92-122

RESULTS OF PROSPECTING

YMIP 1992

JAMES S. DODGE

TABLE OF CONTENTS

INTRODUCTION

The 1992 YMIP prospecting program by the writer was focused on the search for yttrium, niobium, zirconium, and rare earths (REE) in the Mississippian syenite terrane of the St. Cyr Range of the Pelly Mountains in south-central Yukon. Three areas chosen were: Porcupine Creek, Cloutier Creek, and Ketza River District.

Incentive for the search for a new Y+Nb+Zr+REE deposit was the favorable results the writer achieved in re-evaluating the former Nokluit occurrence under the 1991 YMIP. Staked as the LANCER claims, the deposit was shown to be an extensive metasomatized syenite dike with probable-economic concentrations of Y+Nb+Zr and attractive REE credits.*

As on the LANCER property, detailed ground radiometric scanning of outcrops is the only cost-effective method of prospecting, since in this style of mineralization the accompanying thorium and, to a lesser degree, uranium minerals serve as pathfinder signatures.

A hand-held Scintrex GIS-4 integrating gamma ray spectrometer was carried in a zig-zag and/or closely spaced multiple parallel traverse configuration over accessible syenite outcrop areas. This procedure, called "Prospection Systematique" was demonstrated to the writer in 1958 by the French Atomic Energy Commission at vein-type, overburden concealed uranium deposits in metropolitan France.

The GIS-4 permitted a descrimination of source of gamma radiation, i.e., proportionately from uranium, thorium, and potassium. Because of varying intensity of K-metasomatism in the syenite terrane, frequent re-evaluation of "background", vis-a-vis thorium+uranium, values was required.

From the LANCER investigation, the presence of purple fluorite was to be considered a reliable visual indicator of likely accompanying concentrations of Y+Nb+Zr.

Although the LANCER vein-type model was uppermost in the writer's prospecting anticipation, the potential for a carbonatite or even a syenite tuff stratiform deposit (Brockman in Western Australia) was also being considered. Since both of these latter two settings exhibit relatively weak gamma radiation signatures, uneasy field decisions kept evolving as to the prudent extent of rock sampling to be undertaken. On the other hand, it did broaden the investigative spectrum which, in fact, led to a surprising discovery.

* Subsequently, during 2 days in 1992 (outside the YMIP), a bold, continuous 300+ meter extension of the LANCER vein was discovered which from four samples representative of over 70 kg of outcrop sampling yielded probable-economic values in Y+Nb+Zr. Total inferred mineral resource now is 1,500,000 tonnes grading 0.15% Y_2O_3, 0.62% Nb_2O_5, 1.10% ZrO_2 and 1.37% REO; open at depth.

EVALUATIONS

Porcupine Creek Area 01-24 July and 02-11 August, 1992

The significance of the discovery of a new occurrence of REE+Y+Nb+Zr on the newly staked GAMMA claims in the Porcupine Creek area of the syenite belt in the Pelly Mountains is three fold:

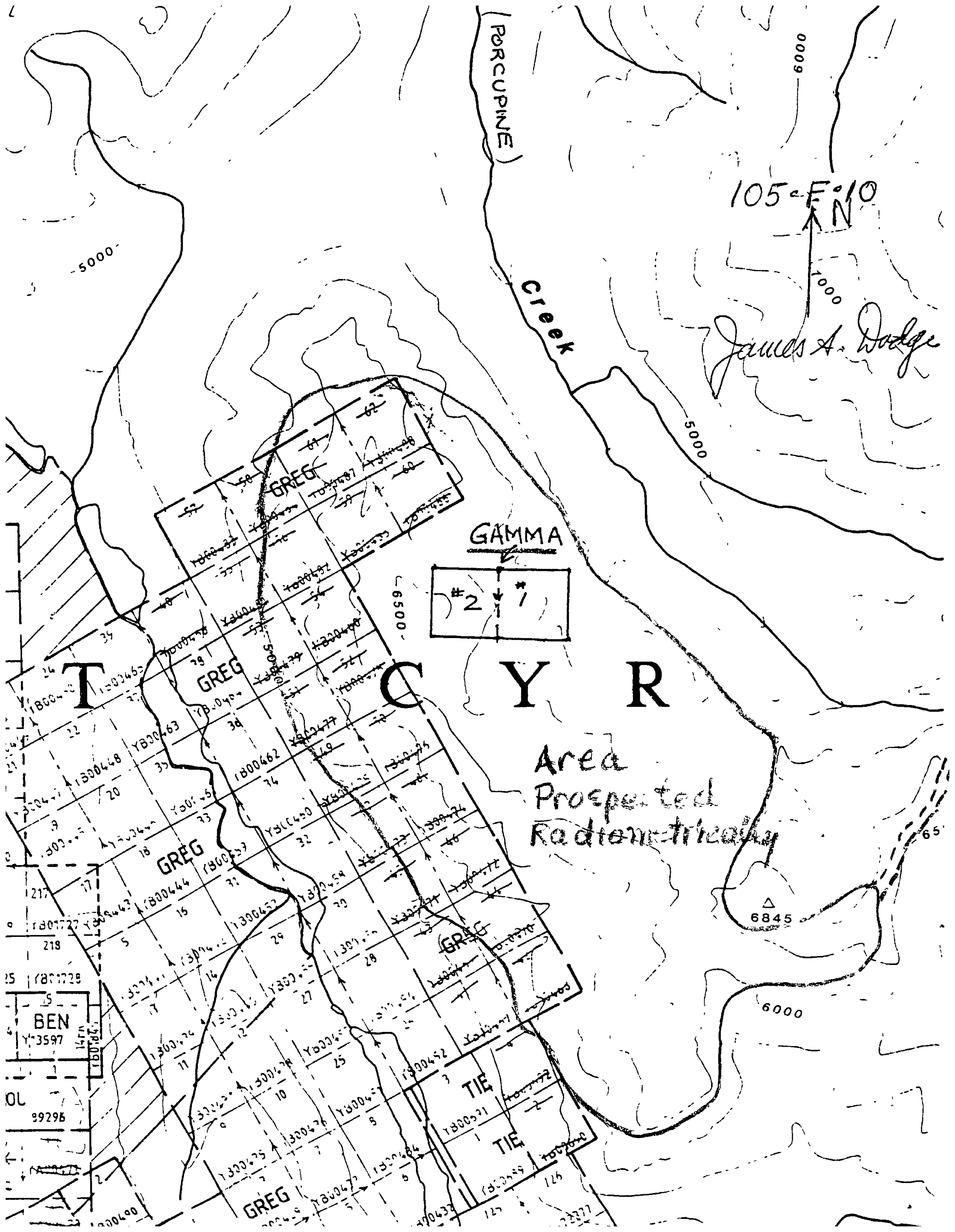
1. Evidence from outcrops indicates a Ca+Na-metasomatized syenite vein from 2 to 5 meters wide with a reasonable probability of being continuous over a strike distance of at least 300 meters.

   Although initially targeted for possible Y+Nb+Zr (only moderate concentrations found in 11 samples), the subsequent recognition of the carbonatitic milieu nearby prompted re-analyzing of one sample (#420777) for the 16 rare earth elements, since the light rare earth elements were known elsewhere to favor carbonatite environs. The 2.23% Σ REO was impressive reaffirmation, if still perhaps sub-economic.

2. Clearly, a broader sampling program will be required to fully determine the extent of REE on the GAMMA claims. However, in view of the world-wide surplus of the light rare earth elements (e.g. Mountain Pass, California and Bayan Obo, Outer Mongolia) priority should be given now only to the analyses of the remaining seven GAMMA samples (#420771-#420776 and #420778), and perhaps part of the 25 kg of outcrop samples obtained during grubhoe stripping - all for total REE. Results would dictate further exploration plans.

   Furthermore, the radiometric anomalies obtained in the field, although only moderately high, nevertheless do invite comparison with most carbonatitic-related REE deposits. Follow-up field work must take into account this factor, vis-a-vis the LANCER property's highly radioactive heavy rare earth (Y) setting.

3. The most cost-effective procedure for the discovery of new vein-type Y+Nb+Zr+REE occurrences in the Pelly Mountains syenite belt is ground traverses using hand-held gamma ray detection equipment.


PORCUPINE
Creek
105-F-10
N
James A. Dodge
GAMMA
#2
#1
T CYR
Area Prospected Radiometrically
GREG
GREG
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BEN
6845
5000
5000
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6500

Indian and Northern Affairs Canada | Affaires indiennes et du Nord Canada

Grant no : YB 34970

RECORD OF A MINERAL CLAIM (FORM 3)

(SECTIONS 39, 41 AND 94)
YUKON QUARTZ MINING ACT

Mineral Claim	Situated
GAMMA 2	Porcupine Creek Area
Mining District	**Claim sheet no**
WATSON LAKE	105-F-10

Located by James S. Dodge of Whitehorse, Y.T.

Direction of line from post 1 to post 2 South

Distance in feet of the location line (If a witness post has been used, the particulars as to such post must be fully set out)

1500 S 1500 Right

Date claim located	Date claim recorded	Effective to
21 Jul 1992	31 Jul 1992	31 July 1993
I have received the fee prescribed by the Yukon Quartz Mining Act for recording a mineral claim: C51581 19 Aug 1992	Mining Recorder's Signature: for P. L. McLeod	

802-41 (7 88)

White Copy ▶ OWNER

Pink Copy ▶ MINING RECORDER

Yellow Copy ▶ CENTRAL MINING RECORDS

Canada

Indian and Northern Affairs Canada | Affaires indiennes et du Nord Canada

Grant no : YB 34970

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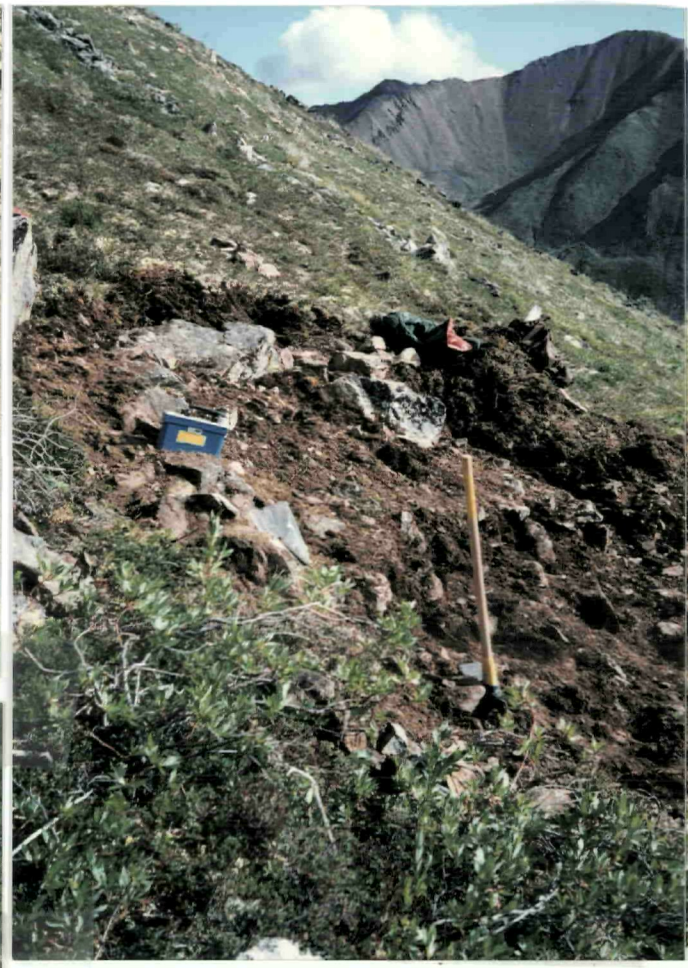
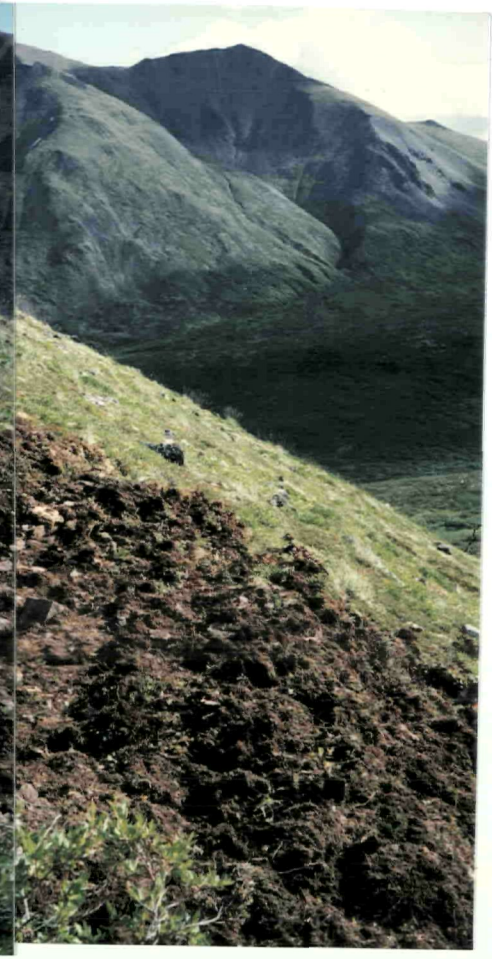
Canada





PHOTOS 1,2,3
Discovery outcrop on GAMMA claims. Two-meter wide vein of Ca-metasomatized syenite tuff exposed by grubhoe stripping. Light rare-earths(cerium, lanthanum, neodymium, praeseodymium) dominate with only moderate values in niobium and lesser amounts of yttrium. This suite of elements characterizes most REE deposits which are rather closely associated with carbonatites.

PHOTO 4. Looking north down Porcupine Creek from base camp area. In foreground cirque, pendants (resistant) of fenetized and pyritized trachyte underlain by replacement-type carbonatite. Site of REE vein outcrops is mid-distant, lower right, near grey syenite talus slide.

PHOTO 5 Lamprophyre dike intruding syenite tuff northwest of base camp situated at edge of mid-distant snow bank.

PHOTO 6 View southwesterly in cirque west of Porcupine Creek. Dark mound of chaotic boulders believed derived by a one-time levitated rock avalanche.

REE vein in Ca-metasomatized syenite tuff exposed at base of cliff just above small I-shaped snowbank, middle of photo. Syenite intrusive in mountain at right developed skarn in tuffs 100 meters north of REE outcrop.

