1993 Grubstake Program
YTG Mineral Incentive Program
Project No.: 93-054

Hayden Lake Prospecting Program 115G-1
Lat. 61°02' Long. 138°05

By:

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For Work Performed
Between
May 27 - 31, 1993

Prepared for:

J. S. Berdahl

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SUMMARY

Prospecting was carried out in the Hayden Lake area in order to attempt to locate the source of anomalous Cu, Mo, Au, and Ag geochemical stream sediment collected during the GSC regional geochemical survey in 1985.

While the area has been glaciated, the regional geology, anomalous samples, float rock and visible "placer" gold in Hayden Creek suggests a local source.

INTRODUCTION

This report was prepared at the request of J.S. Berdahl, the financier of the Hayden Lake grubstake. The purpose is to assess the area's economic mineral potential and fulfil reporting requirements of YTG's Mineral Incentives Program, (project #93-054) work requirements.

The project area is in the Southwest Yukon approximately 50 kilometres north of Haines Junction. Preliminary grassroots work was performed to attempt to duplicate GSC anomalies while seeking the anomaly source.

Skarn, shut type (mezothermal veins) and porphyry potential were considered.

Access/Location

Hayden Lake is located south of Kluane Lake, Southwest Yukon, at latitude 61°02'N, longitude 138°05'W on NTS map sheet 115G-1. It is approximately five kilometres northwest of the Alaska Highway, 50 kilometres north of Haines Junction. The area is within the Whitehorse mining district at latitude 61°02'N, longitude 138°05W.

Access to the area was on foot. Its proximity to Haines Junction would facilitate economic helicopter access. The lake (and adjacent Fly Lake) could possibly accommodate a float plane.

History

Silver City, located 10 miles west of Hayden Lake, was the centre of a gold rush at the turn of the century. Many nearby creeks (Fourth of July north of the Shakwak trench, and Telluride, Boultillier, Silver and Christmas south of the trench) support(ed) placer mining. Hardrock occurrences are found in the same areas.

Exploration activity north of the Denali Fault has been very light. Recently, several

companies staked ground in similar geology, to the west of Hayden Lake, based on GSC geochem numbers. Gold values in float are to 3 opt Au (Shut property).

This prospector located unmineralized skarn float just south of Hayden Lake in 1988. In 1985/86 the GSC collected and analyzed geochemical samples on the 115F and G NTS map sheet. Cu, Mo, Au, and Ag anomalies were identified (GSC open file #1362).

Physiography and Vegetation

The area of interest comprises rounded, glaciated terrains to 5,500 feet from a valley floor of 3,200 feet.

Glacial till (along with residual soils) are found to ridge tops. Bedrock exposure is common, but not continuous along ridges. Permafrost may be present in the Hayden and Fly basins. Frozen ground was still present in several areas during the last week of May.

Vegetation consists of spruce trees to approximately 4,500; willows, buck brush, and mosses/lichen are found throughout the area. No trees are present in the Hayden or Fly basins.

Geology

a) *Regional Geology*

The area of interest lies north of the Shakwak Trench, the surface expression of the Denali Fault. This fault is thought to display dextral displacement of some 250 kilometres. The fault marks the late Jurassic suture between the Coast and accreted Insular Super Terranes. While Hayden Lake lies north (Coast terrain side) of the fault, Wheeler and others (Wheeler, OJ 1991) exclude the areas metamorphosed assemblage from terrane classification. Minfile geology interprets the immediate area to be a wedge of Taku terrace with a thin slice of Gravina - Nutzotin terrane immediately south. A large area of Stikinia (P) terrain lies to the north (Minfile 1992).

b) *Property Geology*

Two rock types dominate the Hayden Lake area. Mesozoic to Cenozoic age "Ruby Range granodiorites" cover the southwest portion of the investigated area. Pre-mesozoic Yukon Complex quartz biotite schists dominate northeast of a northwest trending contact between the two rock types. A series of northwest striking biotite quartz schists, up to 10 metres wide, with variable foliation cutting the mainly porphyritic (feldspar phenocrysts to one inch) granodiorites southwest of the main contact. Likewise, numerous areas of

granodiorite intermingle with schists northeast of the contact. A "sericite" quartzite schist, up to several metres in width, is often found at the schist/intrusive contact.

Outcrop extent is roughly 25 percent, mainly on exposed, glaciated ridges. The last glacial movement may have come from the north.

Glacially derived float is common throughout. Faults often accompanied by northeast trending schist dikes are common, especially on the granodiorite ridge northwest of Hayden Creek. Limestone and orange, non-limonite quartz "sweats" are found in the northwest of the area, but no sulphides were seen. Elsewhere limestone float is common. Skarn float (all unmineralized) is rare.

Approximately one kilometre (.6 mile) northwest of Fly Lake, large (to 3 inch) angular limestone float is found in granodiorite talus. A kilometre south, and mid-way between Fly Lake and Hayden Lake a green, hard schist grades into an almost asbestos-like rock with short green fibres. This is accompanied by a "diopside skarn" like alteration with trace pyrite.

Mineralization

To date, insitu mineralization in the Hayden Lake area remains illusive. The Cu, Mo, Au, and Ag anomalies from GSC stream sediments (O.F. #1362) and placer gold on Hayden creek represent the possibilities. Banded garnet skarn (R3G113) in float, though unmineralized, presents a possible "deposit" type to explain the above-noted anomalies. It has been suggested that the Kluane area could host large tonnage, low grade stockwork gold deposits.

Methodology

Reconnaissance prospecting was carried out over a 25 km^2 area. Target sample locations were old GSC sample sites for replication, as well as geologic contacts, structures and identified areas of interest.

A total of 13 rock, till and stream sediment samples were collected and analyzed. Panning was done along the length of the Hayden Creek. A soil line was run across the swampy southerly end of Hayden Lake in an attempt to replicate GSC #1363 while getting an idea of the width of any anomalous condition (D3G14 - D3G112).

Limited bedrock exposure, glaciation, permafrost snow cover on north slopes, and a pair of mating grizzlies limited geologic investigation. Actual geochem results are found in Appendix B. Lab analysis was carried out by Northern Analytical Laboratories in Whitehorse, using 1CP 30 plus fire assay gold.

Conclusion & Recommendations

While the re-sampled GSC sites were reproduced in part, no substantial results were forthcoming. Minor placer gold probably accounted for the 1,000 ppb GSC gold anomaly (few indicator elements are involved - see O.F. #1362, samples #1352 and #1360).

The "soil" line across the GSC anomaly #1363 (Cu, Mo, Au, and Ag) at the south end of Hayden Lake returned similar values across a 160 metre area. However, the values were not "significantly anomalous" (e.g. values for most elements were only 2x background) and definitely sub-economic. In addition, it was felt that samples D3G18 and D3G19 may be glacially derived (see notes). Glaciers may also be the source of the placer gold. A southerly flowing glacial movement is assumed (see notes).

The geology suggests the possibility of shut type mineralization (Minfile #47 115H). It should also be noted the Cu, Mo, Au, and Ag geochem signatures have some similarity with the Raft Mo, W, Cu, vein (Minfile #70, 115FG), and Rockslide Cu-Porphyry (Minfile #71, 115 FG). Schists from the shut area yield barely discernable mineralized quartz veinlets in cut rock. These could host mineralized stock works (per comm. J. P. Ross).

One exploration target that could be explored further is the northeast trending structures found throughout the area.

It is felt that other areas warrant exploration before further effort is expended here. More attention needs to be heeded to the Kluane schists if the area is reconsidered.

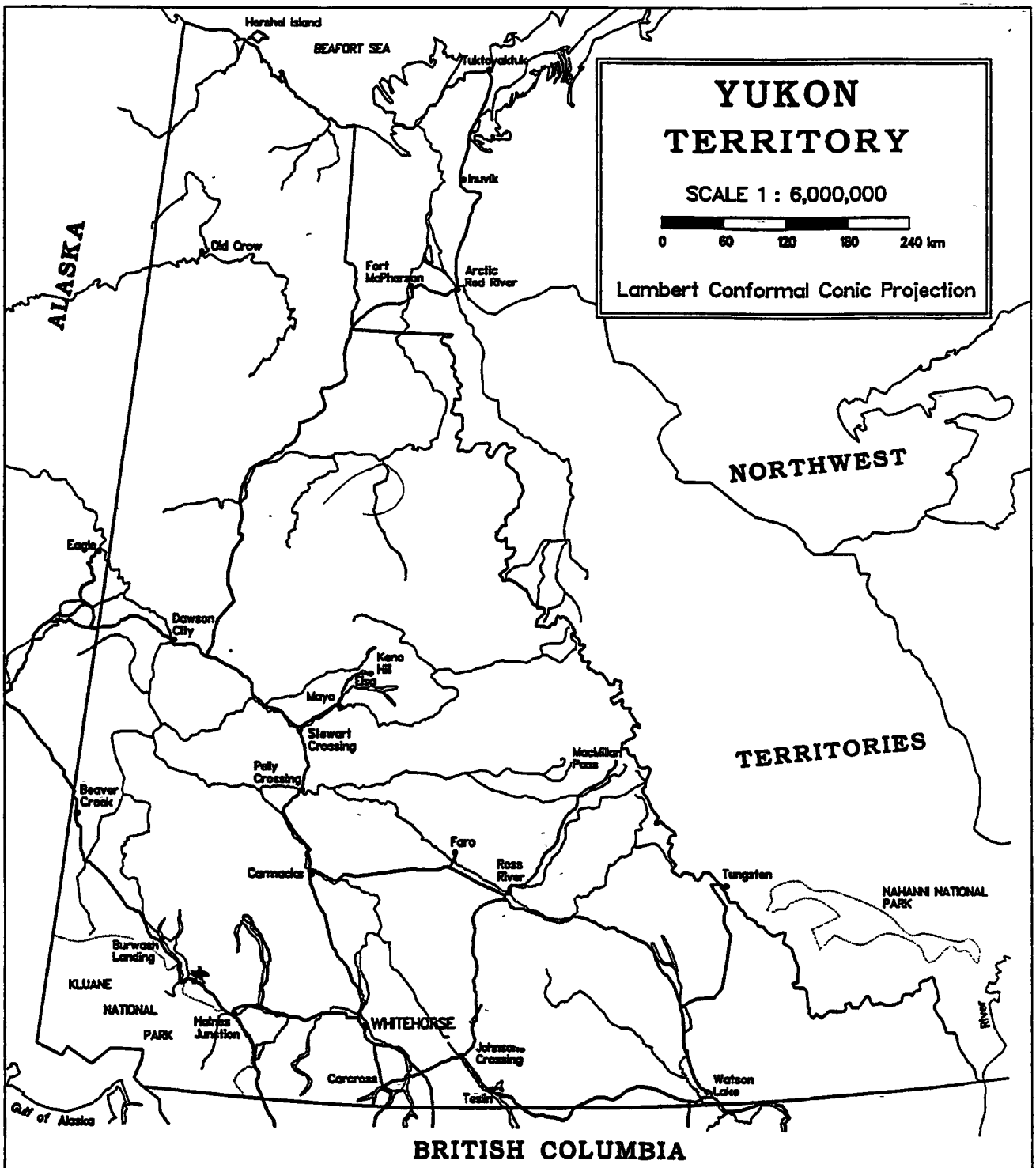
References

1. Muller, J.E., *Memoir 340: Kluane Lake Map Area, Yukon Territory, 115 FG* Geologic Survey of Canada, 1965.

2. Wheeler, J.O., Brookfield, A.J., Gabrielse, H., Monger, J.W.H., Tipper, H.W., and Woodsworth, G.J., 1991, *Geology of the Cordilleran Orogen in Canada*, Geologic Survey of Canada, Geology of Canada vol. 4; Geology of North America vol. G-2.

3. *Yukon Minfile and Updates*, Northern Affairs Program, Department of Indian and Northern Development, 1992.

Appendix A



LOCATION MAP

HAYDEN LAKE PROJECT

FIGURE 1

Appendix B

Northern Analytical Laboratories ltd.

12-Jul-93date Hayden G-1 Assay Certificate Page1

Ron Berdahl WO 13953

Sample	Au ppb
D3G13	8
D3G14	16
D3G15	5
D3G16	5
D3G17	11
D3G18	21
D3G19	10
D3G110	5
D3G111	7
D3G112	9
R3G1212	127
R3G1213	1966
R3G1214	1645
R3G121	31
R3G126	17
S3G11	5
S3G12	<5
S3G123	8
S3G124	5
S3G127	6
S3G129	7
S3G1210	6
S3G1215	8
S3G1216	6
S3G1217	5
S3G1218	<5
S3G1223	6
S3G1224	5
C3G125	789
C3G128	11
C3G1211	6
C3G1219	1541
C3G1220	2000
C3G1225	6
C3G1226	6

Certified by

105 Copper Road, Whitehorse, YT, Y1A 2Z7 Ph: (403) 668-4968 Fax: (403) 668-4890

INTERNATIONAL PLASMA LABORATORY LTD

iPL 93G1203

Hayden G-1

Canada V5Y 3E1
Phone (604) 879-7878
Fax (604) 879-7898

Client: Northern Analytical Laboratories iPL: 93G1203 Out: Jul 15, 1993 Page 1 of 1 Section 1 of 1
Project: WO#13953 35 Pulp In: Jul 12, 1993 Certified BC Assayer: David Chiu

