm long needles Biotite (pleichroic from colourless to red-brown and near uniaxial) forms discreet layers up to 0 4 mm thick

T4

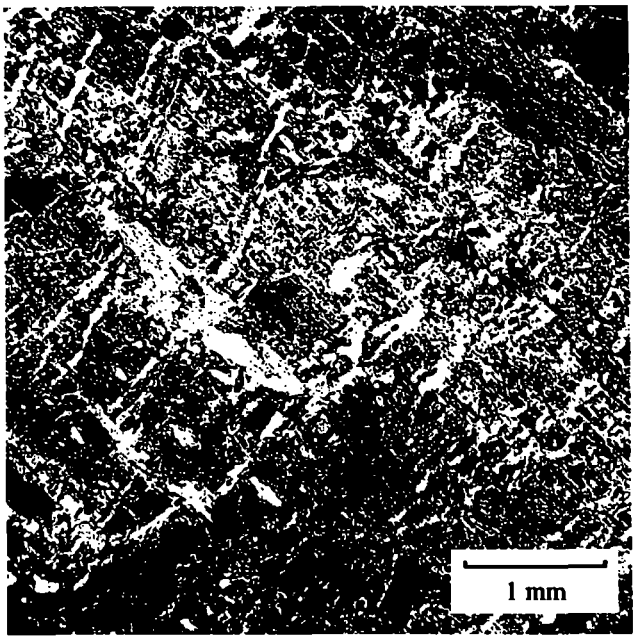
Tremolite-actinolite plagioclase rock Random oriented, fairly equidimensional raged phenocrysts of the amphibole from 0 5 - 1 mm grainsize are included in a plagioclase matrix, the feldspar being mostly as polygonised 0 1 mm grains

T5

Highly serpentinised dunite Some relict olivine is present (15% in places) but it is pervasively fractured and serpentine altered Large (>4 mm) fields of serpentine and talc are interstitial

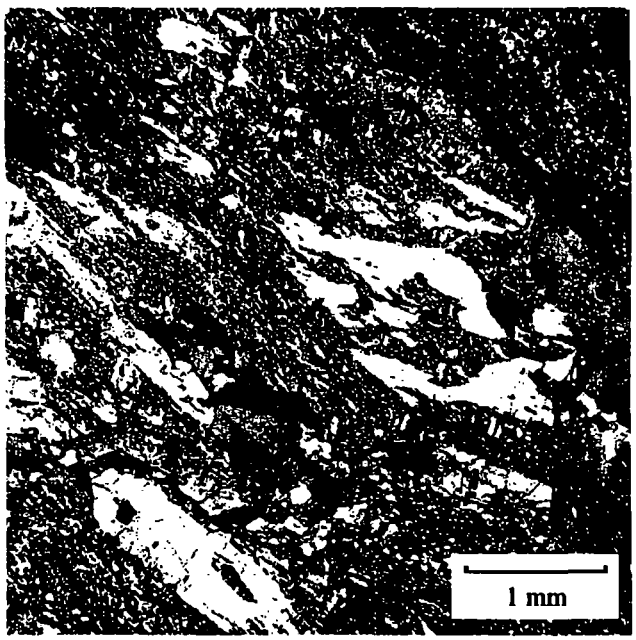


H1: Crossed polarisers

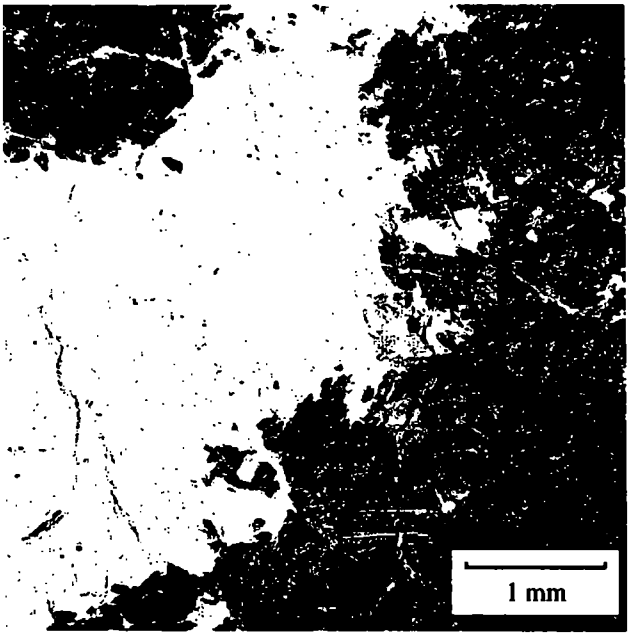


T5: Crossed plarisers

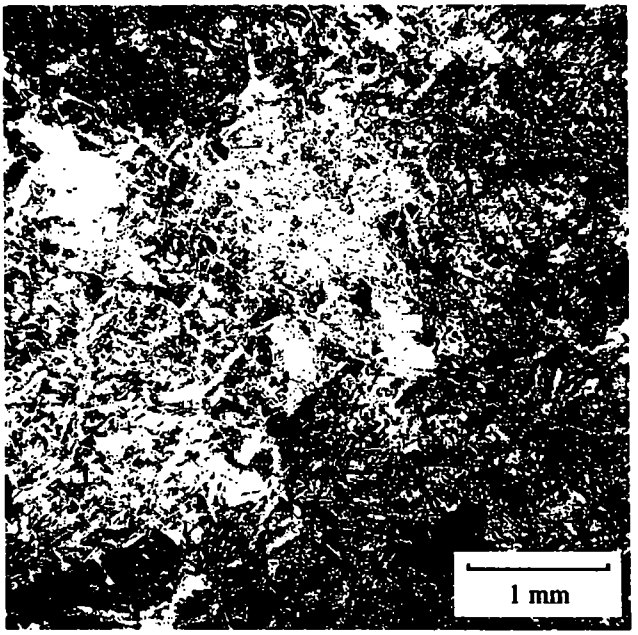
H4: Plain polarised light



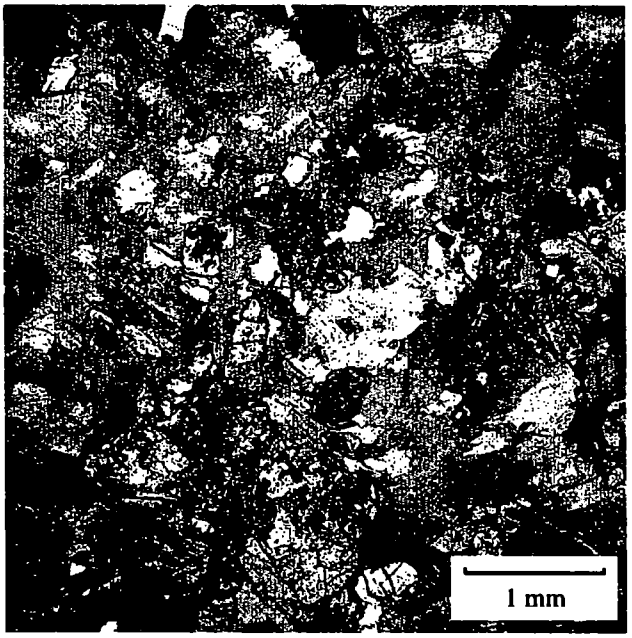
H4: Crossed polarisers



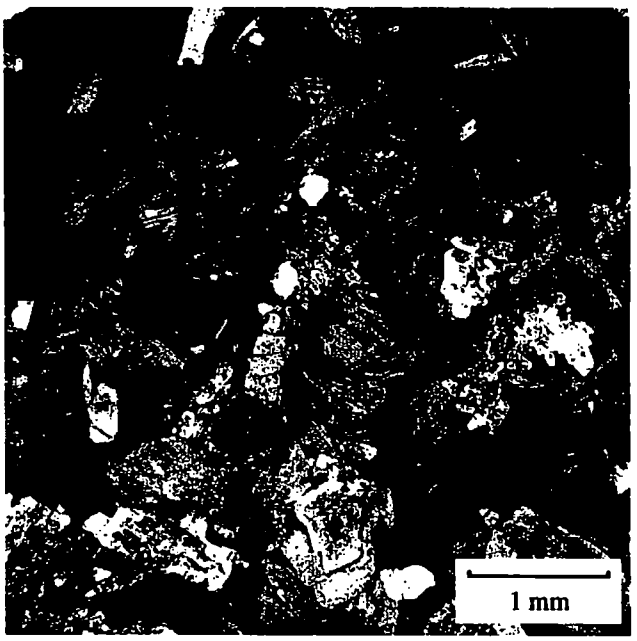
H15: Plain polarised light



H15: Crossed polarisers



H16: Plain polarised light



H16: Crossed polarisers

ALS Chemex

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To HEARTY, STELLA

BOX 81
WATSON LAKE, YT
Y0A 1C0

Project
Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

Page Number 1-A
Total Pages 2
Certificate Date 21-NOV-2001
Invoice No I0128689
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128689

SAMPLE	PREP CODE	Weight Kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
390250	225 9400	0 02	0.8	2.82	22	< 10	280	1 5	< 2	0 57	0 5	18	103	66	3.12	10	< 1	0.40	10	1 49
390252	225 9400	0 02	< 0.2	2.58	8	< 10	310	0.5	< 2	0 41	< 0 5	15	97	42	3 27	< 10	< 1	0.47	< 10	1 29
390255	225 9400	0 02	< 0.2	2 59	10	< 10	270	1 0	2	0.58	0 5	16	91	59	2.97	< 10	< 1	0 40	10	1.28
390256	225 9400	< 0.02	< 0 2	2 76	12	< 10	290	1 0	< 2	0 47	< 0.5	16	94	50	3 30	10	< 1	0 53	10	1 36
390258	225 9400	< 0 02	< 0.2	2.72	12	< 10	300	1 0	2	0.46	< 0 5	17	96	50	3.34	10	< 1	0.52	10	1 37
390259	225 9400	0 02	0.6	2 49	10	< 10	270	0 5	4	0 46	< 0.5	15	97	43	3.06	< 10	< 1	0.43	< 10	1 29
390260	225 9400	0.02	0.2	1.87	14	< 10	240	0 5	< 2	0.31	< 0 5	12	71	37	3.09	< 10	< 1	0.47	< 10	0 74
390261	225 9400	0 02	0.2	2 59	10	< 10	290	0 5	2	0.44	< 0 5	16	101	48	3.23	< 10	< 1	0.45	< 10	1 46
390262	225 9400	0 02	0 2	2 59	12	< 10	290	0 5	< 2	0.43	< 0 5	16	98	47	3.18	10	< 1	0 47	< 10	1.42
390264	225 9400	< 0 02	< 0 2	2 82	10	< 10	310	0 5	< 2	0.38	< 0 5	16	100	48	3 39	10	< 1	0 55	< 10	1.35
390265	225 9400	< 0 02	0.2	2 56	8	< 10	300	0 5	< 2	0.37	< 0 5	15	95	39	3.18	< 10	< 1	0 50	< 10	1.33
390266	225 9400	< 0 02	0.2	1 69	18	< 10	190	0 5	< 2	0.35	< 0 5	20	145	37	3 20	< 10	< 1	0 42	< 10	1 71
390267	225 9400	< 0 02	0 2	1 72	16	< 10	190	0.5	< 2	0 35	< 0 5	20	133	38	3.21	< 10	< 1	0 36	< 10	1 63
390268	225 9400	< 0 02	0 2	1 86	22	< 10	200	0 5	2	0 37	< 0 5	21	150	38	3 47	10	< 1	0 42	< 10	1 81
390269	225 9400	< 0 02	0 4	1 91	18	< 10	200	0.5	< 2	0 38	< 0.5	21	173	38	3.47	< 10	< 1	0 41	< 10	1 77
390270	225 9400	0 02	0.6	1 44	90	< 10	290	0 5	< 2	0 31	0 5	43	312	16	5 66	10	< 1	0 03	< 10	0 95
390271	225 9400	< 0 02	< 0 2	1 38	320	< 10	260	0 5	6	0 22	0 5	48	351	14	5.83	10	< 1	0.03	< 10	1 74
390272	225 9400	< 0 02	< 0.2	1 66	362	< 10	250	0.5	< 2	0 20	< 0 5	45	179	20	4 87	10	< 1	0.19	< 10	2 62
390273	225 9400	< 0.02	0 8	1 63	294	< 10	250	0 5	4	0 28	4 5	37	202	40	4 19	< 10	< 1	0 09	10	1 98
390274	225 9400	0 02	0 4	1.67	356	< 10	180	0 5	< 2	0.31	2 0	30	183	27	4.05	< 10	< 1	0 05	10	1 20
390275	225 9400	< 0 02	< 0 2	2.01	312	< 10	200	0 5	2	0.32	1 5	26	168	29	3 84	< 10	< 1	0 23	10	1 36
390276	225 9400	< 0 02	0 2	2 01	224	< 10	190	0.5	< 2	0 33	2 5	25	169	35	3 44	< 10	< 1	0.10	10	1 11
390277	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
390278	225 9400	< 0 02	< 0 2	2 02	420	< 10	160	0 5	< 2	0.40	1 5	22	167	36	3.54	< 10	< 1	0 10	10	1.25
390279	225 9400	< 0.02	0 2	1 89	326	< 10	210	0.5	2	0 37	2 0	24	168	34	3 33	< 10	< 1	0 10	10	1.27
390280	225 9400	< 0 02	0 2	1.95	308	< 10	160	0.5	2	0.37	1 5	24	186	37	3 32	< 10	< 1	0.09	10	1.25
390281	225 9400	< 0.02	0 2	1 89	224	< 10	180	0.5	< 2	0.38	1 0	24	166	35	3 13	< 10	< 1	0 10	< 10	1 33
390282	225 9400	< 0 02	0.2	1 75	230	< 10	170	0 5	4	0.39	2 0	25	212	36	3 30	10	< 1	0 10	< 10	1 70
390283	225 9400	< 0.02	< 0.2	1.73	186	< 10	210	0 5	6	0.48	1 0	28	203	34	3 46	10	< 1	0.10	< 10	1 82
390284	225 9400	< 0 02	< 0.2	1 90	180	< 10	280	0 5	2	0 44	0.5	26	178	36	3 30	< 10	1	0 12	10	1.65
390285	225 9400	< 0.02	< 0 2	1.38	112	< 10	180	0.5	2	0 32	0.5	20	177	27	2 66	< 10	< 1	0.10	< 10	1 36
390286	225 9400	0.08	< 0 2	1 30	6	< 10	160	< 0 5	4	0.25	< 0.5	13	84	26	2.21	< 10	< 1	0.13	< 10	0 76
390289	225 9400	0 10	< 0.2	1 61	2	< 10	190	0 5	< 2	0 26	< 0 5	15	93	30	2 53	< 10	< 1	0 16	< 10	0 96
390291	225 9400	< 0 02	0 2	1 46	16	< 10	160	0.5	2	0 50	3.5	11	76	30	2 31	< 10	< 1	0 12	10	0 71
390292	225 9400	< 0.02	0 4	1 65	24	< 10	190	0 5	2	0 69	4 0	12	87	37	2.60	< 10	< 1	0 10	20	0 75
390293	225 9400	< 0.02	0.2	1 42	14	< 10	140	0 5	< 2	0.62	2 5	12	98	30	2 37	< 10	< 1	0 05	20	0 78
390294	225 9400	< 0.02	< 0 2	1.69	14	< 10	180	0 5	2	0.73	2 5	12	98	37	2 51	< 10	< 1	0 07	30	0 84
390295	225 9400	0.02	0.4	0.78	12	< 10	100	< 0 5	< 2	0.52	2 5	6	44	21	1 29	< 10	< 1	0.02	10	0.40
390296	225 9400	0 04	0.2	1.67	32	< 10	100	1 0	< 2	0.34	3 0	22	332	60	4.54	< 10	< 1	0.20	10	1 07
390297	225 9400	< 0 02	< 0.2	2.01	30	< 10	170	1 0	< 2	0 34	3.0	19	203	54	4 18	10	< 1	0 30	10	1.23

CERTIFICATION _____

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To HEARTY STELLA

BOX 81
WATSON LAKE, YT
Y0A 1C0

Project
Comments ATTN STELLA HEARTY CC DR. TIM LIVERTON

Certificate Date 21-NOV-2001
Invoice No I0128689
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128689

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
390250	225 9400	315	2	0 03	167	850	8	0 07	2	6	41	0.09	< 10	< 10	73	< 10	66
390252	225 9400	300	1	0.03	107	640	8	0 03	< 2	8	25	0 13	< 10	< 10	77	< 10	52
390255	225 9400	345	2	0 02	112	750	6	0.05	< 2	7	40	0 10	< 10	< 10	75	< 10	56
390256	225 9400	375	1	0 03	114	670	6	0 04	2	8	28	0 13	< 10	< 10	80	< 10	52
390258	225 9400	370	1	0 03	118	700	6	0 04	< 2	8	26	0 14	< 10	< 10	79	< 10	56
390259	225 9400	335	1	0.03	120	700	6	0 04	< 2	7	25	0.12	< 10	< 10	71	< 10	48
390260	225 9400	530	1	0 02	59	730	10	0.03	< 2	6	15	0 15	< 10	< 10	66	10	80
390261	225 9400	350	< 1	0.03	130	620	6	0.04	< 2	8	27	0.13	< 10	< 10	76	< 10	48
390262	225 9400	345	1	0 03	124	620	2	0.03	< 2	8	24	0 12	< 10	< 10	76	< 10	48
390264	225 9400	345	1	0 03	104	630	10	0 02	< 2	9	21	0 14	< 10	< 10	84	< 10	56
390265	225 9400	315	2	0.03	101	550	6	0 02	< 2	8	21	0 13	< 10	< 10	77	< 10	52
390266	225 9400	475	< 1	0.03	132	630	6	0 02	< 2	6	12	0 12	< 10	< 10	72	< 10	62
390267	225 9400	515	< 1	0 02	139	610	8	0 02	< 2	7	14	0.11	< 10	< 10	69	< 10	66
390268	225 9400	520	1	0 03	144	610	6	0.02	4	7	14	0 13	< 10	< 10	74	10	72
390269	225 9400	475	< 1	0 03	142	660	8	0 01	< 2	7	15	0 13	< 10	< 10	78	10	68
390270	225 9400	4590	3	0.01	301	810	6	0 05	6	3	23	0 03	< 10	< 10	52	< 10	92
390271	225 9400	3860	1	0 01	410	680	8	0 03	2	4	17	0.03	< 10	< 10	48	< 10	92
390272	225 9400	3610	1	0 02	462	450	2	0 03	2	5	16	0 08	< 10	< 10	62	< 10	88
390273	225 9400	2210	3	0 02	409	890	10	0.05	< 2	6	17	0 04	< 10	< 10	53	< 10	112
390274	225 9400	1760	2	0 01	345	790	6	0 05	2	4	20	0 04	< 10	< 10	45	< 10	102
390275	225 9400	1520	2	0.02	255	740	6	0 07	2	5	24	0 07	< 10	< 10	61	30	106
390276	225 9400	1150	1	0 01	265	860	8	0 06	2	5	24	0.04	< 10	< 10	47	10	112
390277	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
390278	225 9400	730	3	0.02	258	840	6	0 07	< 2	5	29	0 05	< 10	< 10	48	20	112
390279	225 9400	1120	2	0 01	264	780	4	0 06	2	4	27	0 05	< 10	< 10	45	< 10	112
390280	225 9400	915	2	0 01	287	800	6	0 06	< 2	5	25	0 04	< 10	< 10	44	10	104
390281	225 9400	740	1	0 01	293	730	6	0 05	2	5	29	0.05	< 10	< 10	46	< 10	90
390282	225 9400	885	< 1	0.02	311	750	4	0 06	< 2	5	27	0 05	< 10	< 10	47	< 10	104
390283	225 9400	945	< 1	0.02	335	700	8	0 05	2	6	31	0 05	< 10	< 10	51	10	90
390284	225 9400	695	< 1	0.02	313	680	8	0 05	4	6	29	0 06	< 10	< 10	52	< 10	86
390285	225 9400	440	< 1	0.01	228	540	4	0.03	< 2	4	20	0.05	< 10	< 10	44	10	64
390286	225 9400	370	1	0 01	90	720	6	0 01	2	4	11	0 07	< 10	< 10	47	< 10	50
390289	225 9400	410	1	0 01	108	730	6	0 01	< 2	5	13	0 09	< 10	< 10	56	< 10	60
390291	225 9400	330	1	0 01	112	530	14	0 06	< 2	3	29	0 04	< 10	< 10	37	< 10	108
390292	225 9400	365	3	0 02	139	600	14	0 08	2	3	39	0 04	< 10	< 10	44	< 10	154
390293	225 9400	275	3	0 02	128	580	4	0.06	< 2	3	36	0 03	< 10	< 10	42	< 10	116
390294	225 9400	270	4	0.03	141	690	8	0 08	< 2	3	43	0.03	< 10	< 10	47	< 10	140
390295	225 9400	160	1	0.01	77	420	6	0.04	< 2	1	24	0 01	< 10	< 10	23	< 10	70
390296	225 9400	460	5	0.03	232	580	12	0 10	2	6	27	0 05	< 10	< 10	92	< 10	170
390297	225 9400	400	9	0.04	181	600	14	0.11	2	6	36	0 06	< 10	< 10	101	< 10	186

CERTIFICATION _____

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To HEARTY, STELLA

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Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

Certificate Date 21 NOV-2001
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CERTIFICATE OF ANALYSIS A0128689

SAMPLE	PREP CODE	Weight Kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
390298	225 9400	< 0 02	0 6	1.96	32	< 10	160	1 0	< 2	0 38	3 0	18	135	48	3 76	< 10	< 1	0 22	10	1 15
390299	225 9400	< 0 02	0 6	2 02	34	< 10	170	1 0	< 2	0 38	3 0	18	170	49	3 97	< 10	< 1	0.26	10	1.18
390300	225 9400	< 0 02	0 2	2 13	34	< 10	190	1 0	< 2	0 38	3.0	19	151	51	4.09	< 10	< 1	0.30	10	1 24
390327	225 9400	< 0 02	< 0 2	1 73	28	< 10	220	0 5	2	0 31	0.5	12	65	35	2 93	< 10	< 1	0 46	< 10	0.75
390344	225 9400	< 0 02	0 2	1 89	488	< 10	140	0 5	< 2	0 41	1.0	19	89	27	3 07	< 10	< 1	0.19	10	1 28
390345	225 9400	< 0 02	< 0 2	1 23	8	< 10	160	< 0 5	< 2	0 23	< 0.5	13	74	26	2.16	< 10	< 1	0.13	< 10	0 73
390346	225 9400	< 0 02	0 4	1 43	102	< 10	340	0 5	< 2	0 31	0 5	50	345	15	6 17	10	< 1	0 03	< 10	1.27
390347	225 9400	0.06	0 4	1 77	8	< 10	210	0 5	< 2	0 28	< 0 5	16	109	33	2 69	< 10	< 1	0 20	< 10	1.10
390348	225 9400	0 04	< 0 2	1.08	4	< 10	90	< 0.5	6	0 28	< 0.5	17	146	23	1.85	< 10	< 1	0 12	< 10	1.03
390351	225 9400	< 0 02	0 8	1 66	14	< 10	150	0.5	2	0 81	4 0	11	80	53	2 23	< 10	< 1	0 12	40	0.93
390352	225 9400	0 02	0 6	1 85	26	< 10	160	0 5	< 2	0 56	4 0	16	102	46	3 01	< 10	< 1	0.19	10	1 15
390353	225 9400	0 02	0 4	1.50	20	< 10	160	0 5	< 2	0 60	3 0	12	80	32	2 35	< 10	< 1	0 09	10	0.81
390354	225 9400	< 0 02	0 6	1 60	20	< 10	160	0 5	< 2	0.65	3.5	13	78	36	2 53	< 10	< 1	0 09	20	0.85
390355	225 9400	< 0 02	0 6	1 71	22	< 10	170	0 5	< 2	0 70	3 5	14	82	37	2 64	< 10	< 1	0 10	20	0.96
390356	225 9400	< 0 02	< 0 2	1 89	6	< 10	210	0.5	< 2	0 25	< 0 5	14	73	39	3 60	< 10	< 1	0 57	< 10	0.78
390357	225 9400	< 0 02	< 0.2	1 87	22	< 10	280	0 5	2	0.26	< 0 5	14	63	57	3.42	< 10	< 1	0.64	< 10	0.75
390358	225 9400	< 0 02	< 0.2	1.71	10	< 10	230	0 5	< 2	0 24	< 0 5	12	63	38	2 98	< 10	< 1	0 54	< 10	0.72
390359	225 9400	< 0 02	0.2	1 86	12	< 10	230	0 5	< 2	0 30	< 0 5	12	73	40	3 00	< 10	< 1	0 45	10	0.71
390362	225 9400	< 0 02	< 0 2	2 00	20	< 10	250	0 5	2	0.36	< 0 5	14	81	45	3 37	< 10	< 1	0 49	10	0.76
390363	225 9400	< 0 02	< 0 2	1 73	10	< 10	220	0 5	< 2	0 31	< 0 5	12	68	40	3 13	< 10	< 1	0 50	< 10	0 67
390364	225 9400	< 0 02	< 0 2	1 71	22	< 10	210	0 5	< 2	0.29	< 0 5	12	69	37	2 94	< 10	< 1	0 42	< 10	0.65
390365	225 9400	< 0 02	< 0.2	1.75	18	< 10	230	0 5	2	0 32	< 0 5	12	66	35	2 95	< 10	< 1	0 45	< 10	0.68
390366	225 9400	< 0 02	< 0 2	1 72	18	< 10	210	0 5	< 2	0 33	< 0.5	12	67	34	2 86	< 10	< 1	0.39	< 10	0.67
390367	225 9400	< 0 02	< 0 2	0.78	18	10	110	0 5	< 2	0 95	< 0 5	42	212	17	3 06	10	< 1	0.14	< 10	6.61
390368	225 9400	< 0 02	0 8	0 32	26	30	80	0 5	< 2	1 78	< 0 5	46	440	14	3.26	< 10	2	0 01	< 10	8.94
390369	225 9400	< 0 02	0 6	1 60	44	< 10	150	1 5	< 2	0 47	0 5	18	139	33	3 01	< 10	1	0 33	10	2 23
390370	225 9400	< 0 02	0.2	2 10	48	< 10	200	2 0	< 2	0 60	< 0 5	12	124	37	3 27	< 10	< 1	0.35	10	1 12
390371	225 9400	< 0 02	< 0 2	1 90	40	< 10	160	2 0	< 2	0 48	< 0 5	12	56	34	3 16	< 10	4	0.36	10	0 61
390372	225 9400	< 0 02	< 0 2	1 89	40	< 10	130	1 5	< 2	0 46	0 5	9	60	29	2 90	< 10	1	0.25	10	0.62
390373	225 9400	< 0 02	0 2	1 35	32	< 10	150	1 0	< 2	0 55	< 0 5	23	194	28	3 21	< 10	7	0 30	< 10	3.27
390374	225 9400	< 0 02	< 0 2	1 63	32	< 10	210	1 5	< 2	0 53	< 0.5	19	165	31	3 14	< 10	8	0.31	< 10	2.05
390375	225 9400	< 0 02	0.2	1.55	22	< 10	170	1 0	2	0 42	< 0 5	17	158	31	3 06	< 10	< 1	0.28	< 10	1 85
390376	225 9400	< 0 02	< 0.2	1 61	32	< 10	190	1.0	< 2	0.44	< 0.5	17	138	43	3.31	< 10	5	0 40	< 10	1.89
390377	225 9400	0 04	0 8	1 63	30	10	170	0.5	< 2	0 33	< 0.5	20	177	63	2 60	< 10	< 1	0 08	< 10	1.71
390378	225 9400	0.06	1.4	1 90	28	< 10	220	1 0	< 2	0.32	< 0 5	15	110	37	2 90	< 10	4	0.21	10	1 24
390403	225 9400	0 02	< 0 2	1 24	18	10	90	0 5	2	0 34	< 0 5	20	169	29	2.21	< 10	< 1	0.14	< 10	1.24
390407	225 9400	0 04	< 0.2	1 20	24	< 10	110	0 5	< 2	0 37	< 0 5	19	118	28	2 77	< 10	3	0.12	< 10	1 10

CERTIFICATION

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To HEARTY, STELLA

BOX 81
WATSON LAKE, YT
Y0A 1C0

Project
Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

Certificate Date 21 NOV-2001
Invoice No I0128689
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128689