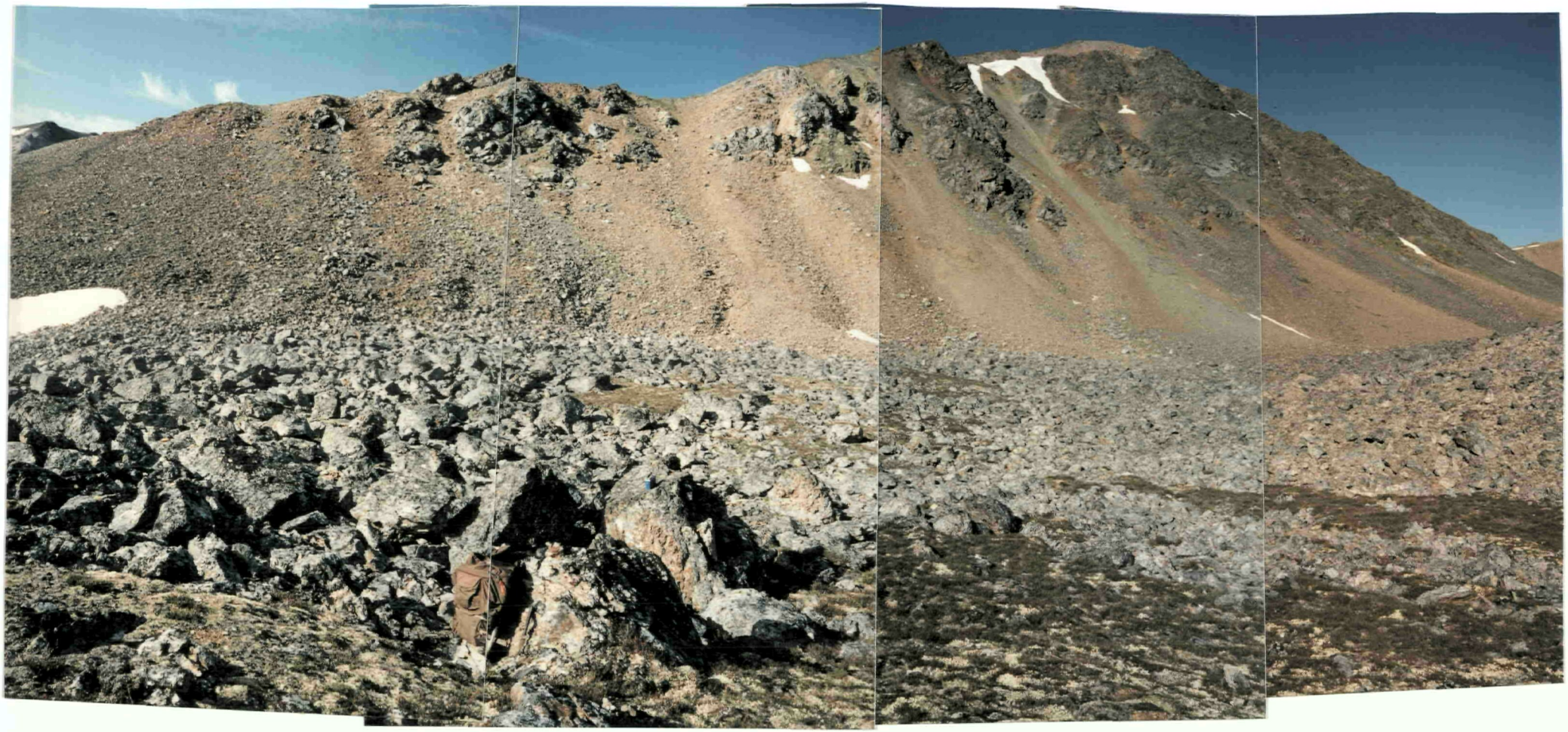


PHOTO 7 Unglaciated, heaped up boulder mound far removed from present-day talus slopes in distance. Packframe beside boulder in foreground typifies size of chaotic debris from (earthquake triggered ?) levitated rock avalanche.

Cliff outcrops of REE vein situated half-way up mountain right of photo centre.

PHOTO 8 View to north of cliff outcrops of Ca-metasomatized syenite vein over a width of at least 5 metres. Assays indicate high content in light rare earths, but only moderately anomalous values in yttrium and niobium. Spectrometer in notch of outcrop for scale.

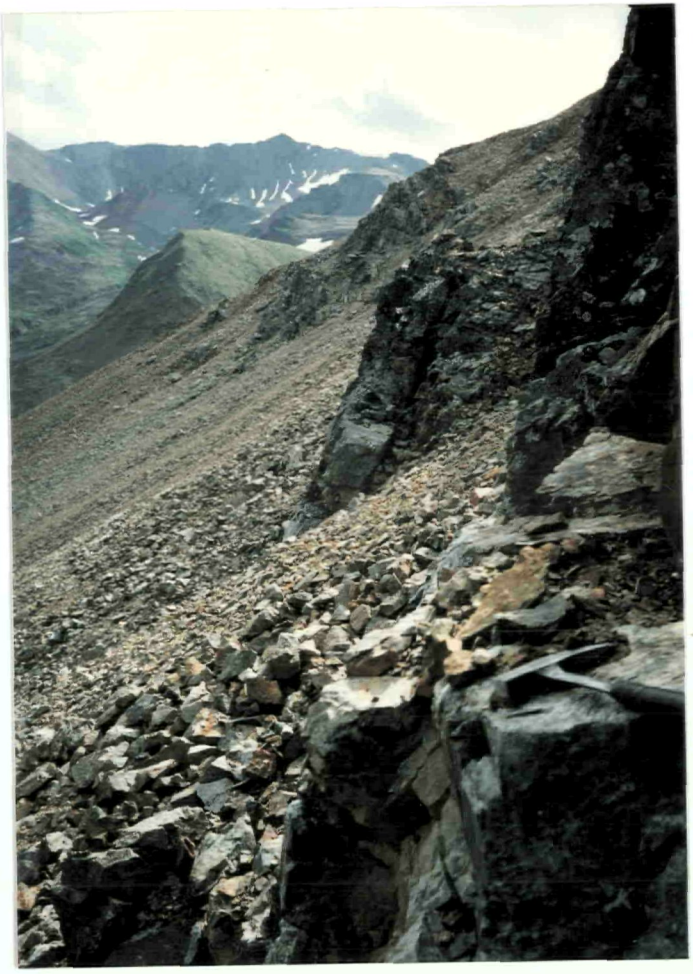


PHOTO 9 View to south of cliff outcrops. Location of "ridge" REE vein is probable extension of vein in foreground which dips steeply to east.

PHOTO 10 View to north from "ridge" outcrop toward vein exposed at toe of mid-distant cliffy spur. Light colored outcrops at left-centre are Ca- and Na-metasomatized syenite tuff and tuff breccia.

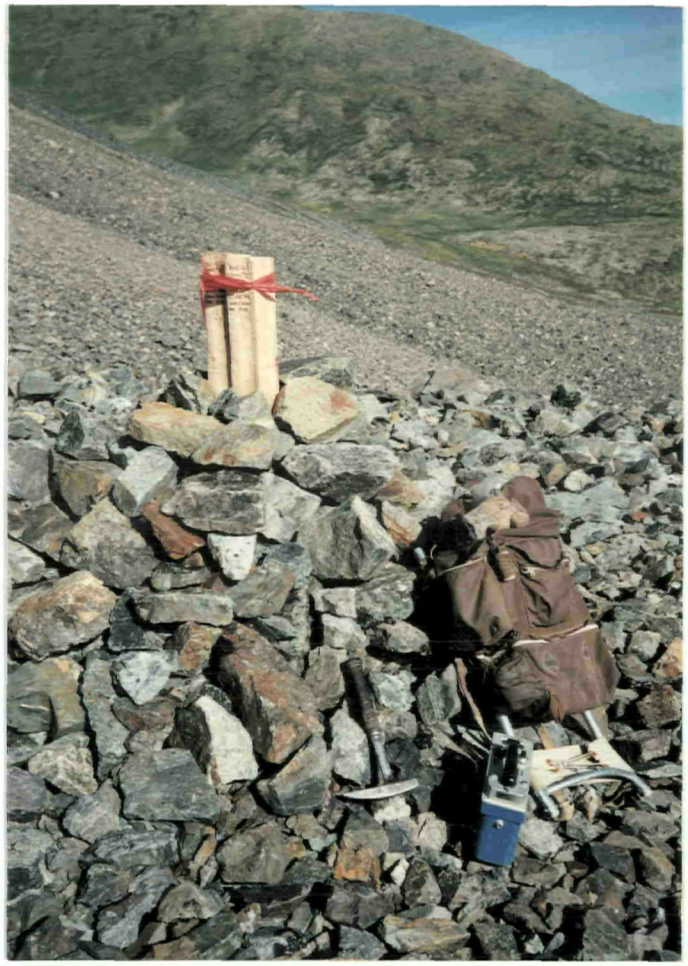


PHOTO 11 Discovery post GAMMA 1&2 staked 21 July, 1992. Cairn intended to foil snow avalanches from cliffs.

PHOTO 12 Prominent outcrop of replacement-type carbonatite in steep gully west of Porcupine Creek. Inclined steeply to the east, this 60-metre carbonate body intrudes fine grained syenite. Brown packframe in lower right corner for scale.

Cloutier Creek Area 12-20 August, 1992

The prospecting base camp was chosen to facilitate examination of the syenite plug stockwork referred to in J A Morin s paper 1979, DIAND, Model of Mineralization Related to Cauldron Facies Syenite in the Pelly Mountains"

The prominent quartz-stringered syenite (Photo 14) was found to exhibit only background radioactivity Field evidence confirmed that the outcrop was undoubtedly the apical portion of an underlying syenite pluton

Anomalous (2x background) radioactivity was noted in black shale/phyllite only weakly altered to slate in immediate contact with the syenite plug, and also moderately inclined syenite tuff beds up to 100 meters both north and south of the plug

No fluorite was observed in outcrops and the low radiometric readings did not indicate the promise of Y+Nb+Zr+REE concentrations No samples were assayed

Approximately 150 meters south of the syenite plug a steeply dipping fissure system trending east-west outcropped at the base of and in the face of difficultly scalable cliffs The hydrothermal fissure filling, up to 8 meters wide, was dominantly white quartz with pyrite-the latter occassionally making up 20/ of the vein

Since precious metal concentrations in the alkalic terrane is a productive, but unique, classification (see Mutschler et al, Trans Geol Soc South Africa, 88(1985), p 355-377), and inasmuch as this structure extended for over 300 meters laterally and dipped steeply north toward a possible easterly sub-surface extension of the syenite pluton, sampling for gold appeared prudent However, no significantly anomalous values in gold were detected by Northern Analytical Laboratory (Certificate WO#13726

No further work is recommended in this part of the large area mapped as syenite volcanics in the Cloutier Creek drainage However, the possibility of additional syenite (preferably mela-syenite as at the LANCER) volcanics in the Cloutier Creek drainage However, the possibility of additional syenite intrusives being discovered in the broader Cloutier Creek area can not be discounted

PHOTO 13 Base camp above north branch of Cloutier Creek after light snowfall on 15 August, 1992.

PHOTO 14 White quartz stringers in fine grained syenite plug. The average AZ 110°-120° trend of stringers parallels that of foliation of nearby inclined syenite tuff and tuff breccia as well as post-syenite quartz-pyrite veins in cliffs.

PHOTO 15 Panorama of Mississippian syenite tuff and tuff breccia (tan weathering lower one-third of cliffs) and overlying black phyllite. Quartz-pyrite fissure filling system roughly parallels face of cliff and is exposed largely in volcanics. Syenite plug at extreme right edge of photograph.

PHOTO 16 Pink K-spar syenite plug intrudes black shale/phyllite. Rounded peak is underlain by chert.

PHOTO 17 Two distinct, sub-parallel, steeply north-dipping quartz-pyrite veins hosted by syenite tuff and tuff breccia. On-strike exposure over 400 meters. Samples carried no anomalous values in gold. Only background radiometric readings.

East Ketza Area 12 - 19 June, 1992

Owing to late snow-melt conditions elsewhere, this area of Mississippian volcanics (Mva of D Templeman-Kluit, Quiet Lake Sheet 105F Geology) was chosen for early-season REE prospecting

Lying at 61°37' N and 132° 08' W, approximately 15 km north of the LANCER deposit and in proximity to a NNW trending fault parallel to major faults bounding the LANCER syenite centre, the target was HREE mineralization associated with a syenite pluton

An arch of syenite tuff and tuff breccia (see notebook sketch) was overlain and flanked by steeply inclined, thin-bedded argillites and argillaceous limestone

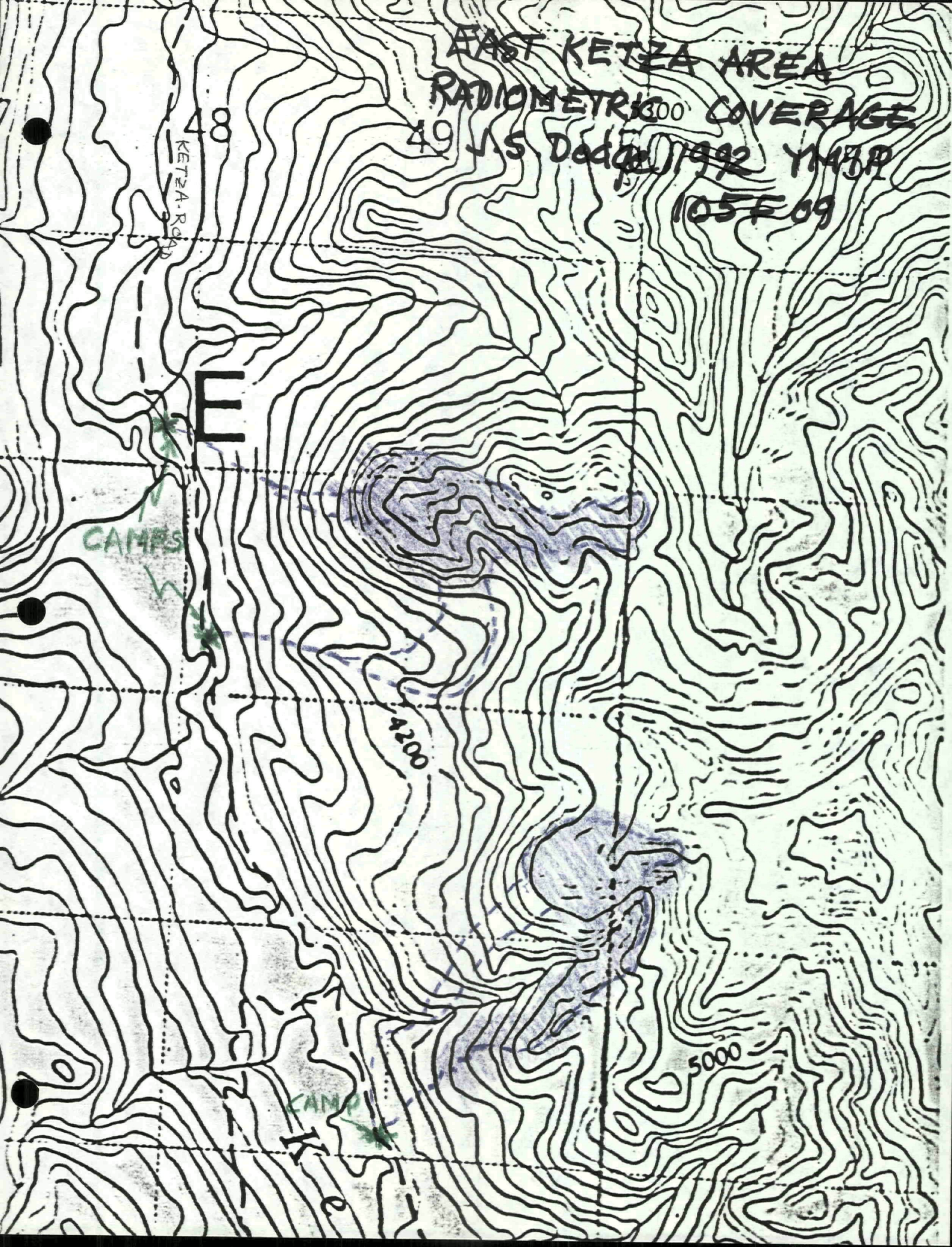
Post-syenite silicified breccia pipes, barite veins, and intensive hydrothermal phyllic alteration were conspicuous, particularly along the west limb of the antiform

Eight samples were submitted to Chemex for analysis for gold plus 32-element ICP None of the samples were radiometrically anomalously high Results under COA #A9221500 revealed low values for all elements, with the exception of a 586 ppm arsenic value in a sample of baritic vein material

The intense hydrothermal event was accompanied by precipitation of sulfates (barite) but, aside from pervasively disseminated pyrite, no base metal sulfide, gold, or the suite of Y+Nb+Zr+REE were concentrated

No syenite pluton was identified

No further prospecting in the area can be recommended


EAST KETZA AREA
RADIOMETRIC COVERAGE
48
49
KETZA ROAD
E
CAMPS
4200
5000
CAMP

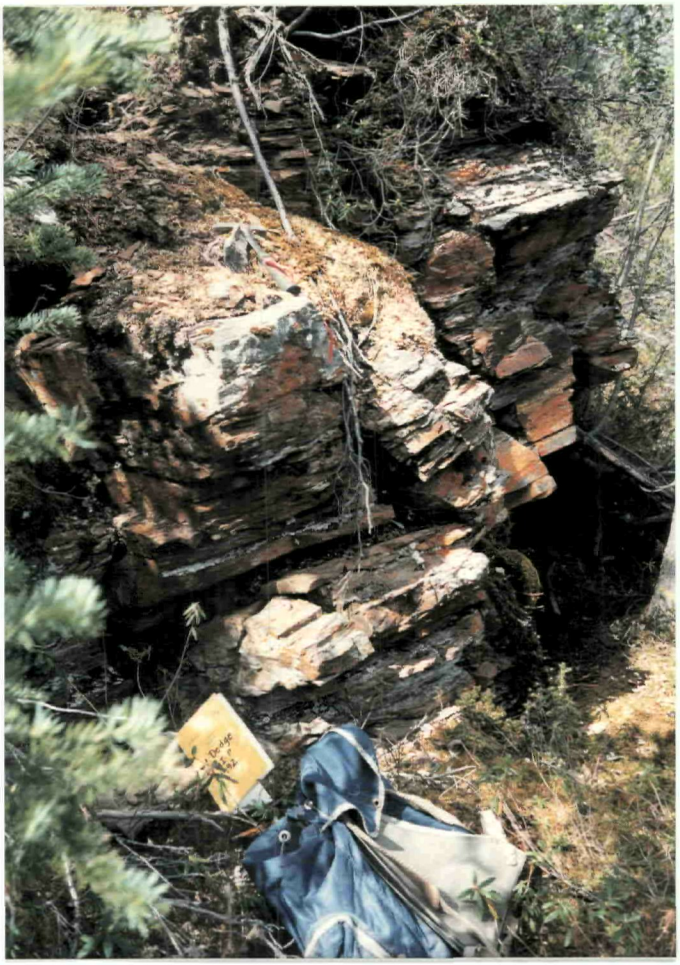


PHOTO 18 Gently dipping, thin bedded argillaceous limestone on west flank of antiform near Ketza road.