Sample Name	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
13953 No Name P	<	30	8	61	8	<	<	1	<	<	<	11	27	123	<	40	58	232	8	24	1	3	0.07	1.70	0.37	2.70	0.82	0.05	0.02	0.09
3G 13 P	<	56	9	92	21	<	<	2	<	<	<	19	45	190	<	59	86	425	9	30	1	7	0.15	2.01	0.61	3.39	1.18	0.41	0.03	0.10
3G 14 P	<	37	11	85	13	<	<	2	<	2	<	17	36	147	<	51	75	370	9	25	2	6	0.14	1.91	0.42	3.30	1.13	0.21	0.02	0.10
3G 15 P	<	24	6	52	<	<	<	1	<	<	0.2	9	23	83	<	35	49	232	8	26	2	4	0.12	1.28	0.49	1.92	0.84	0.16	0.03	0.12
3G 16 P	<	38	8	75	<	<	<	1	<	<	<	13	31	111	<	48	61	268	11	32	3	5	0.15	1.59	0.67	2.28	1.10	0.10	0.03	0.13
3G 17 P	<	100	14	162	16	<	<	3	<	<	<	24	77	181	<	85	112	444	12	26	5	10	0.22	2.83	0.62	6.14	1.63	0.39	0.03	0.12
3G 18 P	0.1	85	6	163	20	<	<	1	<	<	0.3	14	49	209	<	50	71	267	10	33	2	6	0.14	1.68	0.69	2.44	1.00	0.15	0.03	0.10
3G 19 P	<	50	7	97	17	<	<	1	<	<	0.1	17	38	179	<	54	82	518	9	45	5	7	0.17	1.92	1.58	3.40	1.27	0.51	0.04	0.11
3G 110 P	0.2	27	8	102	14	<	<	1	<	<	0.2	16	32	162	<	54	71	320	8	28	1	5	0.13	2.04	0.68	2.88	1.11	0.23	0.02	0.10
3G 111 P	0.1	18	7	114	7	<	<	1	<	<	<	11	22	140	<	45	62	289	8	31	1	4	0.08	1.74	0.65	2.78	0.91	0.09	0.02	0.14
C3G 125 P	<	10	<	60	<	<	<	1	<	<	<	12	25	53	<	65	123	212	17	15	2	2	0.12	0.71	0.43	3.60	0.54	0.05	0.02	0.10
C3G 128 P	0.1	36	7	112	<	<	<	6	2	<	<	26	36	39	<	73	338	447	7	21	6	4	0.29	1.10	0.94	8.42	0.98	0.03	0.02	0.10
C3G 1211 P	<	21	4	92	16	<	<	2	<	<	<	20	28	49	<	61	232	365	11	20	4	2	0.22	0.83	0.68	6.17	0.77	0.04	0.03	0.10
C3G 1219 P	<	14	<	125	7	<	<	3	<	<	<	15	23	42	50	57	245	260	17	38	2	1	0.16	0.54	0.96	5.46	0.48	0.05	0.03	0.19
C3G 1220 P	<	13	4	112	<	<	<	2	<	<	<	24	16	33	20	39	289	380	30	17	2	1	0.33	0.49	0.46	7.86	0.31	0.04	0.02	0.17
C3G 1225 P	0.1	10	6	108	<	<	<	1	<	<	<	19	16	42	<	29	219	315	23	16	2	1	0.26	0.53	0.36	6.02	0.34	0.04	0.02	0.10
C3G 1226 P	<	9	5	133	<	<	<	2	<	<	<	25	16	31	<	33	303	416	65	14	2	1	0.37	0.49	0.34	8.20	0.30	0.02	0.02	0.10
R3G 121 P	24.5	4425	8	72	13	<	<	7	<	<	<	3	5	17	130	19	12	92	3	26	2	2	0.02	0.83	0.45	9.76	0.05	0.04	0.10	0.14
R3G 126 P	0.3	57	9	41	9	<	<	3	<	<	<	8	21	73	49	133	72	147	8	9	1	6	0.17	0.97	0.20	2.73	0.95	0.78	0.05	0.03
R3G 1212 P	1.0	47	5	29	245	7	<	4	<	<	0.2	6	21	63	<	143	49	129	6	53	1	3	0.07	1.75	0.88	2.00	0.48	0.26	0.04	0.05
R3G 1213 P	3.8	534	<	60	131	<	<	12	<	532	<	5	8	47	0.1%	22	12	1240	2	12	1	1	0.01	0.23	0.96	9.42	0.09	0.04	0.02	0.04
R3G 1214 P	5.3	624	<	30	152	<	<	9	<	455	<	3	5	32	0.1%	24	11	685	2	5	1	1	<	0.29	0.44	7.99	0.11	0.02	0.02	0.03
R3G 1215 P	0.3	36	6	91	13	<	<	2	<	<	0.4	13	34	199	46	41	63	365	10	48	2	3	0.12	1.50	1.18	2.61	0.95	0.28	0.04	0.11
S3G 11 P	0.4	24	6	101	20	<	<	2	<	<	0.1	11	25	100	6	38	60	320	17	29	1	4	0.08	1.65	0.54	2.86	0.86	0.12	0.02	0.09
S3G 12 P	0.2	22	6	69	22	<	<	1	<	<	0.2	12	25	120	<	40	62	822	11	43	2	3	0.10	1.09	1.43	2.82	0.95	0.17	0.03	0.11
S3G 123 P	0.1	92	12	110	<	<	<	1	<	<	0.3	13	33	142	<	40	64	393	12	34	2	3	0.11	1.40	1.04	2.68	0.90	0.14	0.03	0.10
S3G 124 P	0.1	25	9	81	<	<	<	1	<	<	0.1	14	35	138	<	50	61	371	12	24	2	3	0.11	1.51	0.55	2.64	0.97	0.12	0.03	0.09
S3G 127 P	<	22	6	89	<	<	<	2	<	<	<	14	29	78	<	34	63	411	8	35	4	4	0.11	1.47	1.05	2.60	1.11	0.06	0.04	0.08
S3G 129 P	0.1	27	5	93	<	<	<	2	<	<	<	19	33	63	<	40	103	483	7	38	6	8	0.15	2.18	1.73	3.36	1.69	0.06	0.03	0.08
S3G 1210 P	<	26	5	103	9	<	<	1	<	<	0.2	18	36	127	<	35	60	896	9	43	3	3	0.09	1.23	1.48	3.04	1.13	0.09	0.04	0.09
S3G 1216 P	0.1	37	5	98	9	<	3	2	<	<	0.7	14	36	164	<	39	66	360	9	44	1	3	0.13	1.48	0.97	2.70	0.81	0.26	0.04	0.10
S3G 1217 P	0.2	41	4	176	10	<	<	3	<	<	3.9	14	46	141	<	41	90	341	9	100	1	3	0.12	1.44	2.33	2.70	0.88	0.25	0.04	0.16
S3G 1218 P	<	20	5	81	<	<	<	1	<	<	<	14	23	147	<	32	71	378	12	30	2	3	0.16	1.41	0.52	3.05	0.80	0.21	0.03	0.10
S3G 1223 P	<	18	5	92	<	<	<	1	<	<	0.3	12	27	133	<	34	62	331	14	36	1	3	0.13	1.34	0.62	2.60	0.75	0.16	0.04	0.09
S3G 1224 P	<	19	6	96	<	<	<	1	<	<	0.1	14	22	165	<	28	64	396	21	34	2	3	0.16	1.48	0.62	3.10	0.72	0.22	0.03	0.12
Min Limit	0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max Reported*	99.9	20000	20000	20000	9999	9999	9999	9999	999	999	99.9	999	999	9999	999	9999	999	9999	9999	9999	999	99	1.00	99.99	99.99	99.99	9.99	9.99	5.00	5.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

---=No Test ins=Insufficient Sample S=Soil R=Rock C=Core L=Silt P=Pulp U=Undefined m=Estimate/1000 %=Estimate % Max=No Estimate

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J.S. BERDAHL / YMIP # 93-054
HAYDEN LAKE PROJECT
115 G-1
1:30,000
'Ruby Range' Granodiorites
'Yukon Complex' Quartz-biotite schists
Limestone - probably Yukon Complex
Overburden
faults / structures
geologic contact
strike dip, strike vertical dip
GSC open file 1362 stream sediment sites w/ anomalous elements >70%
x R-53G1 - R - rock sample
S - strm sed sample
D - soil sample
KLUANE
LAKE
N
SHAKWAY
VALLEY
SHAKWAK
DENALI FAULT
250 Km slip
TRENCH
Christmas Bay
Christmas Creek
Little John Creek
Silver Creek
Inlet Creek
Little Cultus
Allen Lake
Hayden Lake
Fly Lake
Big Joe Lake
River
PIPELINE CORRIDOR
ALASKA HIGHWAY
R-44B
R-26B
S-45B
S-54
S-33
S-1
S-2B
placer gold
no schist dikes
mixed w/ granodiorites
poor exposure
granodiorite dikes
contact as mapped by Muller 1965
R.S. Berdahl Dec 93
based on field notes + Muller 1965

115 G-1

1993 Grubstake Program
YTG Mineral Incentive Program
Project No.: 93-054

Rat Prospecting Program 105E-12
Lat. 61° 32' Long. 135°32'

By:

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Box 5664
Whitehorse, YT
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For Work Performed
Between
August 31 and
September 9, 1993

Prepared for:

J. S. Berdahl

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SUMMARY

The area north of Ten Mile (Rat) Lake was prospected to determine the source of numerous anomalous precious metal and pathfinder elements (greater than 90 percentile of GSC regional geochem stream sediment survey). Previous prospecting in the general area returned gold values in soils. These values were thought to relate to strong north trending faults. Carbonitized and silicic ultra mafics of mezothermal origins have also been found in similar lithologies to the east.

The 1993 prospecting program returned disappointing results despite the use of a soil auger to collect fault related soil samples. Prospecting was hindered by glacial overburden, permafrost, swamps and limited outcrop.

INTRODUCTION

This report was prepared at the request of J.S. Berdahl, the financier of the Rat Lake grubstake. The purpose is to assess the area's economic mineral potential and fulfil reporting requirements of YTG's Mineral Incentives Program, from which this project was partially funded (project #93-054).

The area explored lies approximately 60 miles north of Whitehorse. Several highly anomalous GSC stream sediment values are found in area drainages. Grassroots reconnaissance prospecting was aimed at structurally controlled precious metal targets, probably mezothermal veins or stock works.

Access/Location

The area lends itself to easy access from Whitehorse via the Klondike Highway to Braeburn (100 kilometres - 60 miles) then along a winter tote road to Ten Mile Lake. The project area is north of Ten Mile Lake. The area is within the Whitehorse mining district at latitude 61°32'N and longitude 135°32'W on NTS 105E-12.

History

Little mineral exploration seems to have ever occurred in this area. The area is along an old trail connecting lower Leberge to the Dawson Trail north of Twin Lakes. Prospectors undoubtedly passed through the country. Glaciated and swampy conditions are not conducive to placer prospecting and the ubiquitous Leberge conglomerates are not overly promising, mineralized targets. The GSC released a regional stream sediment survey over the 105E map sheep in 1990 (O.F. #1960). Noranda staked the "OGL"

claims to cover the "headwaters" of several stream sediment anomalies. The Mundessa Development Corporation had the CJB claims staked directly to the south in 1992.

To date no known mineralized showing has been reported.

Physiography and Vegetation

The area consists of a large, north trending hill of 4,000 feet and the surrounding wetlands at approximately 2,700 feet. Ten Mile and Rat Lakes fill an east-west lowland at 2,500. The hill is roughly four kilometres (2.5 miles) long by one kilometre (.6 mile) wide. It is composed of conglomerates and cut by numerous north trending faults and lesser east trending ones.

The lowlands are typical of glaciated country with numerous pot hole lakes and inconsistent drainages. Permafrost is found on north facing slopes and in most fault and high valley bottoms. Ash from the 1200 year old Alaskan eruption and forest fire of 1958 make for dusty conditions out of swamps.

Vegetation ranges from modest, mostly re-generated spruce, to elevations of 4,000 feet, with pine, alder, aspen, willow, buck brush, labrador tea, sedges and grasses in the lower country and in fault escarpments. A severe fire, probably in 1958, burned the area leaving much dead fall. Mosses insulate permafrost areas.

Geology

a) *Regional Geology*

The Rat project is within the northern most tip of the intermontane superterrane (Wheeler, O.J. et all 1991). Within this assemblage are found terrains such as the Cache Creek and Stikinia. These terrains had amalgamated by the late Triassic before accreting to the North American continent in the Jurassic.

Wheeler ascertains the Cache Creek rock underlie the Jurassic Takwahoni and triassic Lewes River rocks in this area. (The Takwahoni rocks equate to the Leberge group). Stikinia terrane consisting of devonian to Permian are volcanics and carbonates overlain by Triassic and lower Jurassic arc volcanics, cherts, clastics (Lewes River Group rocks) lie to the west 15 kilometres. The north end of the Intermontane Superterrane corresponds to the Whitehorse Trough. The Leberge Group and Lewes River Group rocks of a sub-arc basin were subducted over Cache Creek rocks during accretion.

b) *Property Geology*

The local geology is typical Whitehorse Trough Lewes River and Leberge group rocks underlain by the Cache Creek group. The Leberge group rocks are ubiquitous and consist of conglomerates with clasts to one foot.

In the northwest portion of the investigated area, southwest dipping conglomerates harbour one foot seams of sand stone. One kilometre south upper Triassic Lewes River group, conchoidally fracturing, brown limestones outcrops. These rocks seem to be conformably overlain by the Leberge group conglomerates.

The main ridge is composed of faulted and sheared conglomerates. Two kilometres north of the ride limonitic quartz carbonate veins (to one foot width) with similar sized alteration halos strike at 10^0 and cross cut vertically dipping conglomerate. (R3E129).

To the east of the expired OGL claims, upper Triassic rocks are mapped. Ground proofing reveals swampy areas of inconsistent drainage. GSC sampling here resulted in strong multi-element anomalies (OF1960 #1422). The nature of country precludes confidence in stream sediment sampling.

South of the ridge near the lake shore northeast striking, steeply dipping greywache outcrops. It is not certain if these rocks represent Leberge or Lewes River groups.

Mineralization

No mineralization was found either in place or as float. Swampy glaciated terrane punctuated with permafrost in faults and north slopes make conventional prospecting difficult. No known mineralized showings are in the area.

Methodology/Geochemical Results

Reconnaissance prospecting was employed over some 15 km^2 over 10 days from August 31 to September 10, 1993. The weather was extraordinarily fine and hot. Emphasis was placed on reproducing government stream anomalies and sampling across north striking faults.

Four soil lines were run perpendicular to parallel fault strikes with one sample taken from each fault. Faults ranged in widths from 10 metres to over 50 metres. Cross faults and restrictions were also sampled. A one and one half inch soil auger with four foot depth capacity was used in most sampling. Samples were analyzed by Northern Analytical

Laboratories of Whitehorse, employing fire assay for Au and 30 element ICP by IPL in Vancouver.

There were 37 samples collected: one rock; seven stream sediments and 29 soil samples. Numerous, unsuccessful auger holes and "stream" samples were attempted. Conditions for a productive sampling program are not met. The glaciated, swampy and permafrost conditions alone, with suspect plotted sample locations cast some doubt as to the credibility of the GSC open file #1960 results in this area. However, the GSC results are consistent over a large area with several sample points.

In some faults frozen organics continued below six feet. The one rock sample - limonite quartz carbonate veins in conglomerate (R3E129) was only slightly anomalous in one element, Barium (1212 ppm). Samples 19, 25, 26 and 27 (all soils) were slightly elevated in Cd (.1 and .2 ppm). Only seven of 37 samples registered arsenic and then only modestly at 5-6 ppm.

The Au values in soils ran to 51 ppb (sample D3E1229). The same sample had an "elevated" As number at 6 ppm. Generally, gold numbers ran below 20 ppb. Molybdenum was consistent, but very low, generally 1 - 2 ppm. Cadmium and an elevated zinc value was returned in stream sedimentary samples S3E1220 (corresponds to GSC #1422, anomalous in Au, As, Sb, Ag, Cu and Mo).

Conclusions & Recommendations

Despite numerous, widespread multi-element stream sediment anomalies reported by the GSC, I cannot recommend spending more time in this area using conventional prospecting methods. Ground proofing puts into question the results and at times, sample location reported by the GSC.

The area does have relatively tight structural control. If a party were interested in further exploration I would recommend tight - two metre stations soil sampling in the main, north striking faults, especially where these are cross-cut by east/west faults.

Since a motherlode target is expected, geophysics (E.M.) could be employed to delineate graphite zones that may be related to mineralized shears. Still, permafrost would hamper both surveys to some extent.

Given the lack of encouraging results, poor ground conditions, and favourable prospects elsewhere. I would not recommend a lone investor or prospector expending time or dollars here unless new information or techniques relevant to the property transpire.

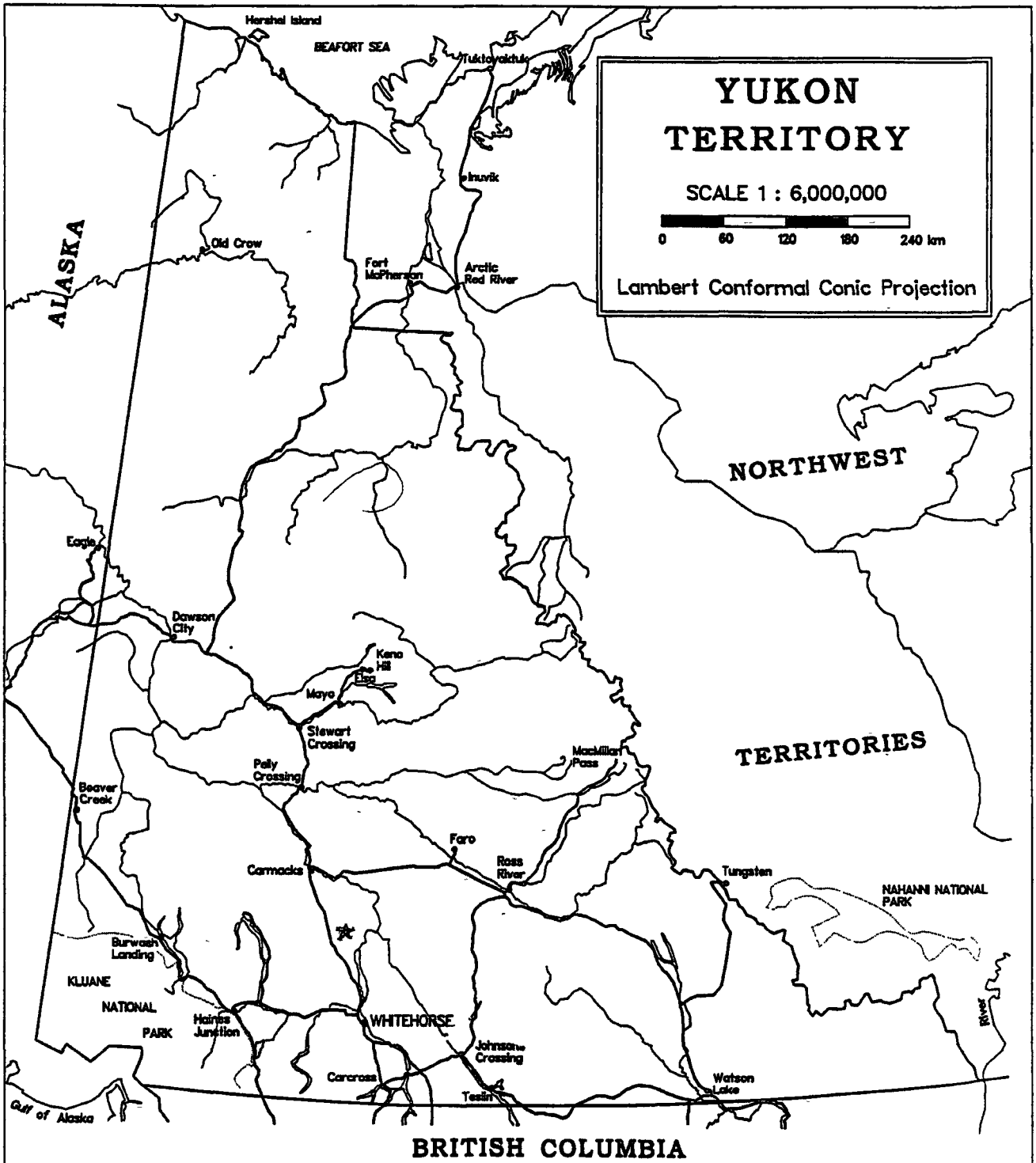
References

1. Hornbrook, E.H.W., Friske, PW.B., GSC open file 1960, 105E; *Regional Stream Sediment and Water Geochemical Data, Southern Central Yukon,* 1989.