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
390298	225 9400	345	8	0 04	161	630	12	0 10	< 2	6	35	0.06	< 10	< 10	96	< 10	192
390299	225 9400	355	9	0 04	170	580	10	0 11	2	6	38	0.06	< 10	< 10	97	< 10	194
390300	225 9400	380	10	0 04	171	610	14	0 11	2	6	42	0 06	< 10	< 10	105	< 10	208
390327	225 9400	560	1	0 02	53	730	6	0 02	< 2	5	15	0 15	< 10	< 10	66	< 10	76
390344	225 9400	355	1	0.01	244	870	16	0 06	4	4	34	0.05	< 10	< 10	45	< 10	124
390345	225 9400	360	1	0 01	87	720	6	0.01	< 2	4	10	0 07	< 10	< 10	47	< 10	52
390346	225 9400	5470	3	0 01	361	790	2	0 04	2	3	27	0 03	< 10	10	52	< 10	92
390347	225 9400	440	< 1	0 01	119	660	8	0 01	< 2	6	14	0.11	< 10	< 10	60	< 10	64
390348	225 9400	275	< 1	0 03	137	660	< 2	< 0.01	< 2	3	9	0 09	< 10	< 10	45	< 10	22
390351	225 9400	350	4	0 03	146	590	10	0.07	2	4	44	0.05	< 10	< 10	70	< 10	190
390352	225 9400	320	6	0.03	160	650	10	0 10	4	5	40	0 05	< 10	< 10	76	< 10	186
390353	225 9400	345	5	0 03	132	600	6	0 07	2	3	36	0.04	< 10	< 10	59	< 10	152
390354	225 9400	370	5	0 03	143	590	8	0.07	< 2	3	38	0 04	10	< 10	65	< 10	176
390355	225 9400	390	4	0 03	152	650	12	0 08	6	4	43	0 04	< 10	< 10	73	< 10	182
390356	225 9400	550	1	0.03	59	580	10	0 09	< 2	5	14	0 15	< 10	< 10	63	< 10	86
390357	225 9400	590	< 1	0 02	57	830	6	0.04	< 2	6	11	0.17	< 10	< 10	78	< 10	84
390358	225 9400	535	< 1	0 03	51	650	8	0.03	2	5	10	0.16	< 10	< 10	61	< 10	84
390359	225 9400	565	1	0 02	56	740	14	0.04	< 2	6	15	0.14	< 10	< 10	64	< 10	82
390362	225 9400	660	< 1	0 02	57	790	6	0.04	< 2	7	19	0 15	< 10	< 10	73	20	84
390363	225 9400	610	< 1	0.02	49	790	8	0.02	< 2	6	15	0.15	< 10	< 10	72	< 10	86
390364	225 9400	580	1	0.02	50	740	8	0 03	< 2	5	13	0 13	< 10	< 10	66	< 10	82
390365	225 9400	600	< 1	0 02	47	740	10	0 03	< 2	6	13	0.14	< 10	< 10	66	< 10	80
390366	225 9400	535	< 1	0 01	47	720	6	0.03	< 2	5	14	0 13	< 10	< 10	64	< 10	74
390367	225 9400	765	< 1	0.01	591	290	12	0 01	< 2	6	30	0.05	< 10	< 10	31	< 10	52
390368	225 9400	870	< 1	< 0.01	666	180	14	< 0 01	< 2	8	59	< 0 01	< 10	< 10	25	< 10	34
390369	225 9400	510	2	0 01	218	640	24	0 04	2	5	15	0.10	10	< 10	55	20	86
390370	225 9400	515	< 1	0.02	66	760	26	0 04	8	6	21	0.15	< 10	< 10	78	20	94
390371	225 9400	580	< 1	< 0 01	58	670	32	0 06	< 2	4	9	0 10	< 10	< 10	47	40	138
390372	225 9400	610	2	0 01	54	820	42	0.08	< 2	3	14	0 10	< 10	< 10	52	80	126
390373	225 9400	665	1	0 01	280	600	16	0.02	8	6	11	0.09	< 10	< 10	54	< 10	74
390374	225 9400	575	< 1	0.01	187	590	18	0 02	2	6	16	0 10	10	< 10	59	10	70
390375	225 9400	530	3	0 01	168	560	20	0 02	< 2	5	15	0.10	< 10	< 10	57	30	68
390376	225 9400	545	< 1	0 01	214	630	20	0.02	10	6	9	0.10	< 10	< 10	56	< 10	72
390377	225 9400	270	< 1	0.01	387	570	12	0.03	6	6	11	0.05	< 10	< 10	43	< 10	50
390378	225 9400	440	4	0 01	132	750	16	0 01	< 2	6	12	0 11	< 10	< 10	63	< 10	76
390403	225 9400	310	< 1	0 01	163	750	10	< 0 01	12	4	10	0.10	10	< 10	53	< 10	34
390407	225 9400	620	2	0.02	152	730	8	< 0 01	< 2	4	10	0.09	< 10	< 10	53	< 10	36

CERTIFICATION:

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To HEARTY, STELLA

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Project
Comments ATTN STELLA HEARTY. CC DR TIM LIVERTON

Page Number 1
Total Pages 1
Certificate Date 26-NOV-2001
Invoice No 10128690
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128690

SAMPLE	PREP CODE	Weight Kg	Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS
390251	2359400	0.02	6	5.0	3
390253	2359400	0.02	1	2.0	2
390257	2359400	0.02	4	1.5	1
390260	2359400	0 02	< 1	1.0	1
390263	2359400	0.02	17	2.5	2
390301	2359400	0.02	40	3.0	2
390302	2359400	0.02	3800	3 5	3
390303	2359400	0.02	75	6.5	2
390304	2359400	0.02	12	8.0	3
390305	2359400	0 02	540	2.0	1
390306	2359400	0.02	7	4.0	2
390307	2359400	0.02	2	5.5	2
390308	2359400	0.02	6	6 5	5
390309	2359400	0.02	2	2.5	2
390310	2359400	0.02	3	2.0	1

CERTIFICATION

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Project
Comments ATTN STELLA HEARTY

Page Number 1-B
Total Pages .1
Certificate Date 07 SEP 2001
Invoice No I0123599
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0123599

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
(T-1) 390379	9406 9407	370	1	0 01	133	530	10	0 01	2	7	16	0 12	< 10	< 10	79	< 10	78
(T-2) 390380	9406 9407	405	1	0 01	188	640	6	< 0.01	< 2	7	16	0.10	< 10	< 10	65	< 10	66
(T-3) 390381	9406 9407	465	1	0 01	168	670	8	< 0.01	< 2	7	18	0 11	< 10	< 10	69	< 10	74
(T-4) 390382	9406 9407	510	1	< 0 01	181	770	10	0.01	< 2	8	16	0.11	< 10	< 10	71	< 10	82
(T-5) 390383	9406 9407	585	1	0 01	162	750	10	0.01	< 2	7	17	0 10	< 10	< 10	65	< 10	80
(T-6) 390384	9406 9407	395	1	0 01	161	620	8	0 01	< 2	7	17	0 11	< 10	< 10	70	< 10	74
(T-7) 390385	9406 9407	590	1	0 01	183	590	6	0 01	< 2	8	14	0 08	< 10	< 10	75	< 10	66
(T-8) 390386	9406 9407	215	1	0.01	106	290	6	0.01	< 2	5	12	0 06	< 10	< 10	57	< 10	48
(T-9) 390387	9406 9407	350	1	0.01	124	290	6	0 01	< 2	5	16	0.05	< 10	< 10	65	< 10	40
(T-10) 390388	9406 9407	405	2	0.01	177	430	8	0 01	< 2	7	17	0.11	< 10	< 10	68	< 10	62
(T-11) 390389	9406 9407	245	1	< 0 01	61	270	6	< 0 01	< 2	4	8	0.11	< 10	< 10	58	< 10	40
(T-12) 390390	9406 9407	380	1	0 01	186	410	8	0.01	< 2	8	13	0 12	< 10	< 10	76	< 10	56
(T-13) 390391	9406 9407	560	1	0 02	306	230	8	0 01	< 2	9	13	0 10	< 10	< 10	68	< 10	48
(T-14) 390392	9406 9407	670	1	< 0.01	111	240	6	< 0.01	< 2	10	7	0.08	< 10	< 10	87	< 10	60
(T-15) 390393	9406 9407	275	1	< 0 01	149	230	8	0 01	< 2	7	11	0 09	< 10	< 10	68	< 10	56
(T-16) 390394	9406 9407	295	2	< 0.01	126	230	6	< 0 01	2	6	11	0 08	< 10	< 10	68	< 10	56
(T-17) 390395	9406 9407	355	1	< 0 01	112	300	6	0 01	2	7	13	0.10	< 10	< 10	72	< 10	52
(T-18) 390396	9406 9407	280	1	0 01	141	180	6	< 0 01	< 2	6	9	0.10	< 10	< 10	69	< 10	54
(T-19) 390397	9406 9407	275	1	< 0 01	200	140	4	0 01	< 2	6	8	0.09	< 10	< 10	64	< 10	38
(T-20) 390398	9406 9407	320	2	< 0.01	132	510	10	0 01	2	7	14	0.12	< 10	< 10	85	< 10	66
(T-21) 390399	9406 9407	315	2	0 01	154	230	8	0.01	< 2	7	17	0 11	< 10	< 10	73	< 10	54
(T-22) 390400	9406 9407	305	3	0 01	152	440	6	0.01	< 2	6	15	0.12	< 10	< 10	91	< 10	76
(T-23) 390422	9406 9407	285	3	< 0 01	113	390	8	0.01	< 2	6	13	0 11	< 10	< 10	83	< 10	72
(T-24) 390423	9406 9407	420	1	0 01	136	630	8	0 01	< 2	7	17	0.10	< 10	< 10	64	< 10	58
(T-25) 390424	9406 9407	375	3	0 01	153	250	6	0.01	2	10	12	0 18	< 10	< 10	116	< 10	68
(T-26) 390425	9406 9407	275	1	0 01	176	260	8	0 01	< 2	7	13	0 12	< 10	< 10	68	< 10	46

CERTIFICATION

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To: HEARTY, STELLA

BOX 81
WATSON LAKE, YT
Y0A 1C0

Project
Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

Page Number 1
Total Pages 1
Certificate Date 26-NOV-2001
Invoice No I0128687
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128687

SAMPLE	PREP CODE		Weight Kg	Au ppb FA+AA	Ag g/t	Cu %	Ni %	Co %	S % (Leco)	Fe %	As %	Pb %	Zn %			
4-1	281	277	2.22	20	< 1	0 005	< 0 005	< 0 002	0 04	0 5	< 0 01	< 0 02	< 0 01			
6-1	281	277	1 62	45	1	0.020	0 010	0 002	0.91	3 5	< 0 01	< 0.02	0 01			
6-2	281	277	1 80	280	4	0 015	< 0 005	< 0 002	1.99	2 6	0 01	< 0 02	< 0 01			
6-3	281	277	2 44	155	5	0 015	< 0 005	< 0.002	1.09	2 1	< 0 01	< 0.02	< 0 01			
6-4	281	277	2 06	15	1	0 015	0.005	< 0 002	0 30	1 9	< 0 01	< 0 02	< 0.01			
6-5	281	277	1 34	< 5	< 1	0 025	0 010	0 004	0 78	18 9	< 0 01	< 0 02	0.02			
25-1	281	277	1 36	< 5	< 1	0 010	< 0.005	< 0 002	0 01	0 6	< 0 01	< 0 02	< 0.01			
25-2	281	277	1 92	< 5	< 1	0.010	< 0 005	< 0 002	0.01	0.6	< 0 01	< 0 02	< 0.01			

CERTIFICATION _____

APPENDIX 4
GEOLOGICAL MAPPING / GEOCHEMISTRY
BY T. LIVERTON DIARY FOR 2001

10th	July	Fly to Hasselberg Lake
11th	July	Fieldwork traverse possible grid baseline
12th	July	Fieldwork mapping and stream sediment sampling
13th	July	Fieldwork mapping and stream sediment sampling
14th	July	Fieldwork mapping and stream sediment sampling
15th	July	Fieldwork mapping and stream sediment sampling
16th	July	Heavy rain
17th	July	Fieldwork ridge traversing
18th	July	Fly back to Watson Lake
20th	July	Two flights into Hasselberg Lake (supplies)
21st	July	Fieldwork ridge traversing
22nd	July	Fieldwork ridge traversing
23rd	July	Fieldwork ridge traversing
24th	July	Fieldwork ridge traversing
25th	July	Fieldwork traversing down creek back to Hasselberg
26th	July	Fly back to Watson Lake
29th	July	Fly to Hasselberg Lake, fieldwork
30th	July	Fly back to Watson Lake

6th	September	Fly to Hasselberg Lake
7th	September	Heavy rain
8th	September	Fieldwork detailed mapping of canyon
9th	September	Heavy rain
10th	September	Heavy rain
11th	September	Fieldwork detailed mapping of canyon (flying ban)
12th	September	Flying ban
13th	September	Fly back to Watson Lake

APPENDIX 5
GEOLOGICAL MAPPING AND GEOCHEMISTRY DIVISION OF TIME BETWEEN TARGET EVALUATION AND GRASSROOTS PROSPECTING

It is estimated that three days' work should be alloted to the grassroots programme to cover geochemistry and mapping around the fringes of the claim blocks and supervision of the Heartys' work The remainder of fieldwork (17 days) is applicable to the target evaluation programme

450000 E

455000 E

6760000 N

6760000 N

6755000 N

6755000 N

356
357
358
359
361
362
363
364
365
372
371
370
369
327
368
366
367
303 & 270
271
272
273 & 304
274
275 & 305
374
373
375
376
377
253, 4
255
256
258 & 7
259
260
262
263, 4
265
251, 2
266 & 301
267
268
278
279
280
281 Waterfall below (281)
283
282 & 307
276
344 (side ck.)
302 & 269
308
284
310 & 286
290
285 & 309
288, 9
Quartzite canyon
Canyon on Bourget Ck.
296
297
298
299
300
351
352
353
354
355
295
294
293
292
291

NTS 105A-13

1: 25,000 Scale

HASSELBERG LAKE GEOCHEMISTRY: SKETCH SHOWING SAMPLE LOCATIONS

450000E

67 60000N

67 55000N

N

4000

5000

5000

5000

4500

4500

5500

4000

3500

23/7

22

21/7

25/7

24/7

14/7

25

17/7

14/7

17/7

12/7

13/7

17/7

15/7

Detailed mapping 8-11/9

11/7

29/7

N.T.S. 105 A-13

1:25,000 Scale

Traverse routes are shown as dashed lines

HASSELBERG LAKE MAPPING 2001: SKETCH SHOWING GEOLOGICAL PEREGRINATIONS

T. LIVERTON, NOVEMBER 2001.

450,000E

6760,000N

6755,000 N

N

quartzite

schist

green 'slate'

quartzite

Limestone beds at peak

slate

green 'slate'

slate

andalusite slate

Detailed mapping 1:1000

quartzite

serpentinized u/m

bog

slate

slate

slate

cleavage parallel quartz

Bourget Creek

to Hasselberg Lake

JASPER

T P G&D F S

ATTITUDES OF FOLIATIONS

- Bedding in sediments
- Cleavage in sediments
- Foliation in ultrabasic intrusives
- Schistosity
- Trend of sub-vertical quartz vein
- Claim post located by G.P.S. Jasper 1-6, EZ 13&14 and EZ 73-84 claims are shown.

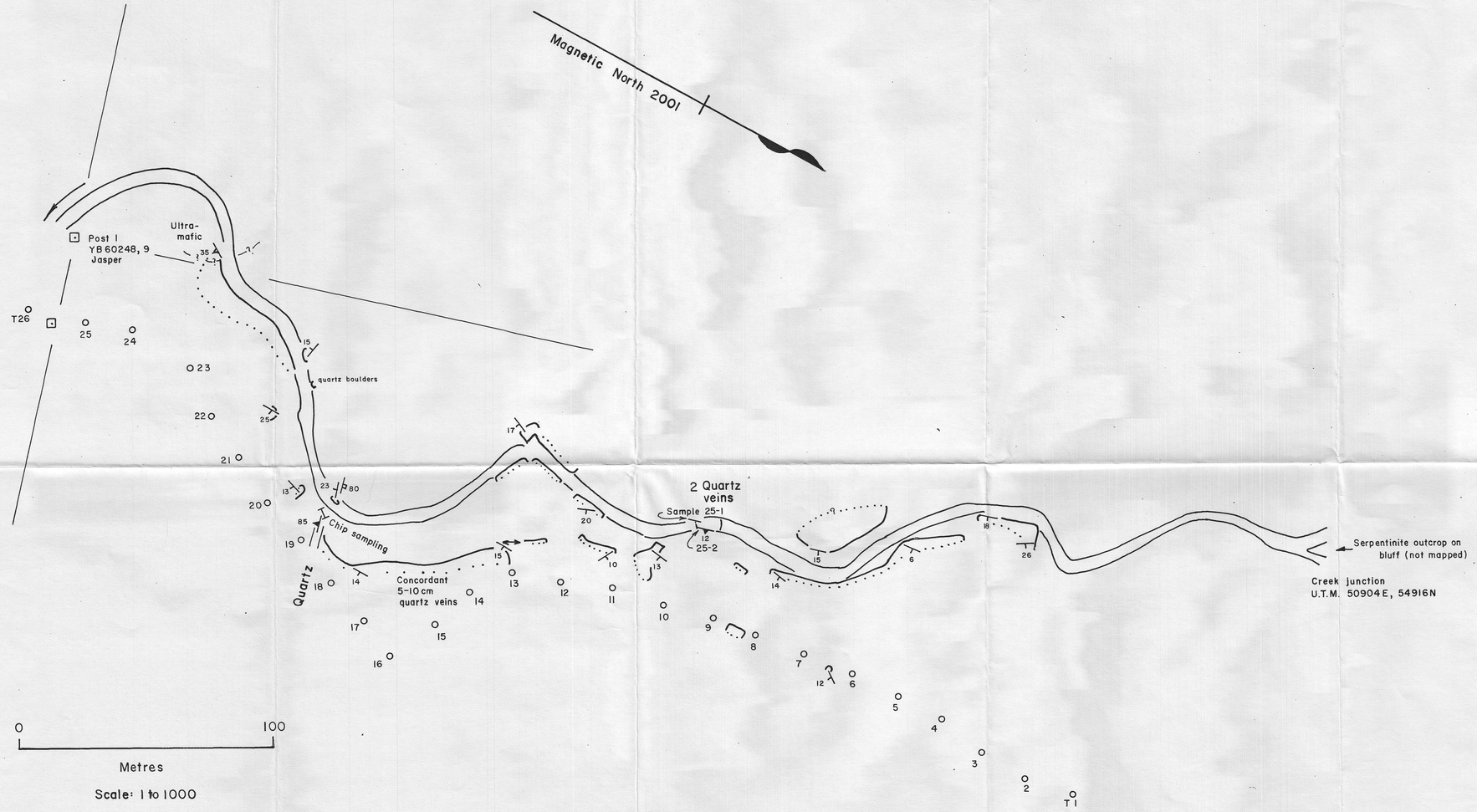
P= pyroxenite, G= gabbro, D= diorite, T= talc alteration, S= serpentinite, F= fine grained

- Contact: position accurate, approximate,
- and inferred.

SCALE 1:25,000

HASSELBERG LAKE REGION, NTS 105A-13
GEOLOGY

Mapping by T. Liverton, July & August 2001



LEGEND

Creek bed

Rock exposure (cliffs, except for two localities in the creek bed by the quartz veins). Dots indicate approximate upper limit.

Attitude of bedding

Jointing

Attitude of quartz veins

Horizontal fold axis

Claim posts

Soil sample location

Mapped using compass, tape and clinometer

Rock exposures in this canyon are entirely of quartzite,

except for the southernmost ultramafic outcrop.

HASSELBERG LAKE AREA N.T.S. 105A-13
JASPER CLAIMS: GEOLOGY, ROCK AND SOIL SAMPLING

T. Liverton October 2001

60,000 N

60,000 N

T1
T3
T4
T2
T5
H16
H15
H14
H12
H13
H8
H7
H1
H11
H10
H9
H6
H5
H3
H2
H4

55,000 N

55,000 N

50,000 E

• H5 denotes petrographic specimen locality

HASSELBERG LAKE REGION, NTS 105A-13

DATA POINTS:

GEOLOGY (CIRCLES) & CLAIM POSTS (CROSSES)

COPY

OF

GRANT DOCUMENTS

01-050

TARGET

2001

Yukon
Economic Development
Box 2703 Whitehorse, Yukon Y1A 2C6

01-050

April 20, 2001

Stella Hearty
Box 81
Watson Lake, YK Y1A 1C0

Dear Mrs Hearty

The Yukon Government recognizes the valuable contribution that the exploration industry makes towards the discovery of new mineral deposits and the development of new mines within the Yukon For this reason, we are pleased to continue the Yukon Mining Incentives Program and offer financial assistance for field expenses to individuals and exploration companies

It is my pleasure to inform you that your application for a contribution under this program on the Hasselberg Lk property has now been approved for the upcoming field season Please find enclosed a contribution agreement which I would ask you to sign and return in full within 30 days to Ken Galambos, Mineral Resources Branch, PO Box 2703, Whitehorse, YT Y1A 2C6

I would like to wish you the greatest success during your exploration program

Sincerely,

Angus Robertson
Deputy Minister
Economic Development

\enc

WHITEHORSE 2000 ARCTIC WINTER GAMES

Yukon
Economic Development
Box 2703, Whitehorse, Yukon Y1A 2C6

01-050

April 20, 2001

Stella Hearty
Box 81
Watson Lake, YK Y1A 1C0

Dear Mrs Hearty

YUKON MINING INCENTIVES PROGRAM

LETTER OF OFFER/AGREEMENT - APPLICATION #01-050

On behalf of Angus Robertson, Deputy Minister of Economic Development, I am pleased to be able to provide you with an agreement for a contribution under the Yukon Mining Incentives Program The project has been reviewed and approved with the designation number 01-050 expiring 31 March, 2002 On the basis of the information supplied on the application form, subject to the terms and conditions contained herein, I hereby offer the Applicant financial assistance by way of a contribution in the amount stated in Section 2

Purpose

1 The purpose of the contribution is to assist the Applicant with the cost of the designated program of exploration work on the Hasselberg Lk area as more fully described in Schedule "A" attached hereto

Amount

2 The amount of the contribution will consist of 50% of eligible exploration expenses up to a maximum of $19,700 00 Eligible exploration expenses will include costs for salaries and wages, equipment and machinery rental, supplies, services, transportation and accommodation which are in the opinion of the Department reasonable and are directly attributable to the designated program of mineral exploration

Material Changes

3 No material changes shall be made to the exploration program as described in Schedule "A" without the prior written approval of the Department, such consent not to be unreasonably withheld

Obligations of the Applicant

4 The Applicant

(1) will keep and maintain proper and accurate books of account and records (and their supporting documents) of expenditures made during the course of the exploration program described in Schedule "A" and will, upon notice, afford the Department access during regular business hours to such books of account and records (and their supporting documents) for a period of twelve (12) months after expiry of designation, for purposes of inspecting, copying and auditing the same,

(2) will, upon 24 hours advance notice, afford the Department at any time and from time to time, unrestricted access to the exploration program for purposes of inspecting the same

(3) will, submit a technical report in duplicate that summarizes all of the information generated by the designated work program as required under Schedule "B"

Local Benefits

5 The Applicant undertakes to hire Yukon residents and contract to Yukon businesses to the greatest extent possible

Application for Payments

6 (1) Upon completion of the designated program of mineral exploration, the Applicant may apply for payment of a contribution, and the Department may pay a contribution to the Applicant in an amount not exceeding the contribution limit established under Section 2

(2) A contribution may be paid provided that

(a) the Applicant has submitted a statement of costs listing eligible exploration expenses as defined in Schedule "A" that indicates that the designated program of work was carried out and all outstanding accounts have been paid,

(b) the Applicant has submitted in duplicate all reports, maps, analytical results and all other information generated by the designated program of work as required under Schedule "B",

(c) the Department is satisfied that all such reports, maps, analytical results and all other information submitted meet the requirements established in Schedule "B",

(d) the Department is satisfied that the Applicant has substantially complied with the terms and conditions of this contribution agreement

Governing Law

7 This offer and the Agreement resulting from acceptance by the Applicant of this offer will be construed in accordance with and be governed by the laws of the Yukon Territory

Entire Agreement

8 The provisions contained herein constitute the entire Agreement between the Applicant and the Government of Yukon and supersede all previous communications, representations (other than those contained in the application) and agreements, whether oral or written, between the Applicant and the Government with respect to the subject matter hereof

Waiver

9 No term or condition of the Agreement resulting from the acceptance by the Applicant of this offer and no breach by the Applicant of any such term or condition will be deemed to have been waived unless such waiver is in writing and signed on behalf of the Department The waiver by the Department of any breach of any term or condition of the Agreement resulting from acceptance by the Applicant of this offer will not be deemed a waiver of such term or condition or of any subsequent breach of the same or of any other term or conditions of said Agreement

Demands and Notices

10 Any demand, notice, request or other document that the Government may, at any time or times after acceptance of this offer by the Applicant, wish to make or give to the Applicant will be in writing and will be effectively made or given if mailed in Canada with postage prepaid addressed to the Applicant at the address set forth on Page 1 hereof and any such demand, notice, request or other document so mailed will be deemed made or given to the Applicant on the tenth business day after mailing of the same

Assignment of Contribution

11 The right to receive a contribution under this program shall not be assigned, charged, attached or given as security, and any transaction purporting to assign, charge, attach or give as security the right to receive a contribution is void

Indemnity

12 The Applicant and the Government of Yukon shall each indemnify and save harmless the other and any of their respective employees and agents from and against all losses, claims, debts, judgments, damages, costs, actions or proceedings arising out of or relating to the performance of this Agreement

Confidentiality

13 All reports, maps and other information submitted by the Applicant in support of an application for payment shall be held in confidence by the government for a period of two years following expiry of designation, after which time they will be made available for public inspection

Headings and Captions

14 The headings or captions of paragraphs of this offer are inserted only for convenience of reference and in no way define, limit, construe or describe the scope or intent of any of those paragraphs

Legislative Approval of Funds

15 This Agreement is subject to the Financial Administration Act and the Yukon Government's obligation to pay is subject to money being appropriated by the Legislature for the purpose the contract

Acceptance of Offer

16 This offer shall be open for acceptance for thirty (30) days from the date set forth on Page 1 hereof, and may be accepted by the Applicant duly executing the original copy of this offer where indicated below and returning same by mail or in person to

The Department of Economic Development
Energy and Mines Branch
Government of Yukon
PO Box 2703
Whitehorse, Yukon
Y1A 2C6

The date of acceptance of this offer will be conclusively deemed to be that date on which the original copy of this offer, duty executed by the Applicant, is actually received by the Department in Whitehorse

GOVERNMENT OF YUKON TERRITORY
Per

Witness

Manager, Mineral Resources
Economic Development

APPLICANT

Witness

Authorized Signatory
Stella Hearty

SCHEDULE "A"

Yukon Mining Incentives Program

Application #01-050- Stella Hearty

Description of Mineral Property

1 The mineral property to which the contribution is applicable is the Hasselberg Lk property located on map sheet NTS 105A/13 as is described in the application

Eligible Exploration Expenditures

2 For the following work, the amount of the contribution will be (50% of expenditures) for a total of up to $19,700 00

All exploration activities as described in the application

3 Reimbursement will be made only on the basis of receipts showing the actual cost of the materials and/or work done and paid for by the Applicant The expenditures to be reimbursed must be an element of the approved work plan

Effective Period of Agreement

4 The agreement is deemed to cover eligible exploration expenditures incurred between 1 April, 2001 and 31 January, 2002

Environmental and Legal Requirements

5 This Agreement is conditional upon all legal permits and other requirements having been secured buy the Applicant

6 The Applicant shall not conduct an exploration program on lands withdrawn from mineral staking such as Class A Lands as identified in the Umbrella Final Agreement or within lands identified as Study Areas for Special Management Areas or future Territorial and National Parks

7 The applicant shall not unnecessarily damage wildlife habitat in conducting this land use activity Methods of reducing impact include (1) reducing the size and number of clearings where possible, (2) reducing access development, and (3) minimizing impacts to drainages by reducing the number of crossings, crossing in appropriate locations and incorporating a buffer between the work area and the drainage

SCHEDULE "B"

1 After completion of the work outlined in the Program Proposal the successful applicant must duly complete a Final Submission Form and submit it with a Summary or Technical Report in duplicate order to receive approval for the final payment

2 The completed Prospecting and Exploration Report Form and the Summary or Technical Report should be submitted as soon as possible after completion of the work outlined in the Program Proposal Deadlines for the Prospecting and Exploration Report Form and the Summary or Technical Report is January 31 for the Grassroots Prospecting, Grassroots Grubstake programs and for the Target Evaluation program The final contribution payment will be forfeited and the advance contribution payment will be recalled if the Prospecting and Exploration Report Form and the Summary or Technical Report are not received by this date Failure to successfully complete a project may have a bearing on your eligibility for a contribution in the future