PHOTO 19 Looking west toward Ketza valley. White barite vein outcrops at boundary between uDM argillites to west and syenite tuff toward camera.

PHOTO 20 Looking north with Ketza valley at left edge of photograph. Rounded pink hills on skyline are uDM tan argillites overlying syenite tuff.

Argillic hydrothermal alteration "vent" and brecciated syenite tuff as the mound of white gritty kaolinite (?) on mid-distant ridge center.

Pink cliff 200m east (right) of "white cap" is brecciated syenite tuff.

PHOTO 21 View east from skyline ridge in Photo 20. Syenite tuff extensively pyritized and hydrothermally argillically altered (white). Pink mesa in left mid-distance is gently south-inclined syenite tuff.

Ketza - McNeil Rivers Area 29 August - 10 September, 1992

Prospecting was carried out in the area for Y+Nb+Zr+REE occurrences similar to those on the LANCER claims Attention was focused on the syenitic terrane, but traverses were undertaken in the upper Devonian-Mississippian clastics terrane and in the Cambro-Ordovician sediments in case syenite plugs or dikes were present without the telltale evidence of syenite trachyte or tuffs

Close spaced radiometric traverses using a hand-held Scintrex GIS-4 gamma ray spectrometer were carried out in the area identified by colored routes shown on the claim pas 105-F-00 and 105-F-09

Muddy road conditions precluded 4x4 pickup access all the way to the boundary of the LANCER claims The base camp was the start/finish for daily traverses which, in the case of the 4 routes to the west, split at the eastern end of the LANCER claims

No significant radiometric anomalies were detected Up to 3x background count was common over most of the (green) traverses across trachyte and syenite tuff capping a mountain 2 km north-northwest of the LANCER claims

All field evidence now at hand indicates that all the main focus for continued exploration for the above-mentioned elements should be directed to the LANCER 1-8 claims

CONCLUSIONS

Continued exploration in the Pelly Mountains for another syenite-hosted LANCER type deposit is warranted on the basis of:

1. Currently-economic concentration of Y+Nb+Zr+REE on the LANCER. (compare with Molycorp's new Y+Zr deposit at Pajarito, New Mexico of lower in-place gross value per tonne).
2. Sizeable tonnage potential (LANCER over 1,500,000 tonnes inferred mineral resource of typical laterally extensive vein-type deposits in alkaline rocks (cf Bokan Mtn., Alaska).
3. Demonstrated important concentrations of yttrium, niobium, and zirconium each with forecasted (CANMET, Ottawa) near-term growth market potential.
4. Optimistic outlook for extraction of saleable mixed concentrates from the very fine grained mineral aggregates at LANCER. Favorable results of beneficiation tests on ore of quite similar characteristics from the Brockman deposit, Western Australia support this (DEMA Pty Ltd.).
5. Relatively good accessibility of the area and, accordingly, low capital requirements for infrastructure. As these are high-value-low-volume operations, mining could be carried on during summers only to stockpile ore for year round milling. Moreover, a new fine-grinding (-325 mesh) plant at Ross River will most likely be available for leasing.

Characteristic bold outcrop of newly (1992) discovered 300-meter extension of LANCER vein now with revised average grade: 0.15% Y_2O_3, 0.62% Nb_2O_5, 1.10% ZrO_2, and 1.37% REO.

PROGRAM COST ACCOUNTING SUMMARY *
YMIP 1992 JAMES DODGE

FIELD EXPENDABLES	$ 254 53
OFFICE EXPENSES	337 23
EQUIPMENT RENTALS	1,274 92
HELICOPTER CHARTERS	2,182 55
ASSAYS & ANALYSES	1,328 08
FIELD SUBSISTENCE	3,276 78
VEHICLE ALLOWANCE	1,483 91
Total Program Cost	$10,138 00
Less YTG Advance	-5,000 00
	($5,138 00)
PROGRAM BALANCE	$5,000 00

* Receipts in Appendix Folder

James S Dodge

James S Dodge
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09 October, 1992

Chemex Labs Ltd.

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PHONE 604 984 0221

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Project
Comments

Certificate Date 07 AUG 92
Invoice No I9218438
P O Number
Account BKY

CERTIFICATE OF ANALYSIS A9218438

SAMPLE	PREP CODE	Nb ppm	Y ppm	Zr ppm
420771 H	205 274	220	45	485
420772 H	205 274	675	120	4770
420773 H	205 274	935	145	4250
420774 H	205 274	1540	185	3780
420775 H	205 274	150	75	765
420776 H	205 274	1260	260	6620
420777 H	205 274	3180	770	1060
420778 H	205 274	1980	260	1450
420779 H	205 274	105	35	275
420780 H	205 274	180	50	420
420781 H	205 274	195	25	345

Samples #420771 - #420781, inclusive PORCUPINE CREEK AREA

#420771-#420774 are samples taken from several sites at the initial discovery outcrop which had been identified by high (1500 cps) radiometric readings, following which the GAMMA 1&2 claims were staked

Inasmuch as the target in prospecting up to this point was for Y+Nb+Zr (like the LANCER deposit), and REE-16 element analyses were expensive and involved lengthy analytical time (Chemex in Toronto), all samples were analyzed only for Y+Nb+Zr

Samples #420772-420774 indicated highly anomalous values in Zr and Nb, but only weakly anomalous Y content Thus, a LREE possibility, contrasted with that of HREE, was evident (subsequent REE-16 analysis (see accompanying COA #9220437)

#420775-420778 are samples from the rock avalanche cirque #420777 from bedrock outcrop at toe of one cliffy spur, the other 3 samples from pieces of radioactive talus

(Continued on COA #9220437 which follows)

CERTIFICATION

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Comments

Certificate Date 22 SEP 92
Invoice No I9220437
P O Number
Account BKY

CERTIFICATE OF ANALYSIS A9220437

SAMPLE	PREP CODE		L Ce NAA ppm	H Dy NAA ppm	H Er NAA ppm	L Eu NAA ppm	H Gd NAA ppm	H Ho NAA ppm	L La NAA ppm	H Lu NAA ppm	L Nd NAA ppm	L Pr NAA ppm	L Sm NAA ppm	H Tb NAA ppm	H Th NAA ppm	H Tm NAA ppm	H U NAA ppm	H Yb NAA ppm
420777	244	288	9330	115	68	13 50	100	18 6442	7 90	1630	1055	200 0	13 40	943	55	150 0	58 70

Total REE = 19072 5 ppm x 1 17 Factor = 2 23/ REO

ΣHREE = 436 0 x 1 17 Factor = Σ0 05/ HREO
Σ LREE = 18636 5 x 1 17 Factor = Σ2 18/ LREO

(Cont'D)

Except for #420775 (which surprisingly was highly radioactive), all samples were very anomalous in Zr and Nb plus moderately high in Y
As seen on this COA, #420777 - the outcrop sample - returned a high REO

#420779 sample came from the lamprophyre dike which exhibited 3x background radiometrically

#420780 sample came from foliated syenite tuff with several visible specks of purple fluorite near the #1 base camp It exhibited 3x background radio' metrically

#420781 sample came from foliated syenite tuff near the boundary with overlying argillite 300 meters south of #1 base camp It exhibited 3X background radiometrically

CERTIFICATION: Luciana Alexandre

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Page Number 1 A
Total Pages 1
Certificate Date 28 SEP 92
Invoice No I9221740
P O Number
Account BKY

CERTIFICATE OF ANALYSIS A9221740

SAMPLE	PREP CODE		Au ppb FA+AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
420731	205	226	80	< 0 2	1 76	4	90	< 0 5	< 2	0 56	< 0 5	34	67	99	8 88	10	< 1	0 20	20	1 40	455
420732	205	226	5	< 0 2	1 69	< 2	240	< 0 5	< 2	0 03	< 0 5	8	55	84	3 67	10	< 1	0 32	30	0 54	75
420733	205	226	< 5	< 0 2	2 33	< 2	200	< 0 5	< 2	0 33	< 0 5	9	45	53	4 70	10	< 1	0 37	20	1 55	80
420734	205	226	< 5	< 0 2	4 94	< 2	10	< 0 5	< 2	0 15	< 0 5	82	58	298	>15 00	30	< 1	0 01	20	4 63	125
420735	205	226	30	< 0 2	0 28	60	280	< 0 5	2	0 08	1 0	15	308	145	6 54	10	1	0 06	70	0 09	7300

PORCUPINE CREEK AREA #420731 - #420735

All are samples of pyritic, irregular, disconnected syenite tuff "island masses floating" on a sea" of Ca+Na-metasomatized syenite, probably tuffaceous, which is similar to a replacement-carbonatite (Photo 4)

No significant anomalies are noted with the exception of #420735 with a rogue value in manganese and slightly elevated values in zinc, lead, and strontium, plus depleted aluminum content - all of which suggests that this particular sample was a product of pre(?)-carbonatization hydrothermal activity

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Page Number 1 B
Total Pages 1
Certificate Date 28 SEP 92
Invoice No I9221740
P O Number
Account BKY

CERTIFICATE OF ANALYSIS A9221740

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
420731	205	226	12	0 01	21	240	36	< 2	3	12	0 01	< 10	< 10	133	< 10	118
420732	205	226	7	0 04	1	200	6	2	< 1	4	0 01	< 10	< 10	< 1	< 10	48
420733	205	226	4	0 03	5	2020	10	< 2	4	70	0 02	< 10	< 10	61	< 10	76
420734	205	226	9	0 01	22	420	18	2	4	3	< 0 01	< 10	< 10	35	< 50	186
420735	205	226	25	< 0 01	9	250	100	< 2	4	381	< 0 01	< 10	20	123	< 10	778

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Y1A 4L2

Project
Comments

Certificate Date 23 SEP 92
Invoice No I9221500
P O Number
Account BKY

CERTIFICATE OF ANALYSIS A9221500

SAMPLE	PREP CODE		Au ppb FA+AA	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
420791	205	226	15	< 0 2	1 07	4	1620	< 0 5	4	3 28	< 0 5	9	56	17	3 20	10	< 1	0 44	10	0 16	950
420792	205	226	< 5	0 4	0 76	< 2	1100	< 0 5	4	1 04	< 0 5	7	52	26	2 04	10	< 1	0 35	80	0 24	280
420793	205	226	< 5	< 0 2	0 18	68	1950	< 0 5	< 2	3 26	1 0	3	60	39	4 59	< 10	1	0 03	< 10	1 96	170
420794	205	226	< 5	< 0 2	0 53	< 2	300	< 0 5	2	7 40	< 0 5	11	24	18	3 08	< 10	< 1	0 24	< 10	0 61	1385
420795	205	226	5	< 0 2	0 16	586	1480	< 0 5	6	0 79	< 0 5	2	57	20	7 42	< 10	< 1	0 03	< 10	0 47	40
420796	205	226	10	< 0 2	0 12	34	2370	< 0 5	< 2	2 22	1 5	3	104	19	1 41	< 10	< 1	0 03	< 10	1 34	75
420797	205	226	5	0 2	0 07	52	2170	< 0 5	< 2	1 17	< 0 5	1	38	12	0 68	< 10	< 1	0 01	< 10	0 72	45
420798	205	226	< 5	< 0 2	1 18	2	1230	< 0 5	< 2	0 91	< 0 5	12	32	23	>15 00	< 10	< 1	0 21	40	0 36	535

Samples #420791 - 420798 inclusive East Ketza Area

Samples were obtained from a variety of settings including hydrothermal alteration zones, breccias, and baritic veins

Only #420795 exhibited an interesting combination of anomalously high values of note 586 As, 1480 Ba, 318 Pb, 54 Sb, and 296 Zn This sample was collected on the saddle between the two rounded pink hills in Photo 20 where pyrite and barite occur in a north-trending, 2-meter wide fissure zone

No gold anomaly was indicated
None of the samples exhibited any radiometric anomaly

No further work is recommended for the East Ketza area

CERTIFICATION

Chemex Labs Ltd.

Analytical Chemists Geochemists Registered Assayers
212 Brooksbank Ave North Vancouver
British Columbia Canada V7J 2C1
PHONE 604 984 0221

DODGE JAMES S

14 MACDONALD RD
WHITEHORSE YUKON
Y1A 4L2

Project
Comments

Certificate Date 23 SEP 92
Invoice No I9221500
P O Number
Account BKY

CERTIFICATE OF ANALYSIS A9221500

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
420791	205	226	1	0 02	21	710	16	< 2	2	143	< 0 01	< 10	< 10	6	10	90
420792	205	226	1	0 03	12	830	8	< 2	2	85	0 01	< 10	< 10	18	< 10	52
420793	205	226	< 1	< 0 01	7	90	94	30	1	89	< 0 01	< 10	< 10	4	20	860
420794	205	226	< 1	0 03	20	920	10	< 2	3	234	< 0 01	< 10	< 10	6	10	50
420795	205	226	2	< 0 01	1	340	318	54	< 1	42	< 0 01	< 10	< 10	15	20	296
420796	205	226	< 1	< 0 01	9	170	82	4	< 1	51	< 0 01	< 10	< 10	1	< 10	740
420797	205	226	< 1	< 0 01	2	70	228	16	< 1	199	< 0 01	< 10	< 10	1	< 10	168
420798	205	226	< 1	0 01	35	830	18	< 2	3	46	0 01	< 10	< 10	46	70	118

CERTIFICATION

Chemex Labs Ltd.

