RE-EVALUATION
of
SPECIALTY-METALS AND RARE-EARTH RESOURCES KETZA RIVER AREA, SOUTH-CENTRAL YUKON, CANADA

CLAIM SHEETS 105-F-08/09
61° 29' NORTH LATITUDE
132° 11' WEST LONGITUDE

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P R E F A C E

The reader of this report on the LANCER claims is advised that, owing to inadequate financing, detailed analyses for all of the rare-earths and specialty-metals have not been carried out on all samples.

Also, whole rock analyses and additional petrologic/ mineralogic studies are required, since the results from electron microscopic scanning of only one sample (1992) were inconclusive.

Integrated data from the above mentioned laboratory work are prerequisites for initiation of a bench-scale metallurgical investigation to determine efficacy of a chemical concentration process for beneficiation of ore (ref. CANMET letter 16 July, 1992).

ABSTRACT

The LANCER specialty-metals and rare-earths resource is exposed as a wide and extensive epithermal vein in the Mississippian age syenite volcanics at the headwaters of the Ketza River in south-central Yukon, Canada. The geological re-evaluation conducted under the Yukon government's Mining Incentives Program, together with trenching, assaying of large outcrop samples, and initial petrographic studies, has defined a major resource(2,500,000 tonnes) with high combined grades of yttrium, niobium, zirconium, and several of the light rare earth elements.

The lithologic host is a metasomatically altered syenite dike which intruded a thick succession of volcanic tuff and flows of syenite composition. A syenite intrusive plug nearby had metamorphosed the volcanics and underlying carbonate rocks producing a hornfels and skarn aureol in areas subsequently cut by the dike.

Earlier geological mapping (1978-79) led to the conclusion that specialty-metals and rare-earth mineralization was confined to isolated areas within the skarn. Re-evaluation by detailed geologic mapping, and representative sampling of outcrops and trenches by Dodgex Ltd., revealed that the calcite-quartz-fluorite bearing metasomatized dike, now properly termed a vein, is continuous for over 650 meters horizontally and up to 250 meters vertically. The high average combined grade/value of yttrium, niobium, zirconium, and the light rare earths (lanthanum, cerium, neodymium) has proven, with few exceptions, to be relatively uniform throughout the outcrops of the vein. The minerals containing these specialty-metals and rare-earths are very fine grained, and additional electron microscopic scanning will be required to identify all the host minerals for these elements.

There appears to be little expectation that significant metal recoveries can be obtained through physical separation techniques. However, a laboratory beneficiation process, which obtained high recoveries of these same elements by simple chemical methods from fine grained syenitic host rocks at an Australian deposit, holds considerable promise for the successful, cost-effective, production of chemical concentrates from the LANCER deposit.

Development of a second mineralized vein is planned on this easily accessible and promising resource property of specialty-metals and rare-earths both of which have a projected strong annual growth markets for applications in engineering ceramics, phosphors, superconductors, electronics, glass, optical devices, hard-wearing materials, and alloys.

James S. Dodge, P.Eng.
Whitehorse, Yukon

01 June, 1993

LANCER CLAIMS

Claim posts are standing on 3.5-meter wide, northwesterly trending vein which carries high values in yttrium+niobium+zirconium+ light rare earth elements

Rounded knob in mid-distance to the west is a centrally situated mela-syenite intrusive plug

INTRODUCTION

James S. Dodge chose the search for rare-earth elements (REE) in the Yukon as a major emphasis for prospecting under the 1991 Yukon Mining Incentives Program. This decision followed a detailed library search of the geologic literature (winter 1990-91) on peralkalic rock hosts for rare-earth deposits, and a useful brief field examination of the bastnaesite (REE) mine of MolyCorp at Mountain Pass, California.

Thereupon, Dodge's review of the 1980 assessment report on the former NOKLUIT claims, prepared under the supervision of A. R. Archer, suggested that a careful field assessment of the area was warranted on the basis of the level of REE values previously obtained at several sites, and because of the current high degree of world-wide interest in, and anticipated future growth for, rare-earth elements, especially for yttrium.

Previous work had identified sites of anomalously high radioactivity with associated promising REE values, albeit in relatively small, isolated bedrock and talus sources. Several geologic notations by earlier workers led Dodge to question the skarn hosted nature of the REE mineralization.

Noting that the area was open for staking and, moreover, that a road for 4x4 vehicles would provide limited but important access to the property once the area was free of late-melting snow, the staking of the LANCER 1-8 claims was undertaken on 30 May, 1991 using a chartered helicopter based at the settlement of Ross River some 60 km to the north.

PROPERTY AND LOCATION

The contiguous group of 8 LANCER mining claims are recorded in the Watson Lake (Yukon) Mining District recorder's office as follows:

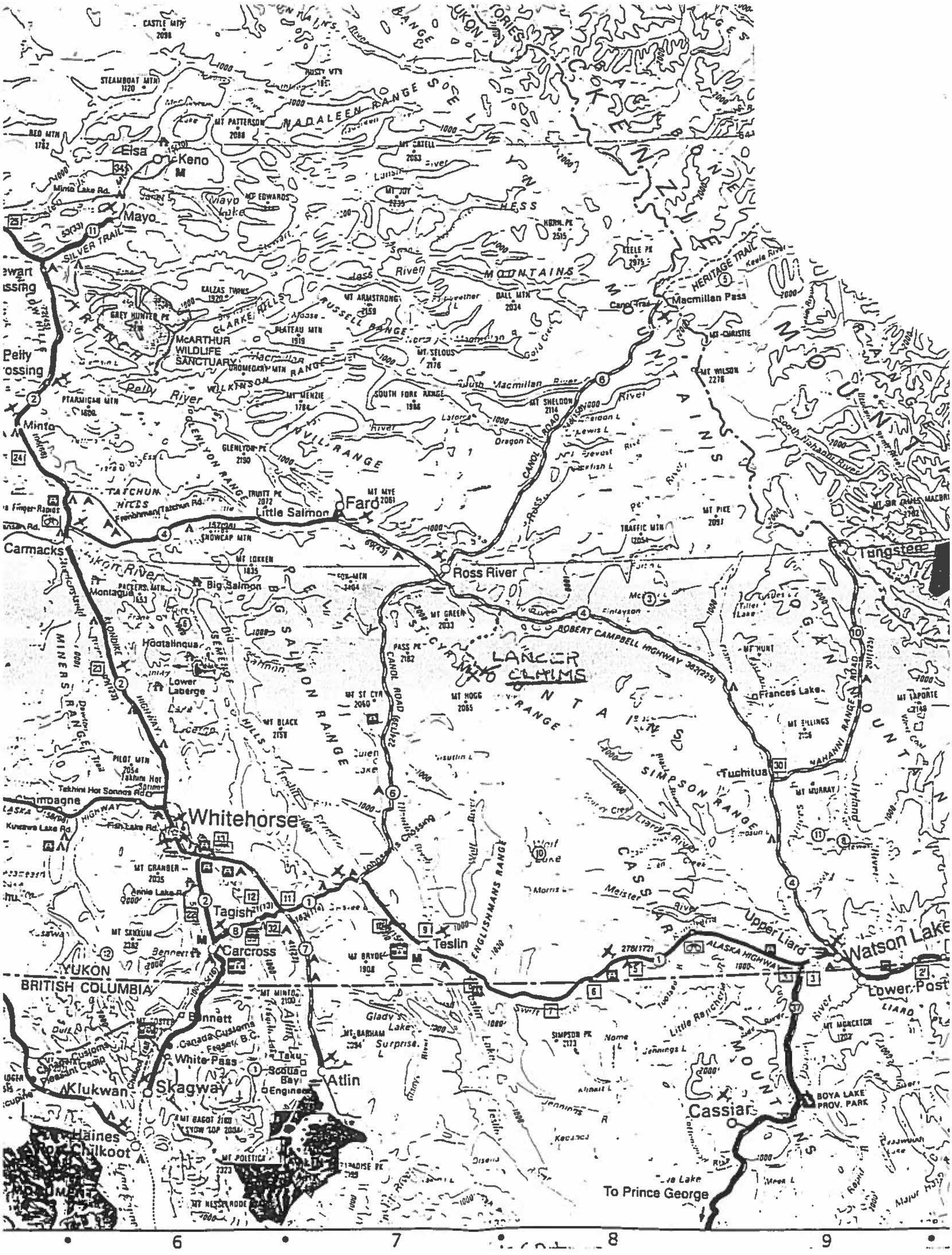
Name	Grant Numbers	Date of Record/Expiry
LANCER 1-8	YB33962-YB33969	05 June, 1991 / 1994

Ownership of all the claims is held by DODGEX Ltd., a private registered Yukon corporation co-owned by James S. and Elizabeth K. Dodge of Whitehorse, Yukon.