2 Wheeler, J.O., Brookfield, A.J., Gabrielse, H., Monger, J.W.H., Tipper, H.W., and Woodsworth, G.J., 1991, *Geology of the Cordilleran Orogen in Canada*, Geologic Survey of Canada, Geology of Canada vol. 4; Geology of North America vol. G-2.

4. *Yukon Minfile and Updates*, Northern Affairs Program, Department of Indian and Northern Development, 1992.

Appendix A



LOCATION MAP

RAT LAKE PROJECT

FIGURE 1

Appendix B

Northern Analytical Laboratories ltd.

20-Sep-93date | Assay Certificate | Page1

Ron Berdahl

Rat
E-12

WO 00300

Sample	Au ppb
D3D99	14
D3D910	29
D3D911	45
D3D912	7
D3E121	21
D3E122	11
D3E123	13
D3E124	12
D3E125	11
D3E126	17
D3E127	9
D3E128	10
S3E1210	19
D3E1213	13
D3E1214	9
D3E1215	14
D3E1216	47
D3E1217	11
D3E1218	14
D3E1219	33
S3E1220	9
S3E1221	10
D3E1222? (not clearly legible)	14
D3E1223	13
D3E1224	15
S3E1225	10
D3E1226	22
M3E1227	12
D3E1228	13
D3E1229	51
D3E1230	10
S3E1231-1	29
S3E1231-2	3
D3E1232	16
D3E1233	11
D3E12x3	16
D3E12x4	24
D3E12x5	17
D3E12x6	7
#15	17
S3N102	11
S3N103	9

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Northern Analytical Laboratories ltd.

20-Sep-93date | Assay Certificate | Page2

Ron Berdahl | RaT E-12 | WO 00300

Sample	Au ppb
RE3129	15
R3N101	11

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18-Oct-93date | Assay Certificate | Page1

Rat
E12

Ron Berdahl | WO 00336

Sample	Au ppb
R3W1	10
R3D915	22
R3D916	9
R3D918	6
R3D919	10
R3D920	24
D3D921	14
R3D922	12
R3D923	13
R3D924	11
R3D925	18
R3D926	17
D3D926 - ?	638
D3D927	29
D3D928	12
D3D929	21
D3E12X-2	<5

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Rat
E-12

CERTIFICATE OF ANALYSIS
iPL 93I2004

Client: Northern Analytical Laboratories iPL: 93I2004 Out: Sep 23, 1993 Page 1 of 2 Section 1 of 1
Project: 00300 44 Pulp In: Sep 20, 1993 Certified BC Assayer: David Chiu

Sample Name		Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
#15	P	<	21	8	39	<	<	<	1	<	<	<	7	12	77	<	16	37	217	5	74	2	3	0.06	0.93	0.64	1.57	0.51	0.05	0.05	0.07
D3099	P	<	87	13	52	5	<	<	2	<	<	<	22	138	435	<	61	55	877	15	28	4	12	0.08	1.90	0.48	2.92	0.58	0.05	0.03	0.08
D3D 910	P	<	28	9	35	<	<	<	1	<	<	<	12	65	273	5	44	39	932	10	21	1	5	0.07	1.30	0.42	2.03	0.48	0.09	0.03	0.07
D3D 911	P	<	31	4	15	<	<	<	1	<	<	<	5	17	139	<	30	31	102	9	18	2	3	0.06	0.89	0.35	1.03	0.33	0.03	0.02	0.07
D3D 912	P	<	15	10	29	<	<	<	1	<	<	<	7	32	284	6	38	34	156	7	19	2	3	0.07	1.18	0.35	1.60	0.46	0.04	0.03	0.04
D3E 12X 3	P	<	39	13	69	<	<	<	1	<	<	<	11	21	132	<	28	54	504	10	102	2	5	0.09	1.37	1.42	2.45	0.73	0.09	0.04	0.08
D3E 12X 4	P	<	40	19	66	<	<	<	1	<	<	<	12	23	120	<	30	56	433	10	84	2	5	0.09	1.41	1.65	2.57	0.76	0.09	0.04	0.08
D3E 12X 5	P	<	38	13	60	<	<	<	2	<	<	<	11	21	105	<	26	53	464	11	95	3	5	0.08	1.28	2.53	2.40	0.75	0.08	0.04	0.09
D3E 12X 6	P	<	65	6	116	5	<	<	16	<	<	1.0	4	11	72	<	10	47	34	3	111	4	2	0.03	0.61	2.52	1.17	0.21	<	0.02	0.06
D3E 121	P	<	36	10	60	<	<	<	2	<	<	<	10	13	64	<	26	67	300	6	199	7	5	0.10	1.28	2.09	2.48	0.85	0.04	0.03	0.08
D3E 122	P	<	37	9	58	<	<	<	2	<	<	<	11	17	73	<	22	52	318	9	135	4	5	0.07	1.15	2.36	2.34	0.70	0.08	0.03	0.08
D3E 123	P	<	35	10	36	<	<	<	1	<	<	<	8	17	93	<	22	42	207	7	64	2	3	0.07	1.14	0.99	1.73	0.52	0.08	0.04	0.04
D3E 124	P	<	33	11	63	<	<	<	1	<	<	<	10	27	161	<	28	50	429	9	56	2	4	0.08	1.26	1.12	2.27	0.65	0.07	0.04	0.09
D3E 125	P	<	17	12	45	<	<	<	1	<	<	<	11	19	143	<	29	53	486	7	32	2	4	0.10	1.70	0.45	2.48	0.62	0.13	0.03	0.05
D3E 126	P	<	37	9	52	<	<	<	1	<	<	<	9	19	124	<	26	54	305	10	46	2	4	0.09	1.19	0.66	2.41	0.64	0.06	0.04	0.09
D3E 127	P	<	43	11	52	<	<	<	2	<	<	<	12	35	175	<	34	55	485	11	115	4	5	0.10	1.33	4.61	2.52	0.96	0.07	0.04	0.09
D3E 128	P	<	41	15	59	<	<	<	1	<	<	<	10	22	136	<	31	56	309	11	55	2	5	0.10	1.49	0.82	2.57	0.77	0.10	0.04	0.09
D3E 1213	P	<	31	14	48	<	<	<	1	<	<	<	8	20	109	<	23	47	276	7	86	2	4	0.06	1.09	1.10	2.06	0.69	0.05	0.04	0.08
D3E 1214	P	<	34	12	58	<	<	<	2	<	<	<	9	20	189	<	29	53	312	11	80	2	5	0.09	1.48	1.90	2.58	0.83	0.12	0.04	0.08
D3E 1215	P	<	14	13	55	<	<	<	2	<	<	<	12	18	158	<	29	49	747	7	28	3	4	0.09	1.76	0.41	2.63	0.56	0.20	0.03	0.07
D3E 1216	P	<	28	14	54	<	<	<	2	<	<	<	9	20	138	<	29	54	354	11	40	2	5	0.09	1.40	0.58	2.52	0.65	0.09	0.04	0.07
D3E 1217	P	<	56	12	64	<	<	<	1	<	<	<	11	24	186	<	30	55	603	12	60	2	6	0.07	1.56	1.17	2.44	0.64	0.06	0.03	0.05
D3E 1218	P	<	19	9	61	<	<	<	1	<	<	<	8	17	91	<	26	50	210	9	68	4	4	0.08	1.06	0.98	2.03	0.65	0.05	0.03	0.08
D3E 1219	P	<	25	8	61	<	<	<	1	<	<	0.2	5	12	93	<	15	31	282	5	178	3	2	0.04	0.76	1.92	1.22	0.51	0.04	0.03	0.09
D3E 1222	P	<	13	7	52	<	<	<	1	<	<	<	6	10	79	<	18	38	243	8	69	2	3	0.06	0.90	0.98	1.48	0.50	0.04	0.03	0.08
D3E 1223	P	<	11	6	37	<	<	<	<	<	<	<	5	9	89	<	15	34	195	7	46	1	2	0.06	0.85	0.70	1.32	0.43	0.04	0.03	0.09
D3E 1224	P	<	18	13	68	<	<	<	2	<	<	<	11	21	112	<	32	67	350	9	67	3	5	0.10	1.44	0.79	2.55	0.88	0.05	0.03	0.10
D3E 1225	P	<	6	<	36	<	<	<	<	<	<	0.1	6	7	66	<	12	30	156	7	51	2	2	0.06	0.66	0.68	1.07	0.40	0.05	0.03	0.09
D3E 1226	P	<	14	15	48	<	<	<	<	<	<	0.1	5	7	99	<	12	24	832	5	112	2	1	0.04	0.65	1.60	1.05	0.40	0.05	0.03	0.09
D3E 1227	P	<	24	12	53	<	<	<	1	<	<	0.2	4	8	104	<	12	20	525	4	198	3	1	0.04	0.69	2.23	0.93	0.44	0.04	0.03	0.09
D3E 1228	P	<	32	12	62	<	<	<	1	<	<	<	8	15	93	<	23	50	506	8	91	2	4	0.08	1.10	1.25	2.02	0.64	0.07	0.03	0.10
D3E 1229	P	<	21	13	54	<	<	<	2	<	<	<	10	13	100	<	20	54	278	9	59	4	4	0.08	1.15	0.80	2.72	0.55	0.09	0.04	0.10
D3E 1230	P	<	24	11	59	<	<	<	2	<	<	<	10	17	78	<	27	56	297	9	123	3	4	0.11	1.41	0.87	2.52	0.74	0.11	0.04	0.05
D3E 1232	P	<	36	10	54	<	<	<	2	<	<	<	11	22	117	<	27	59	355	11	81	3	5	0.10	1.34	1.68	2.51	0.83	0.12	0.04	0.08
D3E 1233	P	<	25	12	48	5	<	<	1	<	<	<	11	22	129	<	31	59	381	12	50	3	5	0.10	1.55	0.59	2.68	0.73	0.11	0.04	0.05
R3N 101	P	<	8	11	28	<	<	<	3	<	<	0.1	2	5	26	<	127	3	423	<	8	<	1	<	0.09	0.33	1.07	0.04	0.02	0.01	0.04
R3N 3129	P	<	21	3	89	<	<	<	4	<	<	0.8	9	10	1212	<	38	37	873	5	84	2	3	0.01	0.38	10.30	4.90	0.26	0.12	0.02	0.05
S3E 1210	P	<	21	6	55	<	<	<	1	<	<	0.2	5	10	132	<	13	29	453	5	86	2	2	0.04	0.67	1.36	1.36	0.44	0.05	0.03	0.08
S3E 1220	P	<	32	16	103	<	<	<	1	<	<	0.4	6	16	99	<	22	38	367	8	157	3	4	0.05	0.93	1.58	1.45	0.74	0.07	0.02	0.08
Min Limit		0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max Reported*		99.9	20000	20000	20000	9999	9999	9999	9999	999	999	99.9	999	999	9999	999	9999	999	9999	9999	9999	999	99	1.00	99.99	99.99	99.99	9.99	9.99	5.00	5.00
Method		ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

--=No Test ins=Insufficient Sample S=Soil R=Rock C=Core L=Silt P=Pulp U=Undefined m=Estimate/1000 %=Estimate % Max=No Estimate

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2 copies RAT E-12

CERTIFICATE OF ANALYSIS
iPL 93I2004

Client: Northern Analytical Laboratories iPL: 93I2004 Out: Sep 23, 1993 Page 2 of 2 Section 1 of 1
Project: 00300 44 Pulp In: Sep 20, 1993 Certified BC Assayer: David Chiu

Sample Name	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
S3E 1221 P	<	21	32	46	<	<	<	1	<	<	0.1	6	10	100	<	12	29	355	6	130	2	2	0.04	0.57	1.47	1.16	0.41	0.05	0.03	0.07
S3E 1231-1 P	<	29	5	54	<	<	<	1	<	<	0.1	6	10	69	<	13	30	413	6	156	1	2	0.05	0.74	1.56	1.41	0.51	0.07	0.03	0.08
S3E 1231-2 P	<	13	<	47	<	<	<	<	<	<	<	5	8	41	<	11	33	150	6	75	1	2	0.06	0.70	0.76	1.29	0.43	0.05	0.03	0.09
SEN 102 P	<	31	15	111	8	<	<	3	<	<	0.3	13	31	420	<	20	29	1035	6	26	<	3	0.01	0.73	0.24	2.90	0.40	0.07	0.01	0.07
SEN 103 P	<	28	17	136	26	<	<	7	<	<	0.8	11	37	663	<	14	32	951	5	47	<	2	<	0.71	0.33	2.68	0.31	0.06	0.01	0.08
Min Limit	0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max Reported*	99.9	20000	20000	20000	9999	9999	9999	9999	999	999	99.9	999	999	9999	999	9999	999	9999	9999	9999	999	99	1.00	99.99	99.99	99.99	9.99	9.99	5.00	5.00
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

---=No Test ins=Insufficient Sample S=Soil R=Rock C=Core L=Silt P=Pulp U=Undefined m=Estimate/1000 %=Estimate % Max=No Estimate

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Appendix C

Photo #1

↑ #1 - Looking northeast w/ Coglin Lake in mid background showing general 'lack of bedrock' in low areas.

Photo #2

Typical N-S fault in conglomerate. This is on of several parallel faults on the 'hill.' note typical deadfall. This is a north slope w/ permafrost. Faults are deep enough to also harbor frost.

Photo taken from within major E-W Fault

see map for photo locations

JS BERDAHL / YMIP GRUBSTAKE
RAT LAKE PROJECT
105 E-12
1:30,000
J LaBerge Group conglomerate, greywacke, arkose
uT Lewes River Group conglomerate, argillite, greywacke
uT Lewes River Group Limestone
Fault
GSC open file 1960 anomolous sample sites w/ 7 90% anomolous elements
3E121 R - rock S - sediment D - soil samples
PHOTO Location & direction
N
CONGLOMERATE MTN.
3361
WINTER
ROAD
HIGHWAY
CREEK
COGHLAN LAKE
I.G.
S-52
S-58
00001
00002
P.C. 1985-1364
1423 Au Cu Hg
1424 Au
S3E1210
1422 Au As Sb Hg Cu Mo
D3E1219
S3E1220-21
1420 Au Sb As Mo Hg
3359 Au
3380
D3E1229
D3E1228
R3E129
D3E1211
perma post
Line #6 Samples D3E1213-18
Line #5 Samples D3E1222-24
Line 6
Line 5
Line 4
Line 3
Line 2
Line 1
D3E1225 +26
GGL
CJB
Line #1 Samples D3E121-3, D3E12X1-6 + D3E1234
Line #2 D3E124-7
Line #3 D3E128
Line #4 D3E1232 + 33
80 + Greywacke
80 + argillite
61° 30'
135° 30'
2500
3000
3500
105 E-12

1993 Grubstake Program
YTG Mineral Incentive Program
Project No.: 93-054

Shakwak 115 G12 Prospecting Program
Lat. 61° 35' Long. 139° 50'
Lat. 61° 42' Long. 139° 35'

By:

R. S. Berdahl
Box 5664
Whitehorse, YT
Y1A 5L5

For Work Performed
Between
June 10-June 15, 1993

Prepared for:

J. S. Berdahl

TABLE OF CONTENTS

SUMMARY

Geologic investigations were carried out in areas directly north and South of the Shakwak Trench near and the Donjek and Kluane Rivers.

i) **North of Trench** - The area north of the Shakwak was prospected to ascertain the significance and extent of Tungsten skarns, first reported by Bostock in the 1950's (GSC memoir 267), as well as GSC stream sediment anomalies.