Analytical Chemists Geochemists Registered Assayers
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PHONE 604 984 0221

To DODGE JAMES S

14 MACDONALD RD
WHITEHORSE YUKON
Y1A 4L2

Project
Comments

Certificate Date 08 SEP 92
Invoice No I9220464
P O Number
Account BKY

CERTIFICATE OF ANALYSIS A9220464

SAMPLE	PREP CODE		Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %	Ba ppm	Nb ppm	Rb ppm	Sr ppm	Y ppm	Zr ppm
420784	208	226	18.39	3.21	0.01	1.74	0.36	0.89	0.06	9.85	0.11	62.61	0.48	3.91	101.65	110	170	11	90	40	310
420785	208	226	17.25	4.03	< 0.01	4.14	0.10	1.05	0.03	8.35	0.10	61.13	0.56	3.98	100.75	80	190	5	170	30	390
420786	208	226	17.60	0.75	< 0.01	5.56	4.56	1.27	0.06	5.99	0.12	62.24	0.67	1.51	100.35	960	180	89	80	30	350

NOTE
-784 = white, coarsely crystalline $CaCO_3$ (replacement carbonatite)
-785 - grey, fine grained $CaCO_3$ (incipient replacement-carbonatite)
-786 Fresh, medium grained grey syenite (plutonic)

Agpaitic ratios:
mole $K_2O + Na_2O$ / mole Al_2O_3

-784 $\frac{0.299 + 7.289}{7.588} = 0.78$

-785 $\frac{0.83 + 6.179}{9.143} = 0.68$

-786 $\frac{3.785 + 4.433}{9.328} = 0.77$

uniform SiO_2 suggest little if any fenitization is associated with post-syenite metasomatism

Nb, Y, Zr all hi and

$\frac{Nb}{Y}$ vs $\frac{Zr}{TiO_2} = \frac{180}{35}$ vs $\frac{350}{570}$

$= 5.14$ vs 0.61

(Winchester & Floyd 1977
Field boundary plot = TRACHYTE
Plotting $\frac{Nb}{Y}$ vs SiO_2 also = TRACHYTE

COMMENTS
a) metaluminous parent affiliation
b) $K_2O + Na_2O \approx$ constant
c) -784 and -785 hi in CaO, Lo in K_2O, hi in Na_2O, hi LOI (CO_2) [Ca-+Na-metasomatism]

CERTIFICATION Yhai D'Ma

Certificate of Analysis A9220464

Samples #420784 - #420786 PORCUPINE CREEK AREA/GAMMA CLAIMS

These whole rock analyses were run to elucidate more on the three prominent rock types in the vicinity of the initial GAMMA discovery vein

Sample #420784 was from a 100-meter wide exposure of white, calcite-dominant mass, with minor limonite flecks, on which at the ridge crest floated pyritic remants of syenite tuff almost as if they were roof pendants

Sample #420785 was from an adjoining (to east) dark grey, calcite-rich mass whose northerly extension onto the GAMMA claims hosted the radioactive discovery vein

Sample #420786 was from GAMMA #1 claim approximately 200 meters west of the discovery vein It comprised fresh, medium to coarse grained, grey syenite (plutonic)

Additional comments are on the Certificate of Analysis

A designation of "replacement-carbonatite" appears appropriate for sample #420784

Chemex Labs Ltd.

Analytical Chemists Geochemists Registered Assayers
212 Brooksbank Ave North Vancouver
British Columbia Canada V7J 2C1
PHONE 604 984 0221

To DODGE JAMES S

14 MACDONALD RD
WHITEHORSE YUKON
Y1A 4L2

Project
Comments

Page Number 1
Total Pages 1
Certificate Date 18 SEP 92
Invoice No I9220436
P O Number
Account BKY

CERTIFICATE OF ANALYSIS A9220436

SAMPLE	PREP CODE		Ce NAA ppm	Dy NAA ppm	Er NAA ppm	Eu NAA ppm	Gd NAA ppm	Ho NAA ppm	La NAA ppm	Lu NAA ppm	Nd NAA ppm	Pr NAA ppm	Sm NAA ppm	Tb NAA ppm	Th NAA ppm	Tm NAA ppm	U NAA ppm	Yb NAA ppm	Nb ppm	Y ppm	Zr ppm
420782	205	226	4352	40	< 20	14 00	100	9	2400	3 60	350	440	149 10	7 00	775	< 1	46 0	25 90	940	210	2290
420783	205	226	134 0	14	< 20	1 50	< 50	2	72 0	1 90	80	20	12 00	1 80	1081	< 1	82 0	13 20	325	75	2680

Samples #420782 and #420783 Porcupine Creek Area

#420782 is from a 0 5 meter wide radioactive (8x background) zone in a 60-meter wide white, calcite replacement-carbonatite dike (Photo 12) approximately 500 meters north of GAMMA claims discovery posts

Although results are typically LREE, the 0 09/ REO is low grade The highly anomalous Nb value is compatible with a carbonatite setting

#420783 is a radioactive (6x background) sample of sub-crop material from the lowest (southernmost) outcrop of the discovery vein Although thorium and zirconium values are high, and niobium is twice background, all other elements are low

CERTIFICATION

Northern
Analytical
Laboratories ltd

28 Aug 92 date

Assay Certificate

Jim Dodge

WO#13726

Sample #	Au ppb
92 01	27
92 02	19
92 03	15
92 04	<5
92 05	8
92 06	10
92 07	12
92 08	<5

Samples #92-01 through 92-08 CLOUTIER CREEK AREA

All samples are of quartz-pyrite fissure vein system near the base of cliffs (Photo 15) As emphasized by Mutschler et al in Trans Geol Soc So Africa, 88(1985) p 355-377, gold is the best 'indicator", along with tellurides, for precious metals in veins in the alkalic terrane

A convincing arguement is made that >10 ppb Au in unmineralized alkalic rocks may be a broad guide to 'favorable' host rocks - i e Au available for extraction by hydrothermal convection cell action

However, the assay returns with a maximum of 27 ppb from a well-mineralized sulfide bearing fissure system cannot be considered sufficiently anomalous to warrant further work on the veins

Certified by

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

PORCUPINE CREEK AREA

A request for minerals identification was placed with Vancouver Petrographics of Fort Langley, B C with the view of determining if the relative concentration of zircon in outcrop samples with anomalously high radioactivity could be used as a guide to estimating the content of yttrium, niobium, and rare earths That is, were these elements bound up in the zircon itself If so, then field evaluation of zircon-rich thorium-bearing samples could be undertaken confidently in the field

Zircon was fine to medium grained and had been identified using the writer's rented Nippon binocular microscope in the Porcupine Creek prospecting area in outcrops of syentite plugs, dikes, sub-volcanics, and trachyte

A sample obtained from the LANCER claims (1991 YMIP) was provided to the laboratory, as this type of metasomatized syenite dike model was considered the most favorable for prospecting in this 1992 field program

The laboratory results (attached) may be summarized as follows

1 The thin section minerals studied by Scanning Electron Microscope (SEM) were very fine grained (10-100 microns), thus, not identifiable with the binocular microscope

2 Zircon, columbium(?), bastnaesite, and thorium-bearing mineral aggregates were identified

3 Zircon gave no indication that it was a carrier of yttrium

CONCLUSION

Unfortunately, although zircon was evident from examination of the hand specimen using the binocular microscope, that the radioactivity was roughly 6 times background; and that chemical analyses (1991) indicated significant content of niobium, yttrium, thorium, and rare-earths, there was no evidence that these elements resided in the radioactive zircon-bearing samples being collected during the 1992 prospecting in the Porcupine Creek area

Thus, random selection of anomalously high radioactive, zircon-bearing outcrop samples for laboratory analyses remained the only feasible (i e cost effective) option Delays in sample delivery and receipt of analytical data necessitated several breaks in the field work

P S The good news from this study is that the principal target elements (Y+Nb+REE) will be far more easily recovered from the ore than if they were situated within the zircon crystal lattice Recent laboratory extraction tests on quite similar fine-grained mineralized host rock at the Brockman deposit in Western Australia have proven quite effective with high recoveries

Vancouver Petrographics Ltd.

JAMES VINNELL M g
JOHN G PAYNE Ph D G l g t
CRAIG LEITCH Ph D G olog st
JEFF HARRIS Ph D Geologist
KEN E NORTHCOTE Ph D Geologist

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Report for James S Dodge,
14 MacDonald Rd
Whitehorse, Yukon,
Y1A 4L2

Job 50

August 28th, 1992

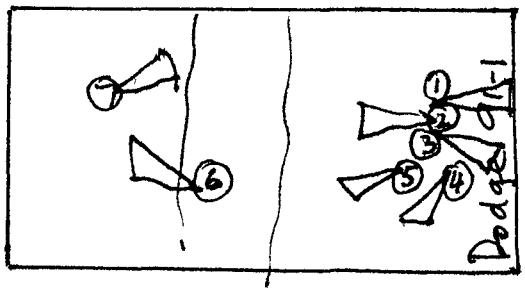
MINERALOGY OF Zr/REE-BEARING SYENITE

As requested, the polished thin section Dodge 92-1 (originally 91-1 in Report 217 of September 1991) was re-examined, with a view to obtaining additional information on the mineralogy and mode of occurrence of rare earths and related elements in this material

An assay of the sample, of which the thin section represents a specific piece, gave the following results

Element	ppm
Zr	11200
Nb	5390
Ce	5832
La	3844
Nd	1405
Th	2735
Y	1420

Several different areas exemplifying various optically unidentifiable minor phases were marked for SEM microanalysis The following diagram shows their locations on the slide



Descriptions of these areas, and results of the SEM work follow Illustrative photomicrographs are provided

Area 1 Photomicrograph 264-6 Scale 1cm = 85 microns

Equant and atoll-shaped grains, 5 - 70 microns in size, of brown, translucent, high-relief mineral (circled on photo) in patch of carbonate

SEM analysis yields peaks of Zr Si and minor Fe Indicated mineralogy is zircon, somewhat altered and ferruginous

Area 2 Photomicrograph 264-7 Scale 1cm = 42 microns

Irregular grains 10 - 100 microns in size, of a weakly to moderately reflective phase (A), showing translucent brown colour and acicular prismatic form under high magnification, and non-reflective, brownish, translucent/sub-opaque material (B), both associated with pockets of carbonate in the K-spar aggregate

SEM analysis yields peaks as follows

A Nb, Ti, Fe, Si Mineralogy uncertain Presumably a niobate-titanate of Fe etc It does not fit with the optical properties/ crystallography of the main groups of Nb-bearing minerals (e g pyrochlore, fergusonite, columbite, samarskite) nor has it quite the right indicated elemental composition for any of these

B Zr, Ca, Fe, Ce, La and Th (Al, Si) Indicated mineralogy is intimate, fine-grained intergrowth of altered zircon and unidentified REE and Th minerals in feldspar matrix Some points within the circled area are Ce/La-rich, others are Th-rich

Area 3 Photomicrograph 264-8 Scale 1cm = 85 microns

Patches 25 - 250 microns in size of a sub-opaque material (A), and small clusters (20 - 60 microns) of a low - moderately reflective hematite-like phase (B) In fine-grained feldspar at contact with a patch of carbonate

SEM analysis yields peaks as follows

A Zr and Si Indicated mineralogy is zircon

B Ce, La and P - suggesting monazite This does not fit the optical properties An adjacent point gave peaks of Si Ca and Th - suggesting thorite Location of a specific small grain in the SEM is often difficult especially in intimate fine-grained intergrowths like this and it seems likely that the oxide-like phase was not actually analyzed

Areas 4 and 7 Photomicrographs 264-10 (reflected light) 264-11 (cross-polarized transmitted light Scale 1cm = 85 microns

Equant grains, 100 - 200 microns in size, of colourless, transparent, high relief, moderate to high briefringent mineral (circled on photos) in the K-spar aggregate or carbonate patches

SEM gives peaks of Ce and La Indicated mineralogy is bastnaesite This is consistent with the optical properties

Area 5

Confirms the matrix composition as perthitic K-feldspar with scattered, small (50 - 200 microns), irregular inclusions of quartz

Area 6 Photomicrographs 264-12, 13 Plane-polarized and cross-polarized transmitted light Scale 1cm = 170 microns

The composition of the diffuse, patchy carbonate pervading the feldspar marginal to the discrete central carbonate veinlet is indicated as ankerite, Ca Fe (Mn) carbonate The rare earth/Zr mineralization appears often to be associated with this component

The composition of the central limonite-stained veinlet is confirmed as Fe carbonate (siderite)

No peaks of Y or Nd were obtained in any of the areas analyzed, and the form of these constituents remains unknown The study suggests that the bulk of the Y is <u>not</u> in the zircon

Additional work on more Y-rich sample material and/or heavy mineral concentrates is recommended

J F Harris Ph D

(929-5867)

30 days

"Rite in the Rain®"

ALL-WEATHER

FIELD

Notebook No. 351

J. Dodge

YMI·P

1992

#1

92-122

(12) JUNE Friday

Travel - GMC 4x4
Whitehorse - Ross River

27,980 mi
28,250
270 miles = 435 km

1.61 = k

(13) JUNE Sat

Contacted John Whitcom TNTA
Drove to KP-31 (airstrip Xing)
of Ketza and retraced topog.
each km to camp @ 24.7 km
on Ketza Mine road.

28289
28250
39 mi = 63 km

Scoured creeks @ 24 and 25k
for Mva float - as well, checked
uppermost E road cut between the
creeks. Collected 10 pcs hornblende malaxgranite
and Mva - buff to light orange weathering
syenite agglomerate - 5mm max size
of angular fragments.

Drusy, open-space facies zone float (angular, near source - 1 to road and 10 m E of ℄, see R.L.K. map (NNW)

14 June - Sunday - Clearing up - sprinkle

Set altimeter @ 3500 feet.

@ 4100 - Black shale.

4280 - Mva cream coloured, fine grained volcaniclastic lenses syanite w white qtz stringers. - may be bedded argillaceous sediment

3 Hem breccia in scarp

@ 4500' - outcrops very Limonitic, silicified Mva fine grained dark grey syanite flow?. Outcrops have E-W bedding 70° W (15 cm thin parting horizon) tuff?

also N-S jointing 80° N

(14-1) Sparse and thin (3 m) white qtz stringers N-S 30° W. Fine gr disseam pyrite

3 pm 5250'

14-2 Limestone (dolomitic) 140° 60 W

Barite, Fe Ox fissure @ contact with "overlying" syanite - ↓ 125° steep - up to 1 m wide. Is with qtz veinlets 1-mm // to bedding. Exposed for 75 m on east side of summit ridge.

On descending traverse - bedrock, vein barite veinlet 5-15cm wide in grey, fine gr. syenite - exposed 3 m @ 60° 4700' elev. One vesicule contains fluorspar.

15 June - Monday Clear, breezy 10°C

@ 4430 (uncorrected from 14-06)
Breccia pipe, barite, hem limonite. Exposed 5m x 15m. Layering of syenite 110° 45S. Slickenside on breccia exposure 155° 70°W

@ 4700
Contact syenite w. lite brown weathering limestone. Shattered zone 20m wide, hem+, limonite - silicification only weakly into ls.

5180' Barite - see photos
Undoubtedly related to Ba vein @ 5250 of 14-06 summit ± as is 100m ± NW.

Photo triplet alteration (Ba?) on N inaccess slope

~ 5350'

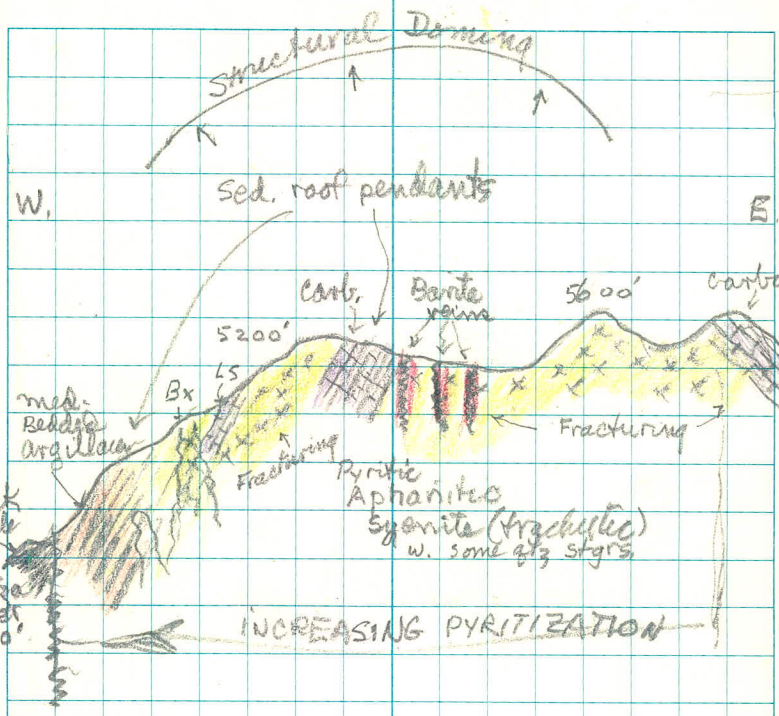
Syenite / argillite boundary no evidence of thermal alteration

Syenite becomes increasingly tan coloured (i.e. less FeO_x on fractures and less fresh fractures) easterly around 3rd peak (5 pm),

Return to Peak #1 (Baritic area) and descent 7:30 pm to camp.