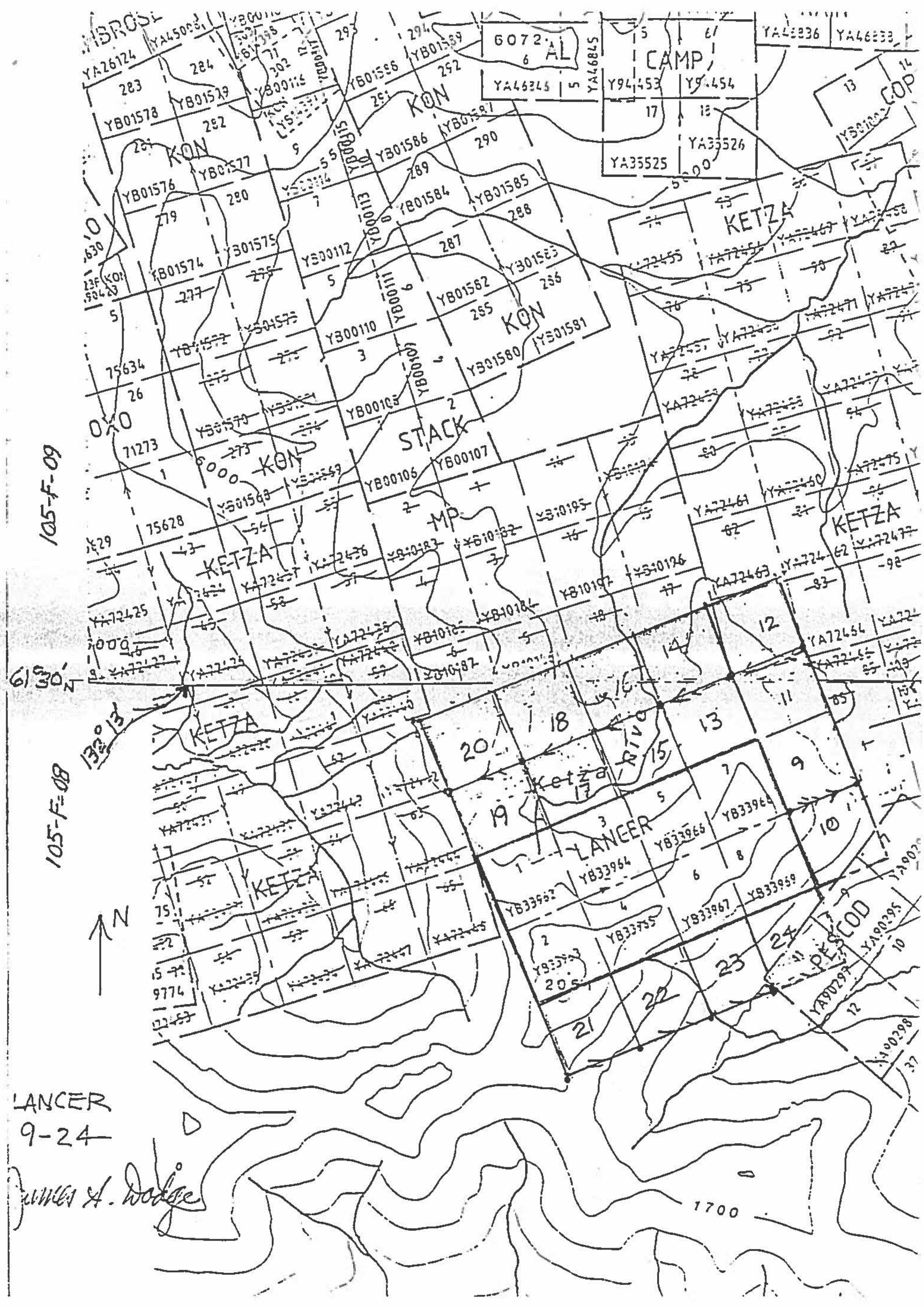
The claims are situated at approximately 61° 29' north latitude and 132° 11' west longitude on NTS Map Sheets 105-F-08 and 105-F-09 near the headwaters of the Ketza River in the Pelly Mountains of south-central Yukon.

Altitudes on the claims range from 1500 meters along the Ketza River to 2050 meters along the headwall ridge of a composite cirque.

A 10 kilometer 4x4 vehicle road connects the eastern boundary of the claims to the all-weather Ketza Mine road at a point 30.5 kilometers southeast of the turnoff on the Campbell Highway. (Maps I and II)



LANCER CLAIMS
Whitehorse
Carmacks
Mayo
Keno
Elsa
Pelly Crossing
Minto
Faro
Little Salmon
Ross River
Tungsten
Macmillan Pass
Frances Lake
Tuchitua
Watson Lake
Lower Post
Upper Liard
Teslin
Johnsons Crossing
Tagish
Carcross
Bennett
White Pass
Skagway
Klukwan
Haines
Port Chilkoot
Atlin
Cassiar
BOYA LAKE PROV. PARK
To Prince George
Champagne
Big Salmon
Hootalinqua
Lower Laberge
Montague
YUKON
BRITISH COLUMBIA
SILVER TRAIL
HERITAGE TRAIL
CANOL ROAD
ROBERT CAMPBELL HIGHWAY
ALASKA HIGHWAY
NAHANNI RANGE ROAD
KLONDIKE HIGHWAY
McARTHUR WILDLIFE SANCTUARY
NADALEEN RANGE
HESS MOUNTAINS
RUSSELL RANGE
WILKINSON RANGE
ANVIL RANGE
GLENLYON RANGE
BIG SALMON RANGE
ST CYR RANGE
SIMPSON RANGE
CASSIAR MOUNTAINS
ENGLISHMANS RANGE
MINERS RANGE
MACKENZIE MOUNTAINS
LOGAN MOUNTAINS
PELLY MOUNTAINS
Pelly River
Yukon River
6
7
8
9


KON
KETZA
STACK
MP
LANCER
PESCOD
CAMP
OXO
COP
Ketza Rivo
105-F-09
105-F-08
61°30'N
132°13'
N
6000
1700
LANCER
9-24

LANCER CLAIMS
RESULTS OF INVESTIGATIONS

Activity under the prospecting phase of the 1991 Yukon Mining Incentives Program on the LANCER claims entailed a (1) field review of data provided in the 1980 Assessment Report #090577 on the former Nokluit claims prepared under the supervision of A. R. Archer, and (2) thereupon, re-evaluation of these data following prospecting, ground radiometric scanning, laboratory analyses, petrographic descriptions, and the determination of source-significance of the numerous talus trains in the main cirque.

Geologic Terrane Reconnaissance

Prospecting traverses crisscrossed the LANCER group of 8 claims and confirmed the presence of a bimodal alkaline syenite intrusive plug with a southeasterly trending thermal metamorphic aureol expanding outward from skarn then to hornfels. This aureol has been developed in both high level vesicular trachyte and in older phyllite and black shale.

The younger, layered tuffaceous syenite units commonly exhibit only weakly developed schistosity. Areas of dolomitic rocks adjacent to the west/northwest periphery of the syenite plug will require further study to determine their field relations.

Numerous narrow, parallel, steeply dipping fissure-filling siliceous pyritic zones lace the aureol in 100^{o}-120^{o}A trends.

Confirmatory Radiometric Scanning

Predicated on earlier reports of radiometric anomalies associated with REE concentrations in the cirque, a hand held Scintrex GIS integrating gamma ray spectrometer was used to assist in relocating sites of anomalous thorium/ uranium concentrations. Field results which indicated that values for thorium were greater than those for uranium were later confirmed by analytical results.

Only verylow-level radioactive response was obtained from large talus boulders below the syenite plug in which localized, but high, concentrations of macro-scopic brown zircon were evident.