Recent work in other parts of the territory correlate tungsten and bismuth mineralization in felsic stocks with Fort Knox-type gold deposits.

While GSC sediment anomalies were not fully collaborated, gold values to 2g were found. Visible gold was found in streams draining an intermittent three-plus kilometre contact between carbonates and granodiorites.

ii) **South of Trench** - South of the Shakwak overburden, covered targets include: magnetic highs and geochemical anomalies for precious metals, PGM's and nickel.

Geochemical targets were not reproduced. None the less considering the underlying geology and nearby mineral occurrences, the area cannot be written-off. Overburden (glacial and fluvial) and permafrost make conventional prospecting difficult.

INTRODUCTION

This report was prepared at the request of J.S. Berdahl, the financier of the Shakwak grubstake. Its purpose is to assess the area's economic and exploration potential based on this season's fieldwork, as well as to satisfy the YMIP (Number 93-054) work requirements.

The project area is located along the Alaska Highway, in the southwest Yukon approximately 200 miles northwest of Whitehorse.

The geology on either side of the Shakwak fault is considerably different, reflecting its 250 kilometre dextral slip. Rocks to the north are part of the Yukon plateau and are comprised of pre-mesozoic Yukon complex schists and limestones intruded by mesozoic or tertiary-aged granodiorites. To the south formations of the St. Elias are more complex structurally and geologically, perhaps due to better exploration, and contain several mineral deposits in the immediate area of interest (placer gold, Wellgreen Nickel).

Interest in the area was generated through the GSC release of regional stream sediment maps, known nearby prospects and new models from other parts of the territory that may be applicable in the Shakwak. Prospecting was for precious metals and base metal potential.

Access/Location

The Shakwak project is located on either side of the Shakwak Trench (Alaska Highway Corridor) where it is intersected by the Donjek River. It is located approximately 210 miles from Whitehorse near kilometre 1128. The area is within the Whitehorse mining district between latitude 61°35'-42°N and longitude 139°35'-50°W.

Access to all areas was by foot from approximately mile 1120 and mile 1130. A float equipped plane (available at mile 1118) could be used to access a small lake midway between the two ranges north of the highway. A canoe could be used to make the 10 mile trip up to the Donjek (south of the highway).

History

Copper nuggets were found in the area before whites came into the area. Placer copper and gold have been mined intermittently in the general area, since just after the turn of the century. More recently, after the discovery of Wellgreen Nickel in 1952, extensive prospecting occurred, concentrated along the south edge of the Shakwak trench. High

nickel, PGM and gold prices that have transpired since gold's spike in 1980 spurred renewed interest, again mostly south of the trench.

In 1986 the GSC released a regional stream sediment geochemical open file (o.f. number 1362). The GSC also noted two "tungsten skarns" (minfile numbers 63 and 64-115 FG) (GSC memoir 267) north of the highway. A gold "skarn" was discovered six miles northeast of these skarns in 1990 (minfile number 107-115 FG). A year earlier, shear hosted mezothermal veins were discovered in the area (minfile number 106-115 FG).

Physiography and Vegetation

The area north of the Shakwak consists of two glaciated, mountainous, treeless plateaus to 6,158 feet. The plateaus are separated by a heavily forested (e.g. spruce, willow, alder) three-mile wide valley and bounded on the east and west by the Kluane and Donjek River valleys, respectively. The valleys lie at approximately 2500 feet with tree line at 4500 feet. Permafrost on north facing slopes is apparent. Outcrop is relatively common above treeline, and in cliffs and talus elsewhere.

The area south of the Shakwak, low, spruce covered hills rise to 4000 feet from the Donjek's braided river valley. Creeks are often swampy with permafrost. Common topography is flat. Outcrop is rare. Glacially derived rock complicates prospecting. The north running Donjek Valley seems to be ideal grizzly habitat/travel corridor.

Geology

a) *Regional Geology*

The north Skakwak project is located within the Coast Belt. The Coast Belt is thought to be created by the long subduction and passible accretion of the Insular Superterrain to the Intermontane Belt. (Wheeler, J.O. et al 1991).

The Mesozoic to early Tertiary "Ruby Range" granodiorite batholiths intrude Yukon complex quartz chlorite schists of Devonian and early Mesozoic Age making up the Windy McKinley Terrane. The Windy McKinley Terrane is a potential host of volcangenic massive sulphide deposits.

The south Shakwak project lies across the Denali Fault (Shakwak Trench). It is in the Accreted Insular Belt, within Wrangellia terrane. Post-accretion Wrangellian basalts, andesites, tuffs (TQW) overlap the pre-accretion Wrangellia arc volcanics, clastics and carbonates of Devonian to Permian Age and Triassic-Jurassic basalts, carbonates and

volcanics. The Denali Fault (Shakwak Trench) delineates the late Jurassic Coast-Insular Belts suture. It has a post collision, 250 kilometre of dextral slip.

b) Project Geology

The North Shakwak Project

The most common lithology under the project area is the Yukon complex quartz schists grading to green chlorotic schists at the north end of the explored plateau.

The rock is supposedly of Mesozoic age or earlier (Muller 1965). Mesozoic to early Tertiary batholiths of granodiorite intruded the Yukon complex rock. Re-crystallized limestone of the Yukon complex is found with the schists. Where the limestones contact the plutonic, rock skarn may develop.

Rhyolite dikes appear near the 6,158 foot peak (minfile number 64-115 FG) showing, as well as on the north end of the ridge above the Donjek. The latter may be related to the magnetic high in that area, or even the more mafic chlorite schists there.

The South Shakwak Project

Glacial and fluvial materials cover the vast majority of the geology in this area. Complex cretaceous "icefield" and "Kluane range" alaskites and granodiorites respectively intrude earlier volcanics, schists, limestones, basalts et cetera. Strong circular magnetic anomalies are found in the Donjek Valley.

PGM anomalies in silts collected across the valley bottom have been reported.

Mineralization

North Project

Skarn mineralization occurs in two north-south running belts, one on either of the plateaus prospected. Despite GSC's categorizing the "eleven-thirty showing" (minfile number 63-115 FG) as a tungsten skarn, only minor tungsten was found (130 ppm W - R3G1Z1). The same rock sample returned .44 percent Cu and approximateLy three-quarters opt silver. Stream sediment samples in the area did not return tungsten numbers. The Kennedy showing (minfile number 64-115G) returned tungsten values of .1 percent (RG1213). Scheelite was observed under ultraviolet light. Gold values in this skarn were up to 1.966 gtn (RG1214). In addition, two streams draining the 6,158 foot peak at the Kennedy showing, contained minor placer gold. Pan concentrates of these streams returned values to 2000 ppb Au (C3G1220). Several barren bright red garnet

skars were located north along strike.

South Project

No actual mineralization was found on the south project area. Panning of mapped magnetic highs revealed concentrations of magnetite.

Methodology

Reconnaissance prospecting was carried out over a 25 km^2 area. Geologic contacts were investigated for evidence of mineralization and mapped. Attempts were made to re-sample anomalous GSC stream sediment locations. Areas of magnetic highs and lows were also given cursory consideration. Where stream silt samples were taken pan concentrate samples were taken simultaneously. Moss mat material (when available) was used for panning. Two pans were reduced to usually less than one-quarter cup and were then treated as a till sample. Pan concentrate samples were used to attempt to get around very light "consolidated ash/sand" that forms a ubiquitous shallow mantle in the Donjek area. This white, light material dominates streams fines and shallow soil samples. It is over-represented in actual bedrock geology with normal sampling procedures. Pan concentrate may also be helpful in comparison with other concentrate sampling used elsewhere in the Kluane area. Pan concentrates registered high gold values, but no low levels of indicator elements (e.g. As, Cu, Pb, Sb, Ag). Twenty-six soils and silt samples were collected for analysis. Northern Analytical Laboratories of Whitehorse processed the samples using ICP for 30 elements plus fire assay for gold. Actual geochemical results are attached in Appendix B. Anomalous values are plotted in Appendix C.

Conclusions & Recommendations

South Shakwak

The lack of outcrop coupled with unknown depths of glacial and fluvial till and discontinuous permafrost makes conventional prospecting difficult and inefficient. The suspected geology, anomalies in silts and soils from other exploration programs, and geophysical targets make the area an attractive target. However, the methods required to unmask anomalous targets would be expensive for an individual investor. Tightly spaced grid soil or botanical sampling in non-glaciated areas along with ground geophysics could be employed. Even these results may be less than conclusive given the above-mentioned physical restraints.

North Shakwak

The northern area is underlain by favourable lithologies and mineralization has been found in place. Some anomalous stream samples remain unexplained. The area should be further explored for skarn, replacement, vein and Fort Knox-type deposits.

The following is recommended:

1. Stake claims along the north/south striking mineralized/skarnified contacts.

2. Establish a grid and soil sample along the contacts. Further prospect the entire property tightening silt sampling in anomalous streams or where "dry" samples were taken previously.

3. Compile a detailed (1:10,000) map of the area incorporating all available geologic, geochemical and geophysical data. This can be used to present modelling ideas during marketing.

4. On both plateaus, consider the relationship of the rhyolite dikes to gold mineralization.

5. Future work (e.g. trenching, geophysics) should be contingent on the results of the above work.

References

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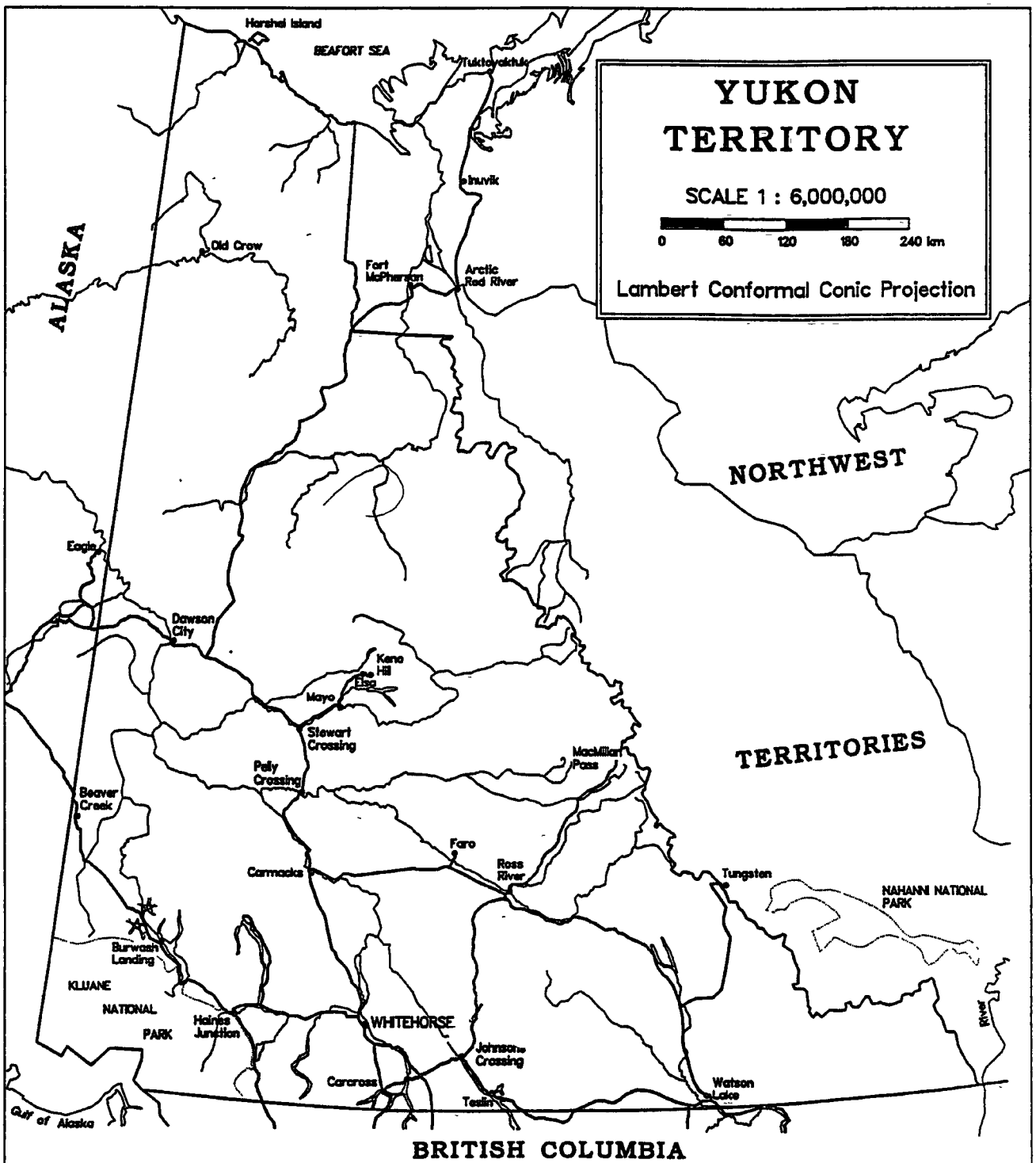
2. Muller, J.E. *Memoir 340: Kluane Lake Map Area Yukon Territory, 115 FG*, Geologic Survey of Canada, 1965.

3. Wheeler, J.O., Brookfield, A.J., Gabrielse, H., Monger, J.W.H., Tipper, H.W., and Woodsworth, G.J., 1991, *Geology of the Cordilleran Orogen in Canada*, Geologic Survey of Canada, Geology of Canada vol. 4; Geology of North America vol. G-2.

4. *Yukon Minfile and Updates*, Northern Affairs Program, Department of Indian and Northern Development, 1992.

Appendix A



LOCATION MAP

SHAKWAK PROJECT

FIGURE 1

Appendix B

Northern Analytical Laboratories ltd.