Summation of geologic setting from traverses 14-15 June →

Y Zr Nb Be (Au?)



1) Hi level exposure of (aphanitic) syenite centre.
2) No skarn developed in carbonate sediments as pelagments
3) Pervasive pyrite frac. coatings in argillaceous sediments and in aphanitic syenite
4) Paucity of fluorite
5) Paucity of calcite (anhydrite) stringers

16 June Tuesday

Goatham stream silt sampling -- north and south of camp - west-flowing, small creeks.

✓

5

17 June Wednesday Bar. dropping PC 10°

Thin bedded, buff ls underlain by tan chert 3700'

✓ E-W 20°-30°

6

Black shale exposed in creek banks @ ~ 3600' (downslope to north)

@ 4000' S bank of creek

Claim posts (6-10 yrs old)

? (M-W) GLE 3 @ GLE 4

1500N 1500L 1500N 1500R

? C GODLIN ?

? Aug 5 1979

No tags

Ribbon still had some orange colour

4700 - 4740

Hydrothermal paleo-HS vent - 0.5 Ha bleached to off-white - shaly-weathering - silicified w. occasional rounded oval 1-2 mm breccia fragments (some apple green tinted) ± larger pieces indicate progenitor probably black clastics - surrounds the crudely circular, relatively barren vent outcrop. See Photo. 50m east is greytuff cellular, sponge-texture

Needs geochem Hg, As, Au

4760 - 4775

All evidence now points to breccia pipe as wide range of compositions - mafic, limy, K-spar, pyritic breccia etc. - stand out as large, rounded-edge pieces up to 30 cm across. Host appears to be black shale.

Had time to examine only about 100 m of zone. Curious glassy blue clay exposed in several bear diggings.

18 June.

4450' - Photo of "cream frosting" taken in northerly direction; 3 summits of 14/15 June traverses on skyline.

4720' Lunch below breccia outcrops - 150m N of silicified meta-sediments

5280' ↔ 5400' N of main E-W gully. (5pm)

Breccia -

? { Tectonic - / Auto- / Intrusive

Much carbonate as clasts and matrix along with argillite chips and orange-limonite coloured centres (1-2 mm) which under hand lens are white with tiny limonitic pocints.

Ankerite stringers and clusters.

Distribution of outcrops exposing brecciated / healed $SiO_2 + CaCO_3 + Ank$ now known over 10-12 Ha

Proximity of paleo-fumarolic activity - argillic alteration, tufa

Further prospecting needed easterly into cliffs above 5500' alt. where (from float) trachyte outcrops. However, should wait until have scintillator working and until snow has melted off north and northeast facing slopes.

Binocular microscopy confirms field identification of gross characteristics of breccia zone.

(19) June Drove back to Whitehorse

start 28289
+ 310
28599 speedometer miles

8

(01) JULY - Wed. (from 28615 @ Whse to 28870 miles)

Drove Whse - Ross River 255 mi Hot 32°

✓ Helicopter - Trans North Air

9 5^00 - 5^15 pm to campsite @ 6330'

Gusty winds (205392)

(02) July - Thur Sunny - 20° ideal

P.C. in evening - heavy shower 8 pm.

Traversed ridges to NW/WNW from camp. to 290417.

✓

10

195400 - vesicular leucosyenite 75m wide (115° 60 SW)

"B" on xerox map 19.15E 40.85N

Post No 1 YB00485 to SE (2 posts) along ridge crest

" " " YB 00486 to NW 100-150 cps

(no No2 posts)

(Grey weathering) Grey syenite N/S foliation oval Feld-filled vesicles

"C" xerox Post No1 YB00487 + 85 #2

" " YB00488 86 #2

Both to SE

Leucosyenite 100-150 cps

These are GREG cls cancelled.

→ Lunch - mela-syenite massive 250-400 cps qtz stgrs.

After dinner @ 100m E of camp found up to 500 cps (highest reading of day) - 1mm specks of CaF_2 purple in sheared $CaCO_3$ + limon + qtz in leucosyenite.

Bar. fell all night — Cloudy — 6° a.m.
Heat wave broken. — Showers

(03) July Fri

✓

11

Batteries out, in Spectrometer. 10 am

@ 6360 - 6450

Syenodiorite w K-spar splotches and occasional dikelet (1 cm wide)

Appears dike-like melano- or plug?

see Geology map

Xlization 1-2 mm sized plagioclase, hbl, qtz⁻, orthoclase

Blocky, dark grey weathering; med., equigranular - (distinctive)

@ 6630

Foliation of (tuff?) syenite 60° 70S

Severe electrical storm (+ rain) @ 3 pm turned back @ 224381.

After dinner re-examined "hot" area E of camp - more CaF_2. Uncertain nature of serpentine-like lenses.

(04) 07 Sat. Dense smoke from NW - resulting from fire set by yesterday's intense electrical storm

12

6700' Two nearby outcrops gave up to 300 500 cps.
6650' near 221381 on ridge - weak gossan. - Ca F₂
90° 75°S sheared grey, v. fine grained syn.
Tiny white "squiglas" throughout. Many
x faces reflecting light - some pyrite.
Need binoculars + micros. tonight

Very lo counts <100 Tan, blocky, aphanitic syenite 90° 70S
225384 Snow cornice on knife ridge - impassable.

224381 Possible fault 130°

(05) Sunday
Dense fog alternating with 1-2 hr rain - unable to expose Spectrometer to use in this weather
✓ Lo-Lo barometer
13

(06) VII Monday Low clouds 10°
Dense fog & rain until 1300 - then mostly strong winds. Barometer rising.

✓ Traversed east slope below camp. much 200-300 cps - sheared
14 meta-commingled syenite - chloritized mafics no CaF_2 detected. Is this anomalous radiation from the greened alaskite?
6290' 207393

07- VII. Tuesday <10°

Dense fog until 10 am

Traversed E slope of S ridge

syenite plug(?) mostly coarse grained equigranular hbl, orthoclase (blk weathering), blocky, However, leuco-syenite in segregations

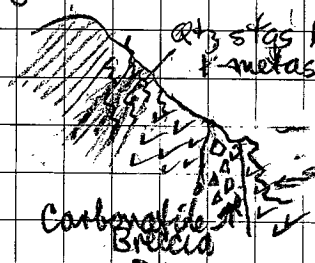
15

Up sharp ridge toward peak - apparently a carbonatite with ferroan (orange weathering) carbonate lens & stringers - all responds HCl. Undoubtedly intrusive - becomes a breccia pipe 60m wide (snow cornice conceals eastern extent) - with leuco-syenite to 6480 alt. 21838 Float of aphanitic dark green/blk dike?

Very low cps across syenite and carbonatite/breccia., i.e 70-90 cps.

(fracture shell) On return climbing up into syenite tuff(?) with qtz stringers (1 m - 1 cm) identified zone with >300 cps - and minor CaF_2 w. brown (blk weather) frac filling crystalline mineral. Not like zircon from Sleeper, anomalous

zone as talus initially, but finally located bedrock — ↑ metasomatized with pea-green (chlorite?) splashes on fracture planes. Noted dusting of 0.5 mm black crystals — some hematite and few blips of fuchsite. Outcrop (surrounded by talus) exposed 4 m × 5 m. Head to run geochem. 2103895



5°C @ noon

08 Wed Fog & rain until noon. Strong westerly winds, barometer continues to rise.

16 Carefully prospected 100-ft high hill 3-400 m WNW of camp. Noted fine grained, blocky, unaltered mela-syenite — probably shell of lower coarse-grained syenite along northeast slope of hill. Very low 50 cps — considered this to be "background count".

Top of hill was underlain by K-metasomatized aphanitic syenite — for most part blocky weathering with 150-200 cps throughout.

On the southwest slope, an area of bedrock 20m × 5m displayed 300-400 cps with one site to 550 cps. Exposed on the south slope was a 1.0m wide grey-brown weathering granular (2m) weathering outcrop of a black dike 90°-80°S, much brittle

and phlogopite (1 mm plates and books) (10%) with a fine grained dark brown matrix (zircon?). Up to 600 cps distinguish this dike — i.e. 12 x background 202393 This area clearly most interesting so far. Need to prospect down SW slope for extensions — hopefully still in the halo of gas streaming from the main syenite intrusive.

09 VII Thur a.m. 5°C - cloudy (no rain or fog!)

17

Confirmed westerly extension (from outcrops in talus) of black dike which shows 350-500 cps down to 6100' alt. where finally buried by talus. Horiz distance of exposed radioactive dike is ≈ 250 m. Dike clearly cuts K-metasomatized flow-tuff syenite. Some silicification of syenite extends for 5-6 meters outward from dike.

Then @ 6200' contouring - crossed blocky weathering K-meta. ~~Syenite~~, some 150m SE of dike, with broad zone (50m) with 250-350 cps - some white, narrow (1-3mm) qtz stringering and occassional qtz stringer with coarsely crystalline qtz and the brownish-bldsh unknown xls. - see specimens this date.

pm/

@ 6020' 203386-7

135°. 75W Dark grey weathering, cliff-forming meta-sediment 150 cps average qtz/calcite stringers within 5m of contact with ~~Syenite~~ tuff w >200 cps up to 300cps in syenite.

(5700-5800')

@ 203386 Contact zone between syenite (tuff) and diopside hornfels - both conspicuously laced with qtz stringers - over an area of ~0.5 ha 275-325 cps. or 6x background. Noted in several specimens a creamy white lustrous flat bladed xls about 1mm long - very much like Eastmanite. Again, rush.

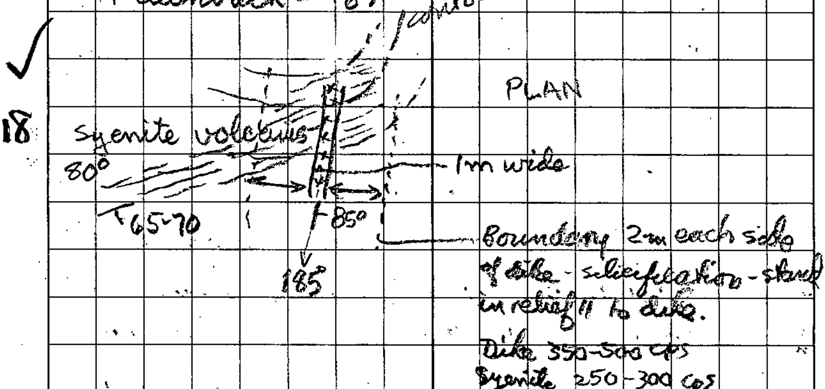
of the dark brown (H = 5,5) mineral in qtz stgrs and as disseminations. This area so far unique in uniformity of radioactivity - lowest 250, max 370 cps. Will extend prospecting south tomorrow.

Sun broke through @ 4pm - in time to photo isolated stage of shooting star ballerinas dancing in the breeze.

Accumulating many geochem rx samples to be run for Y + Zr + Nb

(10) VII Fritag

Flashback - to:



Prospecting again southeast and identified that showing of 07-VII in its 80° bearing w. south inclination puts it on line with 203386 showing as confirmed by a 2x count in outcrops on the southwest facing slope some 50m (altitude) below crest of ridge.

2103895

Small qtz/carb laced breccia pipe in saddle @ 214388 not over 25m in diameter - weakly radioactive. Carbonate is not ferroan. cf 218386 breccia of 07-VII. Non-radioactive syenite volcaniclastics southeast along the 6200' contour to 213383.

TNA chopper arrived 9 pm as requested for camp move, but changed plans as campsite is best situated for further work to southeast and to prospect the area indicated by Morin (1977) as a breccia pipe to northwest. Plan to return to Ross River on 21-VII.

11 III Saturday.

Howling gale by 1pm with squalls.

19 Discovered that radioactive dike on hilltop 400m WNW of camp had been fault displaced (135°) by 14 meters right hand throw. Grain of dike becomes more nearly "medium" to NE as approaching top of cirque cliff.

Crept down cirque wall and encountered white weathering, milky white, aphanitic quartz replacement of syenite - begins @ 6280' and extends at least down to 6100' and its eastern extent to be examined tomorrow. Not particularly anomalous radiometrically.

Traversing down to the "Red Pass" @ 5950' came across a band of [illegible] silicified (fracture surfaces) syenite with 250-350 cps which crosses the Pass and continues at least 30m before covered by talus. Band appears to be 7-8m wide.

+19 7395

At top of cirque a veinlet of calcite and quartz displayed a number large 7-5 mm crystals of the dark brown mineral in question. Some ~~ks~~ had a somewhat rhombic shape. Reddish powder reacted to HCl. Could be ankerite - although hardness ($\simeq 5$) and dark dark brown throughout seems odd. However, some variety of carbonate evidently.

Staying in tent this aft. actually to keep it from blowing away on this exposed ridge. No drunken grizzlys or jumping frogs today!

(12) VII Sunday

Rain persistent with only 3 intervals of pale sunlight. Consequently, used binocular microscope in tent but with only mediocre results owing to inadequate lighting.

Barometer even at 10 pm very very low, i.e. altimeter reads 6900' when

camp is only 6330 on map!
Understandable how aircraft
in cloud plow into mountains,
of altimeter not properly set.

(13) VII Monday
21 One memorable storm - high
winds virtually continuous rain
often horizontal in (fog) clouds.
Barometer began its rise around
noon - and now 9 pm - a few
breaks in clouds are appearing
but still black to northwest.
Have "increased" 200' of barometric
pressure.

5450

14 VII Tuesday

Fog until 9am. Heavy cloudcover all day. Barometric pressure rising with altimeter "losing" 500 feet.

Crept down talus slopes to north down to 5450' altitude to examine curious, broad (200m) zone of milky quartz replacement of syenite and some banded meta-sediments (hornfels). Several rusty gossans within the silicified zone provided pyritic samples for geochem Au-As-Sb since this could fit the alkalic-gold model (eg Cripple Creek, Colorado) and Fiji Islands. 204 397
No. radioactivity - 120 cps background.
Eastern boundary is dark grey weathering aphanitic syenite with no qtz stringering as might have been anticipated.

Back up out the 900' vert elev with samples returned camp 7pm

pyrite generally not cubic x'ls, 22

15 ttt abd

Dense fog until 11:30 am.

23 Traced "main" (1st identified) dyke down hillside to south-southwest to the 5920 altitude 200389 where width is at least 5m as it assumes appearance of medium grained biotite/hbl syenite - few pyrite xls - outcrop slightly rusty. Nevertheless, 250-300 cps extends laterally up to 2m each side of essentially vertical dyke. Main dike now identified for 500m length of outcrops.

Traversing northwest ca. 60-m revealed flat erossional resistant ridge @ 5820' (199389) is foliated cream colored rhyolite with qtz stringers 135° 50NE (some parallel calcite stringers) - 250-300 cps (440 max). Zone trends 30° across foliation (140° 50 NE)

Higher, on this same zone (6400') silicified syenite flow breccia - with distinctive pea-green (chlorite) and mauve (hematite)

irregular patterns (minor qtz stringers)
gave surprising 250-350 cps. Some sericite?
Fine disseminations of black mineral. This
zone - up to 6 m wide - lies from 2 to 3 m
south of the No2 radioactive
biotite syenite dyke.

(Jet Ranger)
Helicopter passed 2000 m to south
@ 6.40 pm on a 45° bearing.