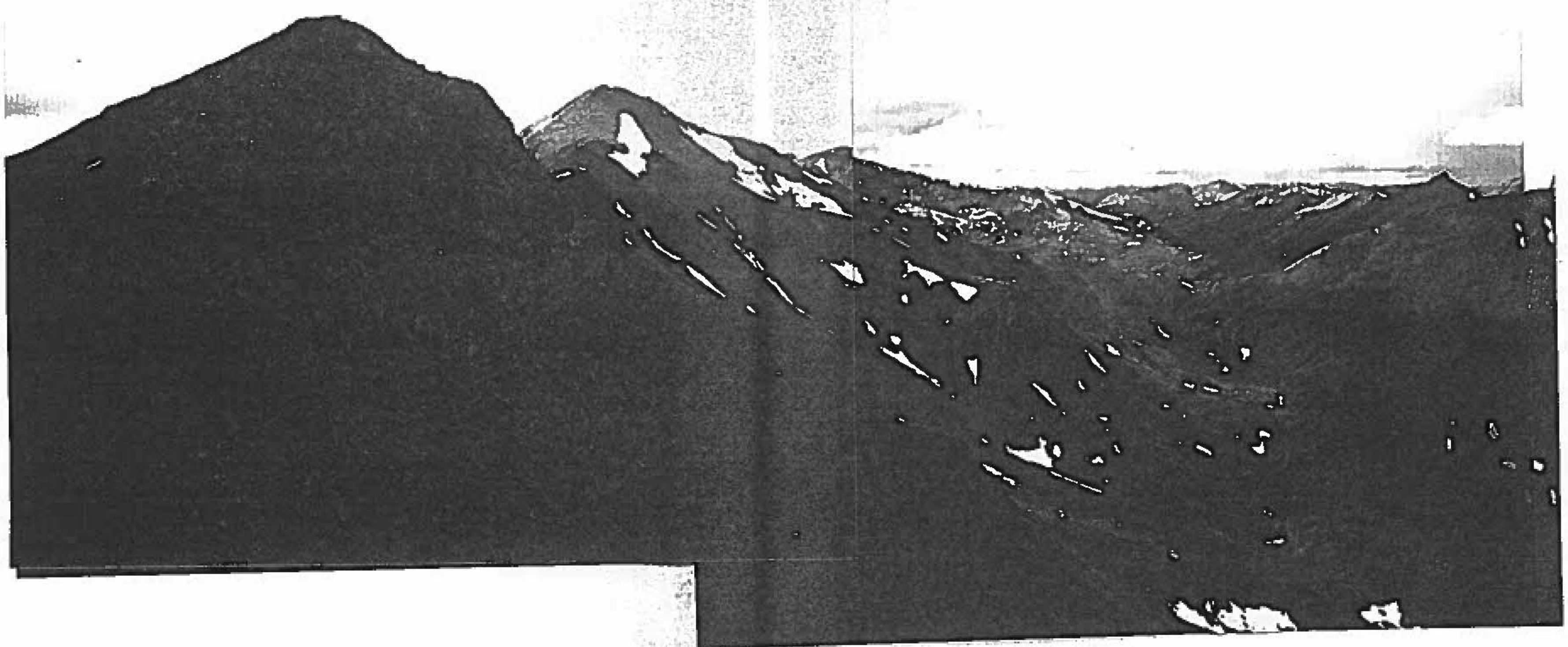
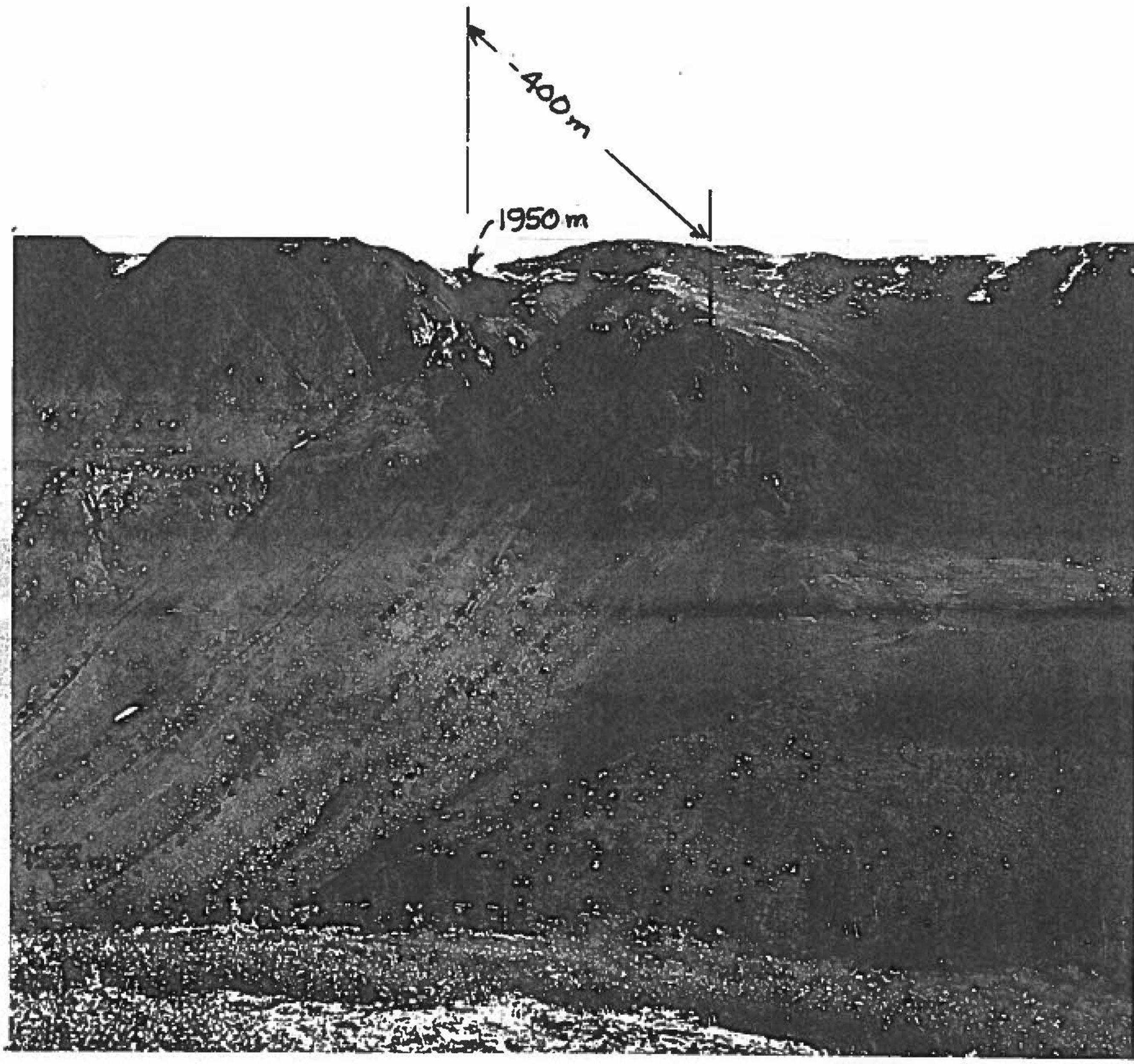


PHOTO 1

Overview of Lancer claims looking 240°A into the headwaters valley of the Ketza River which flows to the lower right. Dark reddish brown knob in right center is the intrusive syenite plug.

Left foreground cliff and partially concealed ridge leading to snow-patchy peak comprise skarn and hornfels as part of the thermal metamorphic aureol generated in a southeasterly direction from that part of the syenite intrusion now exhumed by erosion.



Looking south into main cirque covered by LANCER 5/6/7/8 claims.

Solid red lines outline ridge (1950m altitude) and cliff (1710m) outcrop areas examined in 1991.

Dotted red lines indicate trend of distinct talus trains containing boulders of REE-bearing, radioactive vein material lithologically similar to that in vein outctops examined in 1991.

Dashed red line predicts trend of bedrock vein on-line between ridge and lower outcrop sites as sources of vein material in talus.

PHOTO 2

Prospecting Vein Outcrops (Photo 2)

Prospecting along the headwall ridge of the main cirque relocated the 3.5-meter (11.5 feet) wide zone of anomalous radioactivity described as a dike in the 1980 report of assessment work (Photo 3). The fine grained groundmass appeared to be unmetamorphosed. The hematitic feldspar, together with the fabric of closely spaced, narrow quartz and carbonate stringers and patches, suggested a late stage epithermal vein; possibly a metasomatized syenite dike.

The several narrow, siliceous pyritic fissure filling veins along the ridge exhibited generally 120°A trends which matched closely that of the reported REE-bearing radioactive zone. Thus, further evidence was provided to indicate that the radioactive zone was most likely a vein emplaced in a parallel fissure zone.

Solo prospecting northwesterly following the outcrop of the vein from the ridge was restricted by the very steep slopes leading down into the cirque. Accordingly, attention was redirected to the examination of several radioactive REE-bearing bedrock areas reported to outcrop at the head of the talus slides some 245 meters (800 feet) lower altitude and an estimated 400 meters (1300 feet) slope distance to the northwest.

Location of the lower area was confirmed in 1991 by the discovery of two outcrops (Photo 4) of a wide vein with lithology quite similar to the vein exposed at the ridge outcrop. Moreover, the 120°A strike and near-vertical inclination in both of these lower, 8-meter (25 feet) wide, in-line outcrops suggested a genetic commonality with outcrops of the same vein as on the ridge.