3 The Final Submission Form briefly summarizes the work performed and the results obtained by the applicant while on YMIP The Form includes a brief work summary, significant results, claims staked during/after prospecting activity, option agreements resulting from the YMIP, the type of mineral exploration undertaken, the goods and services purchased, the results of mineral exploration and a summary of expenditures for the work program This information must be complete in order to be eligible for the final contribution payment

4 The Summary or Technical Report is a report documenting work performed, complete with supporting data A separate summary or technical report with the corresponding maps must be completed for each project However, these reports may be bound in one folder If work was performed on claims, a copy of the applicable assessment report (provided it describes all the work funded under the program) may be submitted in lieu of this Technical Report

5 The Summary or Technical Report should include the following information where applicable

a) For evaluation and prospecting surveys the following information shall be submitted

- i) a summary of all previous relevant investigation,
- ii) details of surface evaluation,
- iii) details of evaluation based on underground work,
- iv) a description of the methods of sampling employed,
- v) the methods of analyzing and assaying,
- vi) tabulated results of all analyses and assays,
- vii) conclusions and recommendations

b) For geological surveys the following information shall be submitted

- i) a table of geological formations,
- ii) detailed geological information concerning rock types, structures, veins or mineralized zones or coal seams occurring on the claims or leases,
- iii) an interpretation of the geological observations made,
- iv) conclusions and recommendations

c) For geophysical surveys the following information shall be submitted

i) a description of the methods and equipment used,
ii) method of survey,
iii) dates of survey,
iv) number of stations established,
v) kilometers of line surveyed,
vi) copies of geophysical readings or profiles, including pertinent calculations,
vii) an interpretation of the data collected, including references to the available geology and a brief description of the topography,
viii) conclusions and recommendations

d) For geochemical surveys the following information shall be submitted

i) type and amounts of samples collected including the particular soil horizon sampled,
ii) method of sample collection including the tools used
iii) survey dates,
iv) a description of the methods and equipment used in analyzing the samples,
v) copies of all analyses (except where adequate contoured maps are provided showing the data in graphic form),
vi) reference to the sample location including a brief description of topography
vii) an interpretation of the data collected, including references to the available geology
viii) conclusions and recommendations

e) For analytical results the following information shall be submitted

i) the total number of samples collected,
ii) sample location and description
iii) metals determined and concentration units,
iv) analytical methods used and the name of the commercial lab,
v) if a field analytical method is used for determined the metal content, a description of the method

f) Assay results shall be accompanied by the following information

i) assay or analytical certificates,
ii) plans or sections or both showing the assay results and the sample dimensions and indicating the type or grab, chip, panel, channel, drill core or other type of sample taken

g) For trenching the following information shall be submitted

i) dates the work was carried out,
ii) names of all persons who performed the work,
iii) the equipment used,

iv) an accurate plan showing the locations of trenches or other surface workings relative to the local topography and claim or lease boundaries (including the distance and direction form a legal claim post),
v) the dimensions of the workings and the volume of material extracted,
vi) descriptions of the materials excavated
vii) assays or other analytical results obtained from samples or specimens taken from the workings

h) For diamond drilling the following information shall be submitted

i) a report, either separately or combined with other reports, which outlines the objectives, results and recommendations of the drilling program and including the following information
- the name and address of the drilling contractor,
- starting and finishing dates, bearing and initial dip, size of core for each hole and results of dip tests, if taken,
- depth of overburden and total depth of each hole,
- description of the locations of core storage,

ii) an accurate map showing the location of drill holes relative to the local topography and claim boundaries (including the distance and direction from a legal post), and their bearing and dip,
iii) complete drill logs, including rock types, mineralization, assays or analysis and the results of physical or chemical tests performed, and assays of core or sections of core, and if no assays are provided, the reason for their absence,
iv) diamond drill core from at least one complete hole which is representative of the lithologies intersected during the drilling program shall be properly identified, placed in core boxes complete with drill logs, securely packaged and delivered at the applicant's expense to the core library of Exploration and Geological Services Division, 200 Range Road , Whitehorse upon completion of the drilling program

i) For rotary (percussion) drilling the following information shall be submitted

i) a report, either separately or combined with other reports, which outlines the objectives, results and recommendations of the drilling program and including the following information
- the name and address of the drilling contractor,
- starting and finishing dates, bearing and initial dip, size of core for each hole and results of dip tests, if taken,
- depth of overburden and total depth of each hole,
- description of the locations of core storage,

ii) an accurate map showing the location of drill holes relative to the local topography and claim boundaries (including the distance and direction of a legal post), and their bearing and dip,
iii) complete drill logs, including rock types, mineralization, assays or analysis and the result of physical or chemical tests performed, and assays of core or

sections of core, and if no assays are provided, the reason for their absence,

iv) rotary drill chip samples from at least one complete hole, which is representative of the lithologies intersected during the drilling program shall be properly identified, placed in core boxes complete with drill logs, securely packaged and delivered at the applicant's expense to the core library of Exploration and Geological Services Division, 200 Range Road, Whitehorse upon completion of the drilling program

j) For shafts, adits and any other underground work not less than three metres below surface, the following information shall be submitted

i) an accurate map showing the locations of all shafts, adits or other work relative to the local topography and claim boundaries, including the distance and direction from a legal claim post,
ii) the dimensions of the workings and the volume of material excavated,
iii) descriptions of the materials excavated,
iv) assays or other analytical results obtained from samples or specimens taken from the workings

6 The Summary of Technical Report should have the following format

a) the text of the paper shall be typewritten on good grade bond paper of either 8 1/2" x 11" or 8 1/2" x 14" size,

b) reports shall be bound in suitable folders in such a manner that all the text on every page and every map, sketch or diagram when unfolded may be readily seen,

c) any maps or plans not fastened securely into the binder shall be inserted into an envelope or pocket which is fastened securely into the binder,

d) the following data shall appear on the front cover of the report binder

i) the designation number of the program,
ii) the nature of the report (i e prospecting, geological, geophysical etc)
iii) the names and or numbers of the claims or leases or groups of claims or leases to which the report refers,
iv) the claim sheet NTS number(s) and the location of the property described either by precise latitude and longitude or by precise universal transverse mercator (UTM) grid coordinates,
v) the name(s) if the author(s) and, if not the same, the name of the person under whose supervision the work was done,
vi) the name(s) of the person(s), partnership(s) or corporations for whom the report was prepared,
vii) the dates between which the work was done

e) each report shall contain the following information

i) a table of contents
ii) a list of the claims or leases by name and/or number and tag number and the names of the holders of the claims or leases,
iii) a description of the work done and the data collected during the survey, including the manner in which it was collected and an interpretation of such data,
iv) where applicable , a description of the method of control survey and the amount of line cutting, and all cut and/or surveyed lines and tie -ins shall be shown on an accurate map or plan,
v) the names and addresses of all persons and contractors employed in performing the work and preparing the report and the time employed in preparing the report

f) for maps and plans submitted the following formats shall apply

i) all plans and maps shall have an astronomic or magnetic north arrow and a scale and shall show claim lines, claim numbers, existing survey or grid lines, roads, streams and other prominent topographic features,
ii) prospecting maps should have numbered discoveries keyed to accurate location map(s) maps must show location of work areas and traverses listed in daily reports Government NTS 1 50,000 scale topographic maps or claim location maps are recommended,
iii) geological maps shall have a legend with rock types coded with alphanumeric symbols and shall show outcrops, characteristics and structural symbols

ESTIMATED COSTS

Subsistence 24 man-days @ $35 00/day x 3	2520 00
Transport to field 314km return x 2	263 76
Transport in field by Argo with operator	3680 00
Soil/sediment analysis (256 @ $27 00ea)	6912 00
Rock analysis (40 @ 33 00ea)	1320 00
Geological mapping (14days @ $400 00/day)	5600 00
Report preparation (4 days 2 $400 00/day)	1600 00
Sub-total	$21,895 76
Truck rental (one month)	1450 00
Helicopter (approx 3 hours)	3300 00
Trailer rental for Argo	480 00
Chainsaw rental (one month)	450 00
SBX 11 radio (one month)	150 00
Lines/grid/markings for soils/sediments	3500 00
Soils/sediments collection of samples	1250 00
Trenching 62 hours @ 15 00/hr	930 00
Waste removal/hand trenching filled in	1000 00
Prospector's assistant (17days @ 250 00/day)	4250 00
Fuel supplies	630 85
Sub-total	$17,390 85

TOTAL EXPENDITURES **$39,286.61**

COPY

OF

ACCOUNTS

TARGET EVALUATION

DATE 2001	DESCRIPTION	INVOICE TOTAL	Labour	PER DIEM	SAW Rental	TRUCK 4X4 Rental	Km/km 485¢	Trailer rental	Argo Rental
JUN	BALANCE FWD	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
JUN 1-30	S. Giesbrecht	2590 -	2100 -	490 -					
	J. HEARTY	3225 -	2250 -	525 -	450 -				
	R HEARTY	5597 29		665 -		1450 -	15229	480 -	1900
	Radio	45 50							
	FUEL (Chainsaw	30 -							
	FUEL (TRUCK	40 -							
	FUEL (TRUCK	93 -							
	FUEL (Chainsaw	24 01							
	FUEL (Argo	103 -							
	OIL (Argo / equipment	99 27							
	GPS mTHLY Rental	90 -							
	Chain oil / Files	60 99							
		34 73							
	ERROR Fuel - (40+93 = 133)	<133 ->							
	PAYment FROM YMIP								
Jul 1-31	Fuel (Argo	16 82							
	FUEL (Argo	115 -							
	FUEL (Argo	60 -							
	Fuel (Chainsaw	76 99							
	T. LIVERTON	4500 -							
	Chemex Labs	237 61							
	GPS Rental	90 -							
	T. LIVERTON SBX Rental	150 -							
	J. HEARTY	6030 -	4500 -	1050 -	480 -				
	K CHAPUT	3145 -	2550 -	595					
		26300 80	11400 -	3325 -	930 -	1450 -	15229	480 -	1900

PAGE 1

PART "A"

	EQUIP OPERATOR	Radio Rental	FUELS	GPS Rental	FIELD Supplies	Field Assistant	C/HEMEX LABS	TOTAL	HEARTY 50%	YMIP 50%	Grant Payment	Grant Balance
1	-	-	-	-	-	-	-	-	-	-	-	19700 -
2												
3												
4	950 -											
5		4550										
6			30 -									
7			40 -									
8			93 -									
9			2401									
10			103 -									
11			9927									
12				90 -								
13			39 -		2199							
14					3473			1201238	600619	600619		
15			(133 -)					1187938	593969	593969		
16											593969	137603 1
17			1682									
18			115 -									
19			60 -									
20			7699									
21						4500 -						
22							23761					
23				90 -								
24		150 -										
25												
26												
27	950 -	19550	56409	180 -	5672	4500 -	123761	26300 80	593969	593969		137603

PART "A" EXTENTION

TARGET

	DATE 2001	DESCRIPTION	1 INVOICE TOTAL	2 LABOUR	3 PER DIEM	4 SAW RENTAL	5 TRUCK 4x4 RENTAL	6 Km .485¢	7 Trailer Rental
1		BALANCE FWD	2630080	11400-	3325-	930-	1450-	15229	480-
2	Jul 1-31	R. HEARTY	847830		1260-		1450-	48830	480-
3		YMIP PAYMENT							
4	Aug 1-31	Propane	58-						
5		FUEL (Argo	2358						
6		J. Hearty	5540-	1950-	840-				
7		R. Hearty	5150-		700-		1450-		
8		FUEL (Argo	4999						
9		FUEL (Argo	95-						
10		Argo parts	6993						
11		Batteries + SBX Rental	17208						
12	Sep 01-30	R. Hearty	3665-		455-		780-		480-
13		J. HEARTY	3405-	450-	455				
14		T. LIVERTON + SBX Radio	1650-						
15		T. LIVERTON (Supplies	83328						
16		FUEL (chainsaw	2809						
17		FUEL (Argo	4451						
18		FUEL (Argo	30-						
19		Freight - Argo	2182						
20		FUEL (Argo	18821						
21		MAP	428						
22		BATTERIES GPS (AUG Sept)	19143						
23		Parts - Argo	34666						
24		ASSAY	288689						
25		Payment YMIP (Aug Sept)	2434375						
26		OVER YMIP							
27			59172[85]	13800-	7035-	930-	5130-	64059	1440-

PAGE 2 PART "B"

TARGET
PAGE 2 PART "B" EXTENTION

8 Argo Rental	9 EQUIP OPERATOR	10 Radio Rental		1 FUELS	2 GPS Rental	3 FIELD SUPPLIES	4 Field Assistant	5 ASSAYS	6 TOTAL	7 HEARTY 50%	8 YMIP 50%	9 GRANT PAYMENT	10 GRANT Balance
1900 -	950 -	19550	1	56409	180 -	5672	4500 -	23761	118799 38	5939 69	5939 69	5939 69	15760 3
3000 -	1800 -		2						22899 72	11449 86	11449 86		
			3									882510	49352
			4	58 -									
			5										
			6				2750 -						
2000 -	1000 -		7										
			8	4999									
			9	95 -									
6993			10										
		150 -	11		2208								
1300 -	650 -		12										
			13				2500 -						
		150 -	14				1500 -						
			15			83328							
			16	2809									
			17	4451									
			18	30 -									
2182			19										
			20	18821									
			21			428							
		1143	22		180 -								
34666			23										
			24					28268 9	24379 75	1271968 7	1219688	493521	0
			25							< 19700 =			
			26							488893			
863841	4400 -	50693	27	105789	38208	89428	11250 -	306450	59172 85	39487 85	< 9888 93	19700 -	0

LOG REPORT

OF

DAILY ACTIVITIES

HASSELBERG REGION
DIARY FOR 2001

10th	July	Fly to Hasselberg Lake
11th	July	Fieldwork traverse possible grid baseline
12th	July	Fieldwork mapping and stream sediment sampling
13th	July	Fieldwork mapping and stream sediment sampling
14th	July	Fieldwork mapping and stream sediment sampling
15th	July	Fieldwork mapping and stream sediment sampling
16th	July	Heavy rain
17th	July	Fieldwork ridge traversing
18th	July	Fly back to Watson Lake
20th	July	Two flights into Hasselberg Lake
21st	July	Fieldwork ridge traversing
22nd	July	Fieldwork ridge traversing
23rd	July	Fieldwork ridge traversing
24th	July	Fieldwork ridge traversing
25th	July	Fieldwork traversing down creek back to Hasselberg
26th	July	Fly back to Watson Lake
29th	July	Fly to Hasselberg Lake, fieldwork
30th	July	Fly back to Watson Lake

6th	September	Fly to Hasselberg Lake
7th	September	Heavy rain
8th	September	Fieldwork detailed mapping of canyon
9th	September	Heavy rain
10th	September	Heavy rain
11th	September	Fieldwork detailed mapping of canyon (flying ban)
12th	September	Flying ban
13th	September	Fly back to Watson Lake

JULY 8/01	BOURGET CREEK - MINESITE
JULY 12/01	SUSIE CREEK
JULY 13/01	EUGENE CREEK - JASPER CLMS 7 - 8 AND 3-4/5-6 SAMPLING
JULY 14/01	DEEP CREEK CLMS 83-84 ETC
JULY 15/01	DEEP CREEK TO MOUTH OF CREEK
JULY 16/01	DO UP NOTES/ PREPARE SAMPLES - REPAIRS TO ARGO
JULY 17/01	CLMS 72 - 84 PROPSECT/GEOPHYSICAL
JULY 18/01	T LIVERTON RETURN TOWATSON LAKE WITH SOME SAMPLES
JULY 19/01	MOUTH DEEP CREEK TO EUGENE CREEK - SAMPLING SOUTHWARD
JULY 20/01	KETTLE CREEK - SAMPLINGSOUTHERN PART T LIVERTON RETURNED
JULY 21/01	SOURCE OF KETTLE CREEK TO CONNECT WITH PREVIOUS AREA
JULY 22/01	TRAVEL UP MOUNTAIN TO PEAK CLMS 1 - 24 AREA
JULY 23/01	SAMPLES FROM FEEDER CREEKS INTO EUGENE T LIVERTON - GEOPHYSICAL ON RIDGES OF PEAK SAMPLES FROM JASPER 1 AND 8
JULY 24/01	PROSPECT/GEOPHYSICAL NW ON RIDGE PEAK
JULY 25/01	COMPLETE SAMPLING/TAKE DOWN CAMP RETURN TO MAIN CAMP
JULY 26/01	CUT FIREWOOD FOR MAIN CAMP, TIM FLEW TO WATSON LAKE MINING INSPECTOR IN TODAY - CHECKED MAYLING CLAIMS ETC
JULY 27/01	COMPLETE LAST HALF KILOMETER FO EUGENE CREEK SAMPLES
JULY 28/01	TRIP TO WATSON LAKE FOR SUPPLIES/SEND SAMPLES
JULY 29/01	TIM RETURNED KETTLE CREEK - GEOPHYSICAL/GPS AREA
JULY 30/01	TIM FLEW OUT TODAY/VAN KRAUCHBAUM AND SON CAME IN
AUG 01/01	EUGENE CREEK SAMPLE GRID ON RIGHT HAND RIDGE AREA
AUG 30/01	EUGENE CANYON - DAMPLES FOR pge TEST
SEPT 01/01	PAPERWORK/DO UP SAMPLES
SEPT 02/01	COMPLETE PAPERWORK AND SAMPLE LISTING
SEPT 03/01 05/01	TRIP TO WATSON LAKE SUPPLIES/SEND SAMPLES
SEPT 06/01	SET UP FOR MAPPING EUGENE CANYON
SEPT 07/01	COMMENCE MAPPING/MEASURING/GPS
SEPT 08/01	CONTINUE MAPPING/MEASURING/GPS/SAMPLES
SEPT 10/01	PAPERWORK/SAMPLES LISTED
SEPT 11/01	BOMBING OF BUILDINGS IN NEW YORK - RETURN TO EUGENE CREEK AND COMPLETE MAPPING/MEASURING/GPS/SAMPLES WALK GRIDLINE/GPS/MEASURE AND MAP/ PLANESGROUNDED
SEPT 12/01	PAPERWORK/ TIM DOING MAPPING ENTRIES
SEPT 13/01	PLANES CAN FLY- TIM LEFT FOR WATSON LAKE - FINISH PAPERWORK AND LIST REMAINING SAMPLES

SEPT 14/01	PREPARE FOR FURTHER SAMPLING/PROSPECTING/BOURGET CREEK
SEPT 15/01	BOURGET CREEK - KITKAT CLAIMS 1 - 8
SEPT 18/01	BOURGET CREEK - KITKAT 7 - 8 DRILL BOULDERS-SERPENTINE
SEPT 19/20/01	MIGRANE UNABLE TO WORK
SEPT 21/01	BACK ON THE JOB - BOURGET CREEK WESTWARD
SEPT 22/01	KASTRUKOFF CREEK - CLM TYRELL (NEW CLM)
SEPT 23/01	TRIP TO WATSON LAKE GROCERIES/GAS/PROPANE
SEPT 25/01	RETURN TO CAMP PACK UP CLOSE DOWN CAMP FOR SEASON

n

July 08/01 Target

60°55'032N } Trench + Sample
129°52'563W } H.M.

60° 52'967 N } Samples
129°52'363W } Rock

Target

July 10/01

Tim Leverton fly-in. Setup for Samples / Check for area of H-gold concentrate -

July 11/01 Target

Tim - Creek - Susie Commence Samplins of H.M. S.S. and Rock. After Walkeng area to seek gold input? Unable to locate area at this time - Sample previously brought in to camp by Line / Claim layers. Not positive of exact area - Checked Lower area between Susene Creek and Susie Creek - unable to Locate - Decide on S.S. & H.M. from Susie Creek -

Target -
July 13/01 Eugene Creek

8 30 Am leave Camps
9.30 Am arrive @ creek site: Above canyon.
Raining lightly to start time -
Jasper Claims 7+8,
6, 5, ~~start~~ (3+4 / 5+6) Start point)

Went upstream to just above Post 2 - 7+8 -
Commence Sampling

4 Samples S.S
2 Samples H M
5 PM Return to Camp

Target
July 12/01 Susie Creek

(8 Am)
Jim, Jonathan, Ron + I commence Trip to Susie Creek for Sampling

Take first Sample @ the beginning of Sample area - Climb to Top of Creek area and Commence to take H M + S S Samples down to the beginning point 12 ~~H M~~ S.S. Samples 6 H M Samples

Return Home (8:30 PM)

Target

July 15/01

9 Am – Travel up to lower end. Deep Creek – do final samplers to Mouth of Creek –

Take one sample each of Silts & Heavy metals on Jasper & Eugene Creeks above mouth of Deep Creek.

5 Pm return Home

5 Samples SS

4 Samples H.M.

July 16/01 Target

Soggy Day – Rain – did up notes – Repairs to Argo

(Fish for Supper.)

Target

July 14/01 – Deep Creek – Pats Bog – CTim/Ron/Sun/Stella

Mapping/Sampling/Prospecting

7 Am Travel to Deep Creek Climit's 83-84 commence Sampling

12 Samples SS

4 Samples – H.M.r

4 Samples – Rock

9 30 Pm return to Camp

Sent in grocery list & fuel supply list
Laundry day today made use of the old scrub board!! Oh joy!!
Back to the field
July 19/01

Target
July 19/01 8AM
Eugene Creek -
Travel up to Eugene Creek - North ward
Ron, Jon Kevin & Stella
Commence Sampling downstream from mouth ~~Creek~~ Sleep Creek
2 HM Samples
1 SS Sample
7 Rock Samples

Target
July 17/01
8AM - 5PM
Went to Claims 72-84 -
Prospected and Geo physical left ridge of Sleep Creek from North end to South end - Rock samples
1 ~~Heavy Mineral~~ Duet Sample
1 ~~Heavy Mineral~~ Sample
5PM return home

Target
July 18-01
Jim flew out today took HM and SS samples out. Return Fri or Sat depending on weather conditions
Left 11 AM - arrived WL 12:15 P.M.

Target Kettle Creek Lake

July 20/01

9 Am - Geared to mouth of Kettle Creek Soak pit samples and Heavy mineral samples for appx 2Km of Creek -

Stopped @ trail Crossing

Returned to Camp.

5 samples SS

3 Samples HM

Tim Returned today made 2 trips via plane

Rock Samples + SS Sample from first wall showings in the North end of the Canyon on Eugene Creek

Lunch

Travelled Northward upstream collecting Rock Samples to end of Jasper Claims.

Returned home 6pm

Target

July 21/01

Kettle Creek - Source

Left 8Am travelled up to Source of Kettle Creek - Commenced Hm + 55 Samples every 200m + 500m Rough going - Returned to Camp 8Pm

10 Samples 55
4 Samples Hm
4 Samples Rock

Ron took Tim + Jon to Mountain peak today they will be up there 3 days Weather hot + clear !!

Target

July 22/01

Leave main Camp 10Am.
Ron, Stella Kevin
Pack up camp + travel up to mountain peak - 4hour trip one way - Set up Camp Make Supper for crew plus Tim + Jon.
Arrange plans for next day.

July 24/01 Target
9:30 Am

Tim Jon Kevin - go NW on mountain to source of Kettle Creek Samples and Geophysical

(Prospect)

Ron Stella NE along ridge to back side of mountain - down Lakerie Ck took Samples

4 Sols S
4 Hm
4 Rock Samples

Return to Camp 6:15 Pm

Supper — rain again that evening - Cold!

July 23/01 Target
9 Am

Jon + Kevin given task of Collecting HM + SS from both "Y"s IN Eugene Creek upper end

Collected 7 Samples HM
17 " S.S
4 Samples Rock

Returned to Camp 6 Pm

Tim did geophysical around ridge - intrusion.

Ron + Stella did DOL Samples down toward Eugene Creek ending at #8 Jasper #1 EZ Claim

Return to Camp 7 Pm

Make Supper - Rain

July 26/01

Day of rest
Cut. firewood for main Camp-
dry out Tent & equip
Clean & get ready for next day.
Tim flew to town.
@ 10Am - Arrive
W.L 11 15Am Approx
He is supposed to return Sunday.
10.30 Am Start wood-
supply
11 Am
Chopper arrival -
Checked out claim "6"
"Mayling" etc
Returned landed & Mining inspector clipped by + did "Sparky" receive Complaint that we were working our equipment

Target

July 25/01
10 Am
Work Complete EZ 1-25-
Pack up camp and head back to main camp took 2 Samples on return (Rocks) IN place!
4 hr return approx.

Tim Walking down thro glide - unload Argo + go pick him up (Ron)
Tim put his back out doing his packing to return to main Camp - Not too bad now (5 pm)

4 flats on the Argo!! and we took it easy -

Baked bread, put on Roast for supper while Ron went to P.V. Tim's.

Target Ron 8am

July 27/01 took Jon + Kevin to Eugene Creek - Complete last .66 mi & samples - HM + SS.

Stella + Ron run one grid line 53°N → 143°W + 89° ENE to end of Canyon Wall. Line flagged + cut -

Stella went to mouth of Canyon travelled up Canyon floor collected rock samples - found three outcrops of pyrite (arsenic pyrite) BEDROCK Supply. (COPPER?? bloom)

Jon + Kevin brought back samples of BEDROCK pyrite! ARSNIC?

4 Soils samples

2 Hand M - Samples

Stella - 9 Rock Samples
1 Soil Sample

TT Claims owned by Ltd. Advised - walked equip up to claims only - No working outside our claims.

Asked if we had land use for mining w- equip - Advised equip under 20 Tonne - but not using at this time as we are doing Target project + prospecting project this year!

Maybe not this year!

11 10 Am Mining inspector left to continue on to Wolverine Lake for his work.

Went back to getting firewood etc.

July 28/01

Ron took Jon + Kevin out for time off

Kevin going to work for YTG

Jon to return in couple days.

Clean Cabin
bake bread
bake CC cake

TRIP
Target

still!!
Leaving about 200' of Canyon to complete sampling of Canyon on north end

Return home 5 Pm.

4 SS Samples
2 H.M. Samples
2 Rock Samples

9 Rock Samples
1 S.S. Sample

July 29/01 Target

Kettle Creek - 10 Am -
9 00 Am Tim flew in
brought Groceries 836.00 plus
gas for us.
10 Am went to Kettle Creek
half way up creek - walked to
first test area - did geophy
& outcrops GPS type etc (Tim)
returned to main Camp 4.30 P.m.

Only 2 days left to
hunting season!!!

July 30/01

Tim flew back out
today - stayed overnight
as weather bad

Van Krauchbaum & Son
arrived last night - slept
over left @ dinnertime
Day Shot!

July 31/01 Target

Trip out to highway
to pick up - Jon &
Kevin to complete
sampling & do one
line grid

I Stayed in camp
baked bread once again
and did laundry on
the ol' scrub board

TARGET

Aug ~~July 30~~ 01

Went to top of Ridge after samples from creek - Commenced one (1) line grid - Sampling every 20 m took 26 samples - length of Canyon (Eugene)

Day completed return home base 5 pm.

Jon cooked supper! Nice rest!!

---

8 Rock samples
5 outcrops
26 GRID - TEST Samples

Only (one?) trip left to Canyon for Mapping -

~~July 31st~~

Target

August 1/01

8 AM - Ron took us Jon, Kev + Stella back up to Canyon - Eugene Creek. started once again @ mouth did GPS and collected more samples from bedrock -

Main interesting forms start @ 50843E / 54527N } 3517'

and end @ 50896E / 54632N } 3654'

"Copper bloom" Pyrite?

Approx 30' - 40' high length ~~crosscut~~ 1/2 mile? Needs measurement to be sure + 1/4 mi as raven flies.

Sept 6/01 TARGET RST

Tim flew into main camp today. Set out schedule for mapping Canyon + Sampling. Prepare for day 1 trip to Canyon

Sept 7/01 RST

Light drizzle early morning - decided to go ahead with schedule 9 AM left camp - arrived @ Canyon 10.30 AM - raw dry light - start mapping canyon - rain changed to heavy snow - decide to return too risky on rocks - Safety first - return @ camp 5 pm

Target

Aug 30/ Eugene Canyon - samples for PGE TEST. RST

Aug 31/01 Prospect Hearty Creek - South end to complete lower section. Soak pants to Beaver dams. Last part heavily dammed - No proper samples can be taken!

Sept 1/01 - Rain - do paper work Samples Check - Cook / Lake.

Sept 2/01 Still raining not day of rest!