12-Jul-93date

Shakwak
G12

Assay Certificate

Page1

Ron Berdahl

WO 13953

Sample	Au ppb
D3G13	8
D3G14	16
D3G15	5
D3G16	5
D3G17	11
D3G18	21
D3G19	10
D3G110	5
D3G111	7
D3G112	9
R3G1212	127
R3G1213	1966
R3G1214	1645
R3G121	31
R3G126	17
S3G11	5
G12	<5
S3G123	8
S3G124	5
S3G127	6
S3G129	7
S3G1210	6
S3G1215	8
S3G1216	6
S3G1217	5
S3G1218	<5
S3G1223	6
S3G1224	5
C3G125	789
C3G128	11
C3G1211	6
C3G1219	1541
C3G1220	2000
C3G1225	6
C3G1226	6

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iPL 93G1203

Shakwak G-12

Client: Northern Analytical Laboratories iPL: 93G1203 Out: Jul 15, 1993 Page 1 of 1 Section 1 of 1
Project: WO#13953 35 Pulp In: Jul 12, 1993 Certified BC Assayer: David Chiu

Sample Name		Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
13953 No Name	P	<	30	8	61	8	<	<	1	<	<	<	11	27	123	<	40	58	232	8	24	1	3	0.07	1.70	0.37	2.70	0.82	0.05	0.02	0.09
3G 13	P	<	56	9	92	21	<	<	2	<	<	<	19	45	190	<	59	86	425	9	30	1	7	0.15	2.01	0.61	3.39	1.18	0.41	0.03	0.10
3G 14	P	<	37	11	85	13	<	<	2	<	2	<	17	36	147	<	51	75	370	9	25	2	6	0.14	1.91	0.42	3.30	1.13	0.21	0.02	0.10
3G 15	P	<	24	6	52	<	<	<	1	<	<	0.2	9	23	83	<	35	49	232	8	26	2	4	0.12	1.28	0.49	1.92	0.84	0.16	0.03	0.12
3G 16	P	<	38	8	75	<	<	<	1	<	<	<	13	31	111	<	48	61	268	11	32	3	5	0.15	1.59	0.67	2.28	1.10	0.10	0.03	0.13
3G 17	P	<	100	14	162	16	<	<	3	<	<	<	24	77	181	<	85	112	444	12	26	5	10	0.22	2.83	0.62	6.14	1.63	0.39	0.03	0.12
3G 18	P	0.1	85	6	163	20	<	<	1	<	<	0.3	14	49	209	<	50	71	267	10	33	2	6	0.14	1.68	0.69	2.44	1.00	0.15	0.03	0.10
3G 19	P	<	50	7	97	17	<	<	1	<	<	0.1	17	38	179	<	54	82	518	9	45	5	7	0.17	1.92	1.58	3.40	1.27	0.51	0.04	0.11
3G 110	P	0.2	27	8	102	14	<	<	1	<	<	0.2	16	32	162	<	54	71	320	8	28	1	5	0.13	2.04	0.68	2.88	1.11	0.23	0.02	0.10
3G 111	P	0.1	18	7	114	7	<	<	1	<	<	<	11	22	140	<	45	62	289	8	31	1	4	0.08	1.74	0.65	2.78	0.91	0.09	0.02	0.14
C3G 125	P	<	10	<	60	<	<	<	1	<	<	<	12	25	53	<	65	123	212	17	15	2	2	0.12	0.71	0.43	3.60	0.54	0.05	0.02	0.10
C3G 128	P	0.1	36	7	112	<	<	<	6	2	<	<	26	36	39	<	73	338	447	7	21	6	4	0.29	1.10	0.94	8.42	0.98	0.03	0.02	0.10
C3G 1211	P	<	21	4	92	16	<	<	2	<	<	<	20	28	49	<	61	232	365	11	20	4	2	0.22	0.83	0.68	6.17	0.77	0.04	0.03	0.10
C3G 1219	P	<	14	<	125	7	<	<	3	<	<	<	15	23	42	50	57	245	260	17	38	2	1	0.16	0.54	0.96	5.46	0.48	0.05	0.03	0.19
C3G 1220	P	<	13	4	112	<	<	<	2	<	<	<	24	16	33	20	39	289	380	30	17	2	1	0.33	0.49	0.46	7.86	0.31	0.04	0.02	0.17
C3G 1225	P	0.1	10	6	108	<	<	<	1	<	<	<	19	16	42	<	29	219	315	23	16	2	1	0.26	0.53	0.36	6.02	0.34	0.04	0.02	0.10
C3G 1226	P	<	9	5	133	<	<	<	2	<	<	<	25	16	31	<	33	303	416	65	14	2	1	0.37	0.49	0.34	8.20	0.30	0.02	0.02	0.10
R3G 121	P	24.5	4425	8	72	13	<	<	7	<	<	<	3	5	17	130	19	12	92	3	26	2	2	0.02	0.83	0.45	9.76	0.05	0.04	0.10	0.14
R3G 126	P	0.3	57	9	41	9	<	<	3	<	<	<	8	21	73	49	133	72	147	8	9	1	6	0.17	0.97	0.20	2.73	0.95	0.78	0.05	0.03
R3G 1212	P	1.0	47	5	29	245	7	<	4	<	<	0.2	6	21	63	<	143	49	129	6	53	1	3	0.07	1.75	0.88	2.00	0.48	0.26	0.04	0.05
R3G 1213	P	3.8	534	<	60	131	<	<	12	<	532	<	5	8	47	0.1%	22	12	1240	2	12	1	1	0.01	0.23	0.96	9.42	0.09	0.04	0.02	0.04
R3G 1214	P	5.3	624	<	30	152	<	<	9	<	453	<	3	5	32	0.1%	24	11	685	2	5	1	1	<	0.29	0.44	7.99	0.11	0.02	0.02	0.03
R3G 1215	P	0.3	36	6	91	13	<	<	2	<	<	0.4	13	34	199	46	41	63	365	10	48	2	3	0.12	1.50	1.18	2.61	0.95	0.28	0.04	0.11
S3G 11	P	0.4	24	6	101	20	<	<	2	<	<	0.1	11	25	100	6	38	60	320	17	29	1	4	0.08	1.65	0.54	2.86	0.86	0.12	0.02	0.09
S3G 12	P	0.2	22	6	69	22	<	<	1	<	<	0.2	12	25	120	<	40	62	822	11	43	2	3	0.10	1.09	1.43	2.82	0.95	0.17	0.03	0.11
S3G 123	P	0.1	92	12	110	<	<	<	1	<	<	0.3	13	33	142	<	40	64	393	12	34	2	3	0.11	1.40	1.04	2.68	0.90	0.14	0.03	0.10
S3G 124	P	0.1	25	9	81	<	<	<	1	<	<	0.1	14	35	138	<	50	61	371	12	24	2	3	0.11	1.51	0.55	2.64	0.97	0.12	0.03	0.09
S3G 127	P	<	22	6	89	<	<	<	2	<	<	<	14	29	78	<	34	63	411	8	35	4	4	0.11	1.47	1.05	2.60	1.11	0.06	0.04	0.08
S3G 129	P	0.1	27	5	93	<	<	<	2	<	<	<	19	33	63	<	40	103	483	7	38	6	8	0.15	2.18	1.73	3.36	1.69	0.06	0.03	0.08
S3G 1210	P	<	26	5	103	9	<	<	1	<	<	0.2	18	36	127	<	35	60	896	9	43	3	3	0.09	1.23	1.48	3.04	1.13	0.09	0.04	0.09
S3G 1216	P	0.1	37	5	98	9	<	3	2	<	<	0.7	14	36	164	<	39	66	360	9	44	1	3	0.13	1.48	0.97	2.70	0.81	0.26	0.04	0.10
S3G 1217	P	0.2	41	4	176	10	<	<	3	<	<	3.9	14	46	141	<	41	90	341	9	100	1	3	0.12	1.44	2.33	2.70	0.88	0.25	0.04	0.16
S3G 1218	P	<	20	5	81	<	<	<	1	<	<	<	14	23	147	<	32	71	378	12	30	2	3	0.16	1.41	0.52	3.05	0.80	0.21	0.03	0.10
S3G 1223	P	<	18	5	92	<	<	<	1	<	<	0.3	12	27	133	<	34	62	331	14	36	1	3	0.13	1.34	0.62	2.60	0.75	0.16	0.04	0.09
S3G 1224	P	<	19	6	96	<	<	<	1	<	<	0.1	14	22	165	<	28	64	396	21	34	2	3	0.16	1.48	0.62	3.10	0.72	0.22	0.03	0.12
Min Limit		0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max Reported*		99.9	20000	20000	20000	9999	9999	9999	9999	999	999	99.9	999	999	9999	999	9999	999	9999	9999	9999	999	99	1.00	99.99	99.99	99.99	9.99	9.99	5.00	5.00
Method		ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

---=No Test ins=Insufficient Sample S=Soil R=Rock C=Core L=Silt P=Pulp U=Undefined m=Estimate/1000 %=Estimate % Max=No Estimate

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25-Aug-93date | Assay Certificate | Page2

Ron Berdahl | Shakwak G-12 | WO 00270

Sample	Au ppb
S3G 84	7
S3G 85	13
S3G 86	30
S3G 811	13
S3G 813	10
S3G 814	167
S3G 815	13
D3G 816	17
S3G 1221	7
D3G 1222	11

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Skakwak
G-12

CERTIFICATE OF ANALYSIS
iPL 93H2409

Client: Northern Analytical Laboratories iPL: 93H2409 Out: Aug 25, 1993 Page 2 of 2 Section 1 of 1
Project: 00270 52 Pulp In: Aug 24, 1993 Certified BC Assayer: David Chiu

Sample Name		Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
S3G - 82	P	1.2	130	97	460	45	<	<	9	<	<	7.6	10	61	610	6	16	31	866	15	97	1	1	0.01	0.84	0.42	2.56	0.27	0.09	0.02	0.15
S3G - 83	P	1.0	102	67	414	47	7	<	11	<	<	5.3	15	68	611	5	22	42	1230	18	80	1	2	0.01	0.82	0.33	3.34	0.36	0.08	0.02	0.16
S3G - 84	P	0.2	63	21	186	6	<	<	5	<	<	0.7	13	47	514	<	52	45	890	13	65	2	3	0.03	1.34	1.35	2.51	0.77	0.08	0.02	0.12
S3G - 85	P	0.7	65	36	192	7	<	<	5	<	<	0.2	11	39	749	<	30	34	503	33	51	2	3	0.02	1.67	0.58	2.24	0.53	0.11	0.03	0.12
S3G - 86	P	1.0	51	183	184	47	<	<	10	<	<	<	4	17	348	<	9	21	108	17	78	<	<	0.01	0.49	0.05	3.64	0.09	0.19	0.03	0.19
S3G - 712	P	<	55	22	116	<	<	4	7	<	<	<	17	59	545	<	81	87	571	16	22	<	6	0.15	1.99	0.51	2.91	1.37	0.45	0.03	0.14
S3G - 717	P	<	54	16	94	<	<	<	8	<	<	<	31	56	480	<	81	120	625	21	35	1	7	0.22	2.25	1.08	4.71	1.82	0.96	0.03	0.30
S3G - 721	P	<	71	43	336	<	<	<	11	<	<	<	24	34	208	8	63	69	1318	41	20	4	7	0.18	2.37	0.65	5.35	1.86	0.63	0.02	0.15
S3G - 811	P	0.3	44	28	616	25	<	3	9	<	<	6.1	13	84	599	6	23	29	874	14	110	1	1	0.02	0.54	0.48	2.63	0.39	0.04	0.02	0.16
S3G - 813	P	0.1	64	62	458	14	<	<	12	<	<	2.3	14	48	1150	5	19	35	1183	13	45	<	1	0.03	0.87	0.31	3.51	0.40	0.04	0.02	0.12
S3G - 814	P	0.2	103	92	945	15	<	<	13	<	<	5.2	14	84	1268	9	21	36	1377	16	49	1	1	0.02	1.13	0.39	4.20	0.39	0.06	0.02	0.15
S3G - 815	P	0.6	533	176	1841	19	<	<	16	<	<	5.4	64	85	400	10	31	26	5941	22	23	4	5	0.01	3.90	0.17	8.45	0.29	0.06	0.02	0.11
S3G - 1221	P	<	27	13	101	7	<	<	7	<	<	<	17	30	249	10	38	72	461	13	36	1	4	0.18	1.82	0.56	3.46	0.97	0.32	0.04	0.11
Min Limit		0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max Reported*		99.9	20000	20000	20000	9999	9999	9999	9999	999	999	99.9	999	999	9999	999	9999	999	9999	9999	9999	999	99	1.00	99.99	99.99	99.99	9.99	9.99	5.00	5.00
Method		ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

--=No Test ins=Insufficient Sample S=Soil R=Rock C=Core L=Silt P=Pulp U=Undefined m=Estimate/1000 %=Estimate % Max=No Estimate

Appendix C

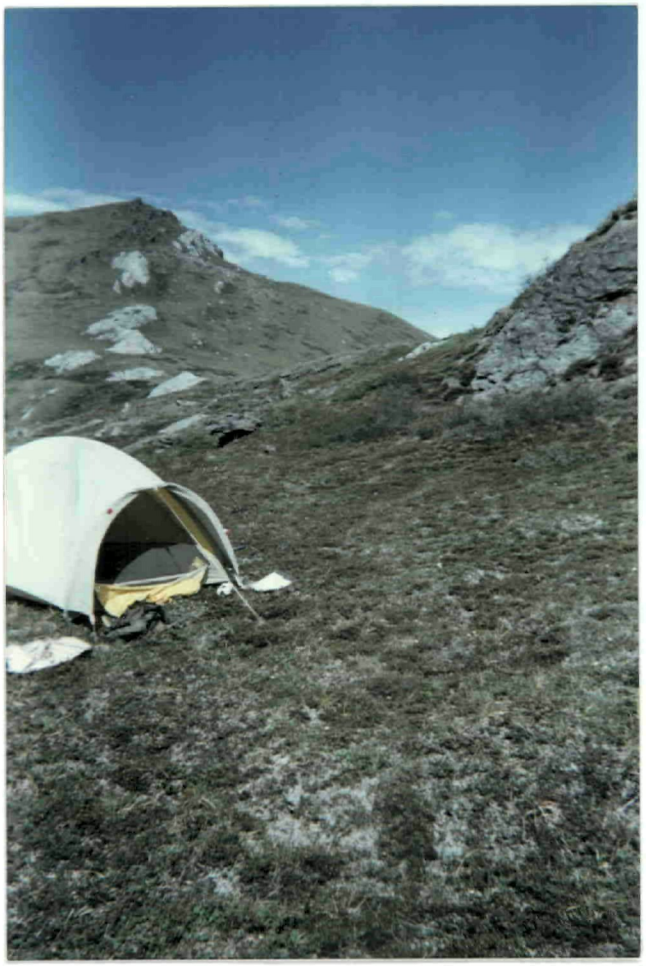

Photo #1 Looking north showing contact between Limestone & schists (on left). Granodiorites juxtapose limestone just opposite tent (R36121) for a small skarn, elsewhere the schists, on surface, form a small envelope around limestone. Distant ridge to right of Limestone is all granitic.

Photo #2 Standing on schits looking (south) down and across the Donjek into south project area. Area was plagued with little outcrop, permafrost, allochtonous till & grizzlies. Granitic outcrop just right of snow patch in foreground.

Photo #3

Typical north shakwak plateau top looking north up the Kluane. Knob in center forground is TOSH gold property. Outcrop on ridge, especially contacts difficult to detect.

Photo #4

West drainage off most easterly plateau north Skakwak. Light rock is intrusive granodiorite, underlying darker rock is 'Yukon Complex' schists. Note dikes of granites through schists. Donjek river in background (looking north)

PHOTO # 5 Granodiorite / Schist Contact on west facing slope of 5,881' peak of 'north shakwak project.' A limestone / schist / granodiorite contact is just over ridge on strike (R 3 G 12 6). The Donjeck is the north flowing river. A very strong circular magnetic anomoly underlies the valley bottom.

"Rite in the Rain"
ALL-WEATHER WRITING PAPER ®

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Phone

Project 1993 Grubstake

YMIP 093-054

Hayden, Shakwak, Rat

MAY (27) 93 HAYDEN LAKE

Est camp @ 4800' above Hayden Lk - west - in extreme strong winds after 'hot' sunny day.

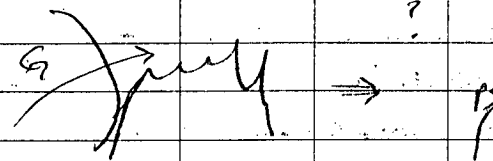
Need to determine last ice direction - many rocks of interest coming from ice. Most notably grey limestone - usually well rounded fist size pieces of flt on the granodiorite from 4200' to less abundant near ridge top. largest piece 9" x 4". (see A on map)

Also at a a series of NW trending biotite qtz schist dikes - up to 10 m wide - foliation variable to NW. at the granodiorite / schist contact. the granodiorite (which is everywhere a plag porphyry w/ feldspar phenocrysts to 1") contains a large amount (25%+) of white mica xtals - to ½"+ thruout rock w/ abundant qtz & minor red garnet & rare long black xtals (pyroxene? amphibole?)

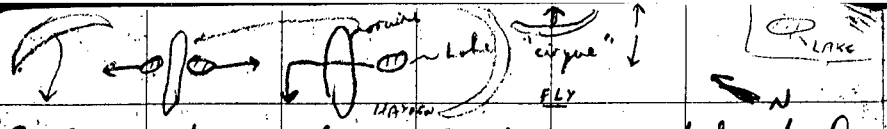
Glacial flt to ridge tops. Snow in north facing crevices to several feet. Ice on 75% of Hayden Lk

Very strong winds w/ dark clouds - big dust storm from Slims valley.