Detailed prospecting in 1993 located a 325-meter (1070 feet) long, well-defined, southeasterly extension of the 'main' vein which is partially covered by talus near the earlier 'ridge' outcrop area. Width of the vein averages 3.5 meters (11.5 feet) with an apparent steep westerly dip. Purple fluorite accompanies the swarm of quartz/calcite stringers which generally parallel the strike of the vein (Photo 9). The radiometrically anomalous readings matched closely those from the vein where outcrop samples on the ridge and in the cirque carried high values in specialty-metals and rare-earths.

Interpretation of Talus Components

As seen in Photo 2, a group of talus trains, with a combined width of over 150 meters (500 feet), descend from cliffs and rock chutes, therewith providing a sampling of the various lithologic units within the cirque. All of the trains contain varying concentrations of phyllitic hornfels, trachytic hornfels and skarn, siliceous pyritic veins, and REE-bearing vein boulders (Photos 5 and 6).

REE-bearing vein material in the various talus trains displays remarkably similar lithology with the exception that fluorite is more commonly seen in the two westernmost talus trains. Thus, the higher fluorite content noted in the lower outcrop sites is clearly reflected in the talus.

The ubiquitous REE-bearing vein presence in all talus appears significant with regard to relating this to the location of probable bedrock sites as sources of the talus. On this evidence it would seem likely that the vein extends, more or less continuously, from the 'ridge' outcrop down through the craggy terrain of the cirque to the lower outcrops.

Plans are made in 1993 for a roped descent through the cirque to sample vein outcrops.

Looking south into main cirque covered by LANCER 5/6/7/8 claims.

Solid red lines outline ridge (1950m altitude) and cliff (1710m) outcrop areas examined in 1991.

Dotted red lines indicate trend of distinct talus trains containing boulders of REE-bearing, radioactive vein material lithologically similar to that in vein outctops examined in 1991.

Dashed red line predicts trend of bedrock vein on-line between ridge and lower outcrop sites as sources of vein material in talus.

PHOTO 2

PHOTO 3

Outcrop of 3-meter wide REE-bearing vein (1940m altitude) situated 50m down south flank of ridge above cirque.

Note white streaks, veinlets and patches of late metasomatic quartz and carbonate minerals. Site of sample #420727.

PHOTO 4

Looking 210°A across one of several lower cirque outcrops of 8-meter wide REE-bearing vein (1710m altitude). Site of sample #420725. Cream colored terrane behind vein is skarnized trachyte.

PHOTO 5

Large ($1m^3$) boulders in talus train below cirque outcrops of REE-bearing vein.

The dun color and narrow white stringers of quartz and ankerite are characteristic.

Scintillometer is reading 2684 counts per second of total gamma radiation.

PHOTO 6

Dark purple fluorite stringers in REE-bearing vein material (upper right) in westernmost talus train.

Off-white boulder next to pack is typical skarnized trachyte.

Familiarization Sampling

Four rock samples were selected in 1991 for analysis by Chemex Labs in North Vancouver and Toronto to provide information which could confirm the reported presence of interesting grades in rare earths and associated elements in vein material. Results were provided on Certificate of Analysis #911456. One representative chip sample was taken from each of the ridge(#420727) and lower bedrock (#420725) cliff outcrops; also, one from each of the two adjacent, easterly talus trains (#420726 and #420728) as grab chips from approximately 10 boulders.

Analyses were carried out for 14 REE plus thorium and uranium, plus yttrium and zirconium. These revealed important values in yttrium and zirconium as well as anomalously high values in cerium, lanthanum, and neodymium. Thorium values consistently exceeded those of uranium.

A fifth sample in 1991 was taken from a talus boulder beneath the north-facing buttress of the syenite plug. Visible in the fine grained, melasyenite specimen was a 5cm (2-inch)wide band of compact, medium grained, mostly euhedral brown zircon. Although the very high (27.8%) zirconium content was anticipated, the high (0.22%) yttrium grade was unexpected.

In 1992 four 15-kilogram representative rock samples from the newly discovered southeasterly extension of the 'main' vein were analyzed for yttrium, niobium, and zirconium (Chemex Certificate #A9221321). The average grade of each sample was slightly higher than the four samples taken in 1991 in the cirque. The additional cost of analyzing these samples for the rare earth elements, as well as for tantalum, scandium, hafnium, and gallium, would have exceeded the available prospecting budget.

A second radioactive, epithermal fluorite-bearing vein, approximately 2-meters (6.5 feet) wide, was located outcropping on the ridge south of the syenite plug and approximately 300 meters (1000 feet) west of the 'main' vein. This showing may be a mineralized structure continuous between sites 'S' and 'M' in the earlier reports. Blizzard conditions and snow cover in mid-September precluded prospecting and properly sampling the lateral extensions of this outcrop.

PHOTO 7

Access road for 4x4 vehicles leads to
base of mountain on the left covered
by LANCER 1-8 claims

Headwaters of Ketza River lies between
the two snow covered mid-distant peaks
looking west

PHOTO 8

Outcrop of vein SE Extension Sample #420788
100 meters south of 'ridge' at skyline saddle

PHOTO 9

Outcrop of vein SE Extension Sample #420789
170 meters south of 'ridge' site

Petrographic Descriptions

In 1991 four rock samples were submitted for petrographic descriptions to Vancouver Petrographics in Fort Langley, British Columbia (Appendix). Samples 1 to 3 were of vein material and the fourth was of the zircon-rich zone in the syenite boulder near the plug.

From the descriptions it is concluded that the early matrix of the vein material was principally high-sodic feldspar which was metasomatized upon the introduction of late-stage quartz and carbonate bearing hydrothermal solutions. No discrete yttrium, zirconium or REE minerals were identified, although hematite particles could these as well as the radioactive elements.

In 1992 Vancouver Petrographics conducted further petrographic and electron microscopic scanning of one sample which had already been submitted in 1991 for petrographic description. The yttrium-bearing mineral was not identified - although it was not zircon - and further work is recommended on samples taken most handily from the outcrops of the new southeasterly vein extension.

Environmental Impact

Although sulfide-free mine/mill tailings will present no source of surficial acid generation, it will be prudent to undertake water samples from the headwaters of the Ketza and McNeil Rivers to identify natural geochemical signatures around the unmined deposit on the LANCER claims. These data will provide a baseline for assessing any unanticipated environmental impacts during both mining and post-mining reclamation cleanup.

Minor thorium/uranium content of the tailings may dictate locating the concentrating mill near the deposit where tailings would be classified by hydrocyclones for use as underground backfill. Canadian/U.S. experience has shown that the addition of barium salts decontaminates radium and thorium in mill discharge effluents. Thus, negative environmental impacts associated with handling and storage of the low-level radioactive materials will be acceptably limited.

Demonstrated Resource

Only the so-called 'main' vein is considered in this evaluation of resources. A generalized geologic projection, based on well-exposed outcrops and uniform preliminary assay results, designates a demonstrated resource of over 2,500,000 tonnes grading:

0.15%	Y_2O_3	(yttrium)
0.66%	Nb_2O_5	(niobium)
1.11%	ZrO_2	(zirconium)
0.02%	HfO_2	(hafnium)
1.37%	REO	(rare-earths)

Basis for this resource definition follows:

1. Vein continuity for 650 meters (2100 feet) horizontally between lower cliff outcrops in cirque and the southeasterly extension outcrops discovered in 1992.

2. Vertical interval of the vein no less than 245 meters (800 feet) between lower cliff outcrops in the cirque and the 'ridge'/vein extension outcrops.

3. Vein width of 5.6 meters (18 feet), calculated as the numerical average of a 3.5-meter (11.5 feet) width on the 'ridge'/vein extension outcrops, and the 8-meter (25 feet) width at the lower cirque outcrops.

4. Numerical average grade as assembled from the various assay certificates from Chemex Labs (Table I).

PRELIMINARY RESOURCE VALUATION - LANCER CLAIMS

Metal Oxides	%	Kg/t	US$/kg [a]	Gross Value/t	Total [b] Resource (Tonnes)
Yttrium	0.15	1.5	30.00	45.00	3,750
Niobium	0.66	6.6	7.60	50.16	16,500
Zirconium [c]	1.11	11.1	0.90	10.00	27,750
Hafnium	0.02	0.2	80.00	16.00	500
Cerium	0.67	6.7	21.00	140.70	16,750
Lanthanum	0.42	4.2	13.75	57.75	10,500
Neodymium	0.15	1.5	11.00	16.50	3,750
				US$336.11 [d]	

(a) Open market prices quoted by U.S.Bureau of Mines 1990-1992; ELEMENTS Concord Trading, September, 1992. Long term concentrate contracts for time/volume with price negotiated every 3 months.

(b) Demonstrated resource at 2,500,000 tonnes - 1992.

(c) As Zircon.