*Sept 3-4-5 Go to WL to finish upper low - Jim to return via Lake to Camp 6th

TARGET

~~Sept~~ 8/01 8 Am RST

Occi today Cloudy but no rain - return to canyon Continue mapping - Samples - map out crops - return Samples to Cargo - Lunch - Continue mapping - return to Cargo 6 20 pm - return to Camp 7 40 pm - Supper - days done.

~~Sept~~ 9/01 Prospect
S+J

Rained most of the night - still raining in the morning Do up paperwork this A m.

P.M: Checked North shore West 3000' boulders Consist - serpentine, jade, quartz, soapstone granite - fine grade Conglomerate similar to 103 & 16

~~Sept~~ 10/01 Sept.

Raining again this Am - do more paperwork
S+J

P.M. Sun peaking thru Checked 3000' shoreline North on east side - boulders - small - mostly granite one conglomerate same as similar to Mt. Hyundai some small jade + serpentine - mostly gravel + sand with small rock bottom - shoreline overgrown not as shallow as west side *

* still wish it was August!!!

Have to phone Cheryl for more soil

Sept 12/01

Raining once more
All planes still
Grounded -
Tie up paperwork
Tim working on -
Mapping Canyon.
~~today~~ (SEPT 11/01)
*Visitors came in
today from the USA
Roger, Mark & Ray.
Boys from Boulder
Colorado, Mark (Lawyer)
and Ray (Rancher,
Black Angus) from
Wyoming = Down to
do some site seeing
& fishing!
Staying with us in
the Cabin!

TARGET
bags - another
250 ?
~~Sept 10/01 - Trade Centre~~ Pentagon bombed
~~Bombed!~~
Sept. 11/01 8 30 - 2.30 PM AM
Return to Eugene R & S
Creek - complete mapping
Canyon - collect more
samples from bedrock.
Lunch 2.30 - 3. Pm
Walk Grid - take
compass readings
& Alt: measure each
sample hole distance
for mapping & Grid
line -
Return to main
Camp @ 7 30 P.m.

All planes grounded
Canada & U.S.A.

Sept 12/01
Klaus still grounded. Continue w paperwork - Jim continues w mapping. Other guys out fishing in the rain!

Fish for supper!
[(I don't eat fish - (a sandwich is mine)]

Sept 13/01
Klaus can fly. Tim took 3 hrs afternoon just before the rain started once more! Guys out at other lake fishing - SKUNKED NO FISH!!
Yeah! Ham for Supper!!

Sept 14/01
Guys left just before lunch - headed out to highway - going up mountain @ 8 Mile Jade Mountain!

We got our equipment ready to go out and do some more prospecting

Sept 15/01 R+S
Travelled out to creek west - 2 camp. Checked for jade boulders - may have found some smaller ones! Have to drill them or cut a piece off! (NEXT Project)

Sept 16/01 RVS

Entered Bourget Creek @ KAT 7+8- post #2 claims Prospected for Jade found 2 boulders and some smaller ones Have to take samples from them yet.

Sept 17/01
Weather changing Cloudy but clearing Hope the nice weather holds until the weekend is over! Service Argo this AM Pick up Jon this afternoon.

Sept 18/01 RSS

Go back to Kat 7+8 area - drill boulders serpentine - darn!! rained all day!! got soaked - - - - - - Creeks rose 1 foot - 2 feet from all the Rain

* Thunder Storm early 3 Am - lightening too! Rained so hard filled Canoe - (20') 1/3 full before morning light drained + got about another 5 Gal in it during the day!!

RSJ

Sept 22/01
Went to Kustuk Creek - drilled boulder BINGO!!
Time to take a break Return to Camp.

Sept 23/01 RSJ

Travel to Watson Lake -
Groceries, gas
Propane -
(Judge hard on propane tanks).

25 Sept 01
Return to Camp Sample pack up samples/supplies equipment and shut down camp for this year!

Sept 19/01

Fog right down to Shakelene - raining - noon rain slowed to drizzle then mist from fog. supposed to clear for tomorrow!!

Have migrane - took pills hope it goes away within a couple days! Unable to work

Sept. 20/01

Migrane still active - staying very quiet today.

RSJ

Sept 21/01 10Am
Migrane gone - gone to drill some more boulders - NO good ones

ASSAY RESULTS

FROM

ALS CHEMEX LABS

VANCOUVER, B.C.

GEOLOGICAL MAPPING AND STREAM SEDIMENT GEOCHEMISTRY OF THE REGION AROUND THE EZ-JASPER CLAIM GROUP, HASSELBERG LAKE 105A-13.

YMIP TARGET EVALUATION PROGRAMME AND PART
OF GRASSROOTS PROSPECTING PROGRAMME
FIELDWORK JULY - SEPTEMBER 2001

T Liverton Ph D F G S F G A C
December 2001

HASSELBERG AREA 105A-13
PROPERTY EVALUATION AND PROSPECTING THE IMMEDIATE VICINITY OF THE EZ-JASPER CLAIMS 2001.
GEOLOGICAL REPORT

INTRODUCTION

The Hasselberg Lake area is in the NW corner of map sheet 105A-13 It has been a region of prospecting and production of jade from glacially and fluvially transported boulders for at least 25 years Minor production of placer gold has also taken place from Bourget Creek, the main creek draining eastward to the north end of Hasselberg Lake Prospecting for hard-rock gold or base metal mineralization has not been hitherto attempted in any systematic manner, save that of a recent aerial geophysical survey by Cominco that covered much of the middle Palaeozoic rocks of the Yukon-Tanana terrane east of the Tintina Fault The current claim evaluation and prospecting under YMIP grants has been performed to investigate the possibility of gold / base metal and jade / talc occurrences in the vicinity of the EZ-Jasper claim blocks This report concerns geological and geochemical investigations over that immediate area A separate report of prospecting activities over a larger area is being prepared by Mrs Stella Hearty

The fieldwork carried out during the 2001 summer season has generally followed that outlined in the proposal for the YMIP All known areas of rock exposure have been mapped, using a G P S receiver to obtain UTM coordinates This work has been compiled at 1 25,000 scale The region of previously located anomalous gold assays has also been mapped in detail (1 1000 scale) and sampling of accessible quartz veins carried out It was originally proposed to lay out a soil sampling grid over this region This approach was rejected as impractical after an initial careful examination of the ground, however a series of soil samples were taken along a traverse crossing the known mineralized area to test whether anomalous metal values could be detected in soils This vicinity was subjected to close-spaced stream sediment and panned concentrate sampling That approach was extended to cover the entire region surrounding the claim blocks as such geochemistry is seen as the best method to detect possible mineralization since rock exposure tends to be either abundant or entirely absent Both geological mapping and geochemical sampling were extended outside of the immediate claim boundaries to cover the entire length of the drainages to obtain sufficient samples for interpretation of results and also as part of the grassroots prospecting of the open ground Reinterpretation of some aspects of the geology in the region since the 2000 season has also changed the opinion as to prospective ground

CHANGES IN INTERPRETATION OF THE GEOLOGY OF THE EZ / JASPER REGION

The reconnaissance mapping carried out last year found several occurrences of fine grained to aphanitic mafic rocks that were called 'tuff', e g , U T M coordinates 51520E, 56600N,

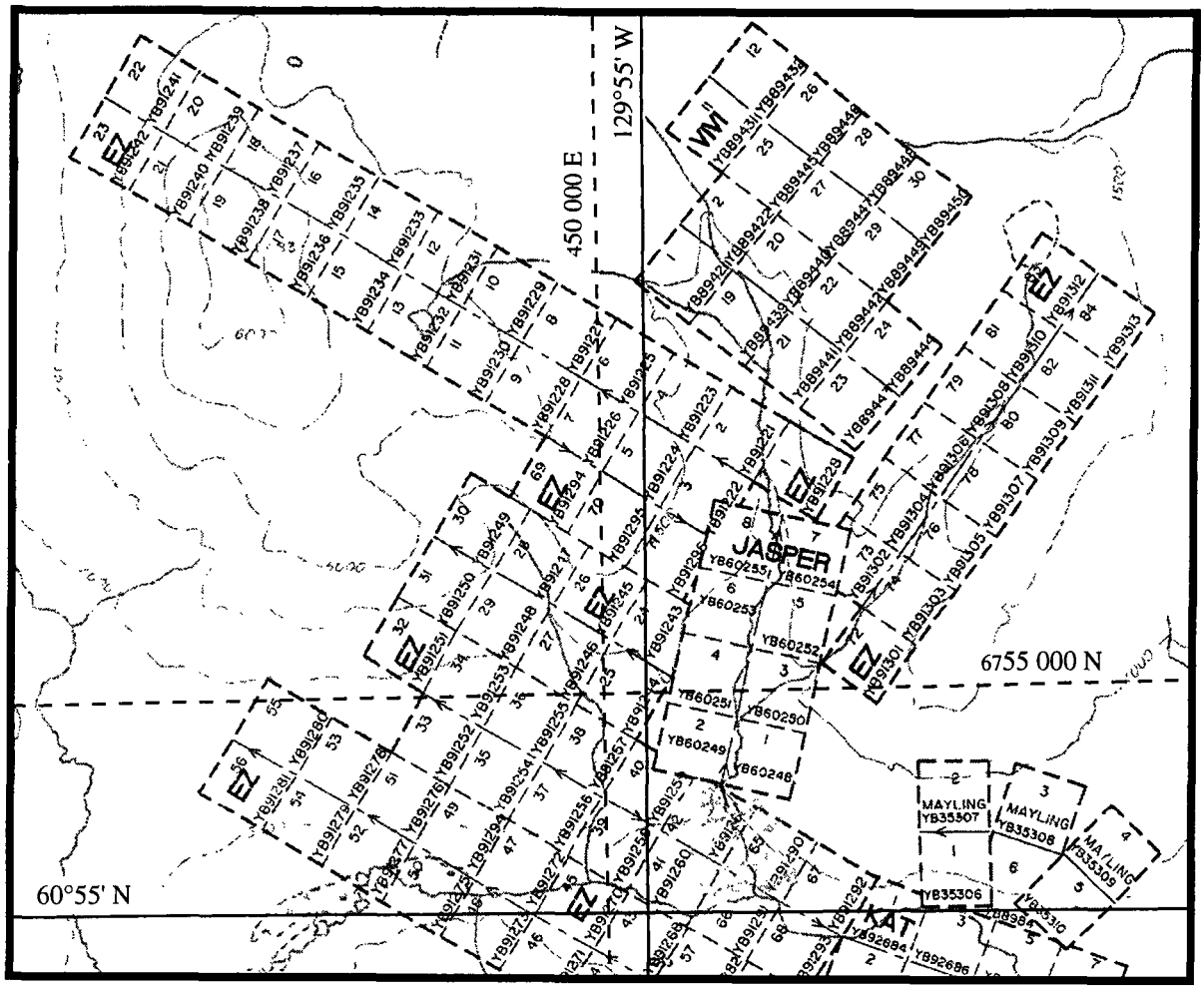


Figure 1 Portion of claim map 105A-13 showing the EZ and Jasper claim blocks Scale 1 50,000

'basalt', e g , 51100E, 55100N, and 'green volcanics', e g , 51200E, 54160N on the basis of hand specimen identification A more careful re-evaluation of these exposures this year indicated that these localities likely represent altered, often tectonised, fine-grained ultramafic lithofacies rather than volcanics (see geological map presented with the YMIP proposal and also the assessment report filed for the Jasper/EZ claim groups) This has been confirmed by an initial suite of thin sections prepared during mid season and further material (T1-T5) has recently been received from Vancouver Petrographic The lack of volcanics within the metasedimentary sequence in this area obviously diminished the possibility of finding VMS type base metal mineralization The possibility of finding gold-bearing quartz as fault fillings within the quartzite and slate sequence remained, hence the adoption of an expanded geochemical sampling programme The geology of the region and traverse routes are presented at 1 25,000 scale (Figures 2 & 3)

GEOLOGY

This mapping has demonstrated the existence of several ultramafic intrusions in the NW corner of 1 50,000 map sheet 105A-13, as follows from the NW corner (Fig 2)

(i) A sill of average 20 m thickness (but rather variable) that has been mapped for 3 km This body is uniformly serpentinised and was clearly originally an intrusion rather than a thrust sheet since andalusite and cordierite have been observed in the metasediments above The interval approximately 50 m below the lower contact may be sheared, however, as green, mafic, slaty rocks are observed at 48,300E, 58300N Thin sections of these rocks indicate they are likely thin (on the order of 3 metres thick) lower sills that are now of predominantly amphibole mineralogy (see petrographic notes sections T1, T3 and T4)

(ii) The majority of exposures of meta-gabbro, rare unaltered pyroxenite and ultrabasics in varying degrees of talc-carbonate alteration or serpentinisation are part of a large intrusion Those fine-grained rocks noted last year are serpentinised (and, in the case of the 'tuff' locality noted in 2000, carbonate altered) They are interpreted as a chilled margin along the SE contact of the main ultrabasic intrusion

(iii) Aphanitic mafic rocks noted last year at the lower end of the canyon in quartzite (see detailed map Fig 4) are now an amphibolite (thin section H2) These represent a further semi-concordant basic intrusion that is considerably thicker than the sill (i) Although the lower contact is not exposed the presence of 8 cm long crystals of andalusite in pelite cataclasite (thin section H4) at the canyon of Bourget Creek (51040E, 53720N) indicates its proximity

(iv) A further locality noted last year (51213E, 54172N), where a 10 m high exposure in a gully is of fine grained mafic rock might be an eastward extension of the same intrusion as (iii), but this probably does not extend past 54000E since there is no exposure of ultrabasics in the creek at that easting

Metasediments exposed above the NW sill are predominantly pelites that contain andalusite in places (e g , thin section T2), with one minor marble found halfway up the ridge and further

decimetre-scale marble bands exposed immediately below the peak Quartzites are found on the lower slopes (below the sill) and slates predominate to the SE The presence of andalusite in the pelites indicates that the ultramafic is indeed intrusive, despite evidence of tectonised mafic rocks below

At the canyon mapped in detail (1 1000 scale map Fig 4) the cliffs are of micaceous quartzite which shows a general shallow SE dip One major (2 3 m thick) near vertical quartz vein crosses the canyon and shows arsenopyrite and trace chalcopyrite mineralization This is likely the source of the sample taken by the Heartys that yielded significant gold (≈2ppm) Further dm-scale semiconcordant quartz veins were noted at the base of the cliffs on the east side of canyon and two 15 cm veins in the creek bed were sampled (samples 25-1 &2 see 1 1000 scale map, Fig 2) Northeast of the canyon the metasediments are slates At Bourget Creek (the southernmost geological data point) the metasediments have comparatively coarse mica and very long (8 cm) andalusite crystals The coarse grainsize is likely due to contact metamorphism by the ultramafic intrusion immediately to the north, but cataclastic texture of the rock (T2) indicates that some shearing of the units has occurred, probably prior to intrusion since the cm-scale andalusite is euhedral and randomly oriented in the outcrop

EVALUATION OF THE QUARTZ VEINS AS A POSSIBLE GOLD PROSPECT

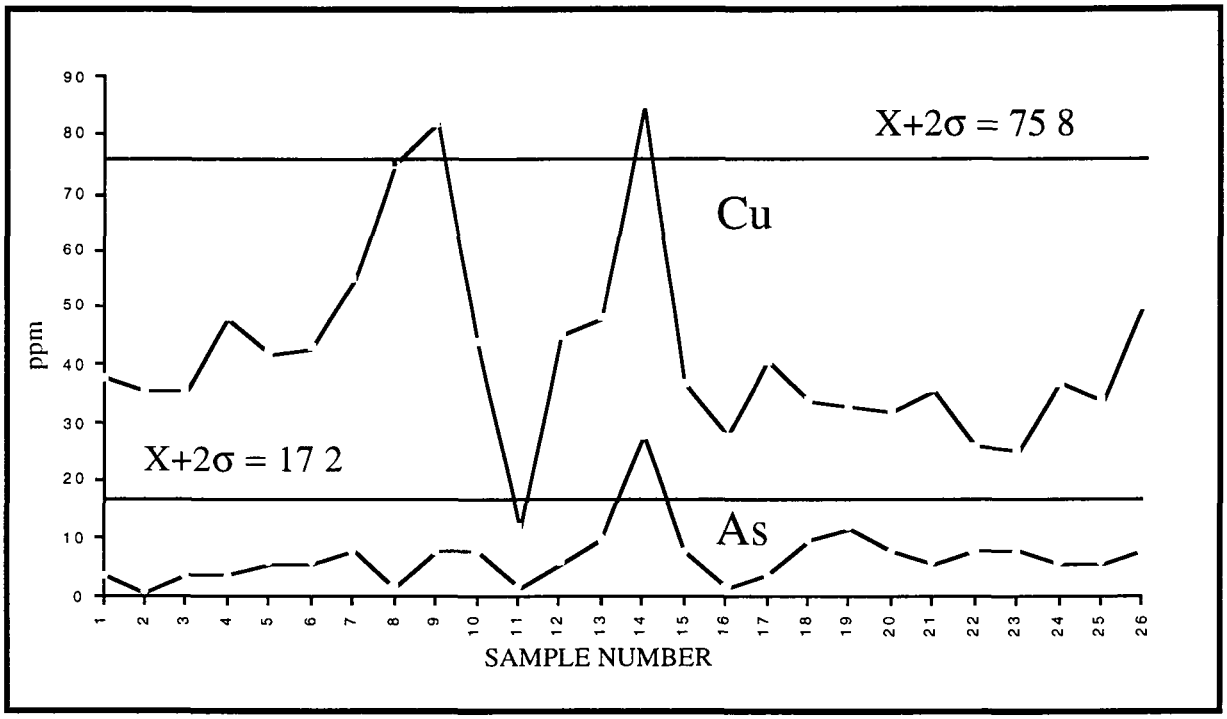
Part of the YMIP proposal was to evaluate the quartz veins in the quartzites as potential gold prospects Two anomalous analyses were reported by the Heartys from their earlier work (see assessment report for 2000) These were in specimens obtained about 1 5 km apart The eastern specimen was obviously from the canyon that has been mapped Before any soil sampling was attempted it was deemed advisable to try to relocate those quartz occurrences A line was traversed westward from the canyon to the location of the western sample as indicated on Mrs Hearty's map No sign of any outcropping quartz was found in that vicinity (although there are abundant float boulders in the adjacent creek bed around 49,800E) Since no exposure could be found it was considered inadvisable to locate a soil grid using a suspect location In addition much of the ground on the west side of the canyon is swampy or has obvious deep till cover that is expected to interfere with possible geochemical recognition of mineralization Instead of regular grid sampling a detailed stream sediment and panned concentrate sampling was used to cover the region Detailed mapping of the quartzite canyon (Fig 4) has shown that there is just one near vertical sulphide-bearing quartz vein of any size exposed Chip samples across this vein were taken at intervals of 0-0 5, 0 5-1 0, 1 0-1 5, 1 5-2 0 and 2 0-2 3 metres In addition, to test the possible response of soil, geochemical samples were obtained at approximately 20 metre intervals along the hillside on the east side of the canyon The results for trace element analysis have been received

RESULTS ORIENTATION SOIL SURVEY

Of the trace elements only arsenic and copper show any interpretable variation in contents As has slightly elevated values over the vertical quartz vein (stations 18 and 19), but these would not be considered anomalous in any statistical treatment Taking mean + two standard deviations as threshold for anomaly would give (admittedly for a very small sample population of 26) values of 17 and 76 ppm as threshold for As and Cu There is a coincident, just anomalous response in both elements at station 14 (see following page) This location corresponds to that of several bedding parallel quartz veins at the base of the cliffs below, but no explanation for the anomalous Cu peak at site 9 can be given It would seem that there is a weak response to the sulphide content in these quartz veins At the location of the sample line there is under 2 metres of till / soil cover above bedrock Whether soil geochemistry would be effective in areas of greater cover is doubtful

RESULTS CHIP SAMPLING OF QUARTZ VEINS

Chip sampling of the quatz veins (samples 4-1, 6-1 to 6-5, 25-1 and 25-2) were analysed by fire assay / AAS by Chemex for Au and by ICP for Ag, Cu, Ni, Co, Fe, As, Pb, Zn and also S The highest Au value obtained was 280 ppb and Ag was 5 ppm at the highest Arsenic did not exceed 0 01%, despite there being visible scorodite in hand specimen The anomalous but decidedly not ore-grade gold contents of these quartz veins might be the source of occasional gold grains in the drainage system, but do not represent a target for further exploration



RESULTS OF SOIL GEOCHEMISTRY FOR THE TEST LINE SAMPLED ON THE EAST SIDE OF THE CANYON SAMPLE NUMBERS ARE THOSE SHOWN ON THE 1 1000 SCALE GEOLOGICAL MAP THE OUTCROPPING NEAR VERTICAL QUARTZ VEIN TRENDS BETWEEN NUMBERS 18 & 19 VALUES OF Mean + 2 s d ARE SHOWN FOR THE RESPECTIVE RESULTS

PROSPECTING FOR JADE

The current geological mapping has noted in situ jade at only one new locality at the waterfall on the east branch of the central creek (51,390E, 55230N) Figs 6 & 2 There one metre-sized boulder was seen in the creek at the top of the waterfall amongst other boulders of fine-grained serpentinised ultrabasics This part of the creek bed is considered to be sub-outcrop i e ,

movement downstream of only a few metres is expected The entire 3 km length of the western sill that was mapped is of fine-grained serpentinised ultrabasic, except for coarse (10 mm) talc alteration along joints at around (48,600E, 56,970N) The southernmost intrusion (50,800E, 54,400N) is poorly exposed and those exposures visited show very fine-grained slightly serpentinised rock It would seem that massive, coarse serpentinite is the most common host for lenses of jade in this region and that type of serpentinite is scarce in the area prospected this year

MINERALOGY OF PANNED CONCENTRATES

The location of stream sediment and panned concentrate samples that cover the EZ-Jasper claims (and overlap some of the adjacent ground held by J P Ross) is shown on a map at 1 25,000 scale (Fig 6) and notes are given in the appendix These concentrates were examined under the binocular microscope before sending them for analysis The main differences in mineral composition of the concentrates are variation in magnetite/chromite content and presence or absence of abundant, mostly euhedral red garnet A table is given in Appendix 1 The garnet is restricted to the westernmost creek sampled (i e , around 49,500E) and the lowest samples of the west fork of the next creek east (around 50,900E, 55,000N above the canyon) If the garnets found in the west fork were dispersed eastward in glacial till, then it is likely that the source is to the west of the area mapped This conclusion is supported by garnetiferous rocks being reported from the next creek to the west (around 46,000E, 58,000N and to the north) These were noted during prospecting by Mrs Hearty That particular creek drains the eastern side of the larger ultrabasic body found in the NE corner of map sheet 105B-16 Boulders in glacial till and verbal report (V Crickbaum, 2001) indicate also the presence of a syenite intrusion in that range Whether these might be a suitable prospect for any base / precious metal mineralization is uncertain until the region can be examined next season

Only the east fork of the central creek, draining the bog on the main ultrabasic intrusion contains just spinels (either or both of magnetite and chromite), along with occasional amphibole and jade (nephrite) in the concentrates The easternmost creek was not sampled for heavy minerals The following table summarises the minerals noted Locations are given in Appendix 1

PANNED CONCENTRATES	
390251	much euhedral-subhedral red garnet, rare ? olivine and pyroxene, much spinel, one jade fragment
390253	euhedral red garnet, a little spinel, rare amphibole
390260	Mostly slate fragments, only rare spinel and garnet
390263	euhedral red garnet, a little amphibole and pyroxene, mica, spinel
390301	much spinel some red garnet jade feldspar
390302	euhedral red and brown garnet, amphibole, mica, much spinel
390303	spinel, rare amphibole
390304	spinel, amphibole, feldspar
390305	much spinel, feldspar, rare red garnet
390306	slate, spinel
390307	slate, spinel, amphibole
390308	much spinel, frequent jade, no garnet
390309	mostly slate, spinel and occasional amphibole
390310	much spinel, some red garnet green ? jade, mica
390327	euhedral garnet, amphibole, mica, a little spinel

SUMMARY

Geological mapping during during the 2001 season has shown that the vicinity of the Jasper-EZ claims consists of a sequence of slate and lesser thickness of quartzite with very rare limestone bands of under 1 metre thickness near the (structural) top of the succession The sequence is gently folded and dips are predominantly either to the west at <30° or gently easterly Ultrabasic to basic igneous intrusions are found as one sill in the west, an irregular large discordant intrusion in the central northern part of the area and another semi-concordant intrusion in the south Both the western sill and southern intrusion have produces a contact aureole in the pelites

The sole metallic mineralization noted in this work has been trace arsenopyrite-chalcopyrite contained in one 2 3 metre thick, E-W striking quartz vein that cuts the quartzites Evidence of new jade occurrence consists of the one locality at the waterfall (see geochemical location sketch, Fig 6)

STREAM SEDIMENT GEOCHEMISTRY

In order to prospect the entire claim block above the region of heavy till cover the streams were sampled for sediment (-80 mesh) analysis and a number of panned concentrate samples obtained Since the region is quite small sediment samples were obtained at from 200-300 metre intervals, depending on suitability of the stream bed for sampling This has provided enough samples to allow interpretaion of results Heavy mineral samples were obtained by measuring a 20 litre bucketful of gravel, which was washed through a 20 mesh sieve and the sand then panned by hand to give a fairly 'dirty' heavy mineral concentrate Sediments were dried and sieved to -80 mesh before shipping to Chemex Labs for ICP trace element analysis Heavy mineral concentrates were analysed by Chemex using fusion then ICPMS for Au, Pt and Pd

This sampling also serves to indicate the geochemical response of the NW ridge and covers both the EZ 1-23 block and the vacant ground north and south of the two-claim wide strip that has been included as part of the grassroots prospecting programme

RESULTS STREAM SEDIMENTS

The stream sediment analyses reflect the local rock tyes quite distinctly and are best evaluated according to the detailed geology Plots are shown at 1 40,000 scale for each element of interest (Figures 7 to 12)

Ni

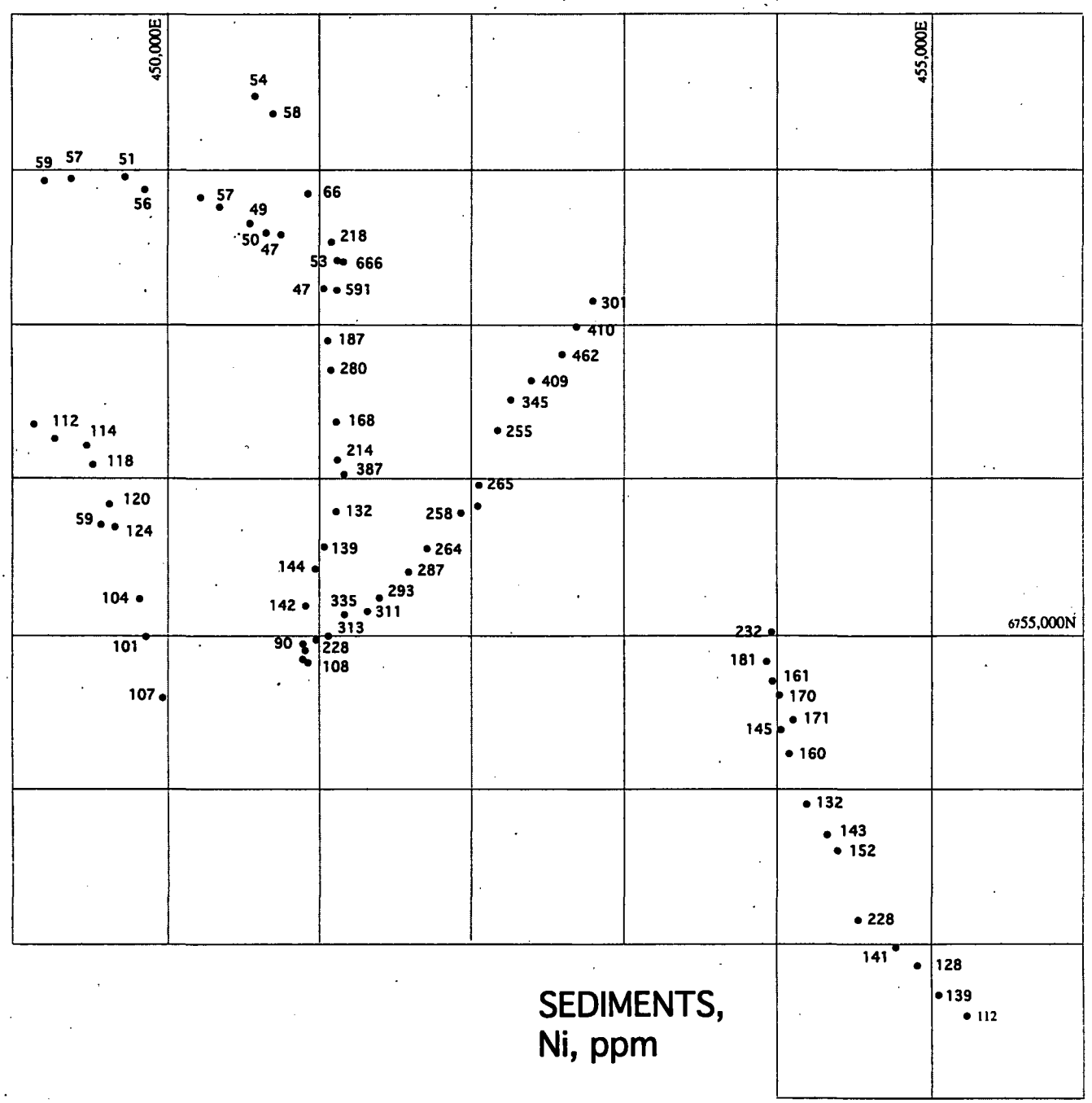
Indicates extent of the ultrabasic/basic intrusions by there being a sharp cutoff in contents above the upper fork of the central creek system Values drop from the 132-666 ppm range to under 66 ppm above the inferred contact of the main ultrabasic body Values in the SE creek (slate exposures only noted) at from 132 to 232 ppm in the upper section may reflect the presence of a continuation of one of the sills to the east, since that part of the NW creek draining sediments has values below 60 ppm