May 28 - stormy steady winds continue - snowing w/ visibility to a few 100 m. Glacial flt complicates prospecting of this area. The only outcrop (25%) seen is the 'granodiorite' - usually porphyritic w/ more or less grey to yellow qtz ; qtz biotite schist & apparently near contact a sericite / quartzite schist - sometimes several m wide. The contact east of Fly Lake is actually several 100's m north of mapped position. In addition the contact actually is "layered" between the 3 above rx types. The sericitic rx can be an onga orangish - not actual limonite but stains on fractures etc. Within the granitic rx several dikes of NS Trending, steady dipping schist can be found. ; S3911 - storm sed draining actual contact between east of Fly Lk. Hayden Fly Lk w/ 3/4 ice, profusion of flowers - even shooting stars; some bear sign; ice off Kluane. On flt - there is much $CaCO_3$ flt. need to know glacial direction. flt seems to be on SW & SE slopes. Did the valley glacier (Shakwak) erode hills to top ~5,000 - or are these



several small glaciers going off high pts - kayak valley, fly valley, etc. I suspect - w/ rounded hills & high flt - a major glacier went thru - pt 5 ?
Other flt slightly mag - grungy mafic many stained aphanites, ; ~~andesite~~ (black schist) tuff - white w/ green & red inclusions & pinkish ; a dark aphanitic green rx. ; Sometimes w/ black bands ; Very STRONG, cold, winds 24+ hrs.
May 29 - intercept 'mating' grizzlies - blonde female & big brown boar - hold up 2-300 yds from camp. male follows; female by 50 yds or less & female goes about digging etc paying ~~or~~ trying not to any attention to male - both nice bear, male last on last yrs berries & greens, female last hibernating - big boar. wolverine - very dark with dark yellow diamond going around north end of lake - lots of flowers. Hope bears are passing thru or small scent & leave - not certain of mating pattern, but awfully close to camp. - wind less - sweet like rain - snowing - check out ridge across kayak creek for evidence of ice movement.



S3G12 - Stream sed on Hayden 100 m below bend v.g. maybe glacially derived from "moraine" V.g. in pond from creek (see map) * #

Ridge predominant geologic feature - other than ubiquitous 'Ruby Range Granodiorite' is several parallel fault features striking NNE - in places almost "stairstep" in number - to 10' in wide - little float (glacial) at all - south end of knob above cliffs has most - one small chunk of black $CaCO_3$ - but little felt of any kind D3G13 - soil sample from a NE fault w/ ozone(?) schist dike (all felt). This soil sample will also be used to compare soils from across S. end of Hayden Lk

6ppb; 56cc - Ag; 2(A), 2 Mo

May 30 - soil sample south of Hayden Lk. walk contact walk ridge; D3G14 - soil sample SW side of Hayden - in blue grey soil, underlies yellow dirt - from exposed dirt basin; D3G15 - same as 4; ~50 m from 4 in 60° line; D3G16 - water middle of basin - lowest depressions w/ water - sample from exposed higher 'hole' - 4" organic, 2" yellow thin blue grey - sample of blue grey/yellow (some root noted in yellow layer). D3G17 - attempt hole @ 100 pieces frozen 1' black organic over frozen sand, (light sand) - sample to base in 2ft water - 2" organic muck then grey soils w/ pebbles - schist obj etc - (30 pace: to 6)

D3G18 - sample of frozen sand (look like conglomerate) from under 2' of organics in 'esker' - probably not residual soil

D3G19 - south of #8 - looking for residual soil grey blue soils - from 1' water, w/ cobbles - passing reveals 'all' glacially derived - validity of sampling in valley questionable; D3G110 ~ L 90° from #9 in order to get closer to 'residual' slope from hole w/ 1' water + granitic residual boulders - soil sample - grey in color - some schist pebbles

D3G111 - ~100 m from #10 (60°) - 2' water - pebbles mix fine + resid - several m^2 boulders of granitics in immediate area; D3G112 - 50' N 60° from 11 at 'base' of ridge - soils appear glacial? - wet to frozen soil: no 'water'; Contact in zone 'B' (see map) is not well defined but interwinded bands of schist + granodiorite; minor amounts of limonitic qtz are found along slope in B area - The biotite schist contain some large lenses (1') of orange, glassy qtz - but no visible sulfides, @ 'C' (northwest of Fly Lake) a train of $CaCO_3$ rock - to 3' - turns from granodiorite flt. maybe large flt or bedrock - 'trenching' but frozen soils. Generally seems to be more granodior. in the schist than vice versa.

@ 'D' south of pass between fly + Hayden a green hard schist bedrock that grades to an almost asbestos like short green fiber - some minor metal + possibly 'skarn alt' (very minor)

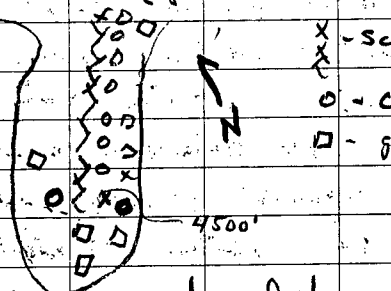
South of Hayden R3G113 (marked R3G112 on ground) is a green + black banded skarn rock w/ epidote + red garnet - no metal - more green schist w/ minor metal in area up on flt - skarn - 1 piece - on flt.

May 31 - investigate second notch - approx 4 km SSW of camp - country just off G map sht - on 815816 - walk in from hwy after morning camp - creek from notch drains thru large area (2 km) of glacial til - probably 100's ft deep. panning reveals no gold - attempt to get nearer to the notch or bedrock before any stream sediment samples are attempted. Creek drops sharply thru glacial gravels from a ~ 1/2 km wide very level, organic swampy basin - just above treeline - Beaver on both sides of notch or pass - else quite. Several ducks - pintail, old beaver ponds + wolf track.

2 choppers in formation. Granodiorite w/ orange surface stain on north cliff face - not organic but not limonite. - insoluble. One large black bear @ hwy. I saw (black) w/ one black + one brown cub west of chappaque. No samples taken.

DONJECK JUNE 10 - pack in from telecommunications site to ridge adjacent Donjeck; Country is a bouquet of flowers - thousands of lab. tea blossoms among lupine, rose, purple swirl etc, lady slipper, etc - too numerous + varied - esp on gaining elevation to ridge. Probably some old line blazes - one side only - north of pipeline cut in area of neg low on map. Ground is ubiquitous swampy lowland - much older moraine ridge - no outcrop - nor are creeks shown on map worth sampling / panning as they are usually immobile swamps - must have some rust; Granitic float + outcrop on ridge to the 4500' ft level. w/ minor rusty schist cutting E-W - no metals seen w/ schist, a rusty sandstone flt value occurs - glacial? -

June 11th - camp at 4,500' near limestone schist outcrop (picture #1) showing schist / $CaCO_3$ / Granite contact near reported 50m / 100m / tungsten skarn (Bostick mineralization).

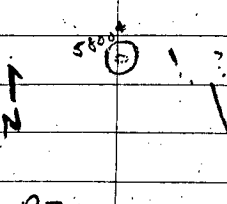


x - schist - strike NE dip 60° NW
o - $CaCO_3$ " " " "
□ - granite ? ? ?

Limestone seems to underlie schist + outcrop below it (below 4500') on either side of ridge. where limestone abuts schist at southern end of ridge (4500') skarn mineralization is evident (photo #2 shows garnet rich "chlorite"? (green) skarn overlying siliceous marble - slight dip to NW + strike NE; granite rock - qtz rich is in contact. limonitic qtz rich rx w/ pyrite - possibly chalcopyrite. +05% is shown on left of photo abutting skarn 'marble' contact. Sample R3G121 is mineralized limonitic rx adj to skarn. Someone has been here prospecting as good looking rx are on top of dead plants (age ?) 100 ft relatively recent - 3 yrs ? - no flagging etc. will ✓ w/ u.v. light for reported scheelite @ camp during night. 2 moons in swamp below showing. No H_2O up here.

June 13 - little actual contact between granite + limestone @ reported skarn site - actually schist contact on both sides w/ a granite / schist contact very close but under talus + more ete. A few alt orange to bleached granitic dikes strike westerly thru the limestone (1½' widths or less) with no apparent sulfides. One lone - 1½' wide - 10' long strikes with the carbonate + shares the same westerly dip. Silicified fine grained black, tan weathering schists are more abundant in flt along granite / schist strike - as are orange granitic boulders - most not bleached or mineralized. a light green glassy + mineral (epidote like?) as well as light grey qtz lenses are found within the limestone. a second rusty bleached granitic dike is located about 20 m north of the skarn - no mineralization. No scheelite has been detected with a u.v. lamp as of yet - several white / yellow, admixture, vitreous luster minerals have been collected for testing. Directly east of

the highest point on this ridge 2 limestone bodies can be seen; the NE trend (actually bowed) limestone body seems to 'Y' at both ends - explaining distal carbonate bodies

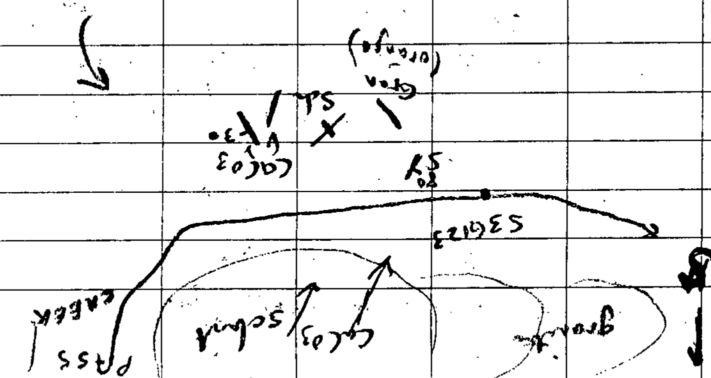


R3G122 - rock sample of metal. prove <5% - pyrite. black schist - v. fine grained w/ rusty surface / fractures. felt between possible - seemingly at low pass elevation. Fair but (not rare) but haven't seen any w/ sulfides - sulfide in disjunct minor veinlets + disseminated. Rain TOSH property easily seen from here - also the heavily 'French' ck a very evident, strong, persistent NE bearing fault is seen from SE side of NT with. running SW over a valley to next ridge, + possibly to end of this ridge - will look into.

photo #3 - granite / schist contact w/ rusty schist (as per sample #2) schists dipping 70° E strike 20°; at top of pk' possible pegmatite phase xtals w/ glassy grey to white 'bleached' felty in 1" veins in schist; some schists more felsic + banded - almost gneiss - one sample that is banded - almost shown like w/ low grade pink "garnet"? (feldspar etc) band - hard

photo #4 - spot of mag high on logical prominent ex probably halo alt of intrusion migmatite like. June 13 @ Mag high on north end of ridge - chloritic schists rather than biotite or rarer mica schist as on southern tip of ridge, downgrade - they seem to strike NW unlike most things on ridge - a phyllite, rusty fine grained volcanic dike strike (general) NE - apparently with dip (soft) quite tabular - 3m wide rain w/ lightning etc, To the S.W an overlaid of Dinjack (see map) a slight, magnetic grey porphyritic ex - white feldspar phenocrysts in grey aphanitic is found - possibly on a NE fault (related to fault on NT with. - (# with NE) outer Rocks in between are rare (high point + north end of ridge) suggest more granodiorite than grey map shows - though a good deal of it is gneissic float. The 'middle band' (see map) has 30% granite felt, 10% schist (chlorite) + 50% a new ex - probably metamorphic, schist - it is grey, quite hard flakey aphanitic w/ rare pyrite bits, Some areas have 'relict structure' on weathered surfaces that suggest a granitic ex - with feldspar xtals throughout

The grey aphanite? is sheared in many instances probably related to the topographic feature (valley) across ridge steady rain - probably didn't venture far enough down ridge (past rhyolite sill) to test surface rx for map?
Calcareous rx from east side of high pk (5880) extend toward $CaCO_3$ to the south east as first suggested body does not contact (~200+m) granitics on cliff edge (see map) No assay sample taken
6/14 Tested rx for scheelite - Sample #1 (mineralogical shara) has two small patches that in daylight seem to relate to lichen (yet other lichen do not fluoresce blue?) scratch w/ fingernail removed fluorescence? at any rate not enough to be 'valuable' - I would say no W. 53G123 - stream sed on crk draining strike length of CaCO3 / granodiorite & schist.



I am suspicious of stream seds here (low values) as a siliceous / calc - very light sand is everywhere - 1' deep+ - it infiltrates creeks, soils etc & ends up being the sampled medium in creeks & soils; panning reveals green schist, black sand, rust granitic - most boulders in creek granitic. Left limit of creek comprised of Limestone, orange granite & schist - pretty tangled up (see upsidedown diagram) Again granitics are orange but not limonitic - orange feldspars, qtz - at crest of ridge - upslope from limestone (striking NE) fine grain grungy to black (contact w/ cliff) some manganese on grungy rx - tend to break off in plates at times - either modified schists, new rock, or mod granitic - amorphic granitic - ; 53G124 + (C)53G125 (pan concentrate - using more mat for sample) samples from creek draining large bench (see map) Pan conc may get around sand problem but can't be compared to other, govt, #'s. Mostly gran. in crk - lots of black sand, nothing unexp - greenish aquamarine light opals but carried seed perhaps
re: granites contacting limestone on 5880 pk - The dike on west face - cliff - schists between are very rusted - 2m wide - also rust staining on granites on cliff face.

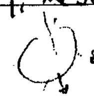
granitics north of limestone strike @ 120 dip 80° to south (to limestone - 25 m away (schist between) Should be at bottom checking out each little drainage.
Knit-thunder- gully washer - limestone north of granite strikes 140° dips 80° South
R3G126 - black biotite quartz schist / qtz vein - rusty seam - ? same STRIKE/DIP as $CaCO_3$
Grizzly @ 75? yds - dog on him - he stands several times at brush line - I attempt to get bear spray - all live - FLAG DAY USA
6/15 Limestone plug covers entire north end of 5880 pk. at N east end it juxtaposes a "meta schist" - a grungy - grey green rock w feathery crystals (white) scattered throughout - in some "bands". Thru this "orange brown" crystal rock is veins of serpentinite - some shearing seen - serpentinite common - rx is 50 m wide striking + dipping w/ carbonate below (topographically) are flt of aplitic black rx, + 'mafic volcanics' + granitics + carbonates. I guess the orange brown feathery rx has been affected by underlying intrusion - limestone seems unaffected? Move camp to valley bottom
The limestone bodies on the south side @ < 4300', especially the one on the south seem to have potential for contact w/ granitics, the Southwest body (strike E-W - dip vert) is large - 750 ft vert exp. + if it links to the more easterly body is cut by granitics on the ridge line.-
6/16 - move camp 10 miles up Sargeal from bridge just south wolverine creek R-block to replicate (attempt) gov't geo chem + examine expected limited exposure. no outcrop over ~ 9 miles of 'trail'
Crk Rx types - @ #7 - S3G127
(#1) maroon + green volcanics - w/ qtz veins tan 'hornblende' granite #1, #4, orange (#2) green/maroon breccia w/ qtz calc matrix greenish "meta andesite" w/ brown metal green maroon tuff w/ black laminations porphoryte (feldspar "syenite") - tan conglomerate (rare), porphorytic (feld) diorite; ~~fine grain~~; shale/slate; xtalyine $CaCO_3$ fair bit of light green aphanitic ("~~chert~~" calciphyre ")) lots of variety little metal 6/17 strm seds on two creeks to the south (north of wolverine + the 'middle' one of gov't geochem flows. also plan a look at lower sections possibly for second sample?