(d) Losses from dilution of ore grade in mining and through unrecovered values in mill concentrating may reduce this figure by up to 20%.

ROCK SAMPLES - LANCER CLAIMS 1991-1992

All Elements in Parts Per Million

SAMPLE Number	Niobium (Nb)	Yttrium (Y)	Zirconium (Zr)	Hafnium (Hf)	Thorium (Th)	Uranium (U)	Cerium (Ce)	Lanthanum (La)	Nedymium (Nd)
420725	2390 (a)	1100	6990	98	981	140	6506	5057	1285
420726	4260	780	3350	106	1404	83	3914	2376	1085
420727	5290	1420	11200	320	2735	214	5832	3844	1405
420728	4240	1120	7620	242	1243	144	5650	2980	1455
420787	4410	1310	>10000	n	n	n	n	n	n
420788	4170	1300	9860	n	n	n	n	n	n
420789	5300	1030	9320	n	n	n	n	n	n
420790	4590	1100	7120	n	n	n	n	n	n
	32260/8	9160/8	65460/8	766/4	6363/4	581/4	21902/4	14257/4	5230/4
Average	4033	1145	8183	192	1591	145	5476	3564	1308
Factor (element to oxide)	x1.43	x1.27	x1.35	x1.18			x1.23	x1.17	x1.17
Average Grade (% wgt.) Oxide	0.5767 Nb_2O_5 (0.6590) (b)	0.1454 Y_2O_3	1.1050 ZrO_2	0.0226 HfO_2			0.6735 CeO_2 (c)	0.4170 La_2O_3 (c)	0.1530 Nd_2O_3 (c)

(a) Anomalously low

(b) Average of 7 samples after rejecting (a)

(c) Sum of LREO = 1.24%; other REO = 0.13%

n Not analysed

CONCLUSIONS

1. Preliminary LANCER resource valuation of gross in-place US$840,000,000 is derived from the combined average grade/ market-quotes of US$336 per tonne for yttrium, niobium, zirconium, hafnium, and light rare earths in the 2,500,000-tonne demonstrated resource projected from well-exposed outcrops.

2. Geological reconnaissance of the claims indicates a reasonably high potential for the delineation of additional resources in other similar mineralized structures.

3. Existing vehicular accessibility to the property is of prime advantage in development of this resource. Other Canadian specialty-metal/rare-earth deposits (e.g. Strange Lake, Red Wine, Thor Lake) are sub-economic in part by being extremely disadvantaged from the very high costs to be borne in providing ground access and infrastructure.

4. Markets for these specialty-metals and rare-earths, especially for yttrium, are forecasted to demonstrate substantial growth during the next decade. Services of a specialized marketing consultant will contribute significantly to success of the project.

5. The development of a bench-scale, cost-efficient metallurgical process for production of chemical concentrates from LANCER appears optimistic, based on the generally uniform grade of outcrop samples and the success of laboratory tests on similar host rocks in Australia.

6. Thus, overall development of the LANCER deposit will best be undertaken in the following sequence:

    a) Definitive mineralogical investigation of outcrop samples to identify the host minerals for the above elements together with their distribution and grain size.

    b) Undertake bench-scale laboratory ore-beneficiation tests on large outcrop samples. Selection of the laboratory for this work is crucial to ensure cost-effective results. The successful work accomplished on the syenite-similar Brockman Project in Western Australia by Mr. Philip Gray, UK consulting metallurgist and the Australian Metallurgical and Mineral Testing Consultants' laboratory serves to recommend use of their expertise in the bench-scale process metallurgical testing.

    c) Successful results from laboratory tests will lead to development of ore reserve delineation by core drilling and, subsequently, to bulk sampling for a pilot concentrating facility.

STATEMENT OF QUALIFICATIONS

I, James S. Dodge, of 14 MacDonald Road, Whitehorse, Yukon, Canada submit the following information which establishes some of my qualifications bearing on the necessary level of competence required to carry out the field work and preparation of this preliminary report on the LANCER 1- 6 mining claims in the Yukon.

Education

Missouri School of Mines, B.S. Mining Engineering 1941
Princeton University, Field Geology, 1940
Stanford University, M.S. Economic Geology 1951
Albert Ludwigs Universitaet (Germany), Economic Geology 1952

Experience

Active in mineral industry since 1941 (including U.S.Army engineers) in North and South America, Asia and Africa as prospector, company geologist, mining engineer, mine operator, and consultant in ferrous and non-ferrous metals and in industrial minerals. Among the many organizations which I have been associated as an employee and consultant:

Anaconda, Esso, Mitsui, USAEC, Ventures, DIAND, SCAP-Japan, Atlas, Glidden, Spartan/Nuspar, Hirst-Chichagof, Floyd Odlum, Yukon Barite and numerous small mining ventures.

Specifically applicable field experience includes (USAEC) examinations of numerous vein-type uranium and thorium deposits in western United States and central France. Briefly visited the bastnaesite REE mine at Mountain Pass, California. Over two years with Anaconda Mining Company in Butte, Montana as vein-type underground mine geologist.

Professional Affiliations

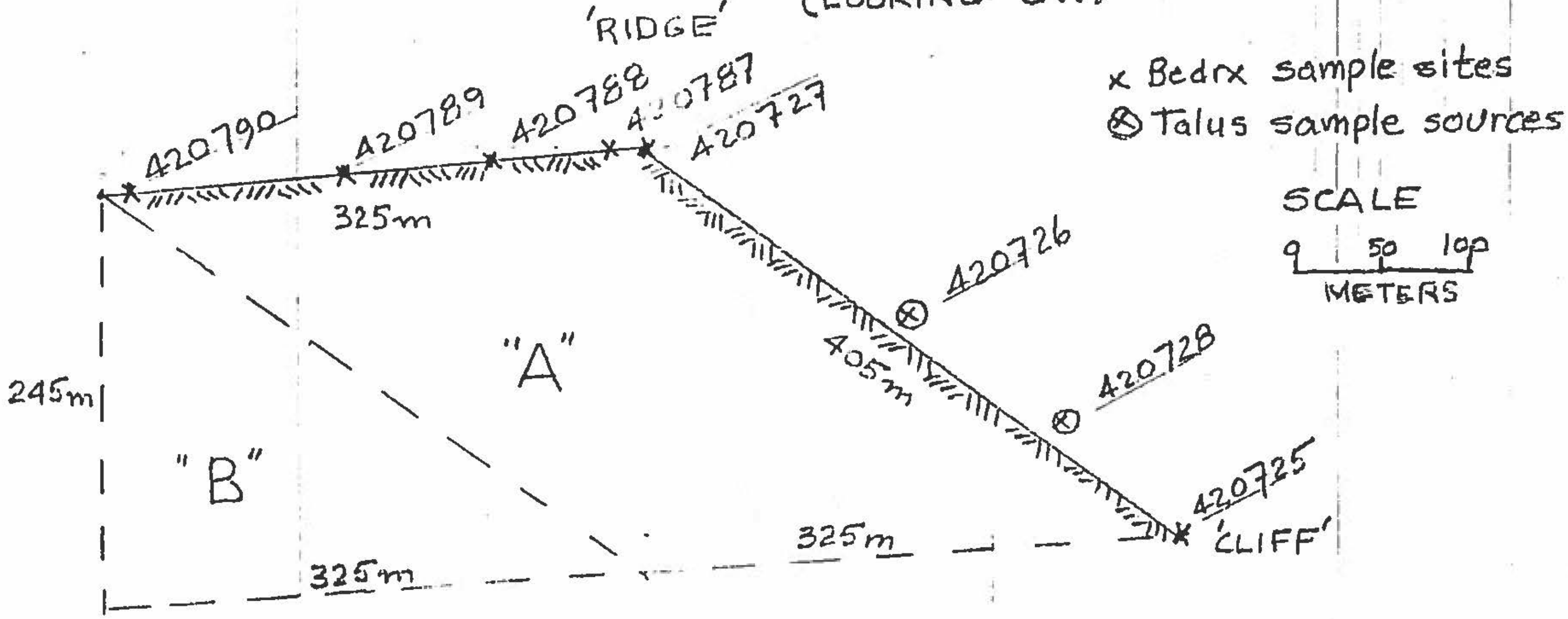
Registered Professional Engineer (No. 311) by Association of Professional Engineers of the Yukon Territory
Fellow of the Society of Economic Geologists
Senior Member of Society of Mining, Metallurgy and Exploration

PROFESSIONAL
YUKON
JAMES S. DODGE
TERRITORY
ENGINEER

James S. Dodge

James S. Dodge, P.Eng.