Cr

Shows a similar response to Ni, with the upper parts of the central creek system having markedly lower contents the uppermost two samples from the SE creek are also relatively high in Cr

Cu, Pb, Zn

Have no clearly anomalous results Perhaps the northernmost sample from the central creek system (sample 372) is barely anomalous in Pb at 42 ppm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139
112
SEDIMENTS,
Ni, ppm
1:40,000

Figure 7

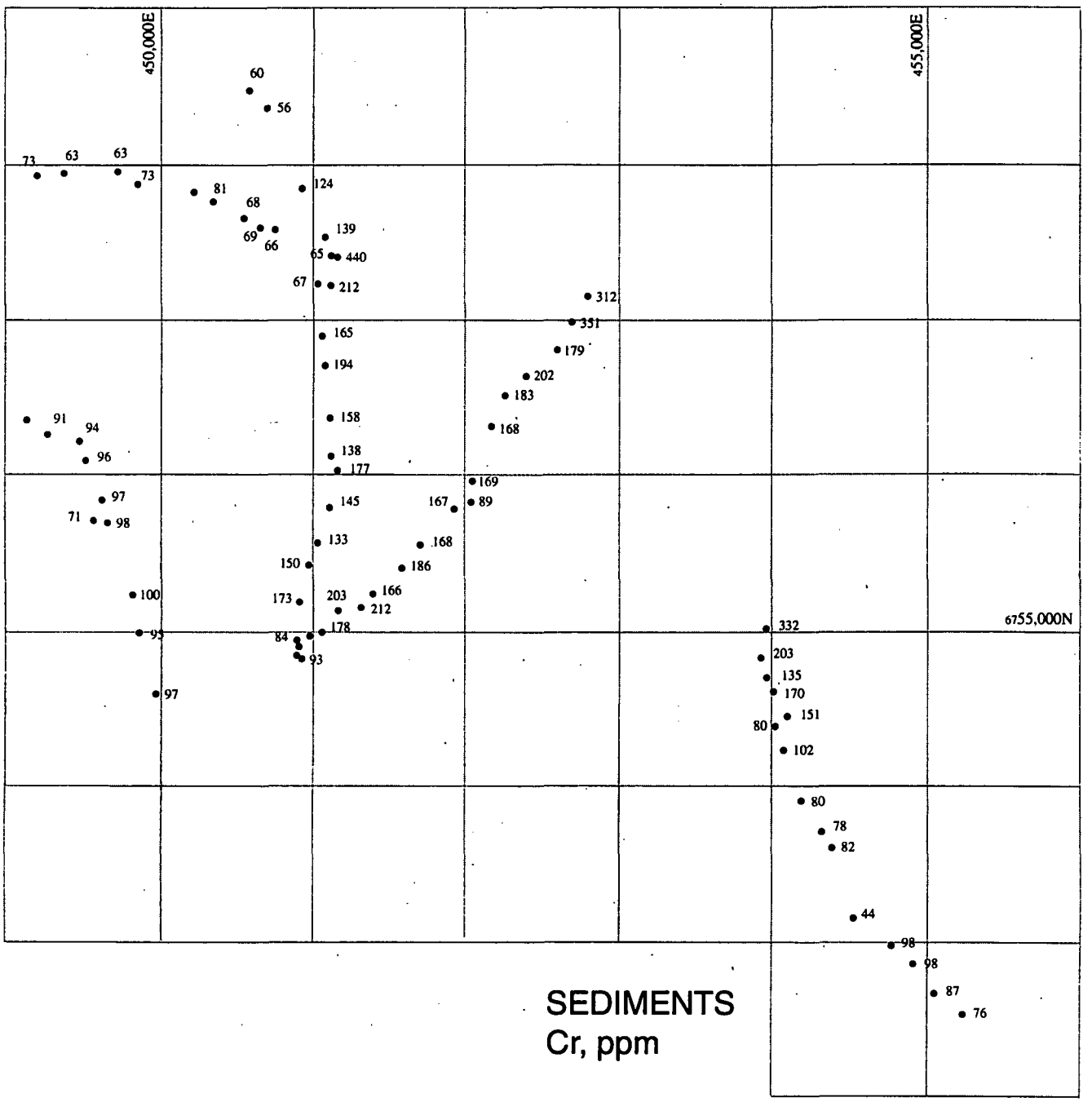

450,000E
455,000E
6755,000N
60
56
73
63
63
73
81
68
69
66
124
139
65
440
67
212
312
351
179
202
183
168
165
194
158
138
177
169
89
167
145
133
168
150
186
173
203
166
212
178
84
93
100
95
97
91
94
96
97
71
98
332
203
135
170
151
80
102
80
78
82
44
98
98
87
76
SEDIMENTS
Cr, ppm
1:40,000

Figure 8

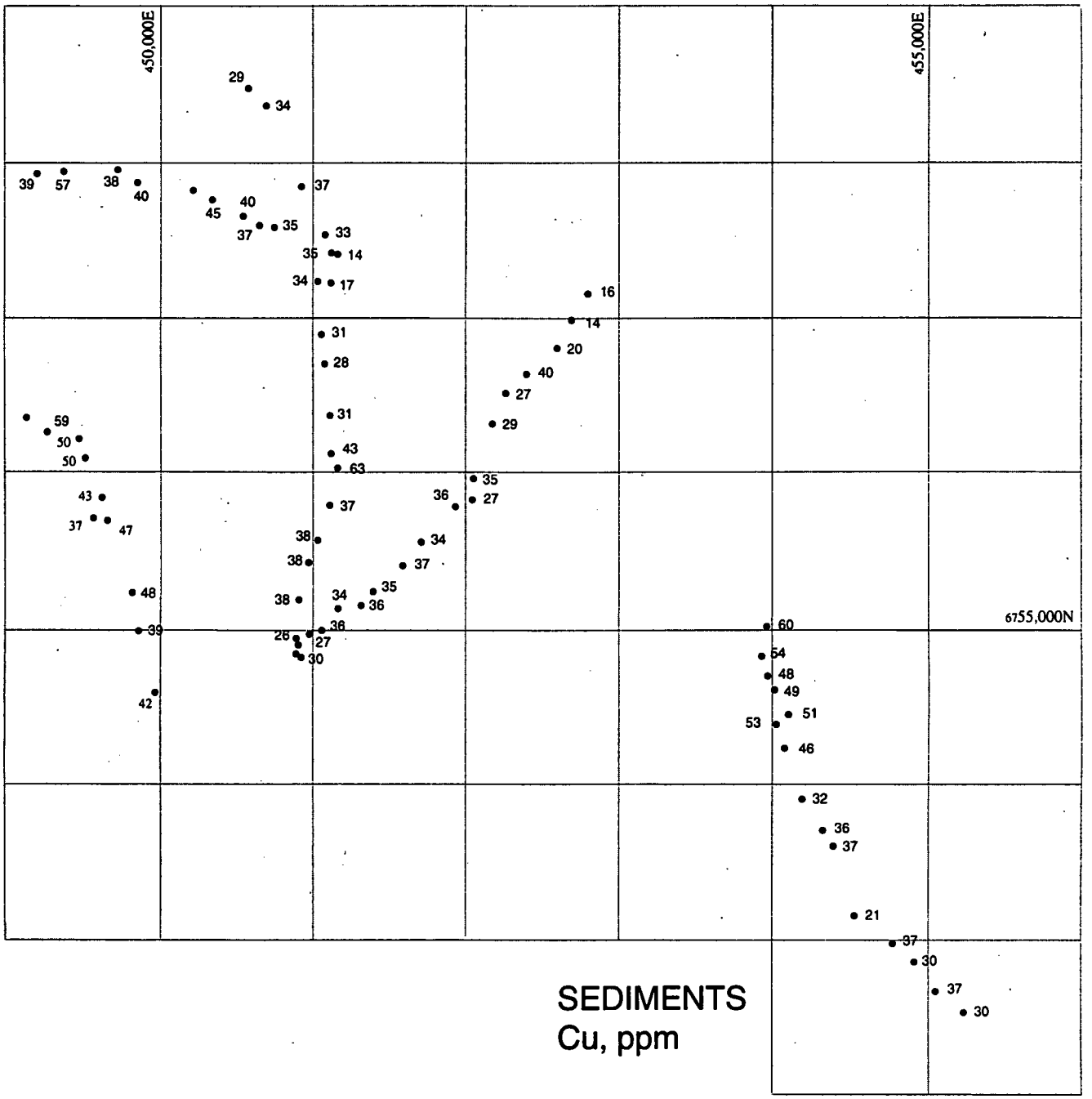

450,000E
455,000E
6755,000N
29
34
39
57
38
40
45
40
37
35
37
33
35
14
34
17
16
14
31
20
28
40
27
31
29
59
50
50
43
63
35
43
36
27
37
37
47
38
34
38
37
48
38
34
35
36
39
36
26
27
30
60
54
48
49
51
53
46
42
32
36
37
21
37
30
37
30
SEDIMENTS
Cu, ppm
1:40,000

Figure 9

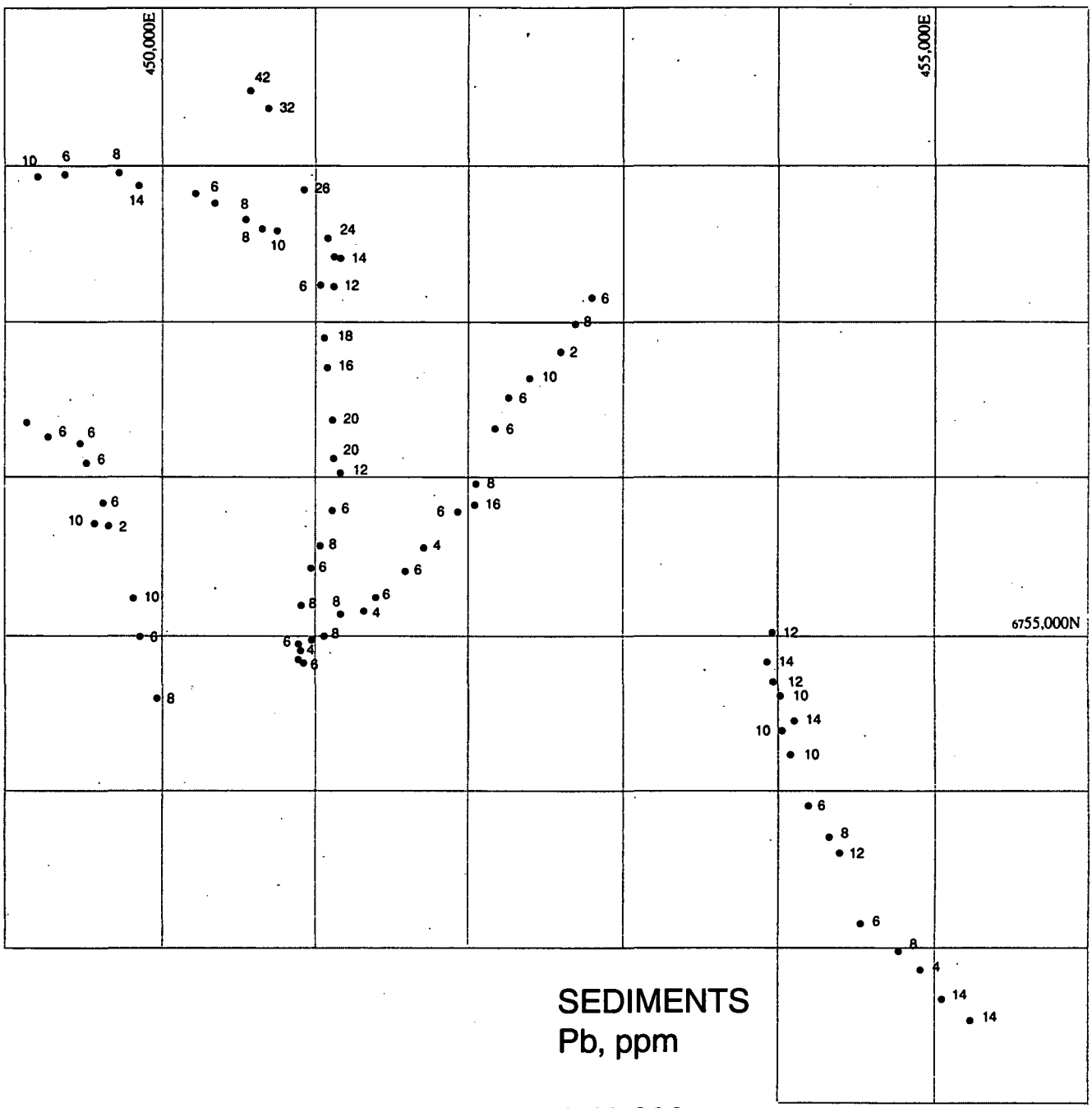


Figure 10

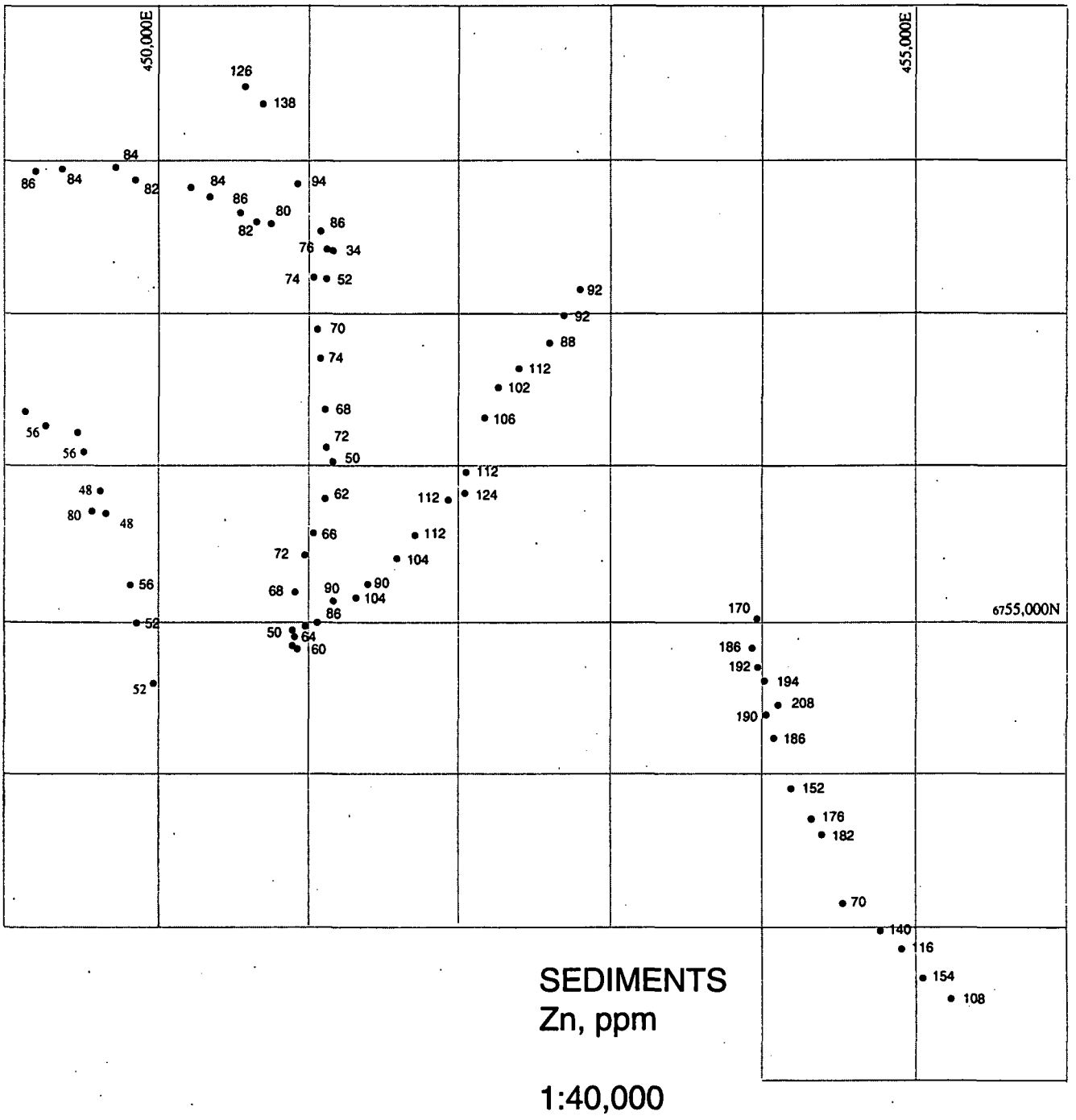

450,000E
455,000E
6755,000N
126
138
84
86
84
82
84
86
80
82
94
86
76
34
74
52
92
92
88
112
102
106
70
74
68
72
50
56
56
112
124
48
80
48
62
66
112
104
72
56
68
90
90
104
86
52
50
64
60
52
170
186
192
194
208
190
186
152
176
182
70
140
116
154
108
SEDIMENTS
Zn, ppm
1:40,000

Figure 11

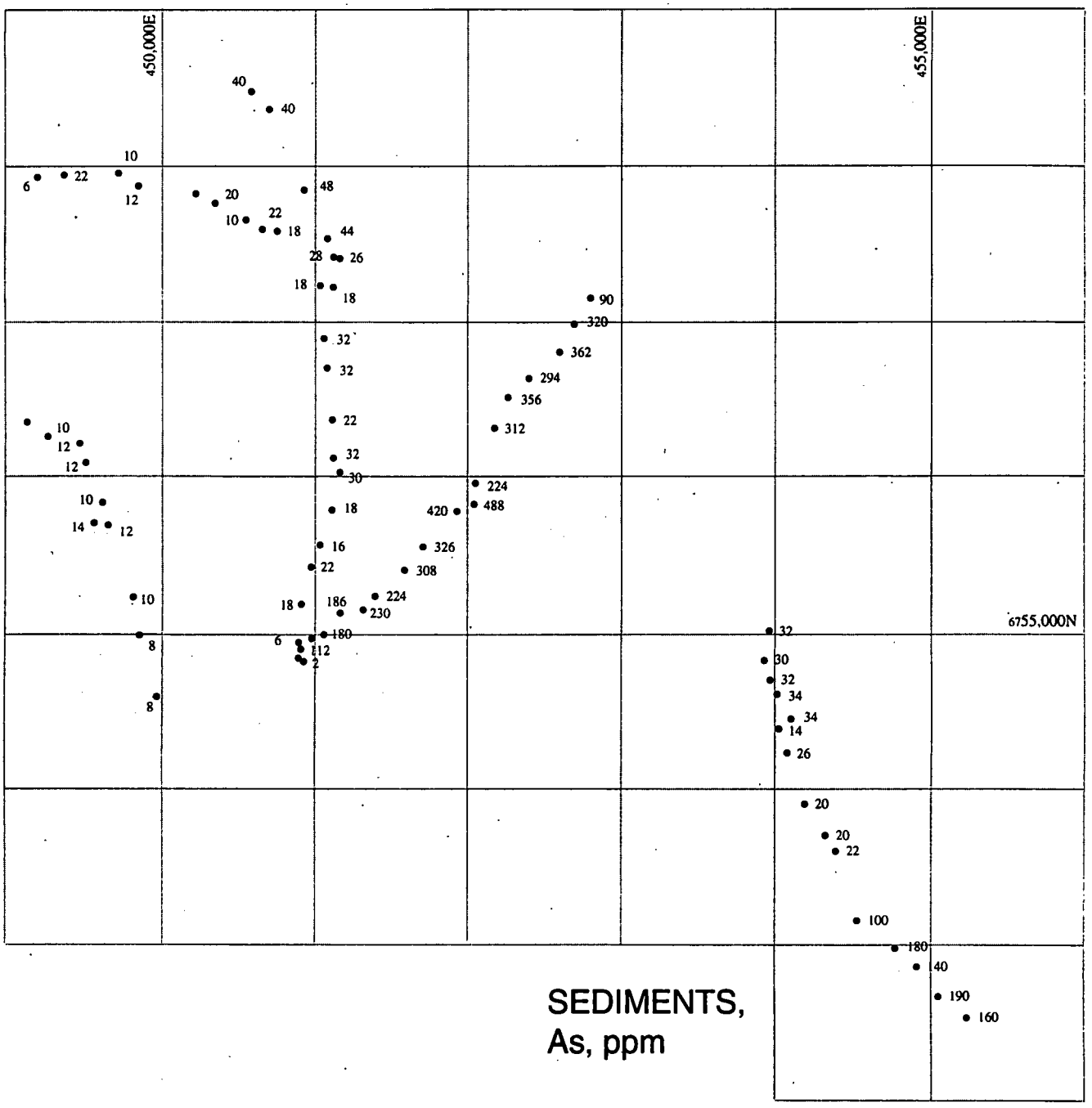
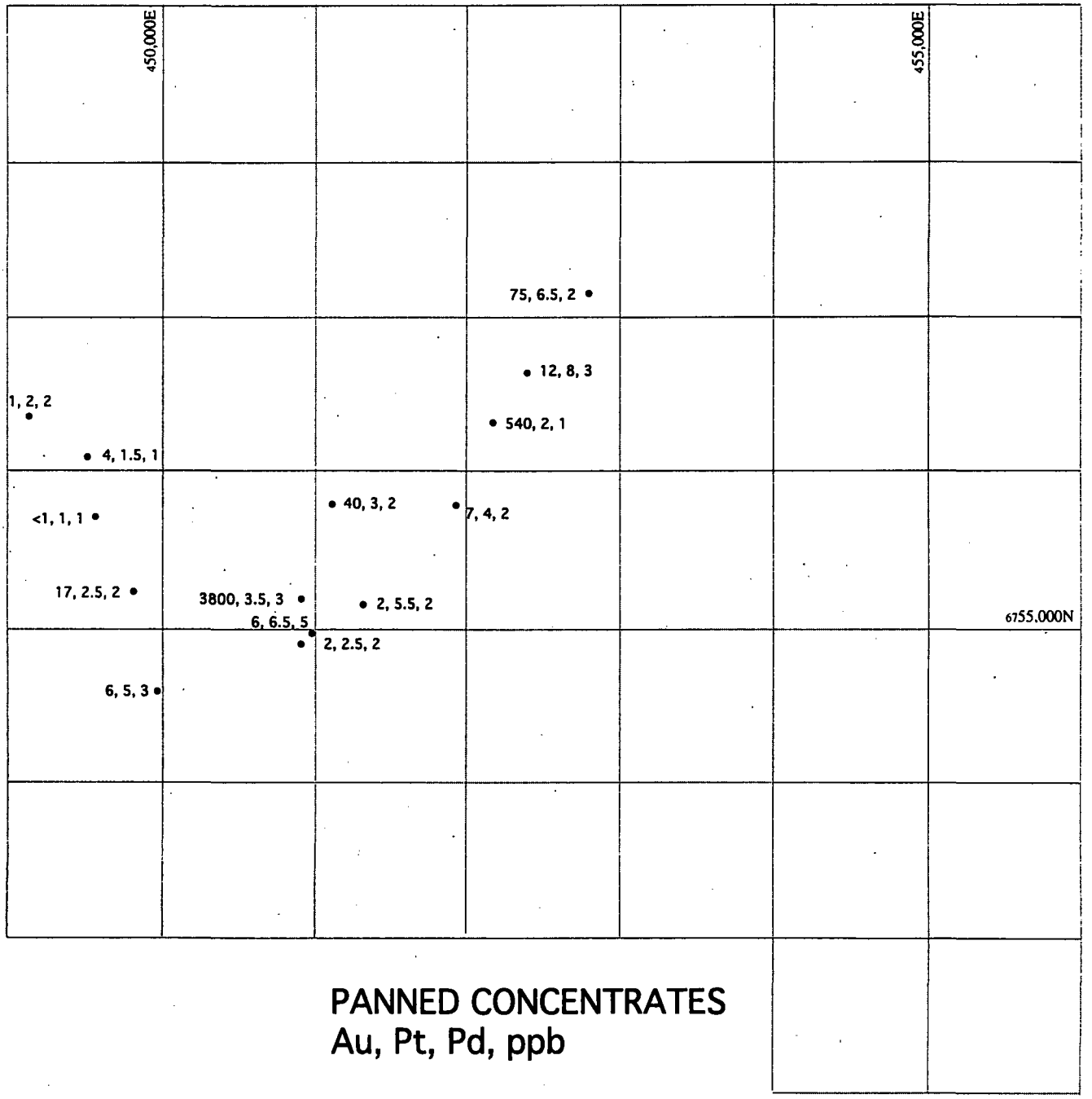


Figure 12



PANNED CONCENTRATES
Au, Pt, Pd, ppb

1:40,000

Figure 13

As

Is somewhat enigmatic in that only the east branch of the central creek system has relatively elevated values (to 488 ppm) but taking this branch of the creek as one population, a mean of the 16 analyses is 277 ppm Using the 'simple-minded criterion' mean + 2 s d is 492 ppm, so even the highest value obtained might not be anomalous It is suggested that the comparatively higher As contents of this creek may be due to trace sulphides in the fine-grained ultrabasic and basic intrusions that were noted in that valley

Other elements

Most of the other elements are below or just above detection limits Mo is elevated in samples 352-355, which are from the lowest part of the SE creek, where glacial till is obvious, so these values likely reflect transported material Specimen 376 has anomalous Sb at 10 ppm and the adjacent specimen 377 has somewhat elevated Ag at 0 8 ppm (but since many of the Ag results are below detection liomit at 0 2 ppm it is difficult to estimate a threshold for anomaly) Similar Ag is seen in the upper part of the SE creek (spec 351) The only Hg values above detection limit are from the upper part and right fork of the same creek These results may indicate weak sources of metals in this drainage, presumably in the contact aureole of the ultramafics, but are not obviously highly significant

RESULTS HEAVY MINERAL CONCENTRATES

Of the fourteen panned concentrates analysed for Au, Pt and Pd two results stand out as obviously anomalous 302 and 305 at 3800 and 540 ppb Au (Fig 13) Pt contents are below 8 ppb Although these two Au values are anomalous, the low values indicated by the rest would tend to indicate that the region is not a significant source of the metal The two high results could be produced by single microscopic grains of gold in the concentrate and coming from an initial 20 kg gravel sample they are not so exciting!