1st creek · 126° — pan concentrate of two pans of moss from creek edge / overflow very small sample. not "well" panned down,
S3G/29 — R.L.mid trib to above — underground ½ 1' wide (other 2" wide) much side contamination. No crks draining basin & sort/north end of wolverine mtn or shown on map — traversed @ ~ 2900 — a few older bogs that yielded rusty organics (1") over several inches white light ubiquitous sand over ice, returned lower. however have to question the validity of just what is being sampled. no thru drainage to higher ground except in first crk. — possibly high gold number are from [illegible] or buried 'deposits'. No water wolverine mtn crk lower middle (basin) creek has 100" drop & 1-2' water 3' deep. walls are more our permafrost — at creek 120' Striking south dipping 80° carbonate that seem to sandwich a 2+ m section of serpentinite (gravel) S3G1210 — stm sed. C3G1211 pan concentrate; rx include qtz carb green tuff — limestone minor granite mostly green (light) tuff w black inclus

well rounded + qtz carb — not so worn — also green limestone (SiO_2 + $CaCO_3$); fair amount of mag in pan — also several bright copper (coinlike) grains. lower section of the first creek thru swamp so no sample taken — same rock as in first described. Grizzly @ ~ 25 yds — luckily dog does not see him — or him me + we are able to quickly side step him. — need a good big pistol — more yellow bear. Pack 10 mi out — only 4 places where rock are encountered (20+ m(?)) — 2 flt (crks) + 2 outcrops — same type rock.

6/19 - prospect & pack up to mtn range
immediately east of Khione River -
rupted 'w skarn contact - hope there is
more to this area than the ridge
along the Danjack & Lee boar.
anomalous Cu As Sb etc drain ridge 1/2
way down both sides - need to
get low - after packing to 5800' ? -
to test drainages, also possibly
a gossan north of 6100' pk where
high As " come from - NO - as this is
northerly facing, it could only be
brownish vegetation recently released
of snow Yes 2 limestone bodies on geol
map, one immed. east of 6100' pk
+ the 'target' w/ zone to the
west (cliff face?), an old trail
is found to about 3800' - not fields
lots of 'stagnant' flow - esp in knots, Rocks to
first ridge (5800') are generally
granitic - a sample strike E-W dip 35°
South; schist ridge seems to trend
the same - 70% of rx granitic, rx
on broad plane east of 6100' pk
granitic at first sight felsic granites
meet a mafic fine grained granite
(w feldspar phenocrysts - diabase?

6/20 - Limestone body east of 6100' pk. note
skarn mineralization - mostly light-dark
red garnet epidote & calcite skarn - thru
out 50'm wide 200' m long ~~lim~~ limestone.
strikes 160°; schists (mafic biotite) bound
skarn on SW side - felsic granite elsewhere
Rusty very siliceous schist south east of
the $CaCO_3$ (200m) + ~~north~~ south west of skarn.
R361212 - rusty ~~of~~ fracture black siliceous
schist w very minor chalcopyrite + iridescence.
R361213 - limonitic skarn rock found
thru out but irregularly limestone bed; Garnets are
small in skarn but beautiful … to pick.
no metals or sulfides. Plateau at top is
series of granites - ranging from granodiorite to
almost rhyolite, biotite schist + limestone -
all trending ~160°. Quartzite & banded …
seen to be assoc. w/ skarn rx top side.
some rusty siliceous black schists as well.
Garnets in top skarn rx (skarn rare) is brown.
✓ very long legged robin size tern - white collar white forehead
brown face - very fast flyer - settling on top. 2 ptarmigan
gophers this season are conspicuous only with
their absence (some fresh holes @ camp of course)
'sheep trail??' on top; schists at ridge strike 140°
limestone juxtapose on both sides - dip 30° NE;



@ top of forked drainage (see map) schist dip vert.
strike 150°
as do granite

Skarn rx (no mineralization) at top of [illegible] drainage
- lynx : 'black' back. 30 m - runs along ridge/cliff
fee-walk - believe lynx spend lots of summer anyway
high - lots of denning sites between slabs of granite - good
conjunction - more skarn on strike with
above skarn - opposite end of drainage -
Limestone continues along ridge nearly
to 4700' pond + beyond? On ridge @
~5400 ft. black aplite (very fine grain rock w
minor disseminated sulphide (pyrite)) as was
found on the first ridge last wk.
at same spot - 2' limestone band dips 30°
to NE. Above skarn w/ nice red garnets
calcite but no metals or limonite bands -
Granites predominate north + east slopes of
6100 rise. R3G1214 - limonitic grungy
manganese skarn sample from skarn granite
contact on original skarn (#13) ~ 50 m
S on strike from #13.
June 21 - check out west slope - strm seds
from drainages draining km long skarn
zone - no sign of tungsten as
of yet possibly just can't visually
identify, will ✓ w/ U.V. before leaving
mtn. Snow/rain - first - most northern
dry a series of dry gullies w/ vegetation
over ubiquitous white & decomposed granite

sands, see more rx types coming off ridge than
in last 10 days. schists carbonate,
several rusty biotite schists, several granite
exp gullies; strike seems to 'curve' - more
perpendicular to main ridge w/ lower elevations
striking 35° dipping mod (20°) NW. very wet
S3G1215 - 'strm' sed most northerly, west drainage
no H_2O - ground had hi Cu but at lake -
probably couldn't get sample here - - very
thick willow/alder + no water. wet
S3G1216 - strm sed 2nd drainage - have to
go close to fork in order to find
channel - no water, very wet
S3G1217 - strm sed water in creek - 3rd
drainage, pan - no garnets but
lots of green (light) rxs + gold
in moss (little moss) C3G1219 -
pan concentrate "2" pans.
S3G1218 - strm sed from 4th drainage
draining south end of 6100' pk +
limonitic skarn showings, C3G1220 -
pan concentrate - 2 pans moss from
site - lots of black sand, + v.g.
Snow came in tent everything wet
10:00 @ nite - ? - just hope this
fog bank makes way for warm

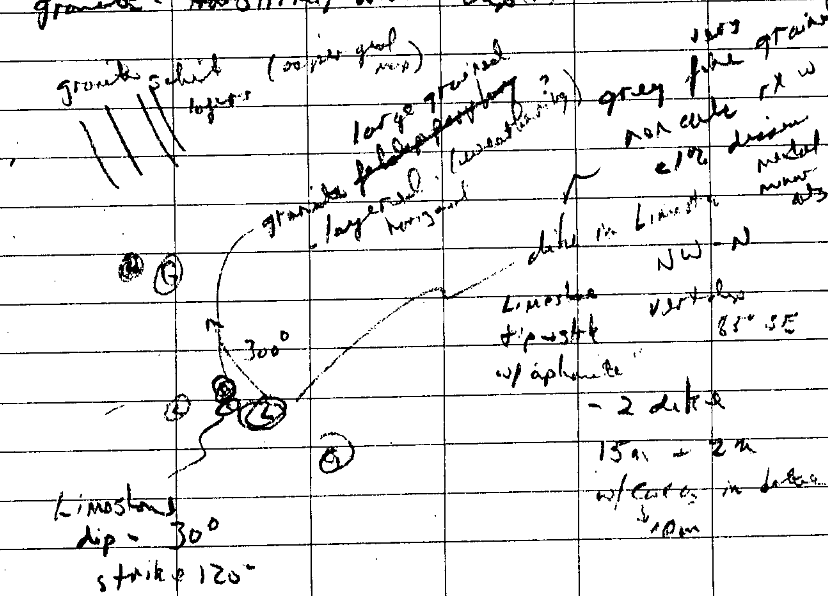
morning ~~saw~~ - ~~some summary~~.

6/22 - rain / ~~hvy~~ fog tent in 4" of water
relocate to tree line ~ 4700', ~~to~~ the
south - prospecting thru Ruby Range
granodiorite all the way - &
their variations - felsic dikes, mafic
dikes etc. S3G1221 - STM
sed from creek flowing in to
the Kluane River from the top
of 6100' peak & hopefully the
skarn there bonts. C 3G1222 -
a pan concentrate to compare
with others taken in the Dajek
campaign as well as seeing if
a ratio exists between stm sed
& pan concentrate - I have used
2 pans of moss for each sample -
washed down to about 1/3 of a
cup - not actual concentrate (eg
black sand & heavys only but close.)
it is hoped some "lites" will also be
recorded. STM produces fair
amount of black sand & the first
red (or any other color) garnet -
no gold seen in either pan
used for concentrate sample or ~~after~~
in other pans. Granitics dominate

~~entire~~ ~~northern~~ east & south ridges.
snow melts; rain coat - tattered w/ 7mm
round w/ plastic tip found - 2 sheep w/
3 probable more. Gossan of interest
of cliff (right limit) of Kluane as it
enters the 'canyon' just below 1118 -
gossan at about 3300' - doesn't
appear to be rusty schist (as in this area)
or orange granitics; Need to know
glacial coverage here - is the residual or
glacial? (as well as at TOSH & Fraulein ctk)

6/23 - Stm seds @ ~~peak~~ w/ strong
good geochem of Mn As Sb Mo & As (during
anomalously (?)

granite - ~~too~~ striking WNW dip(?) NNE 30°



where $CaCO_3$ large grained granite. - rust in granite. - inclus. wide & very discontinuous (over tension?)
1 set caribou tracks on snow, smaller size black grizzly at head of creek trib - below 'mtn pond', where he goes? 53G1223 stm sed from creek @ ~3500' - quite large feet 'series of falls' - diff to obtain sed from 'active' portion of crk. moss for concentrate sample also diff to obtain from 'flood channel' nevertheless C3G1225 collected - moss mat sample 2 pans or per mat
6/24 - area of mag high investigated north west of 6100' pk on lower plateau.
53G1224 - stm sed @ ~ 3600' - again very active stream w/ large vertical drops - boulders nearly all granite - fine - bits & pieces of plagioclase / qtz veins muscovite common - C3G1226 - pan 'concentrate' - moss taken from side for 1 pan or little in active bed, much larger proportion of magnetite sand in this crk (2 ~ pan) than in other areas - also a red garnet absent in all other areas. no gold was seen in either of the last two pan concentrate samples. gov't & shows life As here .?. 1 young stag alone & lost know how he feels.

No, evidence of mag anomaly in surface or rks at outcrops are ubiquitous granodiorite - minor schists occur in flt on the 'extreme' eastern portion of ridge more common in packing out to the south - though granites predominate to well below treeline before swamp not all signs; [pod of white/gry ~~[illegible]~~ on strong north trend between two open ridges above elbow/k

8/31 Ten Mile Lake area. Objective is to determine sources of gravel geochem anomalies. Earlier work in this area which on the north area (above 3,200') is all conglomerate, found that anomalous values for Au, As etc were found only in N-S fault structures (which are numerous on the north & delineated by lake (swamp) chains directly to the west.) The conglomerate host a variety of rocks - from limonitic CaCO3 to very rusty volcanics? - Previous testing has found to conglomerate package usually as origin of actual anomalous areas is uncertain & entire conglomerate not of interest. Noranda staked claims OGL which were subsequently dropped - The original target - an orange gossan turned out to be bedrock - very common in west facing cliffs. A reconnaissance soil survey was conducted with no interesting results. So conventional soil testing will not work here. The intact ash layer can be 1'+ depth in the organics (usually frozen) & the N-S fault structures; pits must be dug to 2'+ in order to get results;

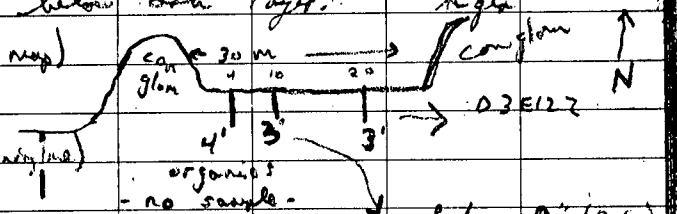
Large groups rxs predominate - mostly conglomerate; just north of the eastern portion of the lake steeply dipping (80) dirty very fine grained rock strike NW (greywacke?) Pack in - observe rx types, faults etc - stream seds done previously w/o reproduction of gravel #'s or others of interest between rat + 10 and Lobo

9/1 Beautiful weather - objectives - (on yesterday - dig soil pits across 'sed' N-S trending structures to attempt to get soil below ash layer.

line #1 (see map)

x-sect

(Approx E-W running line)



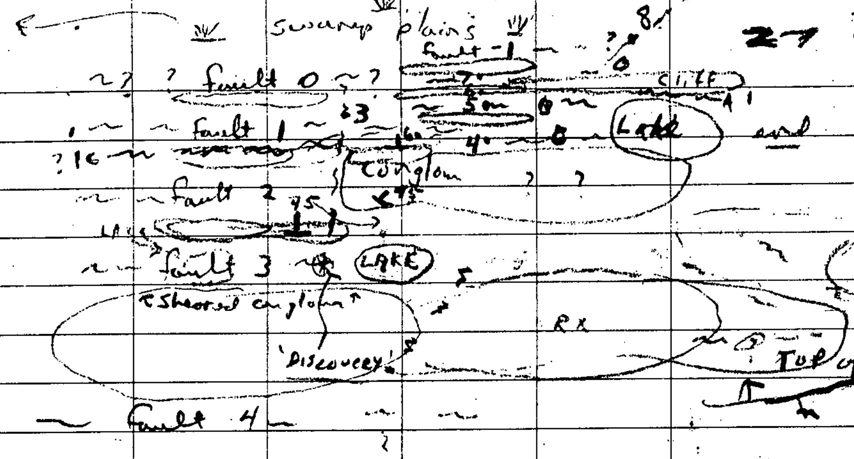
D3E121 - organic sample w/ minor mineral soil + ash - below ash layer @ 3', (from surface elev.)

D3E122 - v. fine grain silty dirt from 18"-36"; 18" organics on top; minor pebbles @ interface (no ash layer noted)

line ran approx 50 m south of E-W fault

D3E12X's - made to confirm grade + fault width in fault #3 (see next page)

27



D3E12X1 - resampling discovery hole - brown green dirt at 9" - 8" org., 3" ash, pebbly soil

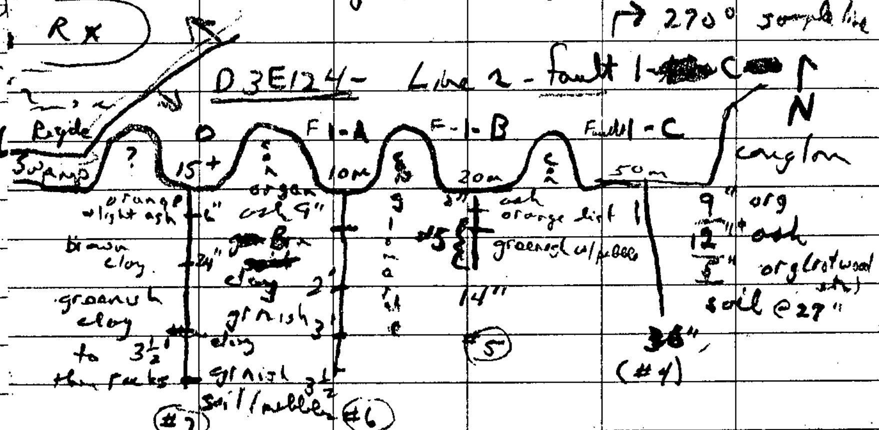
D3E12X-2 - pan conc from hole -
1 purple, transparent stone 2 purple red 'garnets';
~½ pan weal to ~16"; minor black sand;
if hole produced 75000 ppb I would expect to see
v.g. - if gold veins sit under fault 1 would
expect course gold - eg. brassy dist not for -
unless vein material small or mixed eg AsFe et al.

D3E12X3 - soil 10 m east of X-1 20" organic
sample ~18" soil - as per D1-X; no ash
layer seen (auger may not pick up ash?)

D3E12X4 - ~10 m E of X-3, 3" org. minor
ash + 2½' olive brown soil; possibly another
organic layer (2") @ 20" - or could be up hole
contamination? D3E12X5 - 10 m east of X-1 (245°)
hole to 36"+ - 20" org - 1½ soil - same color etc

quite loosely packed (easy drill) 9/2

continue to drill / dig soil sites in
N-S trending faults. D3E123 - @
juncture of fault 1 + E/W fault -
min. soil @ 16" - ash layer present - greenish soil w/ pebbles.
→ 270° sample line



auger tends to compress soils, + also
uphole soils are forced to outside (probably
on bringing auger up. - the 12"+ ash
layer on hole #4 above registered as
minor ash in the upper portion of soil
sample - compression seeds to (+ mixed) 'nothing'
- need to sample 1' increments at most for
soil profile; Pick (setting metal) handle breaks)
bar hole + destroys cache (except for 1 pair of conglom)
(brown fur - ?) As one moves west along line
conglomerate ridges seem to consist
more of matrix at loss of 'conglomerate' - matrix
seems to be a fine flakey dirty gray

'porphory' - possibly a tuff?