LANCER VEIN
LONGITUDINAL SECTION
(LOOKING SW)



BLOCK 'A' 405m × 325m × 5.6m × 2.65 sp.gr. = 1,953,315 t

BLOCK 'B' $\frac{245m \times 325m}{2}$ × 5.6m × 2.65 sp.gr. = 590,818

TOTAL DEMONSTRATED RESOURCE: 2,544,133 t

Sketch by J. Dodge 19[illegible]

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph.D. Geologist
CRAIG LEITCH, Ph.D. Geologist
JEFF HARRIS, Ph.D. Geologist
KEN E. NORTHCOTE, Ph.D. Geologist

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Report for: James Dodge,
14 MacDonald Road,
WHITEHORSE,
Yukon, Y1A 4L2

Job 217

September 19th, 1991

SAMPLES:

4 samples of possible Zr and REE-bearing rock, for sectioning and petrographic examination.

The samples are numbered Dodge 1-91 through 4-91.

SUMMARY:

Sample 1 is a mafic-free syenite of intrusive aspect, composed essentially of fresh K-feldspar. It is intergranularly and veniformly pervaded by carbonate and quartz.

Sample 2 is a silica-carbonate rock of metasomatic origin, apparently representing the wholesale alteration of an intrusive protolith - possibly an albitite dyke.

Sample 3 is a sodic porphyry of specialized composition, consisting of a groundmass of fresh, equigranular albite and abundant phenocrysts of aegiritic pyroxene. It is cut by veniform alteration zones rich in carbonate, fluorite, phlogopite and hematite.

Sample 4 is another specialized rock, probably representing a pegmatitic differentiate of the syenite complex. It is composed predominantly of zircon, as individual, subhedral grains abundantly scattered through a matrix of albite with minor intergrown quartz and carbonate. The zircon shows partial alteration to a dusty sub-opaque form (cyrtolite).

The source of rare earth elements in these samples is not immediately apparent from the petrographic study (except for the zircon, which is almost certainly a carrier in Sample 4). Rare earths may be concentrated in diffuse ferruginous products or hematite, and in possible traces of bastnaesite associated with carbonate.

More or less extensive checks by scanning electron microprobe analysis would be required to pursue this question.

Individual petrographic descriptions are attached.

J.F. Harris Ph.D.

((604) 929-5867)

SAMPLE: DODGE 91-1 **SYENITE**

Estimated mode

K-feldspar	60
Plagioclase	10
Rutile	trace
Quartz	10
Carbonate	16
Limonite	4

This sample is a syenite, composed predominantly of fresh, perthitic K-feldspar.

It shows a wide grain size range, from microgranular material on the scale 0.02 - 0.1mm, up to coarse, blocky aggregates of 1 - 2mm. Grain shapes are anhedral, and grain boundaries are commonly crenulate.

Minor plagioclase occurs intimately intergrown with the perthite.

The rock appears to be devoid of mafic silicates. Sparse traces of rutile and/or Fe-Ti oxides occur as fine-grained disseminations.

Carbonate and quartz are major accessories, probably representing late-stage deuteric or hydrothermal introductions. Carbonate constitutes a pervasive phase of intergranular pockets and networks throughout the feldspar aggregate, locally expanding to sizeable, ragged patches which show included remnants of feldspar, and apparently involve partial replacement of the syenite matrix.

The sectioned portion includes a pair of prominent veinlets (2 - 4mm thick) of sparry carbonate and clumpily intergrown, coarse quartz. The quartz extends laterally into the syenite as irregular, pockety networks. The rock is also cut by a few discrete, sub-parallel, hairline veinlets of quartz and carbonate.

The carbonate is unreactive to dilute HCl, and locally shows flecks and cleavage-controlled networks of limonitic staining - suggesting that it is a ferruginous variety (ankerite or siderite). Limonite impregnation is particularly strong in the two principal carbonate veinlets, which appear dark brown in the off-cut.

The dispersed carbonate often includes tiny euhedra and/or spheroids of a darker carbonate in a predominant, colourless, lower relief host, suggesting that two (or more) varieties of carbonate may be present. There is also a possibility that this material could be bastnaesite.

SAMPLE: DODGE 91-2   SILICA-CARBONATE ROCK

Estimated mode

Quartz	53
Carbonate	36
Sericite	1
Plagioclase	8
Limonite	2
Pyrite	trace

This is a compact, structureless rock which appears, in thin section, to represent a product of intense metasomatic alteration (silicification/carbonatization) of an original intrusive rock.

It now consists essentially of a vari-granular intergrowth of quartz and carbonate.

Quartz is the dominant component, forming an aggregate of strained, anhedral grains, in the size range 0.1 - 2.0mm. Carbonate is developed rather evenly throughout this matrix as individual, tiny euhedra and aggregates thereof, forming irregular pockets and semi-continuous networks, intergranular to, and within, the quartz grains.

Tiny flecks of sericite are a minor associate of the carbonate.

The rock exhibits a rather well-developed relict texture of randomly oriented, slender laths. These clearly originated as plagioclase and, in part, survive as such. Others are partially and wholly pseudomorphed by carbonate, or are recognizable as ghosts, delineated by dusty limonite in the quartz matrix.

The remaining constituents are sub-opaque/limonitic material, as diffuse dust and small granules, mainly associated with the carbonate; and sparsely disseminated pyrite, as individual pyritohedral grains 50 - 200 microns in size.

This rock probably represents an advanced stage of the quartz-carbonate alteration process exemplified in Sample 1.

SAMPLE: DODGE 91-3 ALBITE-AEGIRINE ROCK

Estimated mode

Albite	53
K-feldspar	trace
Aegirine	28
Phlogopite	2
Carbonate	7
Fluorite	4
Quartz	1
Hematite	5

This is a texturally heterogenous rock (see etched off-cut), showing streaky, crypto-fragmental variations in grain size and mineral proportions.

In thin section the dominant assemblage is found to consist of a matrix of varigranular, stumpy, subhedral-anhedral plagioclase (grain size 0.03 - 0.8mm), studded with abundant, elongate, prismatic grains of euhedral pyroxene. These range from 0.1 - 2.0mm in length.

The plagioclase is strikingly fresh, and sharply twinned. It shows twinning extinction angles and refractive index indicative of albite.

The pyroxene is also mainly fresh. It is pleochroic from green to yellow-green, and has the almost straight extinction and elongate habit characteristic of aegirine. It commonly shows skeletal/ fragmented form, with the albite matrix intergrown as inclusions, cleavage lamellae, and apparent fracture fillings.

Locally the pyroxene appears to be partially replaced by carbonate - typically showing limonite staining, and apparently a ferruginous variety, as in the other rocks of the suite.

The sectioned area includes linear zones of alteration, probably related to shearing. These contain high concentrations of carbonate, and include oriented flakes of phlogopite - possibly an alteration of the pyroxene.

A prominent accessory in these zones (intimately intergrown, as irregular pockets and networks, with the carbonate and remnant albite) is fluorite, showing typical colourless - purple zonation. Fluorite is also occasionally seen in the fresh albite-aegirine assemblage, but is rare.

The remaining accessory is hematite, of fine-grained acicular form, occurring as sporadic, irregular clumps and meshwork clusters. This is notably concentrated in the carbonate-phlogopite-fluorite alteration zones (partially pseudomorphing original pyroxene?), and is also abundant in an isolated patch near the centre of the sectioned area. Here it forms a meshwork of flakes within a matrix of albite. Aegirine is virtually absent in this patch, apparently being replaced by the hematite. This area merges gradationally to the normal feldspar-pyroxene assemblage.

No obvious source of REE values is recognizable. If these exist in this material they are most likely associated with the hematite and/or diffuse limonitic phases.

SAMPLE: DODGE 91-4 ZIRCON ROCK

Estimated mode

Zircon	60
Plagioclase	22
Sericite	trace
Quartz	12
Carbonate	6
Pyrite) Limonite)	trace

This is a homogenous, equigranular rock of unusual composition.

The major constituent is zircon, as individual euhedral-subhedral crystals, 0.02 - 2.0mm in size, densely disseminated through a matrix of fresh, anhedral plagioclase with sporadically intergrown quartz and carbonate. The plagioclase seldom shows distinct twinning, but its low refractive index suggests that it is probably albite.

Some of the zircon grains are of composite/skeletal form, and incorporate small inclusions of the matrix components.

At each end of the sectioned area the abundance of zircon shows a marked fall-off, and the rock becomes predominantly an aggregate of feldspar, mildly flecked and dusted with sericite.

Opaques consist of very rare, tiny specks of pyrite, partially altered to limonite. The carbonate component also tends to show diffuse limonitization along cleavages and grain boundaries.

Many of the zircon crystals have a more or less dusty appearance, and sometimes show development of diffuse networks of sub-opaque to opaque material. Rarely, the original crystal structure is destroyed and converted to a fibrous/radiate form. This phenomenon represents partial alteration of the zircon to cyrtolite. Rare earth elements are typically concentrated in this sub-opaque breakdown product.