(16) VII * Thursday
Down into cirque 1 km to north of camp.
✓ Traversing north (on east facing slope)
24 @ 5450' altitude encountered m^3
boulder giving up to 1,510 cps. another
6-8 smaller boulders located under
heather turf up-slope (60°) for 40 m distance. No
apparent bedrock yet - began to rain
so couldn't use spectrometer in further
search. Rock is mottled cream / white,
and black - perhaps some crude (6-10 mm scale)
flow lineament in melanism dike? alignment of white (feldspar?). Black
is aphanitic. Several tiny pods of
also carbonate no - carbonate

brassy colored metallic mineral. Limonite on fractures, but generally boulders are weathering, tumbling resistant - "tough as nails" to break for samples. The 1570cps reading is 10 to 12 times background and is range of radioactivity have been hoping to discover. Of course it may be Th only - i.e. without Y + Zr + NG + LREE.
Location: 203402

This occurrence shifts my focus from highest altitude sites (presumed that young F_2-rich segregated fluids would rise in fractures over - or along flanks - of extrusive volcanics or plutonic syenite masses), to lower-settings where dikes may have risen along young fissure zones in (?) aphanitic (chilled) syenites.

(17) VII Friday fog/Rain until noon. Reconnoitered northeast of camp down spur across volcanics & volcaniclastics to 5850' were medium to coarse grained syenite crops out and extends to valley floor + NE of valley creek at least 100 m.

No outcrops SW side of creek for 1 km in NW downstream direction.

Camp at 5 TAKU 1-7 by J. Wh. Thom Oct 26 1977

As soon as reaching site of anomalously radioactive float (yesterday). It began to pour rain! Kept raining for 1 hour, so gave up plan to search for additional showings - couldn't use spectrometer in rain - returned camp 6 pm.

(18) VII Saturday clear a.m.
Thunderstorm 3-4 pm.
Gale @ 7pm nearly blew tent down.

✓ The 5450' showing:
26 Dug below turf on weakly anomalous radiometrics exposing float train for approx 40 meters - no top or bottom extensions. However, float is >1000 cps.

Traversed NNE around south limiting ridge of multiple cirque @ the 5500 altitude. Unique talus distribution giving appearance of glaciated talus slide - perhaps triggered by earthquake. Boulders over 3 m^3 common in a raised talus ridge.

Began finding slabs and m^3 chunks giving 1500-1500 cps. Flagged over 12 chunks as walked toward (West) current talus slide where also found radiometric "highs" - surprising to find one giving 3,840 cps!!

All samples were fine grained cream to grey - very tough to break. Some fine fine grained crystals - black. All samples (HCl) were 90% + carbonate. Must be dealing with carbonatite dike - hydrothermal. Several samples displayed mauve / pink hematitic zones.

Need to prospect west & broad (.500$_{m}$) distribution of multiple talus fans to north. Dimensions of largest radioactive boulders points to a bedrock source (vein?) at least 2 m wide. Seem to be on to something, if assays give good values in Y+Nb (and other HREE maybe).

19. VII Sunday

Day off YIP - J. Morin of INCO flew me down to examine Fyre Lake VHMS deposits.

20. VII Monday Low clouds and drizzle until 10:30.

27 Resumed examination of talus north-northwest of talus slides checked out on 13. VII. First slide was dominantly soarn - dispsidic for most part. Second slide was mostly mela-syenite coarse grained. Although carried only one radiometric line across these 2 slides - no anomalous counts were detected. Moreover, none of the typical medium to dark grey fine grained metasomatic carbonate (stite) was noted.

Thus prospecting should be continued only in the 3 southmost talus cheutes for radioactive bedrock

Climbed (1100') the spur bounding the southern rim of a vast gossan in the next northerly cirque. Med to coarse grained leuco-syenite outcrops between 5500'-5900' elevations. Cream colored fine grained foliated syenite and volcaniclastic syenite between 5900' and 6100'. From 6100 to 6300' dark grey fine grained (black weathering - distinct) Syenite + sparse $CaCO_3$ seams with almost uniform radiometric anomaly 250-300 cps — 4x the lower plutonic syenite and 2-3x the subvolcanic syenite. Outcrop appears to cover 0.4 h area. [19541.0]

21-VII Tuesday

Showers ended 11 am

28 Staked GAMMA #1 and #2 - see sketch attached - rock cairns - photos

Post No. 1	Post No. 1
GAMMA #1	GAMMA #2
1500 S	1500 S
1500 L	1500 R
21 July 1993 James Dodge	21 July 1993 James Dodge
TIME: 15:00	TIME: 15:05

Common Claim Line Marker - on crest of Spur of cirque @ 6000' - cairn ≈ 180° Az

POSTS Nos 2 - 16:40 / 16:45

5780' alt.

(22) VII Wednesday clear until noon, then mostly sunny. No rain!

✓ Binocular study of pile of samples from various sites.

29

Amber to honey colored, fine grained, translucent mineral with indistinct crystal habit - perhaps tabular - seems common in all the higher radioactive (say +600 - in situ) boulders.

Saw no allanite needles.

Dark brown pyramidal crystals - some with indistinct crystal habit show (limonite ?) yellow cores.

Fluorite noted in samples from only 2 sites: 50-150 m South of camp in foliated, carbonate rich, volcaniclastic syenite and in dark grey, aphanitic syenite 200 m South of Peak 6875'.

CaF_2 can represent evidence of high level magmatic fractionation. OK for Y, HREE

Collected additional samples 50 m south of camp from a 3-4 m wide zone of foliated volcanoclastic syenite.

23 · VII

30 ✓ Down to 5386 creek bed below "main" float train. On low hill southeast side of creek - carefully (very slow walk) checked for radiation and, in spite of gamma-ray absorption of 10-20 cm of heather turf - was able to locate a float soil zone with up to 350 cps. The detection for background - 110-120 cps jumps to 200 cps (sound signal on spectrometer) over sites where removal of turf and digging down say 25 cm into orange brown soil containing 50-70 % rock chips and cobbles most of which are only partially rounded. No specific rock was identified as source of radioactivity. Majority of rock chips

are medium to coarse syenite with some pieces exhibiting chloritic alteration.

(201400)
Location of these test holes is ≈ 135° from the hi-gamma train of large boulder float on SE-facing hillside. Wonder if it may be related to same mineralized zone?

Helicopter moved camp back to Ross River — 8:30 p.m.

Drove to Little Salmon Lake (nap) then on to Whitehorse by 7:30 am 24th July @ 29130 speedometer miles

46
45
44
43
42
41
40
39
38
37
36
Porcupine
Creek
4500
6300
5500
5500
7000
5000
6000
C Y R
6300
6845
6300
5700
4600

Green - hypabyssal syenite

Purple - radioactive fissured zones

Yellow - syenite flows, tuffs, volcaniclastics, some viscicular dikes, breccia/dike carbonatite

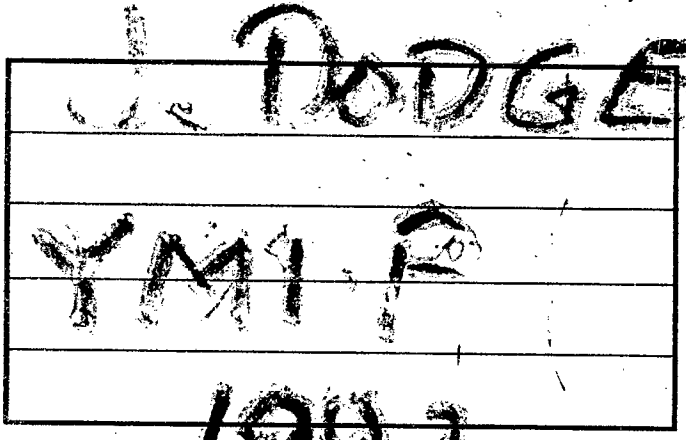
31→63 days

"Rite in the Rain®"

ALL-WEATHER

FIELD

Notebook No. 351



(#2)

02 VIII →

92-122

02 August Sunday
Drove Whitehorse to Ross River
8am – 4pm incl lunch & coffee stops
255 miles
31 Lv Ross River Trans North helicopter (John Waltham) 5pm – arrive campsite (204401) 5:20pm 5400' alt.

03 August
a.m. Located 10 new radioactive boulders in cirque and can from their distribution, determine most prominent talus slide to try to climb to reach possible bedrock source.
32

pm. Prospected northeast down to 4800' alt @ jct 2 creeks. (208408).
Collected several pyrite + pyrrhotite syenite rocks – one with molybdenite. Mostly felsic syenite with weakly developed gossan zones. Much carbonatization
No anomalous gamma radiation.
However, will run sulfide samples for gold and (?) Tellurium – as this is alkaline

environment

04. VIII 6° to 15° Low clouds to 9 am.
Groundsel Forget Me Nots
Arrowleaf Senecio Dwarf Fireweed
Bracted Cinquefoil
Northern Star Flower
J Burnet
33

Trenching 150 m E of camp where gamma radiation on undisturbed surface was 180-190 cps - on digging to 30 cm count was 250 cps - at depth of 0.9 meter count was 400-450 - still no bedrock nor any float that alone appears to be anomalously radioactive. Two shallow (30 cm) trenches down slope 10 and 20 m NW also gave 300+ cps.

Prospected E from camp to creek @ (208400) where came on large boulder (1m cube) of dark grey carbonate-healed

breccia - sparse pyrite. Numerous small boulders of dark grey carbonate which weathered pockmarked - distinct. All give impression of a carbonatite (dike?) - not anomalously radioactive. Some lamprophyre dike boulders.

At 210400 on talus below prominent "black buttress" collected gossan fissure filling carbonate + pyrite and pyrrhotite. Host is medium to coarse grained felsic syenite. Some calcite + ankerite + chalcedony (seams) as fissure filling cutting syenite. No anomalous radioactivity.

05 VIII

34 Contoured @ 5400± north 1 km to steep gulley. On way down the west-facing scree slope - noted two adjoining boulders of fine grained, dark grey carbonate with 250-300 cps.

Once in creek boulders detected a very hi (700 cps) count on a .2 kg slab of what appeared to be carbonatite - white with widely scattered rusty ankerite centers (3-8 mm in dimension). No discernable radioactive mineral. Several more pieces up to 10 kg - high 400-500 cps. However, by far the majority of carbonatite boulders were only slightly - say background to be 165 - then boulders would be 180-190.

2 m wide siliceous pyritic fissure filling vein was sampled. K metasomatism of syenite bordering vein.

Finally reached bold outcrops of carbonatite (see photos) - mostly coarse grained white with

(201408)

Sparsely distributed small (3-5 mm) patches of ankerite. Blocky weathering except where N trending, vertical fractures gave a vague foliated aspect. Carbonatite - as exposed in gully - is 60 m wide and from 5400 - 5460 m in cliffy NW side of gully. Talus of carbonatite also on NW-facing slope. Hope to check out N extension tomorrow.

Interesting post-carbonatite calcite-pyrite vein - perhaps 0.5 m wide (from max dimension of float - spectacular ~~bright~~, large 1 cm xls on surface with concentration - swarm of 1-2 mm xls pyrite.

Lugged back 15 kg of samples.

Noted hunters camp (+ horses) @ 209411

(06) VIII Thursday Steady drizzle
√ no radiometric prospecting - only
35 geologic recon. re-examining boundaries between evident plutonic (coarse grained) syenite and the sub-volcanic aphanitic to fine grained syenite - on ridge 300'+ NW of camp.

Implications of discovery of carbonatite yesterday: radioactivity may be coming from suite of LREE rather than much HREE content. Analyses for yttrium will confirm suspicion. Reason: Carbonatitic assoc. deposits with dominant LREE are Mtn Pass, Wet Mountains, Powderhorn, Idaho-Montana, Inner Mongolia Obo Bayan, Oka (Que.), Bearlodge (Montana)

AMBROSE
STACK
CAMP
RAIN
AL
COP
PIZZA
GP
KON
OXO
KETZA
STACK
MP
COP
LANCER
PESCOD
Ketza River
SUSAN
5500
5000
4500
4000
1500
1700
1800
1166
2051

07 VIII
Steady heavy rain all day
36 (beginning 01:00

08 VIII Sunny - mild
Lost pocket magnet

37 Traversed NNW contouring @ 4900 to 5100 altitude across various talus slopes to reach the scree slopes in the prominent gossan Cirque @ 194 414 coordinates (as center of area examined.

On way around 198411 noted much pyroxenite float - which generally "fits" the carbonatite model of Mutschler et al Trans. Geol Soc So Africa #88 1985.

Within cirque noted pyroxenite as 10m wide dike(?) @ 198413

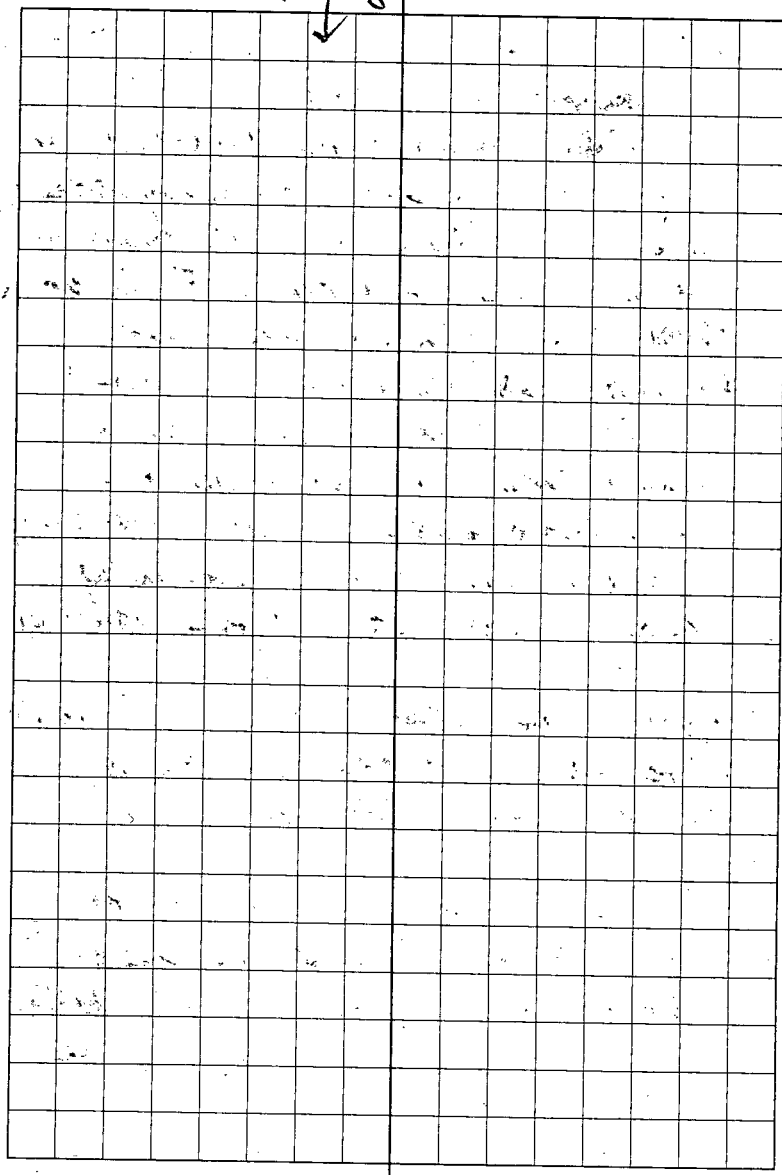
Carrying on across scree slope at the center over a 75-m width noted anomalous radioactivity i.e 190-290 cps without being able to pinpoint any particular talus piece - cursory? This area clearly comprises calcite and carbonate-healed breccia. Breccia comprising fine grained syenite, carbonatitic fragments, and even some lamprophyre. Considerable quartz-pyrite fracture filling talus (which was sampled for Au).

Again this seems to relate to an explosive breccia overlying a carbonatite intrusive.

This breccia talus appears to be coming from a cliffy outcrop somewhere around 6100' altitude and may be accessible from top ridge.

anomalous radioactivity a guarantee but possibly LREE-bearing source rather than Yttrium.

Korok Fig 3.