SUMMARY

The geochemical results do not indicate an obvious target for further prospecting for Au or base metals The one (statistically) high gold value in panned concentrates is explainable by the 'nugget effect', which is this case requires only one tiny grain of the metal in the concentrate The regionally low Au-Pt values indicate that the ultramafics here are not an obvious source of gold

CONCLUSIONS

Geological mapping and geochemical stream sediment sampling in the immediate vicinity of the Jasper and EZ claims has failed to detect any ore-grade mineralization Obvious exposed quartz veins carry trace gold only and the stream sediment / heavy mineral geochemistry would indicate that there is not an obvious source of gold or base metals within the ultramafic bodies mapped Anomalous mercury noted at the northern edge of the area investigated is not explained, but other metals are not indicative of mineralization

One minor occurrence of jade was found This part of the valley might be worth further prospecting however, the topography would make any removal of jade boulders very difficult Occurrences of talc have been noted to the NE by the Heartys and will be covered in their prospecting report

APPENDICES

APPENDIX 1	Table of coordinates of geochemical sample points
APPENDIX 2	Petrographic notes
APPENDIX 3	Analytical results
APPENDIX 4	Geological diary
APPENDIX 5	Estimate of breakdown of time spent on the YMIP target evaluation and grassroots prospecting programmes

FIGURES LARGE SHEETS (FOLDED)

Fig 2	Geology of the region of Jasper-EZ claims Scale 1 25,000
Fig 3	Geological traverses, Scale 1 25,000
Fig 4	Geology of the Jasper claims (canyon) Scale 1 1000
Fig 5	Data points geology and claim posts
Fig 6	Stream sediment - panned concentrate geochemistry location of sample points Scale 1 25,000

APPENDIX 1

HASSELBERG GEOCHEMICAL SAMPLES

NUMBER	EASTING	NORTHING	TYPE	NOTE / DUPLICATE OF
250	49983	54581	SS	
251	49983	54581	HM	
252	49983	54581		
253	49141	56356	HM	
254	49141	56356	SS	
255	49280	56266	SS	
256	49423	56206	SS	
257	49513	56089	HM	
258	49513	56089	SS	
259	49637	55836	SS	
260	49568	55711	HM	
261	49568	58711	SS	
262	49661	55684	SS	
263	49823	55242	HM	
264	49823	55242	SS	
265	49873	54995	SS	
266	51115	55792	SS	
267	51033	55573	SS	
268	50970	55432	SS	
269	50910	55183	SS	
270	52805	57144	SS	
271	52695	56997	SS	
272	52584	56810	SS	
273	52407	56646	SS	
274	52251	56511	SS	
275	52170	56307	SS	
276	52046	55967	SS	
278	51930	55791		
279	51708	55563	SS	
280	51630	55416	SS	
281	51390	55237	SS	
282	51321	55153	SS	
283	51164	55135	SS	
284	51027	55027	SS	
285	50904	54899	SS	
286	50893	54931	SS	
289	50928	54815	SS	
291	55236	52535	SS	
292	55045	52658	SS	
293	54911	52861	SS	
294	54766	52984	SS	
295	54530	53144	SS	
296	53967	55012	SS	
297	53937	54829	SS	
298	53968	54703	SS	

299	54010	54596	SS	
300	54097	54459	SS	
301	51115	55792	HM	
302	50910	55183	HM	
303	52805	57144	HM	
304	52407	56646	HM	
305	52170	56307	HM	
306	51930	55791	HM	
307	51321	55153	HM	
308	50975	54968	HM	
309	50904	54899	HM	
310	50893	54931	HM	
327	51155	57410	SS	
344	52019	55841	SS	
345			SS	390286
346			SS	390270
347			SS	390378
348			SS	390403
351	54016	54392	SS	
352	54077	54232	SS	
353	54186	53902	SS	
354	54320	53714	SS	
355	54384	53598	SS	
356	49204	57918	SS	
357	49390	57938	SS	
358	49724	57942	SS	
359	49866	57875	SS	
362	50356	57772	SS	
363	50553	57649	SS	
364	50648	57595	SS	
365	50758	57585	SS	
366	51021	57241	SS	
367	51114	57225	SS	
368	51156	57410	SS	
369	51076	57533	SS	
370	50922	57857	SS	
371	50686	58366	SS	
372	50576	58486	SS	
373	51069	56704	SS	
374	51053	56901	SS	
375	51117	56361	SS	
376	51131	56115	SS	
377	51170	56012	SS	
378			SS	
403	46319	60057	SS	
407	46266	59844	SS	

APPENDIX 2 PETROGRAPHY

HASSELBERG REGION 105A-13		
	E	N
H1	49280	56256
H2	50780	54518
H3	50904	54949
H4	51040	53735
H5	51352	55184
H6	51883	55728
H7	51798	56496
H8	51799	56678
H9	52047	55884
H10	52060	55905
H11	52067	56074
H12	53064	58463
H13	53325	58501
H14	53561	58839
H15	53748	59004
H16	54400	59159
T1	47737	59309
T2	47909	58219
T3	47979	59098
T4	47985	58635
T5	48106	58173

H1

Unaltered Distinctly foliated, composed of 90% amphibole (actinolite) crystals to a max of 0 4 mm long with some interstitial feldspar (some twinned plagioclase discernable) and elongated aggregates of magnetite to 0 5 mm long alternating with up to 2 mm thick layers of feldspar with only a little amphibole Occasional amphibole crystals are grown perpendicular to the foliation in the feldspathic layers

H2

Unaltered A fairly homogeeous aggregate of actinolite and feldspar with possibly some quartz amphibole is in 0 1 mm laths The feldspars define a faint layering, but amphibole orientation is fairly random Opaques constitute ≈2% in 0 02 mm grains surrounded by some (?) sphene, forming 0,5 mm long aggregates

H3

Unaltered Euhedral, acicular actinolite to 0 4 mm long (50%) in very fine-grained anhedral feldspar (twins rare) and possibly some quartz (too fine for unequivocal identification) The rock has a very strong preferred orientation of minerals - only a few of the coarser ampiboles have grown across the foliation Opaques and (?) sphene form agregates to 0 8 mm long that follow the foliation

H4

Slightly altered cataclasite Ragged porphyroblasts of red biotite (to 1 2 mm) and partially disaggregated feldspars (1 5 - 4 mm) that contain much fine opaque minerals are in a matrix of 0 05 - 0 1 mm feldspar and quartz The matrix (or groundmass) shows an anastomosing foliation

H5

Talc-serpentine rock A 20 mm mass of talc is in contact with serpentine Serpentine invades the talc in flame-like forms

H6

Similar to H1 - 3 Acicular actinolite to 0 3 mm in feldspar Has somewhat less strong preferred orientation of minerals than (1) Opaques are 0 3 mm aggregates without any sphene

H7

A mass of 0 2 mm tremolite with some interstitial (?) quartz as 1 mm polygonised semi-elliptical shaped masses Both carbonate and quartz form 0 1 -0 2 mm thick veins

H8

Coarse actinolite - feldspar rock Actinolite is up to 6 mm long as ragged, anhedral forms Twinned plagioclase (2 mm, rarely to 4 mm) has relict euhedral forms, but is penetrated by the actinolite Euhedral magnetite to 1 mm (≈2% of the volume)

H9

A mass of 1 mm tremolite crystals with perhaps 15% groundmass of feldspar and (?) quartz

H10

Quartz-amphibole-epidote rock (hornfels?) Acicular tremolite, 1 mm long defines a distinct foliation Quartz grains are up to 0 3 mm across, anhedral, polygonised and interstitial to the amphiboles Epidote is anhedral and up to 0 3 mm size

H11

Coarser-grained variant of (10), but contains some plagioclase and biotite Has a fairly strong preferred orientation of minerals which is anastomosing 1 mm long aggregates of tremolite may be pseudomorphing pyroxenes Interstitial quartz is 0 1 mm grainsize, with the occasional plagioclase grain 0 3 mm euhedral crystals of epidote are associated with the tremolite The mica is pleichroic from colourless to pale brown and form occasional 2 mm anhedral grains in the quartz matrix Opaques are cubic forms from 0 05 - 0 1 mm size Tremolite 30%, opaques 1 %, biotite and epidote <1%

H12

Fine-grained amphibole-quartz rock Ampiboles are up to 0 3 mm long and constitute 50% of the bulk Opaques are <1% Very occasional 0 1 mm epidote crystals are seen

H13

Slightly serpentinised amphibole-rich rock Ragged, almost equidimensional tremolite is up to 0 6 mm across (70% of the bulk) in a serpentine matrix There are only rare opaques

H14

Meta-syenite? Amphibole-feldspar rock The amphibole is pleichroic from pale green to faint pink (tremolite-actinolite) and is in 3 mm masses The matrix is perthite and plagioclase with occasional masses of epidote

H16

Inhomogeneous epidote-chlorite-tremolite rock, with only occasional plagioclase Tremolite crystals are 4 mm long Epidote masses are up to 50% of the volume There are local concentrations of tremolite to 30% Chlorite can locally form 40% Opaques 1% No preferred orientation noted

T1

Elongate subhedral polygonised calcite masses up to 6 mm long may be pseudomorphing pyroxene phenocrysts The remainder of the rock is 70% tremolite-actinolite in acicular crystals to 0 7 mm long in a matrix of (?) quartz (0 1 mm grainsize) and similar-sized amphiboles A few opaques only are seen

T2

Andalusite-biotite-quartz schist Has a distinct foliation which does not especially anastomose or curve around the andalusite porphyroblasts Andalusite are 1 mm long by 0 5 mm in cross-section and constitute ≈20% Biotite (pleichroic from colourless to red-brown and near uniaxial -ve) is 15% of volume in 0 2 - 0 4 mm long anhedral forms The matrix is 0 1-0 2 mm quartz grains

T3

Tremolite-actinolite quartz biotite 'schist' 80% tremolite-actinolite as acicular crystals to 0 5 mm long with a strong preferred orientation Quartz is interstitial Opaques (≈1%) are 0 1 mm long needles Biotite (pleichroic from colourless to red-brown and near uniaxial) forms discreet layers up to 0 4 mm thick

T4

Tremolite-actinolite plagioclase rock Random oriented, fairly equidimensional raged phenocrysts of the amphibole from 0 5 - 1 mm grainsize are included in a plagioclase matrix, the feldspar being mostly as polygonised 0 1 mm grains

T5

Highly serpentinised dunite Some relict olivine is present (15% in places) but it is pervasively fractured and serpentine altered Large (>4 mm) fields of serpentine and talc are interstitial

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Project
Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

Page Number 1-A
Total Pages 2
Certificate Date 21-NOV-2001
Invoice No I0128689
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128689

SAMPLE	PREP CODE	Weight Kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
390250	225 9400	0 02	0.8	2 82	22	< 10	280	1 5	< 2	0 57	0 5	18	103	66	3 12	10	< 1	0 40	10	1 49
390252	225 9400	0 02	< 0.2	2.58	8	< 10	310	0 5	< 2	0.41	< 0 5	15	97	42	3 27	< 10	< 1	0.47	< 10	1 29
390255	225 9400	0 02	< 0 2	2 59	10	< 10	270	1 0	2	0 58	0 5	16	91	59	2 97	< 10	< 1	0 40	10	1 28
390256	225 9400	< 0 02	< 0 2	2 76	12	< 10	290	1 0	< 2	0 47	< 0 5	16	94	50	3 30	10	< 1	0 53	10	1 36
390258	225 9400	< 0 02	< 0 2	2.72	12	< 10	300	1 0	2	0 46	< 0 5	17	96	50	3 34	10	< 1	0 52	10	1 37
390259	225 9400	0 02	0 6	2 49	10	< 10	270	0 5	4	0 46	< 0 5	15	97	43	3 06	< 10	< 1	0 43	< 10	1 29
390260	225 9400	0 02	0.2	1 87	14	< 10	240	0 5	< 2	0 31	< 0 5	12	71	37	3 09	< 10	< 1	0 47	< 10	0 74
390261	225 9400	0 02	0.2	2 59	10	< 10	290	0 5	2	0 44	< 0 5	16	101	48	3 23	< 10	< 1	0 45	< 10	1 46
390262	225 9400	0 02	0 2	2 59	12	< 10	290	0 5	< 2	0 43	< 0 5	16	98	47	3 18	10	< 1	0 47	< 10	1 42
390264	225 9400	< 0 02	< 0 2	2 82	10	< 10	310	0 5	< 2	0 38	< 0 5	16	100	48	3 39	10	< 1	0 55	< 10	1 35
390265	225 9400	< 0 02	0 2	2 56	8	< 10	300	0 5	< 2	0 37	< 0 5	15	95	39	3.18	< 10	< 1	0 50	< 10	1.33
390266	225 9400	< 0 02	0 2	1 69	18	< 10	190	0 5	< 2	0 35	< 0 5	20	145	37	3 20	< 10	< 1	0 42	< 10	1.71
390267	225 9400	< 0 02	0 2	1 72	16	< 10	190	0 5	< 2	0 35	< 0 5	20	133	38	3 21	< 10	< 1	0 36	< 10	1 63
390268	225 9400	< 0 02	0 2	1 86	22	< 10	200	0 5	2	0 37	< 0 5	21	150	38	3 47	10	< 1	0 42	< 10	1 81
390269	225 9400	< 0 02	0 4	1 91	18	< 10	200	0.5	< 2	0 38	< 0 5	21	173	38	3 47	< 10	< 1	0 41	< 10	1 77
390270	225 9400	0 02	0.6	1 44	90	< 10	290	0 5	< 2	0 31	0 5	43	312	16	5 66	10	< 1	0 03	< 10	0 95
390271	225 9400	< 0 02	< 0 2	1 38	320	< 10	260	0 5	6	0 22	0 5	48	351	14	5 83	10	< 1	0 03	< 10	1 74
390272	225 9400	< 0 02	< 0 2	1 66	362	< 10	250	0 5	< 2	0 20	< 0 5	45	179	20	4 87	10	< 1	0 19	< 10	2 62
390273	225 9400	< 0.02	0 8	1 63	294	< 10	250	0 5	4	0 28	4 5	37	202	40	4 19	< 10	< 1	0 09	10	1 98
390274	225 9400	0 02	0 4	1 67	356	< 10	180	0 5	< 2	0 31	2 0	30	183	27	4.05	< 10	< 1	0 05	10	1 20
390275	225 9400	< 0 02	< 0 2	2 01	312	< 10	200	0 5	2	0 32	1 5	26	168	29	3 84	< 10	< 1	0 23	10	1 36
390276	225 9400	< 0 02	0 2	2 01	224	< 10	190	0 5	< 2	0 33	2 5	25	169	35	3 44	< 10	< 1	0 10	10	1 11
390277	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
390278	225 9400	< 0 02	< 0 2	2 02	420	< 10	160	0 5	< 2	0 40	1 5	22	167	36	3 54	< 10	< 1	0 10	10	1 25
390279	225 9400	< 0 02	0 2	1 89	326	< 10	210	0 5	2	0 37	2 0	24	168	34	3 33	< 10	< 1	0 10	10	1 27
390280	225 9400	< 0 02	0 2	1.95	308	< 10	160	0 5	2	0.37	1 5	24	186	37	3 32	< 10	< 1	0.09	10	1 25
390281	225 9400	< 0 02	0 2	1 89	224	< 10	180	0 5	< 2	0 38	1 0	24	166	35	3 13	< 10	< 1	0 10	< 10	1 33
390282	225 9400	< 0 02	0.2	1 75	230	< 10	170	0 5	4	0.39	2 0	25	212	36	3 30	10	< 1	0 10	< 10	1 70
390283	225 9400	< 0 02	< 0 2	1 73	186	< 10	210	0 5	6	0 48	1 0	28	203	34	3 46	10	< 1	0 10	< 10	1 82
390284	225 9400	< 0 02	< 0 2	1 90	180	< 10	280	0 5	2	0 44	0.5	26	178	36	3 30	< 10	1	0 12	10	1 65
390285	225 9400	< 0.02	< 0 2	1.38	112	< 10	180	0 5	2	0 32	0 5	20	177	27	2 66	< 10	< 1	0 10	< 10	1 36
390286	225 9400	0 08	< 0 2	1 30	6	< 10	160	< 0 5	4	0.25	< 0 5	13	84	26	2.21	< 10	< 1	0 13	< 10	0 76
390289	225 9400	0 10	< 0 2	1 61	2	< 10	190	0 5	< 2	0 26	< 0 5	15	93	30	2 53	< 10	< 1	0 16	< 10	0 96
390291	225 9400	< 0 02	0 2	1 46	16	< 10	160	0 5	2	0 50	3 5	11	76	30	2 31	< 10	< 1	0 12	10	0 71
390292	225 9400	< 0 02	0 4	1 65	24	< 10	190	0 5	2	0 69	4 0	12	87	37	2.60	< 10	< 1	0 10	20	0 75
390293	225 9400	< 0 02	0 2	1 42	14	< 10	140	0 5	< 2	0 62	2 5	12	98	30	2 37	< 10	< 1	0 05	20	0 78
390294	225 9400	< 0.02	< 0 2	1.69	14	< 10	180	0 5	2	0 73	2 5	12	98	37	2 51	< 10	< 1	0 07	30	0 84
390295	225 9400	0.02	0 4	0 78	12	< 10	100	< 0 5	< 2	0 52	2 5	6	44	21	1 29	< 10	< 1	0 02	10	0 40
390296	225 9400	0 04	0 2	1.67	32	< 10	100	1 0	< 2	0 34	3 0	22	332	60	4 54	< 10	< 1	0.20	10	1 07
390297	225 9400	< 0 02	< 0.2	2 01	30	< 10	170	1 0	< 2	0 34	3 0	19	203	54	4 18	10	< 1	0 30	10	1 23

CERTIFICATION _____

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Account MPR

CERTIFICATE OF ANALYSIS A0128689

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
390250	225 9400	315	2	0 03	167	850	8	0 07	2	6	41	0 09	< 10	< 10	73	< 10	66
390252	225 9400	300	1	0 03	107	640	8	0 03	< 2	8	25	0 13	< 10	< 10	77	< 10	52
390255	225 9400	345	2	0 02	112	750	6	0 05	< 2	7	40	0 10	< 10	< 10	75	< 10	56
390256	225 9400	375	1	0 03	114	670	6	0 04	2	8	28	0 13	< 10	< 10	80	< 10	52
390258	225 9400	370	1	0 03	118	700	6	0 04	< 2	8	26	0 14	< 10	< 10	79	< 10	56
390259	225 9400	335	1	0 03	120	700	6	0 04	< 2	7	25	0.12	< 10	< 10	71	< 10	48
390260	225 9400	530	1	0 02	59	730	10	0 03	< 2	6	15	0 15	< 10	< 10	66	10	80
390261	225 9400	350	< 1	0 03	130	620	6	0 04	< 2	8	27	0.13	< 10	< 10	76	< 10	48
390262	225 9400	345	1	0 03	124	620	2	0 03	< 2	8	24	0 12	< 10	< 10	76	< 10	48
390264	225 9400	345	1	0 03	104	630	10	0 02	< 2	9	21	0 14	< 10	< 10	84	< 10	56
390265	225 9400	315	2	0 03	101	550	6	0 02	< 2	8	21	0 13	< 10	< 10	77	< 10	52
390266	225 9400	475	< 1	0.03	132	630	6	0 02	< 2	6	12	0 12	< 10	< 10	72	< 10	62
390267	225 9400	515	< 1	0 02	139	610	8	0 02	< 2	7	14	0 11	< 10	< 10	69	< 10	66
390268	225 9400	520	1	0 03	144	610	6	0 02	4	7	14	0 13	< 10	< 10	74	10	72
390269	225 9400	475	< 1	0 03	142	660	8	0 01	< 2	7	15	0 13	< 10	< 10	78	10	68
390270	225 9400	4590	3	0 01	301	810	6	0 05	6	3	23	0 03	< 10	< 10	52	< 10	92
390271	225 9400	3860	1	0 01	410	680	8	0 03	2	4	17	0.03	< 10	< 10	48	< 10	92
390272	225 9400	3610	1	0 02	462	450	2	0 03	2	5	16	0 08	< 10	< 10	62	< 10	88
390273	225 9400	2210	3	0 02	409	890	10	0 05	< 2	6	17	0 04	< 10	< 10	53	< 10	112
390274	225 9400	1760	2	0.01	345	790	6	0 05	2	4	20	0 04	< 10	< 10	45	< 10	102
390275	225 9400	1520	2	0 02	255	740	6	0 07	2	5	24	0 07	< 10	< 10	61	30	106
390276	225 9400	1150	1	0 01	265	860	8	0 06	2	5	24	0.04	< 10	< 10	47	10	112
390277	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
390278	225 9400	730	3	0 02	258	840	6	0 07	< 2	5	29	0 05	< 10	< 10	48	20	112
390279	225 9400	1120	2	0 01	264	780	4	0 06	2	4	27	0 05	< 10	< 10	45	< 10	112
390280	225 9400	915	2	0 01	287	800	6	0.06	< 2	5	25	0 04	< 10	< 10	44	10	104
390281	225 9400	740	1	0 01	293	730	6	0 05	2	5	29	0 05	< 10	< 10	46	< 10	98
390282	225 9400	885	< 1	0.02	311	750	4	0 06	< 2	5	27	0 05	< 10	< 10	47	< 10	104
390283	225 9400	945	< 1	0 02	335	700	8	0 05	2	6	31	0 05	< 10	< 10	51	10	90
390284	225 9400	695	< 1	0 02	313	680	8	0 05	4	6	29	0 06	< 10	< 10	52	< 10	86
390285	225 9400	440	< 1	0.01	228	540	4	0 03	< 2	4	20	0 05	< 10	< 10	44	10	64
390286	225 9400	370	1	0 01	90	720	6	0 01	2	4	11	0 07	< 10	< 10	47	< 10	50
390289	225 9400	410	1	0 01	108	730	6	0 01	< 2	5	13	0 09	< 10	< 10	56	< 10	60
390291	225 9400	330	1	0 01	112	530	14	0 06	< 2	3	29	0 04	< 10	< 10	37	< 10	108
390292	225 9400	365	3	0 02	139	600	14	0 08	2	3	39	0 04	< 10	< 10	44	< 10	154
390293	225 9400	275	3	0 02	128	580	4	0 06	< 2	3	36	0 03	< 10	< 10	42	< 10	116
390294	225 9400	270	4	0.03	141	690	8	0 08	< 2	3	43	0 03	< 10	< 10	47	< 10	140
390295	225 9400	160	1	0.01	77	420	6	0 04	< 2	1	24	0 01	< 10	< 10	23	< 10	70
390296	225 9400	400	5	0 03	232	580	12	0 10	2	6	27	0 05	< 10	< 10	92	< 10	170
390297	225 9400	400	9	0 04	181	600	14	0 11	2	6	36	0 06	< 10	< 10	101	< 10	186

CERTIFICATION

ALS Chemex

Aurora Laboratory Services Ltd
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To HEARTY, STELLA

BOX 81
WATSON LAKE, YT
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Project
Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

Page Number 2 A
Total Pages 2
Certificate Date 21 NOV-2001
Invoice No I0128689
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128689

SAMPLE	PREP CODE	Weight Kg	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
390298	225 9400	< 0 02	0 6	1 96	32	< 10	160	1 0	< 2	0 38	3 0	18	135	48	3.76	< 10	< 1	0 22	10	1 15
390299	225 9400	< 0 02	0 6	2 02	34	< 10	170	1 0	< 2	0 38	3 0	18	170	49	3 97	< 10	< 1	0 26	10	1 18
390300	225 9400	< 0 02	0 2	2 13	34	< 10	190	1 0	< 2	0 38	3 0	19	151	51	4 09	< 10	< 1	0 30	10	1 24
390327	225 9400	< 0 02	< 0 2	1 73	28	< 10	220	0 5	2	0 31	0 5	12	65	35	2 93	< 10	< 1	0 46	< 10	0 75
390344	225 9400	< 0 02	0 2	1 89	488	< 10	140	0 5	< 2	0 41	1 0	19	89	27	3 07	< 10	< 1	0 19	10	1 28
390345	225 9400	< 0 02	< 0 2	1 23	8	< 10	160	< 0 5	< 2	0 23	< 0.5	13	74	26	2 16	< 10	< 1	0 13	< 10	0 73
390346	225 9400	< 0 02	0 4	1 43	102	< 10	340	0 5	< 2	0 31	0 5	50	345	15	6 17	10	< 1	0.03	< 10	1.27
390347	225 9400	0 06	0 4	1 77	8	< 10	210	0 5	< 2	0 28	< 0 5	16	109	33	2 69	< 10	< 1	0 20	< 10	1 10
390348	225 9400	0.04	< 0 2	1.08	4	< 10	90	< 0.5	6	0 28	< 0 5	17	146	23	1.85	< 10	< 1	0.12	< 10	1 03
390351	225 9400	< 0.02	0 8	1 66	14	< 10	150	0 5	2	0 81	4 0	11	80	53	2 23	< 10	< 1	0 12	40	0 93
390352	225 9400	0 02	0 6	1 85	26	< 10	160	0 5	< 2	0 56	4 0	16	102	46	3 01	< 10	< 1	0 19	10	1 15
390353	225 9400	0 02	0 4	1.50	20	< 10	160	0.5	< 2	0 60	3 0	12	80	32	2.35	< 10	< 1	0 09	10	0 81
390354	225 9400	< 0 02	0 6	1 60	20	< 10	160	0 5	< 2	0.65	3 5	13	78	36	2 53	< 10	< 1	0 09	20	0 85
390355	225 9400	< 0 02	0 6	1 71	22	< 10	170	0 5	< 2	0 70	3 5	14	82	37	2 64	< 10	< 1	0 10	20	0 96
390356	225 9400	< 0 02	< 0 2	1 89	6	< 10	210	0.5	< 2	0 25	< 0 5	14	73	39	3.60	< 10	< 1	0 57	< 10	0 78
390357	225 9400	< 0 02	< 0 2	1 87	22	< 10	280	0 5	2	0 26	< 0 5	14	63	57	3.42	< 10	< 1	0 64	< 10	0 75
390358	225 9400	< 0 02	< 0.2	1 71	10	< 10	230	0 5	< 2	0 24	< 0 5	12	63	38	2 98	< 10	< 1	0 54	< 10	0 72
390359	225 9400	< 0 02	0 2	1 86	12	< 10	230	0 5	< 2	0 30	< 0 5	12	73	40	3 00	< 10	< 1	0 45	10	0 71
390362	225 9400	< 0 02	< 0 2	2 00	20	< 10	250	0 5	2	0 36	< 0 5	14	81	65	3 37	< 10	< 1	0 49	10	0 76
390363	225 9400	< 0 02	< 0 2	1 73	10	< 10	220	0 5	< 2	0 31	< 0 5	12	68	40	3 13	< 10	< 1	0 50	< 10	0 67
390364	225 9400	< 0 02	< 0 2	1 71	22	< 10	210	0 5	< 2	0 29	< 0 5	12	69	37	2 94	< 10	< 1	0 42	< 10	0 65
390365	225 9400	< 0 02	< 0 2	1 75	18	< 10	230	0 5	2	0 32	< 0 5	12	66	35	2 95	< 10	< 1	0 45	< 10	0.68
390366	225 9400	< 0 02	< 0 2	1 72	18	< 10	210	0 5	< 2	0 33	< 0.5	12	67	34	2 86	< 10	< 1	0 39	< 10	0 67
390367	225 9400	< 0 02	< 0.2	0 78	18	10	110	0 5	< 2	0 95	< 0 5	42	212	17	3 06	10	< 1	0 14	< 10	6 61
390368	225 9400	< 0 02	0 8	0 32	26	30	80	0 5	< 2	1 78	< 0 5	46	440	14	3.26	< 10	2	0 01	< 10	8.94
390369	225 9400	< 0 02	0 6	1 60	44	< 10	150	1 5	< 2	0 47	0 5	18	139	33	3 01	< 10	1	0 33	10	2 23
390370	225 9400	< 0.02	0 2	2 10	48	< 10	200	2 0	< 2	0 60	< 0 5	12	124	37	3 27	< 10	< 1	0.35	10	1.12
390371	225 9400	< 0 02	< 0 2	1 90	40	< 10	160	2 0	< 2	0 48	< 0.5	12	56	34	3.16	< 10	4	0 36	10	0.61
390372	225 9400	< 0 02	< 0 2	1.89	40	< 10	130	1 5	< 2	0 46	0 5	9	60	29	2 90	< 10	1	0.25	10	0 62
390373	225 9400	< 0 02	0 2	1 35	32	< 10	150	1 0	< 2	0 55	< 0 5	23	194	28	3 21	< 10	7	0 30	< 10	3.27
390374	225 9400	< 0.02	< 0 2	1.63	32	< 10	210	1 5	< 2	0 53	< 0 5	19	165	31	3 14	< 10	8	0 31	< 10	2.05
390375	225 9400	< 0.02	0 2	1 55	22	< 10	170	1 0	2	0 42	< 0 5	17	158	31	3.06	< 10	< 1	0.28	< 10	1.85
390376	225 9400	< 0.02	< 0 2	1 61	32	< 10	190	1 0	< 2	0 44	< 0 5	17	138	43	3 31	< 10	5	0 40	< 10	1 89
390377	225 9400	0 04	0 8	1 63	30	10	170	0 5	< 2	0 33	< 0 5	20	177	63	2.60	< 10	< 1	0 08	< 10	1.71
390378	225 9400	0 06	1 4	1 90	28	< 10	220	1 0	< 2	0 32	< 0 5	15	110	37	2.90	< 10	4	0.21	10	1 24
390403	225 9400	0 02	< 0 2	1 24	18	10	90	0 5	2	0 34	< 0 5	20	169	29	2.21	< 10	< 1	0 14	< 10	1.24
390407	225 9400	0 04	< 0 2	1 20	24	< 10	110	0 5	< 2	0 37	< 0 5	19	118	28	2 77	< 10	3	0.12	< 10	1 10

CERTIFICATION _____

ALS Chemex

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To HEARTY, STELLA

BOX 81
WATSON LAKE, YT
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Project
Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