D3E125 - orange soil below ash - poor recovery in core

D3E126 2' brownish clay over sampled clay & pebble gravel

D3E127 - high clay content - greenish below brown-orange

D3E128 - no sample on no full soil 9/6 -

exposed ridges burned hard in fire thus all organics removed & volcanic ash layer makes up soil;

9/3 investigate area 3 mile north camp of govt #1424 - biogeochem anomaly. This & others must cause Wormly to stake ground in year of geochem release. Dense timber except in valley bottom, some swampy water. organic depth varies (as does terrain) - hummocks have several ft organics & depressions w/ soil - green clay at several inches - again ash not showing up well in core.

Nivonda B.L. 10000 N 9250 E crossed - stations every 25m ; running E-West.

hit corner #19, 20, 21, 22 - Gordy Mackay - July 6, 89

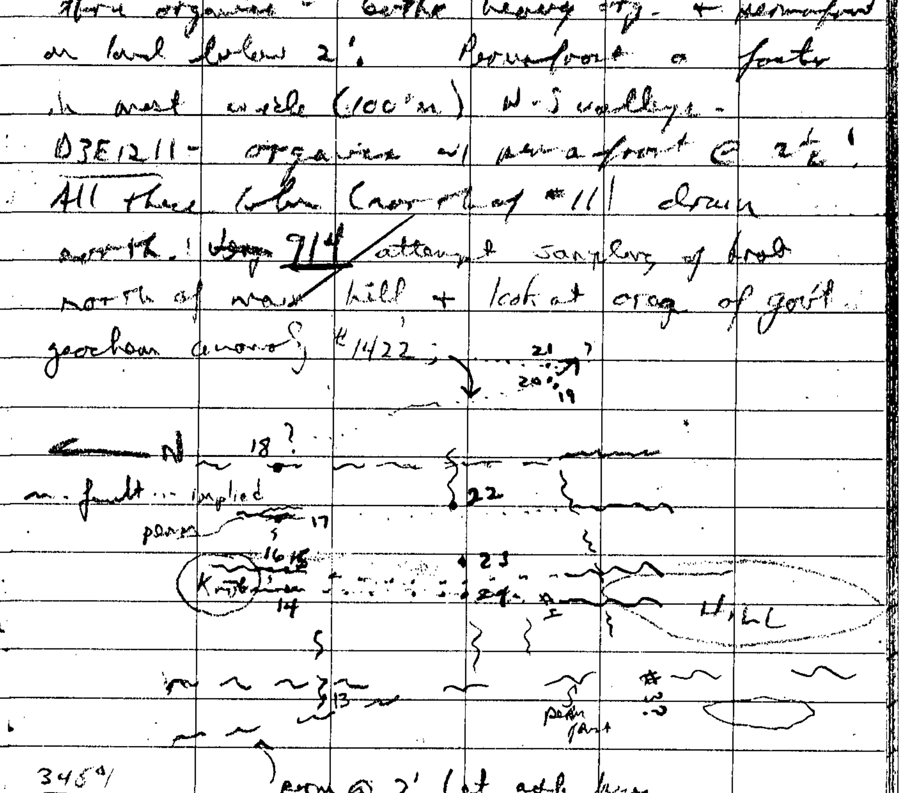
Like #3359 the suspicion of just one anomaly - but

R3E129 - orange qtz carb' type rock from a 'vein' 1' wide - striking 10° the rock has an apparent alt halo on a ft or more on either side of the vein turning the cong. orange (w/ the exception of some clasts). Rock is highly limonitic w/ some clasts replaced completely.

minor qtz veining present (1mm). ; from flt there appears to be several veins. cuts conglomerate vertically 5-? ; strike fits nicely into ext. fault pattern. S3E1210 - 'Stream sed' of govt stream sed #1424 - Drainage patterns are difficult to define - the nature of "creek" swamps makes reliability questionable. Sample from 2 holes - 3' & 4' thru organics - both heavy org. + permafrost or hard below 2'. Permafrost a factor in most creeks (100 m) N-S valleys.

D3E1211 - organics w/ permafrost @ 2½'.

All these below [illegible] #11 drain north. 9/4 attempt sampling of broad north of main hill + look at orig. of govt. geochem anomaly #1422;



perm @ 2' but ash layer

soil @ 4½ in water channel - unable to recover.

South facing - scoured rock

North facing - permafrost - willow alder general.

D3E1213 - olive soil (w/ minor lime?) @ 18"-24" ash present above this - rocks stop drilling @ 20' - Organics + ash to 18"; hole located in intersection of E-W & N-S faults - to the west (uphill) to get away from permafrost.

D3E1214 - olive soil w/ minor lime @ 2½ ft deep w/ organics above; most soils in area have high clay content. The 'mounds' are from small pebbles, ¼"-½" found in soils - little other rock coming into core - though rock is very hit in most holes below 18". #14 taken from N-S fault on knob (south facing) corresponds to large fault at top of hill (see map) - this is a long continuous structure (weakest here). (photo south)

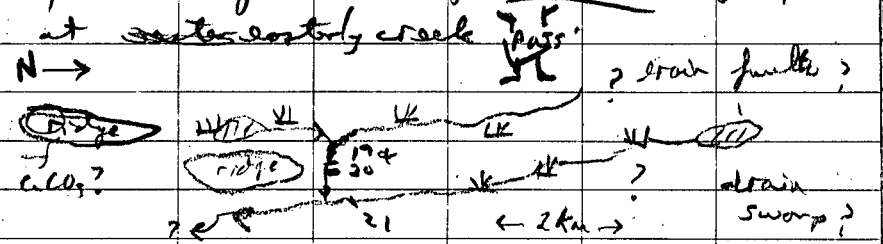
D3E1215 - from fault - south slope - unlike most soils - light brown airy w/ root structure - ash layer surface to 8" - sample @ ~18" (hard dug) - rock is float from conglomerate - maybe to steep an area + just getting tilletal from drainage.

D3E1216 - up SSW (up fault) to leveler grd. sample between 2½-3' under ash layer - soils @ 2' olive clay but deeper still olive but lighter - will compare results w/ #15. granitic rx in both holes - from conglomerate?

D3E1217 - most easterly fault (?) of knob - 1st hole permafrost in ash @ 2'; sample from 2 adj holes - 4' apart - #1 rock soil 12"-18" hit rx #2 organics to 3½' - soil from 3½-4' rock green clay - minor ?

D3E1218 - 1st fault off east side knob - intrusive or organics + ash soil - 3 holes over 15m (fault #3m?) #1 w/ ash - to 4'. #2 organic/ash mix (no ash?) 4' #3 - to 3½ - ice - rock at bottom; (As, Sb, Cu, Mo, Hg)

9-5 - Locate + sample point stream seal #142 - 2 drainages rather than one - very swampy until most westerly drainage (from south?) most #2, D3E1219 - soil sample taken 3-4 feet (thin bit rock - several holes w/in 10 ft² - Sample 90% organic - old + new; D3E1220 - at stream seal of westerly creek @ #19 - gravels @ 2' below creek - seal recovery difficult - 90+% organics, Given the nature of the drainages swamps w/ little moving water; difficult to believe validity of this or prior sample; D3E1221 - sample at easterly creek



#21 similar organic contamination - gravel @ just under 4' under swamp bed - no moving water; A 'portion' of samples on the east most (pass) fault - separating the hill from the knob will be taken - with the hope that they will show.

if the transecting faults are [illegible] & what faults are contributing; a swamp lies in bottom of lower slope. D3E1222 - a conglomeration of moss peat, 3½' drill hole, silt along swamp - all highly contaminated w/ organics - rock is hit at ~3' in several holes but water washes "all" mineral 'silts' off core before it can be brought up. D3E1223 - again a composite of drill hole to 2½' (hit rock) v. poor recovery (25%) + much organics; mixed w/ [illegible] light colored + weight silt from frosthaet flooding. E3E1224 - just below #4 - olive drift w/ [illegible] @ 16 (approximately) 24"→ w/ ash layer + organics to 16-26";
Though less numerous anomalous numbers, if fault related, could be caused by the E-W faults - rather than N-S - or of course by both in conjunction w/ each other.
9/16 ✓ investigate area of swamp around GSC anomaly # 1420 (90% Au 51, As, Mo, Hg); Have run across four bit of Noranda activity - grid w/ N lines @ 50 m + easterly at 25 m - also apparently a soil line guided by sample 21 et al. Given what I've seen with auger drill + permafrost - these samples must be taken late in year (Noranda July, 6 stacking (1988)) & deep - the grey soil horizon seems widespread & B horizon material - usually around 2' deep though. - also high clay content of soils may impede ion movement altogether - even in B-horizon.
D3E128 - grey soil between 2½ - 3½' from NW trending splay of N-S fault (# 0?) see 9/1 map. An attempt to sample the area south of the anomalous sample # D3E1211 proved difficult - the expression of a fault is very faint - a meter deep + 5 m wide, the frozen ash layer was hit @ 2' - elsewhere the ash layer is at or near surface is these heavily burned (read dead forest field) hills. 'fault' lost further south; would be interesting to know just where grit took sample - the entire drainage - (incorrectly shown on [illegible] [illegible] route a map) is swamp. Attempts at boring result in 4' of soft wet organics (good percentage not broken down at all). S3E1225 is an attempt at a stream seal underlying a silt (greenish grey in color) across. w/ organic silt from frosthaet - very minimal amount as swamp probably doesn't

flood in general sense; At most restrict[ed] spot (north of goit sample local) 30 m from hill to hill (below Norand SL) - Comcreek 100? m) Several drill holes hit rock between 2½ (dips) + 3½' - water in holes + probably size of rock resulted in very poor recoveries - D3E1226 is an organic silt recovered from 3½-4' in this area (3 holes w/in 3 m²) In larger area of swamp (1 km across) can not imagine where to begin sampling - most holes 74' w/o bottom (B horizon). Attempted moss mat sample - M3E1227 moss generally growing on 'water'; organics - little to sample but moss itself. 9/7 - Investigate goit geochem anomaly #142 (Cu Au)

D3E1228 - soil from 18" - 2½ ft in organic rich gravels (no cobbles seen) frozen organics @ 2½ ft - just north of dot lake on major N-S trend; NNW trending structures 'common' along west side of 3?? ridge these continue 3 km to geochem anomaly though not near, a strong on an conglomerate ...

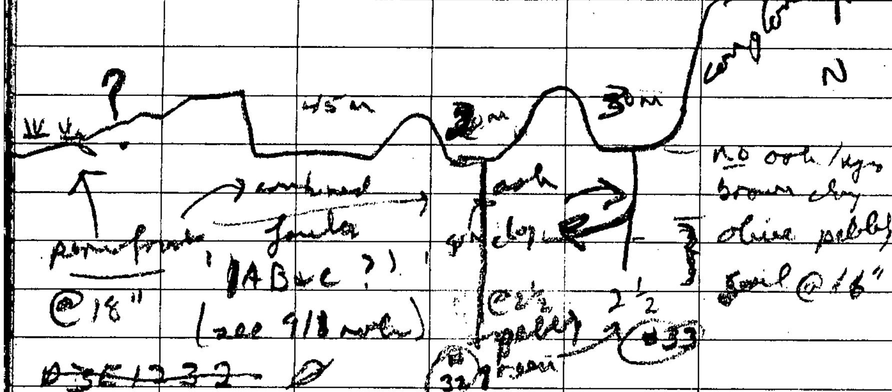
D3E1229 - sample of such a NNW trend - just NW of old 'pad', 12" rich organics then very sticky grey clay to 3', 3-4' rusty green clay w/ marine pebbles, @ 3'9" - frozen; beautiful faults; grass mapping good all country (rotated).

½ km south of target crk, along exposed ridge dark to mid 'pearl' ? rx - no cleavage - conchoidal fracture at times - in ground ('shell'  (act size) weathers to tan - limestone - L.R. uTc ? - up (north) ¼ km strikes NW dips vert (could be 'foliation') ¼ km north - SW dip 20° rx is more crystalline - orange weathering - at cut (no water, no out drainage pattern - conglomerate - 100'+ of SW dipping w/ layer (to 1') or 'sandstone' soil samples are 1' org 1' ash 1' organic - freeze - all three 'drainage' areas, where not frozen organics to 4'; S3E1230 - found 'creek' - organics ?? light material w/ organic ooze (ash?) on surface -; S3E1231 further up 'creek' (no surface water) has organics w/ pebbles;

→ rock also has definite cleavage + breaks into smaller + smaller layers. - ... across into top

9/8 - rocks outcropping on just @ # D3E122 are non conglomerate - a blocky tablet like dark 'argillite?' - some calcareous material strk N-S. dip 87° to west; continuation of 'line 1' to the south sample - 3' foot of organics - 1' ash (@ 2') then frozen organics - on top of frozen slate ... rock - flt - sample D3E1226 from this zone - can't imagine a ... have fault strong - 50' W. ...

just south of get another E-W fault - this fault is #4 on 9/4 map (also in picture) are 10' layers of non coal arkose - dip east at 30° strike north - between faults bounded otherwise by conglomerate in some cases the conglomerate cement is quite rusty. D3E1233 - began line '4' olive under 1' brown - no ash



~~D3E1232~~ Ø

fault above (combine 1,A,BC) is slightly north slope + permafrost - an ash layer at 18" - 3-4" organic then a mineral soil for 2-3 inches then ash - (frozen). - line runs @ 270° - to the west - line crosses what may be a series of small faults (most swerve off NW before this) + then settle into permafrost swamp

9/9 - Cont. of line one to the

~~west for ash sample on fault '0'~~

D3E1232 - from fault on line 4 (see notes) - 3" ash layer - minor pebbles in grey ~~clay~~ clay to 2' then drier greenish pebbly dirt to ~3 1/2'

D3E1234 - west end of line one on '0' fault - not the from NAL maybe their 1231-2 ???

Indian and Northern Affairs Canada — Affaires indiennes et du Nord Canada
Northern Affairs Program — Programme des affaires du Nord

Mineral Rights — Droits miniers

Canada

WHITEHORSE 27 August 1987

115G-12
QUARTZ

LATITUDE 61° 30' TO 61° 45'
LONGITUDE 139° 30' TO 140° 00'

ISSUED UNDER THE AUTHORITY OF THE MINISTER OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT

SCALE 1:30,000

N — MAGNETIC NORTH N29° 24'E

NOTE:

THIS MAP IS ISSUED AS A PRELIMINARY GUIDE FOR WHICH THE DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT WILL ACCEPT NO RESPONSIBILITY FOR ANY ERRORS, INACCURACIES OR OMISSIONS WHATSOEVER.

TOPOGRAPHY COMPILED FROM 1:50,000 NATIONAL TOPOGRAPHIC SERIES.
CONTOUR INTERVAL 500 FEET.
SURVEY INFORMATION COMPILED FROM LEGAL SURVEYS, BY DRAFTING SERVICES.

Note: Entry on certain lands is withdrawn from staking in cross-hatched areas to facilitate the settlement of Native Land Claims without prejudice to Existing Surface and Subsurface Rights.

Note: for placer claims see 115G-12 placer

115F-16	115G-13	115G-14
115F-9	115G-12	115G-11
115F-8	115G-5	115G-6

YUKON
KLUANE
SHAKWAK
PLATEAU
GAME
TRENCH
SANCTUARY
ST ELIAS
MOUNTAINS
RANGES
WOLVERINE
PIPELINE CORRIDOR P.C. 1983-4079
HIGHWAY
Communication Tower
S-13
S-48
R-28
R-11
Ruby Range Granodiorite
Yukon Complex QTZ CHL Schist
Yukon Complex re-crystallized CaCO3
K· icefield range intrusions alaskite - granites
K- Kluane range intrusions granodiorites et al
M Migmatic Volcanics schists et al
Limestones gabbo basalts (mix Mueller #11+13
propylitic basic lava chert tuff et al.
Magnetic High
Magnetic Low
GSC open file 1362 strm sed w/ anomolous elements
Thrust Fault
115FG MinFile showing
geologic contact
PHOTO + DIRECTION
JS BERDAHL / YMIP #93-054
SHAKWAK PROJECT
115 G 12-11
1:30,000