09 VIII Drizzle until 9am Partly sunny -

@ approx. 196404 5600' alt

✓ traced radioactive boulders up

58 steep 30° talus slope reaching base of cliffs and found broad exposure of 300 cps. worked way SSE along cliff (some spooky loose overhangs) tracing good radiation for over 50 meters - and evidently up to 5 m wide. Both SSE and NNW the zone is concealed by talus - one chute is "active" as cornice melt must be loosening real hot rollers careening down past me. The trend of this zone appears to be approx 115° w inclination 70° E - however, sharp contacts of this $CaCO_3$-metasomatic are poorly displayed. A vague ghost of apparent dark parallel banding (replaced roof pendant?) 160°-45°W has been metasomatized with carbonate-bearing radioactive minerals (too fine to identify w handlens).

Across talus slide to north - sharn is exposed in cliffs, but on line westerly from NNW projection of radioactive zone.

Scree slopes cover SSE propagation but would cross the ridge above camp @ ca. 5700' alt. However, to date haven't been able to trace float (covered by turf) all way up to ridge from the train of radioactive boulders found in gully. Must make very diligent radiometric survey that ridge tomorrow.

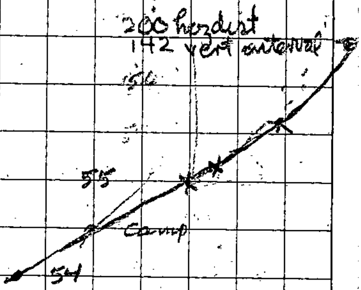
Brought down 10 kg samples from cliff exposures.

10. VIII Sprinkles in a.m. otherwise partly cloudy 15°C

39 Found genuine bedrock (275 pg) on ridge above camp after 2 hrs methodically locating radioactive chunks - mostly under turf. However, most is aubrite-rich, sheared syenite - partly metasomatized by CaCO3. Thus, boulders down slope are in tough, blocky fully metasomatized and with radiometric readings much, much higher. Therefore, have begun trenching around some of highly anomalous group of boulders below to see if possible to get to bedrock.

✓ 40

(11) VIII ultimate clear a.m. 5°C



assume camp = 5450'

Lowest pit in float = 5508'

First Big Boulder = 5532'

Float below tall bushes = 5560

Rusty radio outcrop = 5650

Crest of ridge = 5660

Photo taken to WNW = 5750

on-line cairn = 6050 med grey syenite 0

olive aphan syn 60

5980 olive " " + FeOx 134

5950 olive aph syn to 165 / 192

5850 → grey " " 281

crest levels off

cream to tan
auto bx, syn volcanic
(mafic dike 2m) 341

5800 406

5780 grey to olive aph syenite 468

cream to pink
syn volcanics

5680 752

Grey aph syn 779

white + FeOx syn volc 786

6050
5450
5510
100' vert
inclination

5650 Prominent radio- outcrop (827)

786

Rusty brown blocky syn vole - aitosite ++ some shearing + autobx.

apparent Az 130 45W

Black syn? - 2' thick weakly radio - N side only

(Sharp break in elev)

5630 = e 875

896

Pink thinly foliated syn. vol.

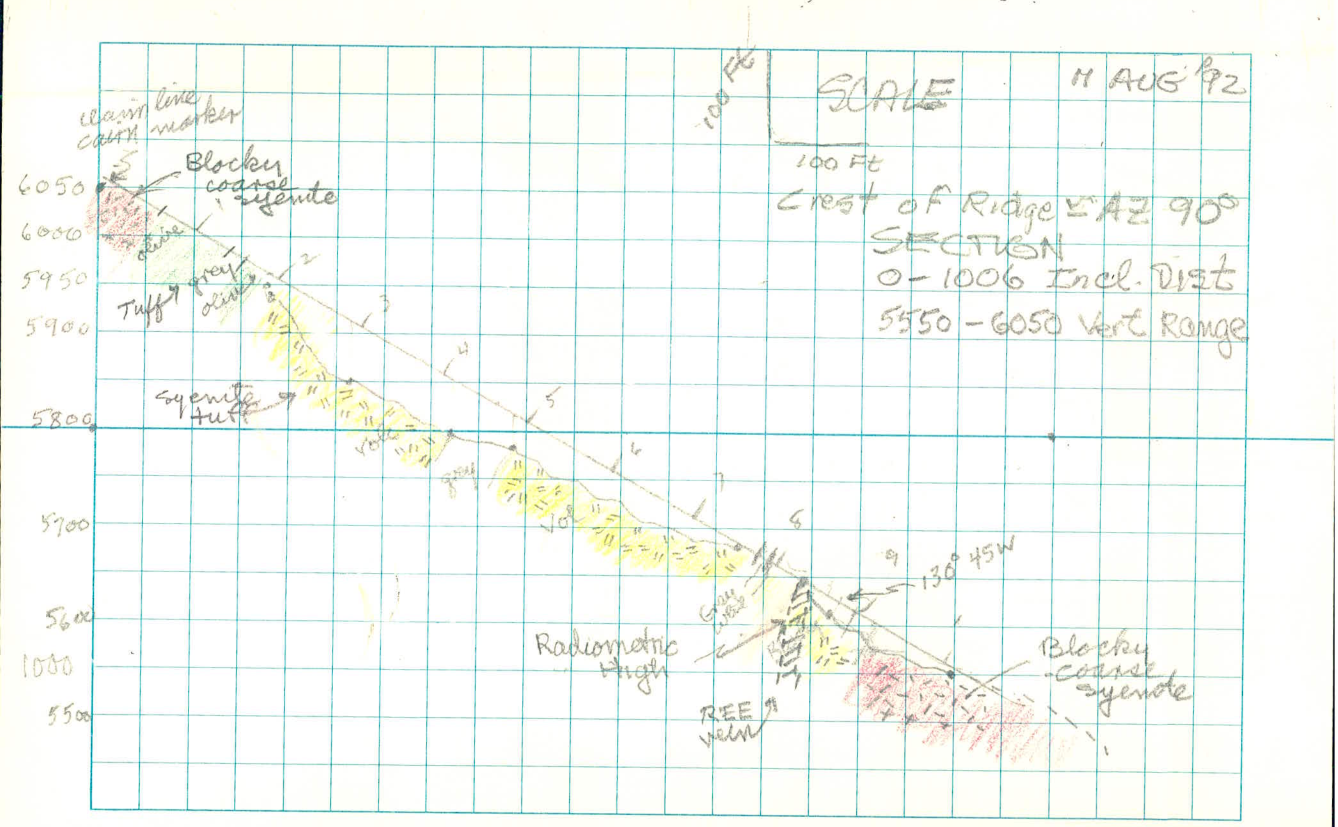
910

5970 Grey, med/crse syenite

1006

5540 Turf begins covering syn but all float is same.

(appears same to creek.)



claim line marker
cairn
Blocky coarse syenite
6050
6000
5950
5900
5800
5700
5600
1000
5500
olive
Tuff grey/olive
syenite tuff
vol
grey
vol
Grey wacke
1
2
3
4
5
6
7
8
9
SCALE
100 Ft
100 Ft
11 AUG '92
Crest of Ridge ≃ AZ 90°
SECTION
0 - 1006 Incl. Dist
5550 - 6050 Vert Range
130° 45W
Radiometric High
REE vein
Blocky coarse syenite

A. Mapped geol. outcrops along crest of ridge above (N) of camp using hip chain. Start at cairn marker on claim line for (6050') GAMMA #1 & #2 and ending @ 1006' where mod/esc syenite covered. Use of feet instead of metres because altimeter displays only feet.

Radiometric high @ outcrop (20'SW of chain line) @ 827' (5650'). Assume dip of blocky syn. volcanics @ 840 = 130°45SW thus zone is reasonable projection of hi-grade float (in carbonate metasomatised blocky volcanics) 5508 to 5560 interval.

Likewise there seems to be reasonable assumption that this vein-type mineralization is concealed northward under heavy talus cover and is exposed as the cliff outcrops confirmed on Cg. VIII. See photos taken today.

B. Returned to grub-hoe stripping and trenching @ 5560 hi-gamma float site.

Cleared off overburden (5 hrs.) sufficiently to be confident that surface float is essentially over sub-crop and that base of stripping uncovers bedrock vein material. A 1.75-2.0 m wide section gave readings 350-2100 cps and samples were taken - brought down total of 40+ kg - out on helicopter return from tonight's move. Will be interesting to learn if Y or the LREE dominate. Am guessing Nb present in either case - more with former, however.

Trans North chopper arrived 19:00 and made move to Coulter Creek camp with 'dry' camp @ (380⁵ 395) @ 5150'. Snow bank @ 5400 made ample camp water supply until gone.

12. VIII

Gale-force, gusting winds
Actually stayed in tent to keep
it from blowing away. - until noon.

41

Examined cliffy rusty outcrops @ 5400 (379395)
NW of camp - AZ 80° 35N Thin bedded
cream to pale green chert exposed for thickness
of 10m in contrast to rest of slope
above & below (to camp) w. no outcrops.
Felx on fractures and 0.5-1.0cm white
qtz stringers common - generally vertical
and trending NW. As this resistant
chert unit does not appear to extend SSW
across tops drainage - perhaps a WNW/ESE
fault is indicated.

In checking radiometrically the several
glacially derived boulders near camp,
found one - white, foliated, tuff (sym?)
which gave 250-300 cps in a 20x30cm
area of the boulder - encouragement!

✓ 13. VIII Thursday 02°C Mostly sunny !!
Baram, Steady Windy am - quiet by 5pm

42

Climbed the rounded promontory NW 500m from camp (378397) c 5900' - on the way continued to note float and occasional outcrops of CPs - mainly siliceous volcaniclastics cream to white color. Only 40-60 cps

Continued NW down a narrow spur to the 5100' altitude crossing a similar succession of strongly fractured cream to white (+ Fe on fractures) volcaniclastics - Az 80° 35N - No anomalous radioactivity 40-60 cps

Traversed South along scree slopes reaching saddle c 5500' (376394) where black shale tuffaceous outcrop. underlying the volcaniclastics. Continuing S to radioactive outcrops (200-250 cps) of blocky, bleached volcanics Az 105 c05-75E. Limonite frac coated zones having highest readings Zone at least 50m wide.

Prior to following ESE down outcrop of this unit, followed saddle due S to blocky talus on north flank of low rounded hill (375389). Found talus to be grey to tan fine grained syenite with distinctive parallel quartz stringering - some cases coalescing stgrs. HCl indicated much carbonate in syenite — been metasomatized perhaps coevally with qtz stgrs. This must be syenite plug referred to by J. Morin "at head of Cloutier Creek (1977)?.

Returned to steeply dipping, blocky radioactive unit & followed outcrops @ A 105-110 for 85m until covered by OB. Thus, this appears to be source of gl. drift boulders near camp exhibiting anomalous radioactivity.

looking West

Host for radioactivity not in a radiating structure from syenite plug. ???

14 VIII

Gusty hi winds - temp 2° C.
Chill factor on ridge -10° C
Partly sunny. Snow squalls
began 3pm.

Returned to syenite plug, took chunk of pronounced white qtz stringering which trends 110° 80°S - virtually parallel to foliation of nearby volcanics. As before, radiometric count merely background 50-70 cps. South side of plug noticeably foliated at contact with black shale - the latter being anomalously radioactive 150-180 cps over 6's exposed width of ca. 35m.

Working along ridge southward crossed volcanics (5600') which had been bleached, silicified & pyritized - epithermal alteration (sampled for Au) - series of shear zones 40/10 055 with similar alteration up to 5800' alt. i.e. along SE flank of spur entering cirque. Marcasite? in vesicular fracts?

From 5800-6000 on this E facing slope volcanics became frequently breccia (auto) with chips of black shale clasts and

volcanoclastics (better description)

lenses of $CaCO_3$. Virtually uniformly all the volcanics exhibited 150-200 cps.

Snow and strong winds precluded contouring to prominent cliffs in cirque - hope to come in lower tomorrow to examine extensive talus slopes. Any Poison Camus here?

- Noted patches of False Hellebore in wet swales - believe contains poisonous alkaloid that may be fatal if eaten!! Guess I'll stick to tinned carrots tonight.

Now convinced that the syenite plug was intruded onto S limb of an anticline of Devonian - Miss(?) sediments - upper horizon marked by black shale pair.

clear

(15.) VIII Saturday - 2°C am
snow during night left 1cm
@ camp + more coating mtns -
see photo

44

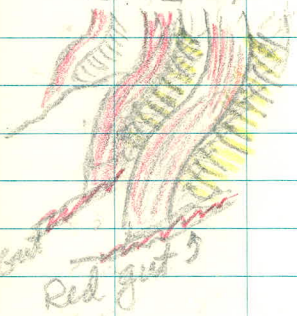
approached cliffs in cirque from NW end. Uncertain where to set contact between uDM sediments (w. their black shale units) and M volcanics. Could be where well-foliated, steeply inclined (50°-60°) limy-lensed volcanics gives way to 35°-40° inclined tuff breccia → (varicolored - maroon, green, tan) and finally to massive syenitic flow breccia with prominent siderite veinlets. Overall - same radiometric 150-180 cps.

evidently epiclastic origin.

Began collecting a suite of white qtz vein fissure-filling - mostly pyritic - as float from inaccessible sites above basal cliffs. The mustard yellow outcrops appear to be a continuous, steeply NE-dipping vein.

(Cloudy all afternoon)

Before reaching halfway SE along base of cliffs had collected out 10 kg of samples and plan to return (tomorrow) to complete traverse - especially to examine vein-like structure seen from distance which appears to crop out near base of the next 2 or 3 craggy spurs. Took photo of



I wonder if this is an example of the alkalic model for Au-bearing veins

Sampling pyritic qtz vein material from each gut, as typically epithermal deposits have shoots rather than continuous values overall length of structure.

One specimen had 1 cm splotch of light green fluorite which implies no unusual gamma radiation - otherwise would be purple colored.

16. VIII Sunday +1°C

45 mixed rain and snow with very hi winds changing in p.m. to rain with bursts of west wind. Too stormy for Coleman stove.

17. VIII Mon Grey overcast + 5°

46 Barometer still low. Heard on Walkman @ 4am that Edmonton was to be 29° today! Sun came out 9-11am before snow 11-1pm then sun again.

(5700' alt)

Continued sampling qtz-pyrite zones at base of cirque cliffs. Noted frequent siderite veinlets. There are (see photo) 2 (perhaps 3) fissure-filling veins parallel @ 110° 80°N separated by approx 7m of massive syn volcanic which has been partly K- and $CaCO_3$-metasomatized. Curiously, this panel gives a 220-250 cps reading.

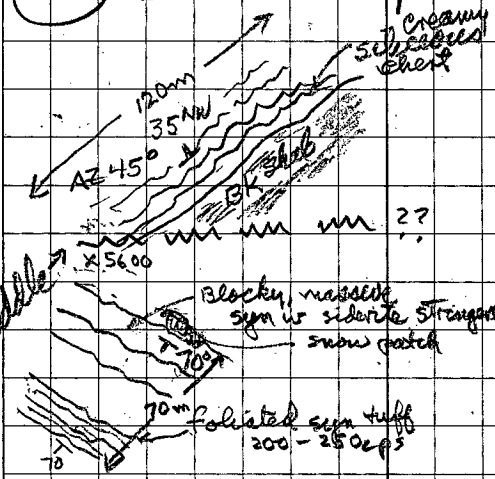
One vein wall was coated with a porous, crusty deposit - perhaps 2 cm thick - with 3: splotches of azurite. Two places light green fluorite spots (1 cm dia). My impression is that these 2 (perhaps a third high in cliffs) may coalesce at depth into one zone - a common tendency for alkali hosted sulfide veins along with their frequent persistence to considerable depth e.g. Cripple Creek >1000 m.

Float indicates a non-mineralized black clastic horizon up-section above the cream to tan syn volcanics. Hosting the qtz-pyrite veins.

Several faults A_2 45° 80° NW cut veins; but displacement, if any, not evident.

18. VIII Tuesday Snowing until 9:30 am

✓ 47



Extended the prospecting of base of cliffs in cirque to a point 50m E of third rusty gut. Continued to find 2 veins, parallel and inclined on average 80° N. Sampled white vein qtz with pyrite (0.5cm) seams and lesser disseminations.

Melting of last night's snow causing noticeable rock falls off cliffs - watch it!