Page Number 2 B
Total Pages 2
Certificate Date 21 NOV-2001
Invoice No I0128689
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128689

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
390298	225 9400	345	8	0 04	161	630	12	0 10	< 2	6	35	0 06	< 10	< 10	96	< 10	192
390299	225 9400	355	9	0 04	170	580	10	0 11	2	6	38	0 06	< 10	< 10	97	< 10	194
390300	225 9400	380	10	0 04	171	610	14	0 11	2	6	42	0 06	< 10	< 10	105	< 10	208
390327	225 9400	560	1	0 02	53	730	6	0 02	< 2	5	15	0 15	< 10	< 10	66	< 10	76
390344	225 9400	355	1	0 01	244	870	16	0 06	4	4	34	0 05	< 10	< 10	45	< 10	124
390345	225 9400	360	1	0 01	87	720	6	0.01	< 2	4	10	0 07	< 10	< 10	47	< 10	52
390346	225 9400	5470	3	0.01	361	790	2	0 04	2	3	27	0 03	< 10	10	52	< 10	92
390347	225 9400	440	< 1	0 01	119	660	8	0 01	< 2	6	14	0 11	< 10	< 10	60	< 10	64
390348	225 9400	275	< 1	0 03	137	660	< 2	< 0 01	< 2	3	9	0 09	< 10	< 10	45	< 10	22
390351	225 9400	350	4	0 03	146	590	10	0 07	2	4	44	0 05	< 10	< 10	70	< 10	190
390352	225 9400	320	6	0 03	160	650	10	0 10	4	5	40	0 05	< 10	< 10	76	< 10	186
390353	225 9400	345	5	0 03	132	600	6	0 07	2	3	36	0.04	< 10	< 10	59	< 10	152
390354	225 9400	370	5	0 03	143	590	8	0 07	< 2	3	38	0 04	10	< 10	65	< 10	176
390355	225 9400	390	4	0 03	152	650	12	0 08	6	4	43	0 04	< 10	< 10	73	< 10	182
390356	225 9400	550	1	0.03	59	580	10	0 09	< 2	5	14	0 15	< 10	< 10	63	< 10	86
390357	225 9400	590	< 1	0 02	57	830	6	0 04	< 2	6	11	0 17	< 10	< 10	78	< 10	84
390358	225 9400	535	< 1	0 03	51	650	8	0 03	2	5	10	0 16	< 10	< 10	61	< 10	84
390359	225 9400	565	1	0 02	56	740	14	0.04	< 2	6	15	0 14	< 10	< 10	64	< 10	82
390362	225 9400	660	< 1	0 02	57	790	6	0.04	< 2	7	19	0 15	< 10	< 10	73	20	84
390363	225 9400	610	< 1	0 02	49	790	8	0.02	< 2	6	15	0.15	< 10	< 10	72	< 10	86
390364	225 9400	580	1	0 02	50	740	8	0 03	< 2	5	13	0 13	< 10	< 10	66	< 10	82
390365	225 9400	600	< 1	0 02	47	740	10	0 03	< 2	6	13	0 14	< 10	< 10	66	< 10	80
390366	225 9400	535	< 1	0 01	47	720	6	0 03	< 2	5	14	0 13	< 10	< 10	64	< 10	74
390367	225 9400	765	< 1	0.01	591	290	12	0 01	< 2	6	30	0.05	< 10	< 10	31	< 10	52
390368	225 9400	870	< 1	< 0 01	666	180	14	< 0 01	< 2	8	59	< 0 01	< 10	< 10	25	< 10	34
390369	225 9400	510	2	0 01	218	640	24	0 04	2	5	15	0 10	10	< 10	55	20	86
390370	225 9400	515	< 1	0.02	66	760	26	0 04	8	6	21	0 15	< 10	< 10	78	20	94
390371	225 9400	580	< 1	< 0 01	58	670	32	0 06	< 2	4	9	0 10	< 10	< 10	47	40	138
390372	225 9400	610	2	0 01	54	820	42	0 08	< 2	3	14	0 10	< 10	< 10	52	80	126
390373	225 9400	665	1	0 01	280	600	16	0 02	8	6	11	0 09	< 10	< 10	54	< 10	74
390374	225 9400	575	< 1	0 01	187	590	18	0 02	2	6	16	0 10	10	< 10	59	10	70
390375	225 9400	530	3	0 01	168	560	20	0 02	< 2	5	15	0 10	< 10	< 10	57	30	68
390376	225 9400	545	< 1	-0 01	214	630	20	0 02	10	6	9	0 10	< 10	< 10	56	< 10	72
390377	225 9400	270	< 1	0 01	387	570	12	0 03	6	6	11	0 05	< 10	< 10	43	< 10	50
390378	225 9400	440	4	0 01	132	750	16	0 01	< 2	6	12	0 11	< 10	< 10	63	< 10	76
390403	225 9400	310	< 1	0 01	163	750	10	< 0 01	12	4	10	0 10	10	< 10	53	< 10	34
390407	225 9400	620	2	0 02	152	730	8	< 0 01	< 2	6	10	0 09	< 10	< 10	53	< 10	36

CERTIFICATION

ALS Chemex

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To HEARTY, STELLA

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Project
Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

Page Number 1
Total Pages 1
Certificate Date 26-NOV 2001
Invoice No I0128690
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128690

SAMPLE	PREP CODE	Weight Kg	Au ppb ICP-MS	Pt ppb ICP-MS	Pd ppb ICP-MS
390251	235 9400	0.02	6	5.0	3
390253	235 9400	0.02	1	2.0	2
390257	235 9400	0.02	4	1.5	1
390260	235 9400	0 02	< 1	1.0	1
390263	235 9400	0.02	17	2.5	2
390301	235 9400	0.02	40	3.0	2
390302	235 9400	0.02	3800	3 5	3
390303	235 9400	0.02	75	6.5	2
390304	235 9400	0.02	12	8.0	3
390305	235 9400	0.02	540	2.0	1
390306	235 9400	0.02	7	4.0	2
390307	235 9400	0.02	2	5.5	2
390308	235 9400	0.02	6	6.5	5
390309	235 9400	0 02	2	2 5	2
390310	235 9400	0.02	3	2.0	1

CERTIFICATION

ALS Chemex

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To HEARTY, STELLA

BOX 81
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Project
Comments ATTN STELLA HEARTY

Page Number 1-B
Total Pages 1
Certificate Date 07 SEP 2001
Invoice No I0123599
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0123599

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
(T-1) 390379	9406 9407	370	1	0 01	133	530	10	0 01	2	7	16	0 12	< 10	< 10	79	< 10	78
(T-2) 390380	9406 9407	405	1	0 01	188	640	6	< 0 01	< 2	7	16	0 10	< 10	< 10	65	< 10	66
(T-3) 390381	9406 9407	465	1	0 01	168	670	8	< 0 01	< 2	7	18	0 11	< 10	< 10	69	< 10	74
(T-4) 390382	9406 9407	510	1	< 0 01	181	770	10	0 01	< 2	8	16	0 11	< 10	< 10	71	< 10	82
(T-5) 390383	9406 9407	585	1	0 01	162	750	10	0 01	< 2	7	17	0 10	< 10	< 10	65	< 10	80
(T-6) 390384	9406 9407	395	1	0 01	161	620	8	0 01	< 2	7	17	0 11	< 10	< 10	70	< 10	74
(T-7) 390385	9406 9407	590	1	0 01	183	590	6	0 01	< 2	8	14	0 08	< 10	< 10	75	< 10	66
(T-8) 390386	9406 9407	215	1	0 01	106	290	6	0 01	< 2	5	12	0 06	< 10	< 10	57	< 10	48
(T-9) 390387	9406 9407	350	1	0 01	124	290	6	0 01	< 2	5	16	0 05	< 10	< 10	65	< 10	40
(T-10) 390388	9406 9407	405	2	0 01	177	430	8	0 01	< 2	7	17	0 11	< 10	< 10	68	< 10	62
(T-11) 390389	9406 9407	245	1	< 0 01	61	270	6	< 0 01	< 2	4	8	0.11	< 10	< 10	58	< 10	40
(T-12) 390390	9406 9407	380	1	0 01	186	410	8	0 01	< 2	8	13	0 12	< 10	< 10	76	< 10	56
(T-13) 390391	9406 9407	560	1	0 02	306	230	8	0 01	< 2	9	13	0 10	< 10	< 10	68	< 10	48
(T-14) 390392	9406 9407	670	1	< 0 01	111	240	6	< 0 01	< 2	10	7	0 08	< 10	< 10	87	< 10	60
(T-15) 390393	9406 9407	275	1	< 0 01	149	230	8	0 01	< 2	7	11	0 09	< 10	< 10	68	< 10	56
(T-16) 390394	9406 9407	295	2	< 0 01	126	230	6	< 0 01	2	6	11	0 08	< 10	< 10	68	< 10	56
(T-17) 390395	9406 9407	355	1	< 0 01	112	300	6	0 01	2	7	13	0 10	< 10	< 10	72	< 10	52
(T-18) 390396	9406 9407	280	1	0 01	141	180	6	< 0 01	< 2	6	9	0.10	< 10	< 10	69	< 10	54
(T-19) 390397	9406 9407	275	1	< 0 01	200	140	4	0 01	< 2	6	8	0 09	< 10	< 10	64	< 10	38
(T-20) 390398	9406 9407	320	2	< 0 01	132	510	10	0 01	2	7	14	0.12	< 10	< 10	85	< 10	66
(T-21) 390399	9406 9407	315	2	0 01	154	230	8	0 01	< 2	7	17	0 11	< 10	< 10	73	< 10	54
(T-22) 390400	9406 9407	305	3	0 01	152	440	6	0 01	< 2	6	15	0 12	< 10	< 10	91	< 10	76
(T-23) 390422	9406 9407	285	3	< 0 01	113	390	8	0 01	< 2	6	13	0 11	< 10	< 10	83	< 10	72
(T-24) 390423	9406 9407	420	1	0 01	136	630	8	0 01	< 2	7	17	0.10	< 10	< 10	64	< 10	58
(T-25) 390424	9406 9407	375	3	0 01	153	250	6	0 01	2	10	12	0 18	< 10	< 10	116	< 10	68
(T-26) 390425	9406 9407	275	1	0 01	176	260	8	0 01	< 2	7	13	0 12	< 10	< 10	68	< 10	46

CERTIFICATION

ALS Chemex

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To iEARTY, STELLA

BOX 81
WATSON LAKE, YT
Y0A 1C0

Project
Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

Page Number 1
Total Pages 1
Certificate Date 26-NOV-2001
Invoice No I0128687
P O Number
Account MPR

CERTIFICATE OF ANALYSIS A0128687

SAMPLE	PREP CODE		Weight Kg	Au ppb FA+AA	Ag g/t	Cu %	Ni %	Co %	S % (Leco)	Fe %	As %	Pb %	Zn %			
4-1	281	277	2.22	20	< 1	0 005	< 0 005	< 0 002	0 04	0 5	< 0 01	< 0 02	< 0 01			
6-1	281	277	1 62	45	1	0 020	0 010	0 002	0 91	3 5	< 0 01	< 0 02	0 01			
6-2	281	277	1 80	280	4	0 015	< 0 005	< 0 002	1 99	2 6	0 01	< 0 02	< 0 01			
6-3	281	277	2 44	155	5	0 015	< 0 005	< 0.002	1.09	2 1	< 0 01	< 0 02	< 0 01			
6-4	281	277	2 06	15	1	0 015	0 005	< 0 002	0 30	1 9	< 0 01	< 0 02	< 0 01			
6-5	281	277	1 34	< 5	< 1	0 025	0 010	0 004	0 78	18 9	< 0 01	< 0 02	0 02			
25-1	281	277	1 36	< 5	< 1	0 010	< 0.005	< 0 002	0 01	0 6	< 0 01	< 0 02	< 0.01			
25-2	281	277	1 92	< 5	< 1	0 010	< 0 005	< 0 002	0 01	0 6	< 0 01	< 0 02	< 0 01			

CERTIFICATION _____

APPENDIX 4.
GEOLOGICAL MAPPING / GEOCHEMISTRY
BY T LIVERTON: DIARY FOR 2001

10th	July	Fly to Hasselberg Lake
11th	July	Fieldwork traverse possible grid baseline
12th	July	Fieldwork mapping and stream sediment sampling
13th	July	Fieldwork mapping and stream sediment sampling
14th	July	Fieldwork mapping and stream sediment sampling
15th	July	Fieldwork mapping and stream sediment sampling
16th	July	Heavy rain
17th	July	Fieldwork ridge traversing
18th	July	Fly back to Watson Lake
20th	July	Two flights into Hasselberg Lake (supplies)
21st	July	Fieldwork ridge traversing
22nd	July	Fieldwork ridge traversing
23rd	July	Fieldwork ridge traversing
24th	July	Fieldwork ridge traversing
25th	July	Fieldwork traversing down creek back to Hasselberg
26th	July	Fly back to Watson Lake
29th	July	Fly to Hasselberg Lake, fieldwork
30th	July	Fly back to Watson Lake

6th	September	Fly to Hasselberg Lake
7th	September	Heavy rain
8th	September	Fieldwork detailed mapping of canyon
9th	September	Heavy rain
10th	September	Heavy rain
11th	September	Fieldwork detailed mapping of canyon (flying ban)
12th	September	Flying ban
13th	September	Fly back to Watson Lake

APPENDIX 5.
GEOLOGICAL MAPPING AND GEOCHEMISTRY
DIVISION OF TIME BETWEEN TARGET EVALUATION AND GRASSROOTS PROSPECTING

It is estimated that three days' work should be alloted to the grassroots programme to cover geochemistry and mapping around the fringes of the claim blocks and supervision of the Heartys' work The remainder of fieldwork (17 days) is applicable to the target evaluation programme

C276157DMS

ALS Chemex

- *Analytical Chemists*
- *Geochemists*
- *Registered Assayers*

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HEARTY. STELLA *

BOX 81
WATSON LAKE. YT
Y0A 1C0

DAY	MO.	YR.
30	NOV	01

CODE	PAGE
MPR	1

STATEMENT OF ACCOUNT

DAY	MO.	YR.	TRANSACTION	INVOICE NUMBER	DEBIT	CREDIT	BALANCE
01	NOV	01	BALANCE FWRD				.00
15	NOV	01	INVOICE	I0180961	42.80		42.80
16	NOV	01	INVOICE	I0128516	47.35		90.15
19	NOV	01	INVOICE	I0128517	163.71		253.86
19	NOV	01	INVOICE	I0128515	62.86		316.72
19	NOV	01	INVOICE	I0128514	406.60		723.32
20	NOV	01	INVOICE	I0128513	507.98		1231.30
21	NOV	01	INVOICE	I0128689	743.65		1974.95
26	NOV	01	INVOICE	I0128687	482.52		2457.47
26	NOV	01	INVOICE	I0128690	369.42		2826.89

PAYMENTS RECEIVED AFTER NOV 30 WILL APPEAR ON NEXT STATEMENT

CURRENT	31 - 60 DAYS	61 - 90 DAYS	OVER 90 DAYS
2826.89	.00	.00	.00

BALANCE DUE $ 2826.89

CDN DOLLAR ACCOUNT

TERMS

1.25 % PER MONTH (15.0 % PER ANNUM)
CHARGED ON OVERDUE ACCOUNTS.

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To: HEARTY, STELLA

BOX 81
WATSON LAKE, YT
Y0A 1C0

A0123599

Comments: ATTN: STELLA HEARTY

CERTIFICATE A0123599

(MPR) - HEARTY, STELLA

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 07-SEP-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
SCR-42	26	-180 micron screen - Save Minus
SCR-01	26	Screen - Save Plus Charge
LOG-22	26	Samples received without barcode
229	26	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	26	Weight of received sample	BALANCE	0.01	1000.0
Ag-ICP41	26	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
Al-ICP41	26	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
As-ICP41	26	As ppm: 32 element, soil & rock	ICP-AES	2	10000
B-ICP41	26	B ppm: 32 element, rock & soil	ICP-AES	10	10000
Ba-ICP41	26	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
Be-ICP41	26	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
Bi-ICP41	26	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
Ca-ICP41	26	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
Cd-ICP41	26	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
Co-ICP41	26	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
Cr-ICP41	26	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
Cu-ICP41	26	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
Fe-ICP41	26	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
Ga-ICP41	26	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
Hg-ICP41	26	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
K-ICP41	26	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
La-ICP41	26	La ppm: 32 element, soil & rock	ICP-AES	10	10000
Mg-ICP41	26	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
Mn-ICP41	26	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
Mo-ICP41	26	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
Na-ICP41	26	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
Ni-ICP41	26	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
P-ICP41	26	P ppm: 32 element, soil & rock	ICP-AES	10	10000
Pb-ICP41	26	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
S-ICP41	26	S %: 32 element, rock & soil	ICP-AES	0.01	10.00
Sb-ICP41	26	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
Sc-ICP41	26	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
Sr-ICP41	26	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
Ti-ICP41	26	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
Tl-ICP41	26	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
U-ICP41	26	U ppm: 32 element, soil & rock	ICP-AES	10	10000
V-ICP41	26	V ppm: 32 element, soil & rock	ICP-AES	1	10000
W-ICP41	26	W ppm: 32 element, soil & rock	ICP-AES	10	10000
Zn-ICP41	26	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

ALS Chemex

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HEARTY, STELLA

BOX 81
WATSON LAKE, YT
Y0A 1C0

A0123527

Comments: ATTN: STELLA HEARTY

CERTIFICATE A0123527

(MPR) - HEARTY, STELLA

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 12-SEP-2001.

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
PUL-31	22	Pulv. <250g to >85%/-75 micron
LOG-22	22	Samples received without barcode
3285	22	ICP-587 Tri Acid Dig'n Charge

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	22	Weight of received sample	BALANCE	0.01	1000.0
Au-AA23	20	Au-AA23 : Au ppb: Fuse 30 grams	FA-AAS	5	10000
866	20	Fusion weight in grams	BALANCE	0.01	60.00
Ag-ICP61	22	Ag ppm:Tri Acid Dig. ICP Package	ICP-AES	0.5	100
Al-ICP61	22	Al %:Tri Acid Dig. ICP Package	ICP-AES	0.01	25.00
As-ICP61	22	As ppm:Tri Acid Dig. ICP Package	ICP-AES	5	10000
Ba-ICP61	22	Ba ppm:Tri Acid Dig. ICP Package	ICP-AES	10	10000
Be-ICP61	22	Be ppm:Tri Acid Dig. ICP Package	ICP-AES	0.5	1000
Bi-ICP61	22	Bi ppm:Tri Acid Dig. ICP Package	ICP-AES	2	10000
Ca-ICP61	22	Ca %: Tri Acid Dig. ICP Package	ICP-AES	0.01	25
Cd-ICP61	22	Cd ppm:Tri Acid Dig. ICP Package	ICP-AES	0.5	500
Co-ICP61	22	Co ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Cr-ICP61	22	Cr ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Cu-ICP61	22	Cu ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Fe-ICP61	22	Fe %:Tri Acid Dig. ICP Package	ICP-AES	0.01	25.00
K-ICP61	22	K %:Tri Acid Dig. ICP Package	ICP-AES	0.01	10.00
Mg-ICP61	22	Mg %:Tri Acid Dig. ICP Package	ICP-AES	0.01	15.00
Mn-ICP61	22	Mn ppm:Tri Acid Dig. ICP Package	ICP-AES	5	10000
Mo-ICP61	22	Mo ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Na-ICP61	22	Na %:Tri Acid Dig. ICP Package	ICP-AES	0.01	10.00
Ni-ICP61	22	Ni ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
P-ICP61	22	P ppm:Tri Acid Dig. ICP Package	ICP-AES	10	10000
Pb-ICP61	22	Pb ppm:Tri Acid Dig. ICP Package	ICP-AES	2	10000
S-ICP61	22	S %:Tri Acid Dig. ICP Package	ICP-AES	0.01	10.00
Sb-ICP61	22	Sb ppm:Tri Acid Dig. ICP Package	ICP-AES	5	10000
Sr-ICP61	22	Sr ppm:Tri Acid Dig. ICP Package	ICP-AES	1	10000
Ti-ICP61	22	Ti %:Tri Acid Dig. ICP Package	ICP-AES	0.01	10.00
V-ICP61	22	V ppm: Tri Acid Dig. ICP Package	ICP-AES	1	10000
W-ICP61	22	W ppm: Tri Acid Dig. ICP Package	ICP-AES	10	10000
Zn-ICP61	22	Zn ppm:Tri Acid Dig. ICP Package	ICP-AES	2	10000

ALS Chemex

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HEARTY, STELLA

BOX 81
WATSON LAKE YT
Y0A 1C0

A0128516

Comments ATTN STELLA HEARTY

CERTIFICATE A0128516

(MPR) HEARTY, STELLA

Project
P O #

Samples submitted to our lab in Vancouver, BC
This report was printed on 16-NOV-2001

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
SCR-42	4	-180 micron screen - Save Minus
SCR-01	4	Screen - Save Plus Charge
LOG-22	4	Samples received without barcode
229	4	ICP - AQ Digestion charge

* NOTE 1,

The 32 element ICP package is suitable for trace metals in soil and rock samples Elements for which the nitric-aqua regia digestion is possibly incomplete are Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W

ANALYTICAL PROCEDURES

METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	4	Weight of received sample	BALANCE	0 01	1000 0
Ag-ICP41	4	Ag ppm 32 element, soil & rock	ICP-AES	0 2	100 0
Al-ICP41	4	Al % 32 element, soil & rock	ICP-AES	0 01	15 00
As-ICP41	4	As ppm 32 element, soil & rock	ICP-AES	2	10000
B-ICP41	4	B ppm 32 element, rock & soil	ICP-AES	10	10000
Ba-ICP41	4	Ba ppm 32 element, soil & rock	ICP-AES	10	10000
Be-ICP41	4	Be ppm 32 element, soil & rock	ICP-AES	0 5	100 0
Bi-ICP41	4	Bi ppm 32 element, soil & rock	ICP-AES	2	10000
Ca-ICP41	4	Ca % 32 element, soil & rock	ICP-AES	0 01	15 00
Cd-ICP41	4	Cd ppm 32 element, soil & rock	ICP-AES	0 5	500
Co-ICP41	4	Co ppm 32 element, soil & rock	ICP-AES	1	10000
Cr-ICP41	4	Cr ppm 32 element, soil & rock	ICP-AES	1	10000
Cu-ICP41	4	Cu ppm 32 element, soil & rock	ICP-AES	1	10000
Fe-ICP41	4	Fe % 32 element, soil & rock	ICP-AES	0 01	15 00
Ga-ICP41	4	Ga ppm 32 element, soil & rock	ICP-AES	10	10000
Hg-ICP41	4	Hg ppm 32 element, soil & rock	ICP-AES	1	10000
K-ICP41	4	K % 32 element, soil & rock	ICP-AES	0 01	10 00
La-ICP41	4	La ppm 32 element, soil & rock	ICP-AES	10	10000
Mg-ICP41	4	Mg % 32 element, soil & rock	ICP-AES	0 01	15 00
Mn-ICP41	4	Mn ppm 32 element, soil & rock	ICP-AES	5	10000
Mo-ICP41	4	Mo ppm 32 element, soil & rock	ICP-AES	1	10000
Na-ICP41	4	Na % 32 element, soil & rock	ICP-AES	0 01	10 00
Ni-ICP41	4	Ni ppm 32 element, soil & rock	ICP-AES	1	10000
P-ICP41	4	P ppm 32 element, soil & rock	ICP-AES	10	10000
Pb-ICP41	4	Pb ppm 32 element, soil & rock	ICP-AES	2	10000
S-ICP41	4	S % 32 element, rock & soil	ICP-AES	0 01	10 00
Sb-ICP41	4	Sb ppm 32 element, soil & rock	ICP-AES	2	10000
Sc-ICP41	4	Sc ppm 32 elements, soil & rock	ICP-AES	1	10000
Sr-ICP41	4	Sr ppm 32 element, soil & rock	ICP-AES	1	10000
Ti-ICP41	4	Ti % 32 element, soil & rock	ICP-AES	0 01	10 00
Tl-ICP41	4	Tl ppm 32 element, soil & rock	ICP-AES	10	10000
U-ICP41	4	U ppm 32 element, soil & rock	ICP-AES	10	10000
V-ICP41	4	V ppm 32 element, soil & rock	ICP-AES	1	10000
W-ICP41	4	W ppm 32 element, soil & rock	ICP-AES	10	10000
Zn-ICP41	4	Zn ppm 32 element, soil & rock	ICP-AES	2	10000

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HEARTY STELLA

BOX 81
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A0128689

Comments ATTN STELLA HEARTY CC DR TIM LIVERTON

CERTIFICATE A0128689

(MPR) HEARTY, STELLA

Project
P O #

Samples submitted to our lab in Vancouver, BC
This report was printed on 21-NOV-2001

SAMPLE PREPARATION

METHOD CODE	NUMBER SAMPLES	DESCRIPTION
225	76	Run as received
LOG-22	76	Samples received without barcode
229	76	ICP - AQ Digestion charge

* NOTE 1.