The origin of this rock is indeterminate from the petrography. It is most likely a late-magmatic/pegmatitic differentiate of the syenite, in the form of a dyke or vein.

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph.D. Geologist
CRAIG LEITCH, Ph.D. Geologist
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

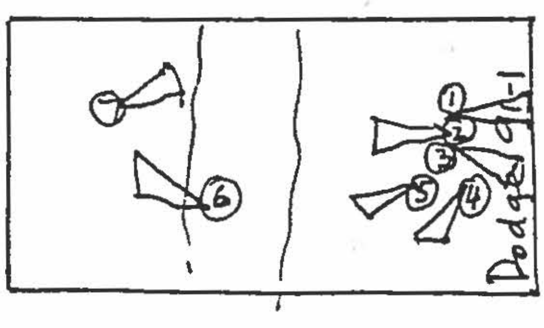
MINERALOGY OF Zr/REE-BEARING SYENITE

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)

Chemex Labs Ltd.

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

o: DODGE, JAMES S.

14 MACDONALD RD.
WHITEHORSE, YUKON
Y1A 4L2

Project :
Comments:

Page Number :1
Total Pages :1
Certificate Date: 21-SEP-92
Invoice No. : I9221321
P.O. Number :
Account : BKY

CERTIFICATE OF ANALYSIS A9221321

SAMPLE	PREP CODE		Nb ppm	Y ppm	Zr ppm
420787	205	274	4410	1310	>10000
420788	205	274	4170	1300	9860
420789	205	274	5300	1030	9320
420790	205	274	4590	1100	7120

CERTIFICATION: [signature]

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: ATTN:JAMES DODGE

Page Number :1
Total Pages :1
Certificate Date: 05-SEP-91
Invoice No. :19119456
P.O. Number :

CERTIFICATE OF ANALYSIS A9119456

SAMPLE DESCRIPTION	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	Y ppm	Zr ppm
420725H	205	294	6506	93	40	23.50	350	18	5057	7.60	1285	675	230.2	17.50	981.2	44	140.0	48.50	1100	6990
420726H	205	294	3914	75	40	14.50	< 50	13	2376	5.70	1085	410	208.5	16.10	1403.5	8	83.0	39.70	780	3350
420727H	205	294	5832	139	120	18.50	300	20	3844	11.30	1405	670	286.7	20.60	2735	4	214.0	56.50	1420	11200
420728H	205	294	5650	114	40	19.50	200	24	2980	8.50	1455	470	257.0	21.60	1242.5	13	144.0	58.10	1120	7620
420730H	205	294	2614	238	340	38.50	250	56	1279.0	66.50	505	220	157.10	33.80	2199	40	320.0	370.7	2200	278000

Cerium
Lanthanum
Neodymium
Thorium
Uranium
Yttrium
Zirconium

CERTIFICATION: [signature]

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:

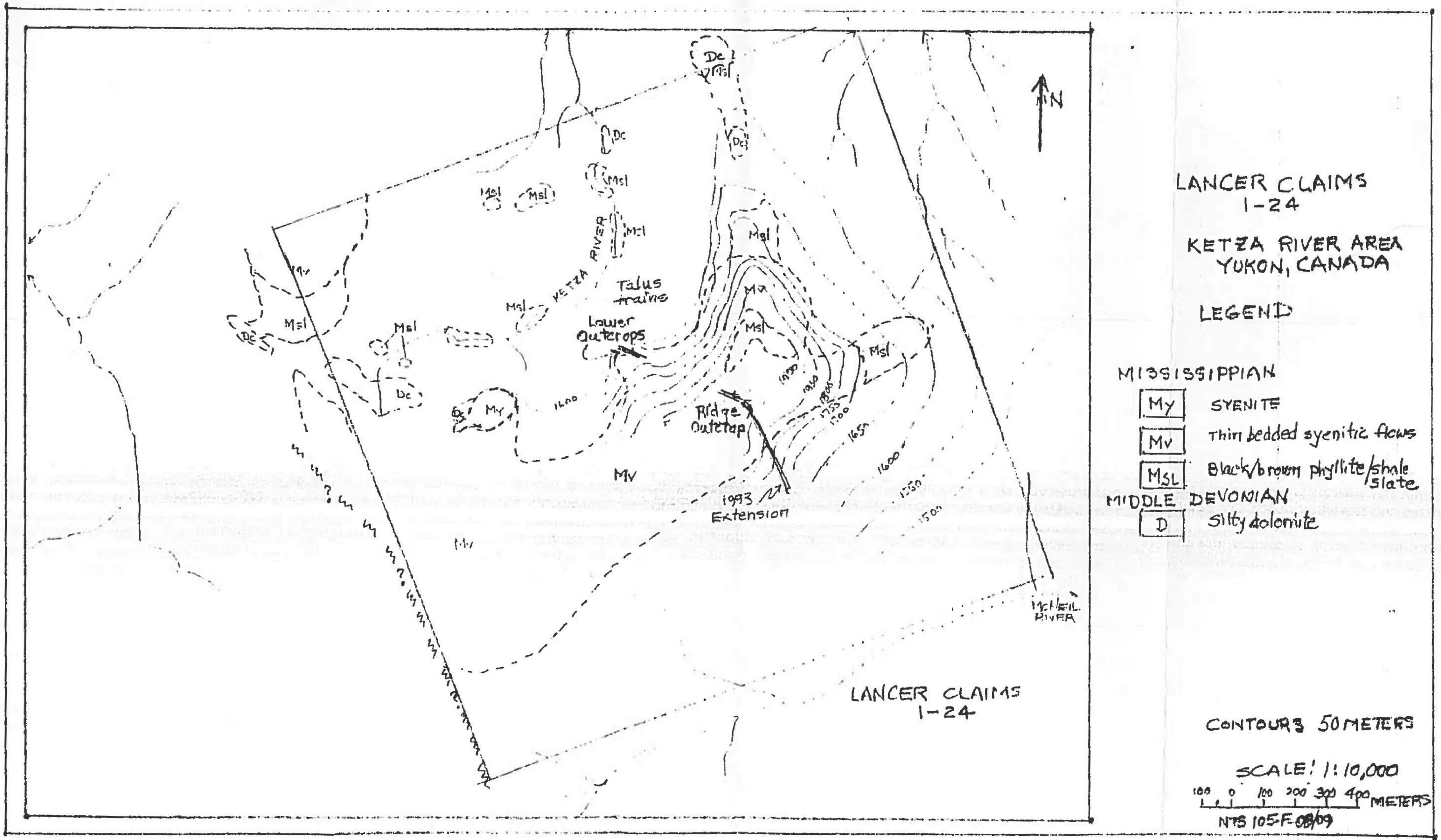
Page Number : 1
Total Pages : 1
Certificate Date: 16-JUN-92
Invoice No. : I9215793
P.O. Number :
Account : BKY

CERTIFICATE OF ANALYSIS A9215793

SAMPLE	PREP CODE		Be ppm	Nb ppm	
420725H	244	232	76.0	2390	} re-assays of 1991 samples - for Niobium.
420726H	244	232	29.0	4260	
420727H	244	232	100.0	5390	
420728H	244	232	41.0	4240	
420729H	244	232	~~1.4~~	~~40~~	not from Lancer Claims
420730H	244	232	3.7	1710	from Syenite pegmatite

Supplemental analyses 16-06-92

CERTIFICATION: [signature]



NOTE: Prospecting Field Sketch; Summer 1991 J.S. Dodge
In part after ~~Assessment~~ Report #090577

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

No.: QA 20441

CERTIFICATE OF WORK

FORM "5" SECTIONS 54 & 59
YUKON QUARTZ MINING ACT

FEE PAID $ 80.00

Mineral claim(s) LANCER 1-8	
Grant number(s) YB33962-YB33969	
Mining District WATSON LAKE	Date recorded 2 June 1992

This is to certify that an affidavit setting out a detailed statement of the work done on the above claim(s) since the 1 day of Jul 19 91 has this day been filed in my office and in pursuance of the provisions of the YUKON QUARTZ MINING ACT I do now issue this certificate of work in respect of the above claim(s) to James S. Dodge

is entitled to continue in possession of the said claim(s) until 5 June 19 1994

General Receipt No.	Date Applied	Mining Recorder's Signature
C51524	8 Oct 1992	P. L. McLeod
Group No WA05512	Claim File No	

White Copy ▶ OWNER — Pink Copy ▶ MINING RECORDER — Yellow Copy ▶ CENTRAL MINING RECORDS

Canada

TREVOR BREMNOR

Energy, Mines and Resources Canada
Geological Survey of Canada Sector

Énergie, Mines et Ressources Canada
Secteur de la Commission géologique du Canada

601 Booth Street
Ottawa, Ontario
CANADA K1A 0E8

January 31, 1994

Mr. James S. Dodge
Dodgex Ltd.
c/o 275 County Road 326
Ignacio, CO 81137
USA

Dear Mr. Dodge:

With regard to your request for mineralogical studies, I have, together with my colleague, Tyson Birkett, examined the samples from your "Lancer" property in the Yukon. The four samples that I received were arbitrarily designated SYA93-79A,B,C and D. The enclosed chemical analyses correspond to these samples.