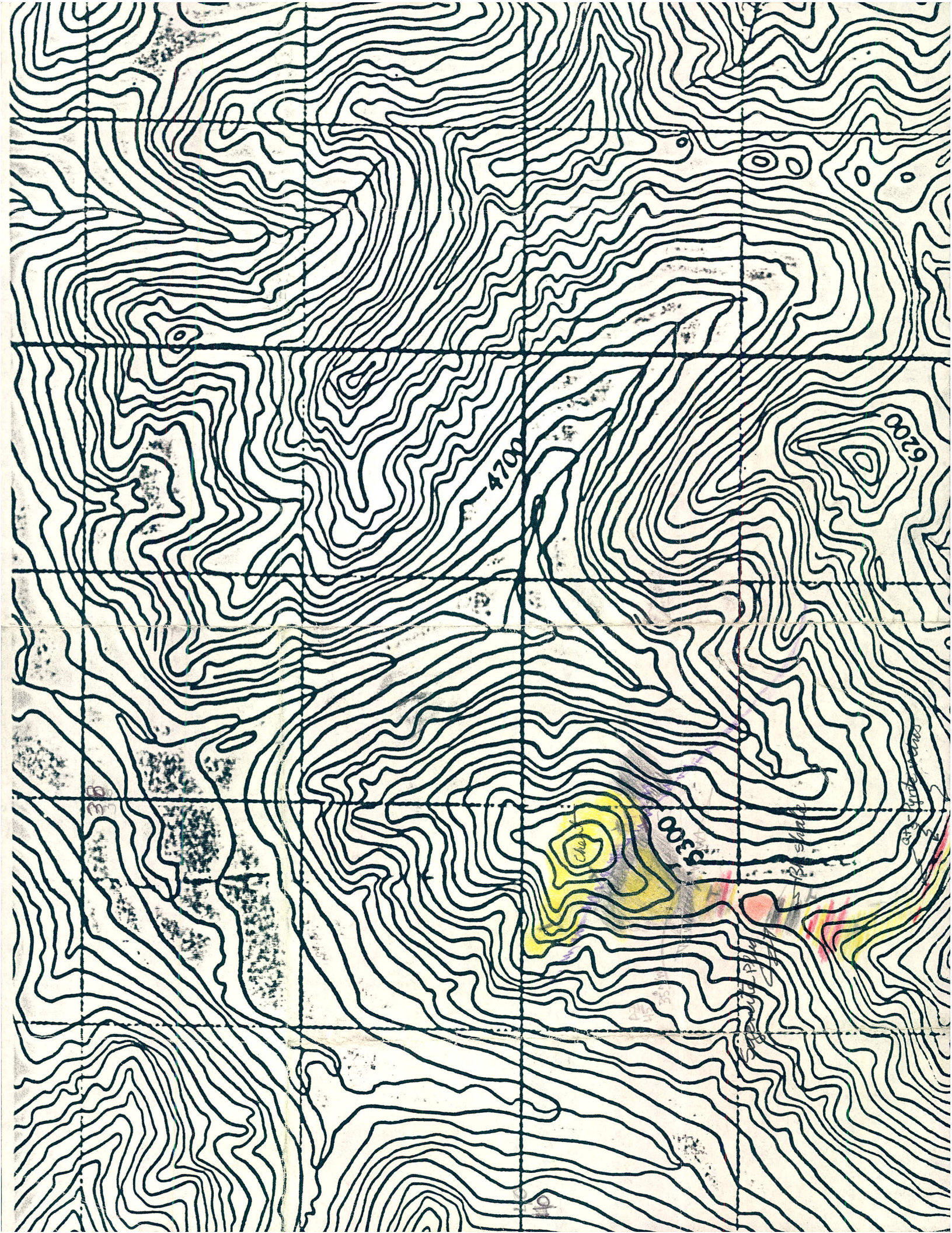
Saw band of 8-9 sheep about 150 yds NW of syenite plug as I came over top.

19 VIII Wednesday

Rain / snow above 600 m until 10 am.

48 Returned to original syenite plug and checked hillside w below it, but found (ground squirrel diggings) that black shale subcrop is only 20m vert. and 20m westerly from top of plug.

Re-examining two buff to cream weathering outcrops (low cps 50-75) with blocky tendency - now conclude these are syenite dikes - each approx 6m wide - fine grained to aphanitic. The nearby foliated, SW inclined units appear to be K-metasomatized syn. tuff with 150-250 cps (from K-spar?) Host for syenite is black shale with 100-125 cps within 6-8m from syn contact. Virtually no thermal metamorphism of black shale - except for some apparent weak K-meta near (up to 3-4m) of SE boundary of syn plug. Shale exhibits a "welded" appearance with development of 0.2-0.3 m thick massive beds w. granular texture.


4700
6200
5300

The stockwork of white qtz stringers is found only in the plug and not in the dikes - siderite veinlets and disseminations are characteristic of dikes of the plug.

Helicopter due @ 7pm for return to Ross River. Arrived.

Drove to Drury Creek campground overnight; with whitehorse on (20+km).

49

29 VIII
✓ Lv Whitehorse a.m (early) arriving
50 Ketza River tote trail 7 pm and
up "BIG" hill to timberline
crest @ 9 pm - 320 miles

(30) VIII +2°C Spotting snow, but warm
✓
51 Prospected ridge top (RED EAST)
primarily to reach reported
syenite volcanics at SE
nose in timber and in part
above timberline.

Crossed Cambrian calcareous shales
overlying black shale for 2 km
along ridge finally reaching
poor exposures of syenite tuff
at 3 pm. Traversed above
timberline and below with
spectrometer, but was dis-
appointed in not finding any
significant anomalies.
Three sites gave up to 2½-3x backgnd
No fluorite. No syenite dikes.

+2°C

31 VIII Drizzly day - low clouds threatening to turn to snow. Continued prospecting to a short recon of black shale (Dev ?) and "overlying" Cambrian - since thought there might be some radiometric 'signature' on the thrust(?) fault contact. However throughout careful radiometric traversing I BLACK did not encounter anomalous readings.

32

J 53 (21) IX Snow overnight left perhaps 2 cm on tops } highest nunatuks - but warming to (+3°C?) should melt snow.

Decided to prospect one of two main targets - chose the GREEN route, as the area from distance and according to Dirk-Templeman-Klunt's map had Mississippian-volcanics - besides the mountain was highest target and in case of more snow - should be tackled initially.

Followed 4x4 trail (too muddy to take chance of driving it with unsettled weather. In 2½ hours had crossed ridge then down to Katza River and up slope to west near north boundary of LANCER 12-20 across black shale, some phyllite, reaching syenite tuffs about 70 meters below crest.

Reconnoitered north spectrometer in criss-cross fashion over 10h area with

nothing but generally 3× background, ie compared to black shale. Thus, the prospect of finding a NW extension of the LANCER vein seemed very limited. Heavy clouds/wind on return to camp. −1° to +1°c

✓ 54 (02) TX Fog and snowing above ca 4800'. Again felt should concentrate of potential extension (SE) of Lancer vein beyond the creek bottom (draining to McNeil Rv.). (PURPLE) Crossed LANCER 23-24 and traversed steep north facing slope of high ridge comprising entirely of black shale - somewhat phyllitic in places. appears to be antiform ±90° axial plane steep. Number 2 pyritic narrow fault zones. No radiometric anomalies - dead 0. And no evidence of syenite dikes or volcanics - so virtually certain LANCER vein does not extend to the SSE beyond claims.

55 (03 TX lightly snowing above ca. 5000 - and only few flakes at base camp + PC. However, didn't seem to be breaking up. - so decided to check-out area NE of Lancer claims - (RED-WEST) route.

Although 80% covered, still the few outcrops showed probability of a NW fault in vicinity. First crossed E-O resistant white qtz lenticular masses with sidarite and greenstone (basalt tuff and/or flows) - then less than 100 m to west noted much black shale float (UDM) undoubtedly.

A few radiometric "kicks" (to 2x-3x background) from E-O rocks, but of course nothing over black shale. However, with spectrometer it was possible to approx. locate boundary between two dissimilar litho units.

✓
56 04 EB cloudy in a.m., snow showers in afternoon, but no major storm, melting by midi-afternoon.

Crossed - westerly - through northern tier of LANCER claims (Keiza R. headwaters) YELLOW and climbed over pass at 5700 where upper Devonian - L. Miss. black phyllite outcrops. Went on down western steep slope (high winds) some 200m to outcrops of upper Cambrian. Again prominent northerly trending fault was inferred - possibly with easterly dip. No anomalous radiometric readings throughout back/forth close spaced (10m) traverses - of course not fantastic 10-20x background on CaF_2-bearing boulders in Keiza cirque sourced from LANCER vein.

✓ 05 IX Really snowing hard all day - with some let up by 4 pm. 57 Over 4cm accumulated. Didn't want spectrometer out in the wet, + visibility poor above 4500'. In camp.

* 06 IX 02 — No YMIP

J 58 Brief let up of snow, but melting only on S-facing slopes. Decided to try to have another look at the Lancer vein on the ridge outcrop claims 5/6 & 7/8. Followed outcrop down through thin snow cover for perhaps 50 m then "lost" it under vein talus. However, somehow didn't satisfy me that vein went down the fall-line - it "had" to dip to west. Prospecting to SW came upon fine outcrop of vein 80 m from ridge! Then a string of clear outcrop extending another 200 m+ in trachyte!! Began howling wind & snow, so retreated (happily).

V 59 (07 IX) Heavy snow with occasional breaks - but not fit for serious prospecting with spectrometer.

V 60 (08 IX) Continued ghastly snow storms rocking camper w. hi winds - just about given up on pursuing prospecting further in area at the 4500'+ altitudes.

V 61 * 09 IX [No YMIP] +1° by 9am Snow easing up, but still 6-8cm on south-facing slopes. Decided to packboard out samples from new extension very overlaps. Make 3 trips to vein gathering total of ca 70 kg down to 4x4 trail and then in early evening packed 3 loads to truck at base camp.

V 62 (10 IX) Travelled out - chained up until down to Ketza mine road - then Drove camp ground } 320 miles
V 63 (11) IX to Whitehorse }

64 → 69 days

"Rite in the Rain®"

ALL-WEATHER

FIELD

Notebook No. 351

J. Dodge
YMIP
1992
#3

92-122

✓ (19) September.

64 Drove early from Whitehorse to Johnson's Crossing and up South Canal for approx 3½ miles - arr. 9 am.

Traversed east across Withdrawal R-5 along contact between granodiorite and andesite volcanics.

Using spectrometer proved helpful in locating contact where overburden was thin.

Turned back after slow going for approx 3 km.

Did not find any black shale - which was target with view to looking for rhodonite at contact with younger pluton.

Some white qtz pegmatites in granodiorite at contact.

✓ (20) Sept. Windy - light snow.

65 Traversed west NW along same contact as yesterday and again found no black shale - only andesite - some black shale in glacial till tantalizing.

Checked contact zone - where outcropped - for approx 3-4 km. and returned. 6 pm.

✓ (21) Sept. Heavy, wet snow

66 in morning - warming and melting by evening - remained in camp.

✓ (22) Sept. Cloudy but 2°C - before

67 road thawed, drove over pass to north, down steep grade to approx mile - 23 or so Canol at boundary between granodiorite and basinal sediments. Much more black shale float. Traversed

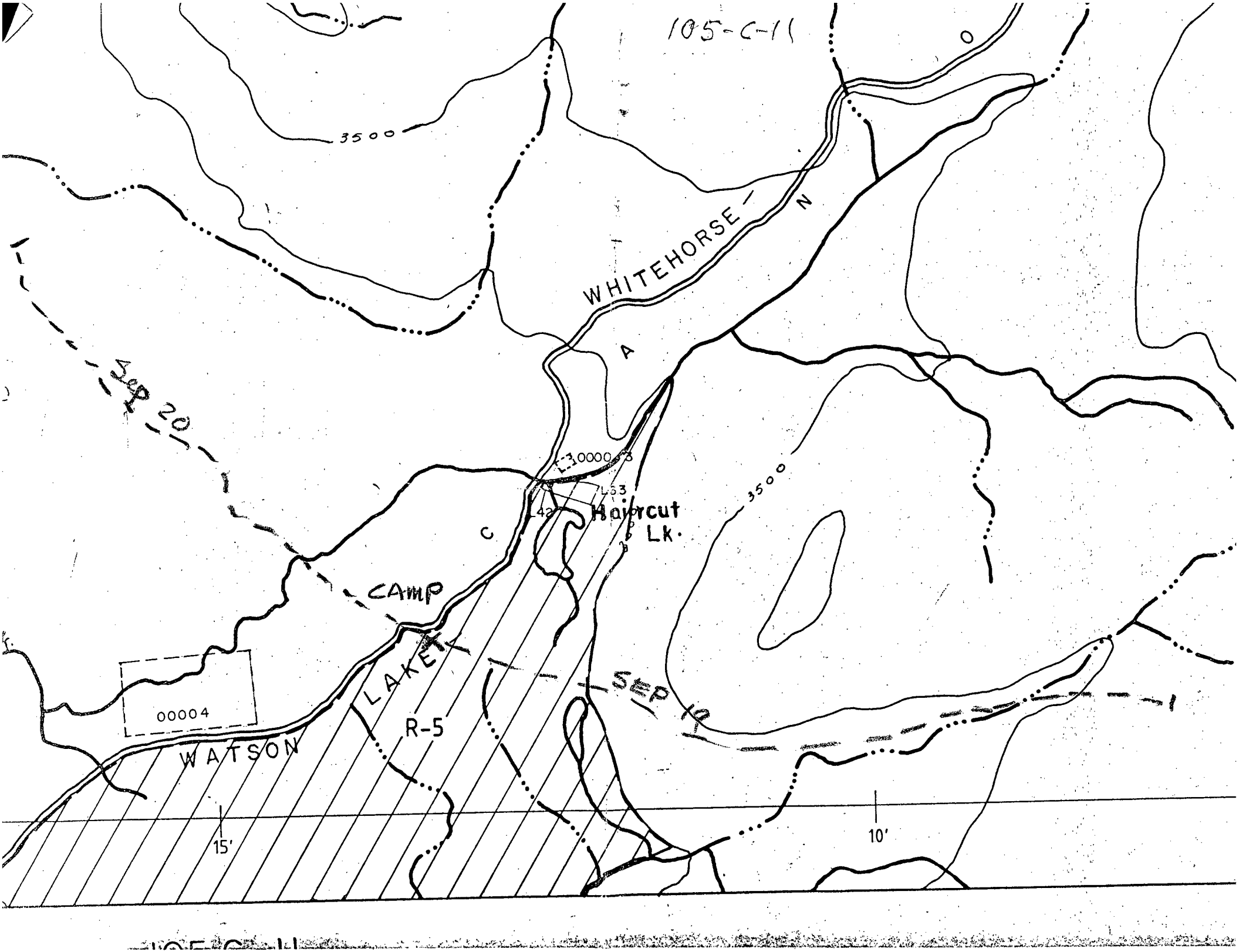
southeast from pull-off and managed to follow snow-covered flat areas where granodiorite subcrop exposed to south infrequently. Good 2 to 3 x background values radiometrically over igneous terrane - down to 40 cps over black shale ?.

✓ (23) Sept 1°C
68 Heavy snow overnight and continuing. Logging trucks from Sidney Creek still making it out @ 5 am when road still untravelled. However, too wet for spectrometer - and this appeared to be only way to search for contact under new snow conditions.

✓ (24) Sept Light snow 1°C
69 Made one more attempt to examine possibility for outcrops @ approx 23.7 miles on Sc Canal. Worked NW from

road for approx 1½ km but found few outcrops of granodiorite and none of black shale. Returned @ 3:30 pm.

Drove with chains back to Johnson's Crossing - arrived Whitehorse 8 pm.


105-C-11
3500
WHITEHORSE
N
A
SEP 20
L-3,0000
L33
L4a
Haircut
Lk.
C
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CAMP
LAKE
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WATSON
R-5
SEP 10
15'
10'