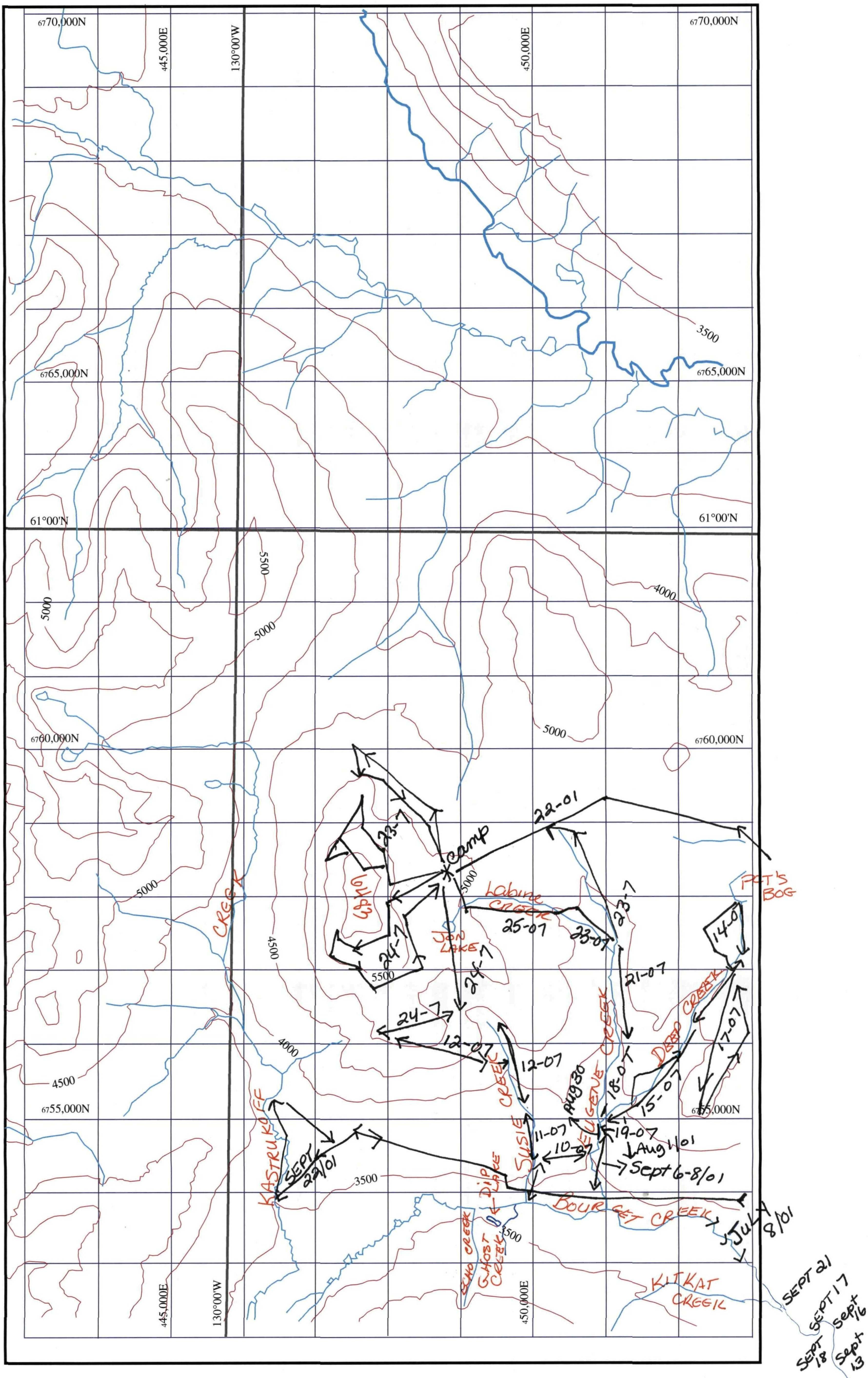
The 32 element ICP package is suitable for trace metals in soil and rock samples Elements for which the nitric-aqua regia digestion is possibly incomplete are Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W

ANALYTICAL PROCEDURES

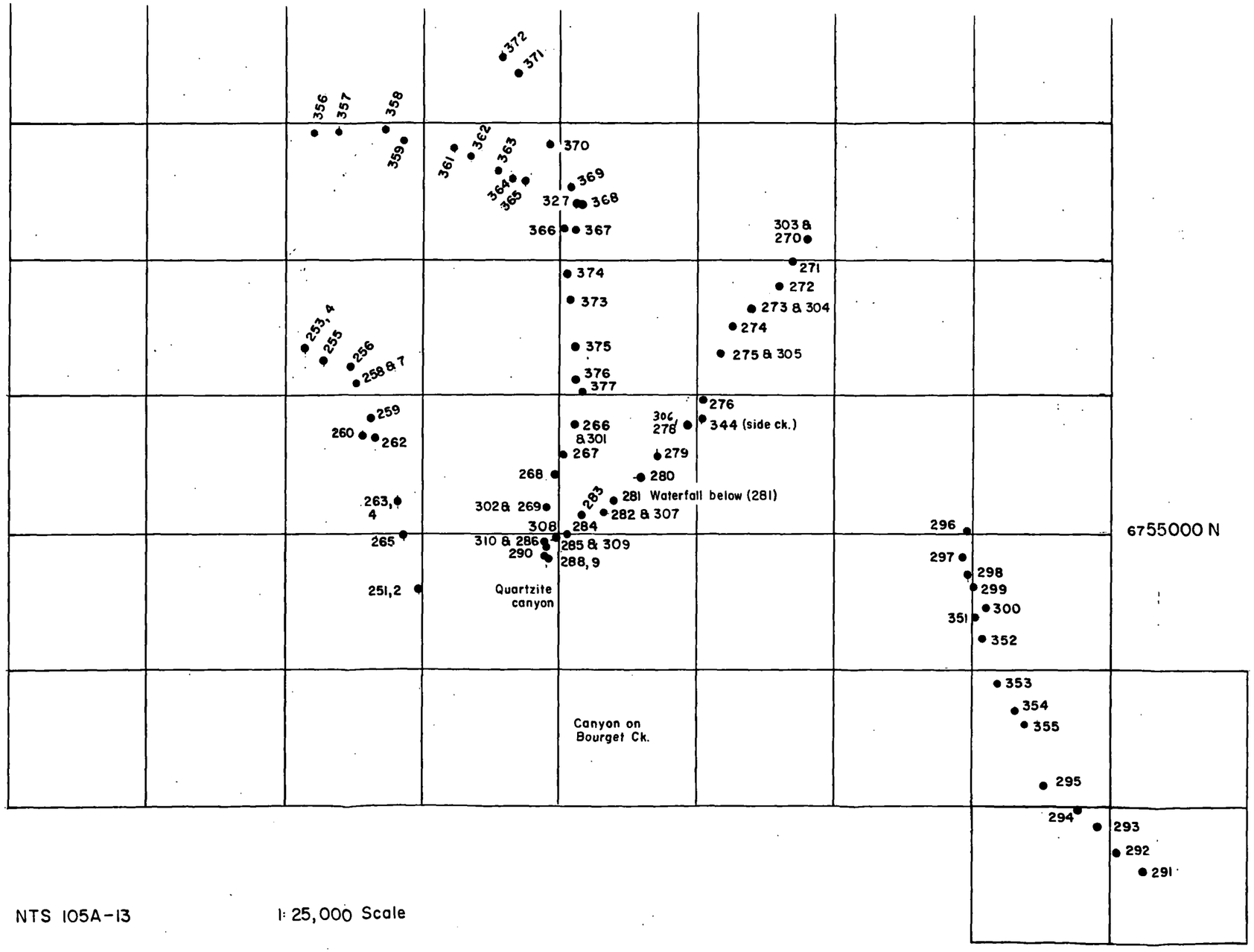
METHOD CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
WEI-21	76	Weight of received sample	BALANCE	0 01	1000 0
Ag-ICP41	76	Ag ppm 32 element, soil & rock	ICP-AES	0 2	100 0
Al-ICP41	76	Al % 32 element, soil & rock	ICP-AES	0 01	15 00
As-ICP41	76	As ppm: 32 element, soil & rock	ICP-AES	2	10000
B-ICP41	76	B ppm 32 element, rock & soil	ICP-AES	10	10000
Ba-ICP41	76	Ba ppm 32 element, soil & rock	ICP-AES	10	10000
Be-ICP41	76	Be ppm 32 element, soil & rock	ICP-AES	0 5	100 0
Bi-ICP41	76	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
Ca-ICP41	76	Ca % 32 element, soil & rock	ICP-AES	0 01	15 00
Cd-ICP41	76	Cd ppm: 32 element, soil & rock	ICP-AES	0 5	500
Co-ICP41	76	Co ppm 32 element, soil & rock	ICP-AES	1	10000
Cr-ICP41	76	Cr ppm 32 element, soil & rock	ICP-AES	1	10000
Cu-ICP41	76	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
Fe-ICP41	76	Fe %: 32 element, soil & rock	ICP-AES	0 01	15 00
Ga-ICP41	76	Ga ppm 32 element, soil & rock	ICP-AES	10	10000
Hg-ICP41	76	Hg ppm 32 element, soil & rock	ICP-AES	1	10000
K-ICP41	76	K % 32 element, soil & rock	ICP-AES	0 01	10 00
La-ICP41	76	La ppm: 32 element, soil & rock	ICP-AES	10	10000
Mg-ICP41	76	Mg % 32 element, soil & rock	ICP-AES	0 01	15 00
Mn-ICP41	76	Mn ppm 32 element, soil & rock	ICP-AES	5	10000
Mo-ICP41	76	Mo ppm 32 element, soil & rock	ICP-AES	1	10000
Na-ICP41	76	Na %: 32 element, soil & rock	ICP-AES	0 01	10 00
Ni-ICP41	76	Ni ppm 32 element, soil & rock	ICP-AES	1	10000
P-ICP41	76	P ppm 32 element, soil & rock	ICP-AES	10	10000
Pb-ICP41	76	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
S-ICP41	76	S % 32 element, rock & soil	ICP-AES	0 01	10 00
Sb-ICP41	76	Sb ppm 32 element, soil & rock	ICP-AES	2	10000
Sc-ICP41	76	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
Sr-ICP41	76	Sr ppm 32 element, soil & rock	ICP-AES	1	10000
Ti-ICP41	76	Ti % 32 element, soil & rock	ICP-AES	0 01	10 00
Tl-ICP41	76	Tl ppm 32 element, soil & rock	ICP-AES	10	10000
U-ICP41	76	U ppm 32 element, soil & rock	ICP-AES	10	10000
V-ICP41	76	V ppm 32 element, soil & rock	ICP-AES	1	10000
W-ICP41	76	W ppm 32 element, soil & rock	ICP-AES	10	10000
Zn-ICP41	76	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

MAPS

105A13



6770,000N
445,000E
130°00'W
450,000E
6765,000N
61°00'N
6760,000N
6755,000N
3500
4000
4500
5000
5500
Camp
6493
Jon Lake
Labine Creek
Creek
Kastrukoff
Susie Creek
Eugene Creek
Deep Creek
Bourget Creek
Echo Creek
Ghost Creek
Dip Lake
Kitkat Creek
Pet's Bog
Sept 22/01
22-01
23-7
24-7
25-07
23-07
21-07
12-07
11-07
10-07
18-07
19-07
15-07
17-07
14-07
Aug 30
Aug 1/01
Sept 6-8/01
July 8/01
Sept 21
Sept 17
Sept 16
Sept 18
Sept 13



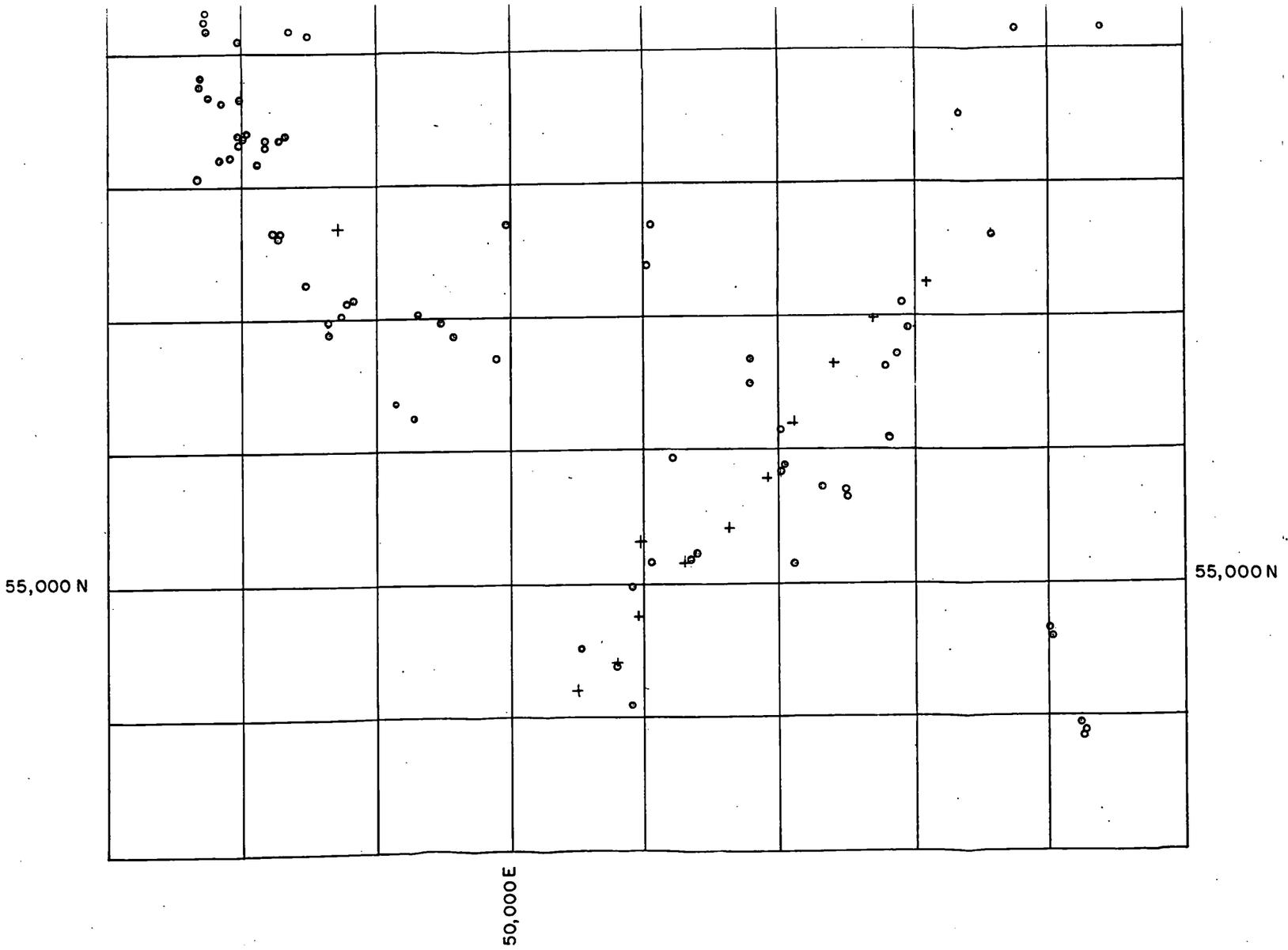
NTS 105A-13

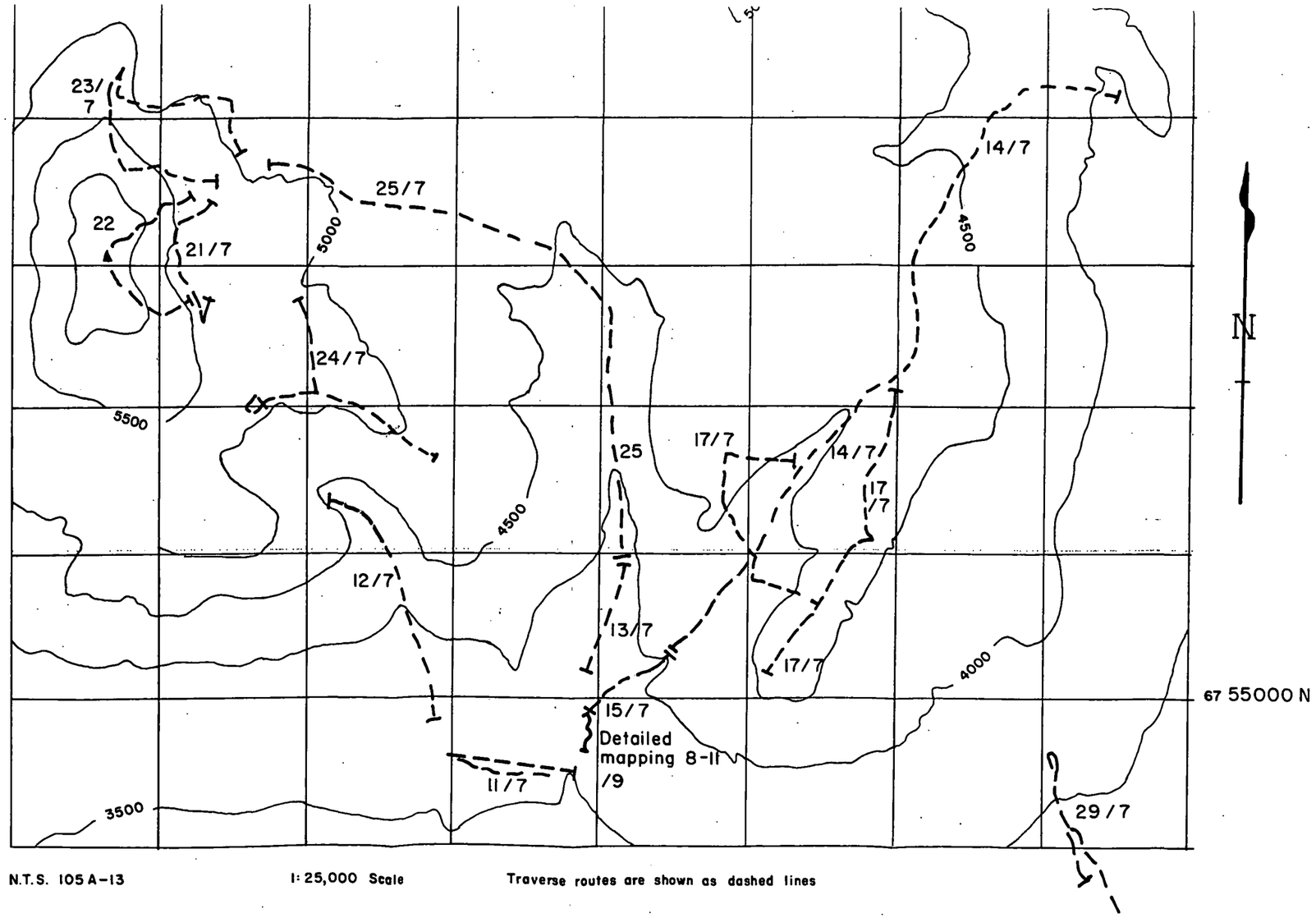
1:25,000 Scale

HASSELBERG LAKE GEOCHEMISTRY: SKETCH SHOWING SAMPLE LOCATIONS

HASSELBERG LAKE, REGION, NTS 105A-13
DATA POINTS:

GEOLOGY (CIRCLES) & CLAIM POSTS (CROSSES)

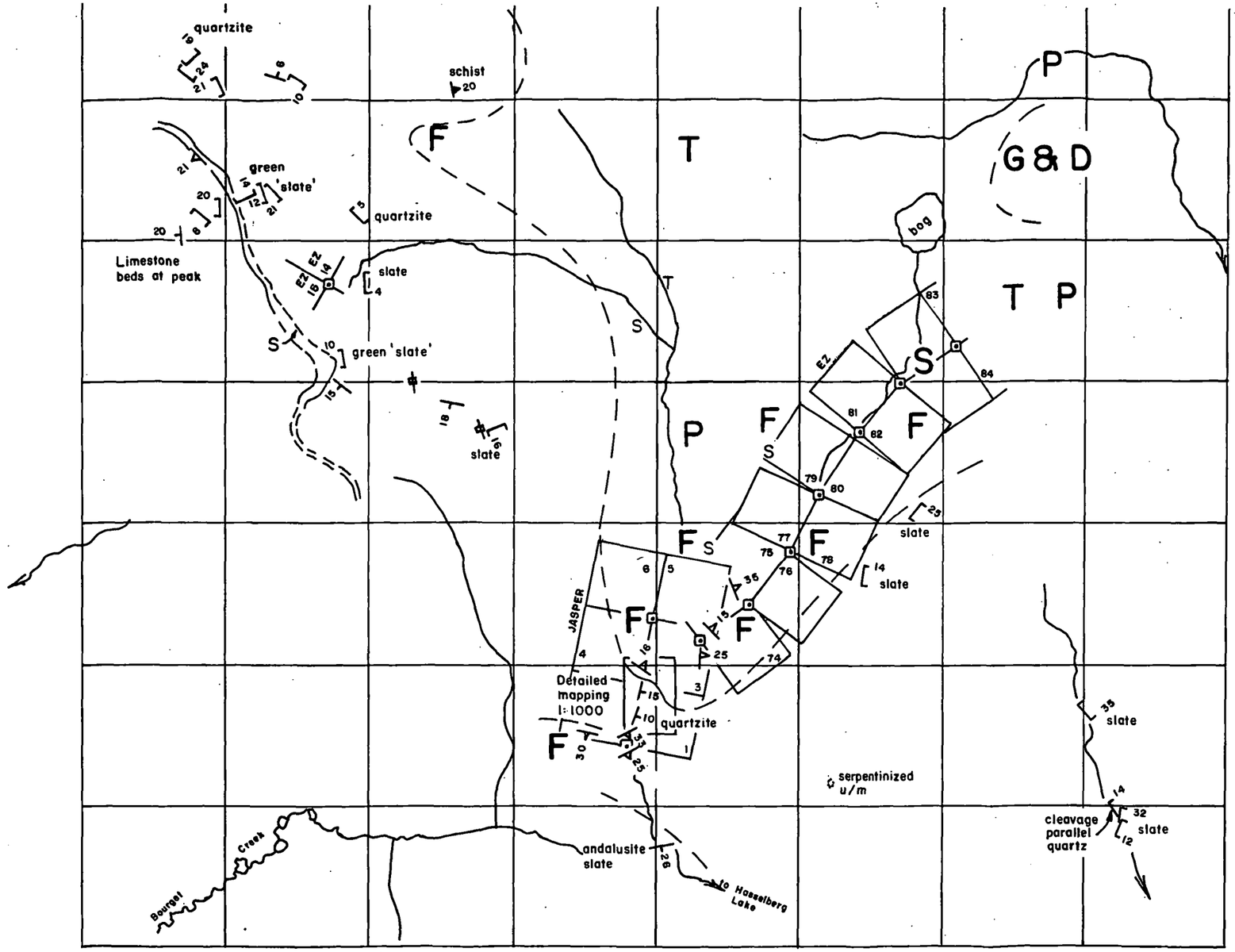




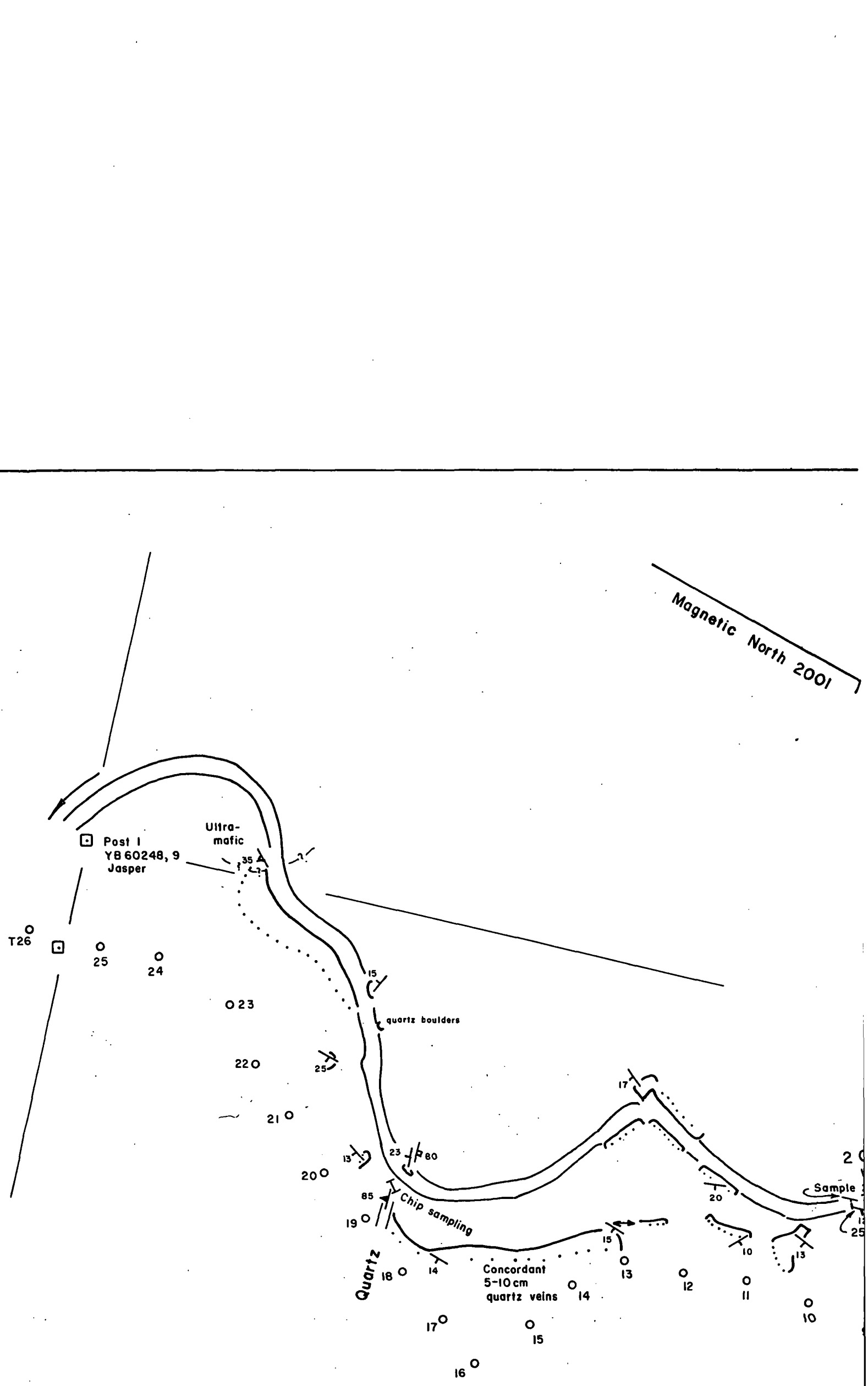
N.T.S. 105 A-13 1:25,000 Scale Traverse routes are shown as dashed lines

HASSELBERG LAKE MAPPING 2001: SKETCH SHOWING GEOLOGICAL PEREGRINATIONS

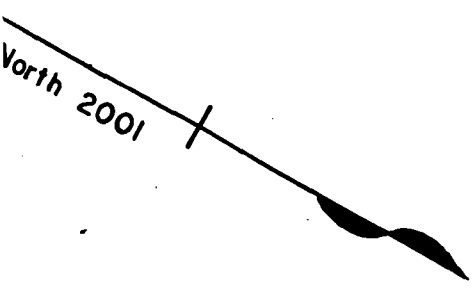
T. LIVERTON, NOVEMBER 2001.

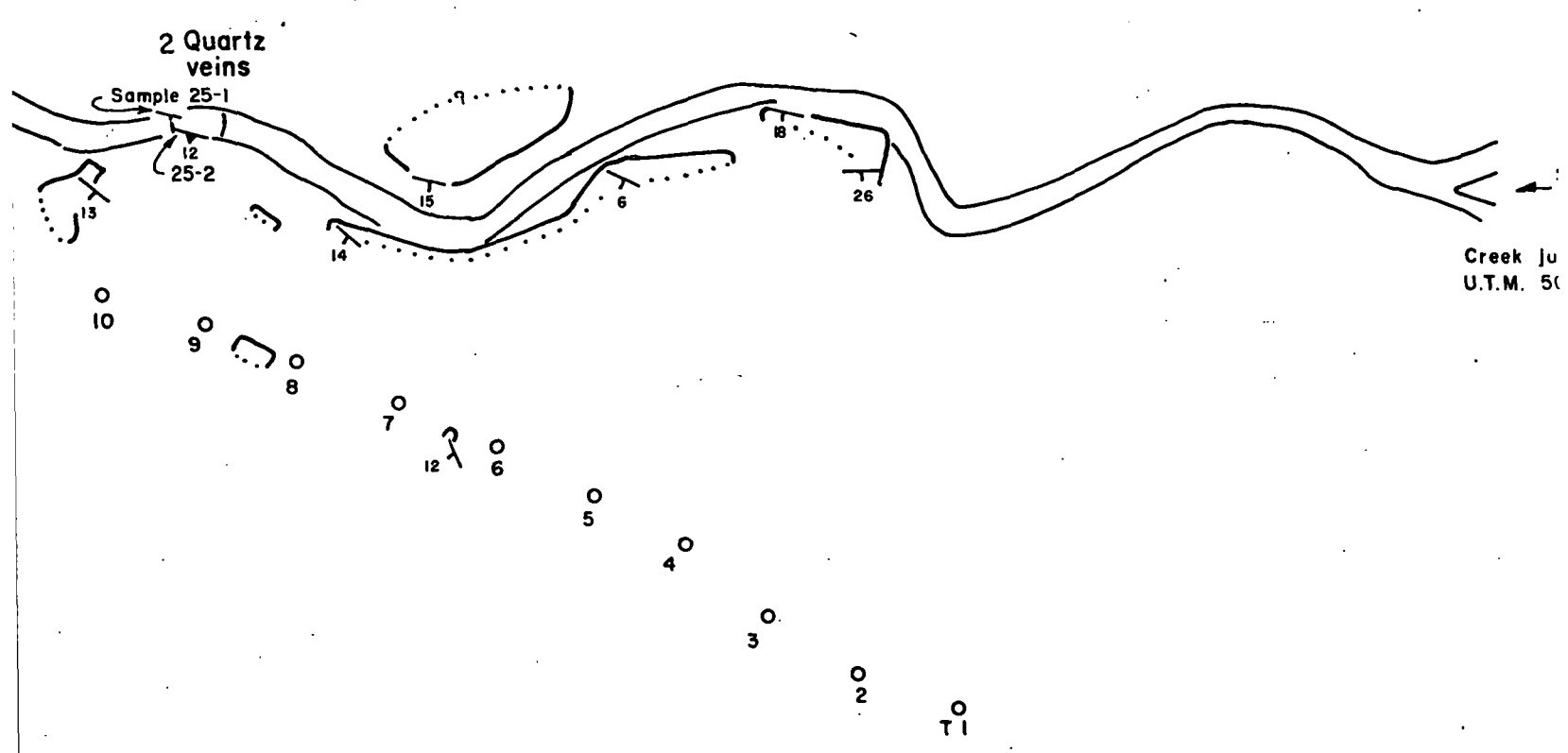


SCALE 1:25,000


Magnetic North 2001
Post 1
YB 60248, 9
Jasper
Ultra-
mafic
35
T26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
quartz boulders
25
15
23
80
85
Chip sampling
Sample
20
17
15
10
13
25
Quartz
Concordant
5-10 cm
quartz veins
0
100
Metres
Scale: 1 to 1000

JASPER



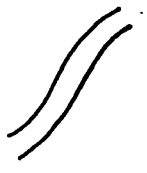


HASSELBERG LAKE AREA N.T.S. 105A-13

ASPER CLAIMS: GEOLOGY, ROCK AND SOIL SAMPLIN

T.Liverton October 2001

LEGEND

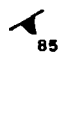


Creek bed

Rock exposure (cliffs, except for two localities in the by the quartz veins). Dots indicate approximate upp

Attitude of bedding

Jointing



Attitude of quartz veins

Horizontal fold axis

Claim posts

Soil sample location

Serpentinite outcrop on bluff (not mapped)

Creek junction
U.T.M. 50904E, 54916N

Mapped using compass, tape and clinometer

Rock exposures in this canyon are entirely of quartzite, except for the southernmost ultramafic outcrop.

)5A-13

OIL SAMPLING