The samples are, for the most part, fine-grained, altered rocks consisting mainly of quartz and carbonate. Silicification appears to be the dominant type of alteration in hand specimen; limonitic staining is pervasive throughout. The nature of the original rock is obscured by the alteration in most of the samples, although SYA93-79D appears to have the remnant texture of a fine- to medium-grained igneous rock of felsic to intermediate composition. Quartz occurs as very fine-grained impregnations, as coarser-grained clots, and as cross-cutting quartz veinlets. The carbonate occurs as coarse patches up to several mm across and as irregular veinlets; much of the limonitic staining appears to be due to weathering of the carbonates, which are apparently Fe-rich, probably sideritic in composition.

Chemical analyses of these samples reflect their alteration. They have relatively high silica contents (69.1 to 72.0% SiO_2) and are in low in alumina (3.5 to 5.1% Al_2O_3). Alkali elements are largely depleted: sodium contents are extremely low (<0.03% Na_2O except for one sample which has 0.4% Na_2O); potassium contents are slightly higher but also low (1.22 to 1.80% K_2O). High calcium (3.83 to 5.07% CaO) and CO_2 (4.1 to 5.8%) contents reflect the carbonate alteration. With regard to other elements, the samples contain 2600 to 4100 ppm Nb, 7300 to 12000 ppm Zr, and 1200 to 1700 ppm Y; total REE content, mainly La and Ce, is on the order of 1%. These values, if converted to oxides, would be about the same as the values indicated by your work. The chondrite-normalized plot of the individual REE in these samples is shown in Figure 1. The profiles are all very similar, and show depletion in Eu and strong enrichment in light REE (mainly Ce and La), relative to heavy REE. This pattern of Eu depletion and light REE enrichment may be due, at least in part, to alteration and mineralization, although similar patterns are typical of fractionated felsic igneous rocks.

Canada

Petrographic examination of the samples confirms that the samples consist mainly of quartz and carbonate, along with fine-grained sericite/white mica. The sericite is foliated to varying degrees, suggesting that the rocks have undergone some degree of structural deformation. Finely disseminated pyrite is common but forms <1% by volume, and fluorite is present in some samples, also as very small grains. Zircon and monazite are present as accessory minerals. Minute, disseminated grains of opaque minerals, about 20 microns in size or less, are also present.

In one polished thin section of sample SYA93-79A, an extremely fine-grained (about 20 microns in size), opaque phase containing significant amounts of Y, Nb and Ti was identified using a scanning electron microscope (SEM). An individual grain of this mineral is shown in the two SEM images (Fig. 2,3); X-ray spectra of this grain (analyzed by SEM) are shown in Figures 4 and 5. This mineral is tentatively identified as aeschynite-(Y), which has the chemical formula $(Y,Ca,Fe,Th)(Ti,Nb)_2(O,OH)_6$; positive identification by X-ray diffraction was precluded by the very fine-grained nature of the mineral. However, this mineral could account for the Nb and Y contents of the samples. Other REE can also be present in aeschynite; the possibility of zoning in the mineral to aeschynite-(Ce), in which Ce substitutes for Y, is suggested by slight variations in the SEM image in Figure 3.

In terms of the commercial potential of aeschynite-(Y), I am not aware of any operations where REE are recovered from this mineral. This does not necessarily mean it has no potential; in fact, concentration of a specific REE, in this case Y, in a single mineral phase would be considered advantageous. However, the very fine grain size of this mineral in the material from the Lancer property would make efficient production of a concentrate very difficult. Any further development of the Lancer property must take this into account.

Yours truly,

W.D. Sinclair

cc. C.W. Jefferson
T. Bremner, DIAND, Whitehorse

GEOLOGICAL SURVEY OF CANADA
MINERAL RESOURCES DIVISION
ANALYTICAL CHEMISTRY SECTION

* REPORT OF ANALYSIS *

DATE: 22-Dec-93
REPORT NO. 75-93
SUBMITTED BY: W. Sinclair
PROJECT NO. 770071
METHOD: WDS-17 , ICP-MJ1
FeO , H2O(t) , CO2 , C , S(t) and LOI by chemical methods.

ESTIMATE OF VALIDITY OF RESULTS

ELEMENT	+/-	(ABSOLUTE	+	RELATIVE)
SiO2	+/-	(0.5 %	+	1% OF CONC.)
TiO2		0.02	+	''
Al2O3		0.2	+	''
Fe2O3(t)		0.06	+	''
MnO		0.01	+	2% ''
MgO		0.04	+	1% ''
CaO		0.01	+	''
Na2O		0.03	+	''
K2O		0.05	+	''
P2O5		0.01	+	1% OF CONC.
FeO		0.2	+	5% OF CONC.
H2O(t)		0.1	+	5% OF CONC.
CO2		0.1	+	3% OF CONC.
C				
S(t)		0.02	+	5% OF CONC.
LOI				
Ba	+/-	(30 PPM	+	10% OF CONC.)
Nb	+/-	(30 PPM	+	10% OF CONC.)
Rb	+/-	(20 PPM	+	2% OF CONC.)
Sr	+/-	(20 PPM	+	10% OF CONC.)
Zr	+/-	(20 PPM	+	10% OF CONC.)

ANALYST(S).......................   VERIFIED...................

GEOLOGICAL SURVEY OF CANADA
ANALYTICAL CHEMISTRY SECTION

DATE: 22-Dec-93

REPORT OF ANALYSIS

NAME: W. Sinclair   PROJECT: 770071   REQN. NO: 75-93

LAB. NO.	1	2	3	4
SAMPLE NO:	SYA93-79 A	SYA93-79 B	SYA93-79 C	SYA93-79 D
SIO2 % :	71.9	69.1	71.7	72.0
TIO2 % :	0.19	0.24	0.43	0.31
AL2O3 % :	5.10	3.70	4.90	3.50
FE2O3t % :	3.70	4.20	3.30	4.80
FE2O3 % :	1.3	1.4	2.1	3.4
FEO % :	2.2	2.5	1.1	1.3
MNO % :	0.20	0.23	0.24	0.36
MGO % :	1.72	1.78	1.24	0.62
CAO % :	4.16	5.07	3.83	4.34
NA2O % :	< 0.03	< 0.03	0.40	< 0.03
K2O % :	1.78	1.25	1.80	1.22
H2Ot % :	1.1	1.1	1.4	1.7
CO2t % :	5.8	6.8	4.5	4.1
CO2= % :				
C % :				
P2O5 % :	0.28	0.52	0.41	0.49
St % :	0.19	0.26	0.09	0.34
Ba ppm :	360	260	340	290
Nb ppm :	2800	4100	3600	2600
Rb ppm :	120	80	130	81
Sr ppm :	34	36	29	33
Zr ppm :	12000	7300	9500	8800
TOTAL'S	97.4	95.1	95.5	94.8
LOI'S				

COMMENTS:

* ALL ANALYSES BY XRF AND/OR ICP EXCEPT FEO,H2OT,CO2T,CO2,C,S AND LOI BY CHEMICAL METHODS.
* FE2O3 IS CALCULATED USING FE2O3=FE2O3T(ICP)-1.11134*FEO(VOLUMETRIC).
* ICP-MJ1 DATA ARE OBTAINED ON 0.5 G OF SAMPLE FUSED WITH LITHIUM METABORATE, DISSOLVED IN 5% HNO3 AND DILUTED TO 250 ML.
* ICP-TR1 DATA ARE OBTAINED ON 1.0 G OF SAMPLE (ACID + FUSION OF RESIDUE) DISSOLVED IN 10% HCL AND DILUTED TO 100 ML.

Resources Division

t........N.Bertrand
ion limit: 0.02 ppm

.u (pm)	Nd (ppm)	Pr (ppm)	Sm (ppm)	Tb (ppm)	Tm (ppm)	Y (ppm)	Yb (ppm)
[illegible]	1500	440	230	27	13	1200	84
[illegible]	2300	710	310	31	12	1200	69
[illegible]	2500	730	380	41	16	1700	91
[illegible]	2700	800	380	38	14	1400	79

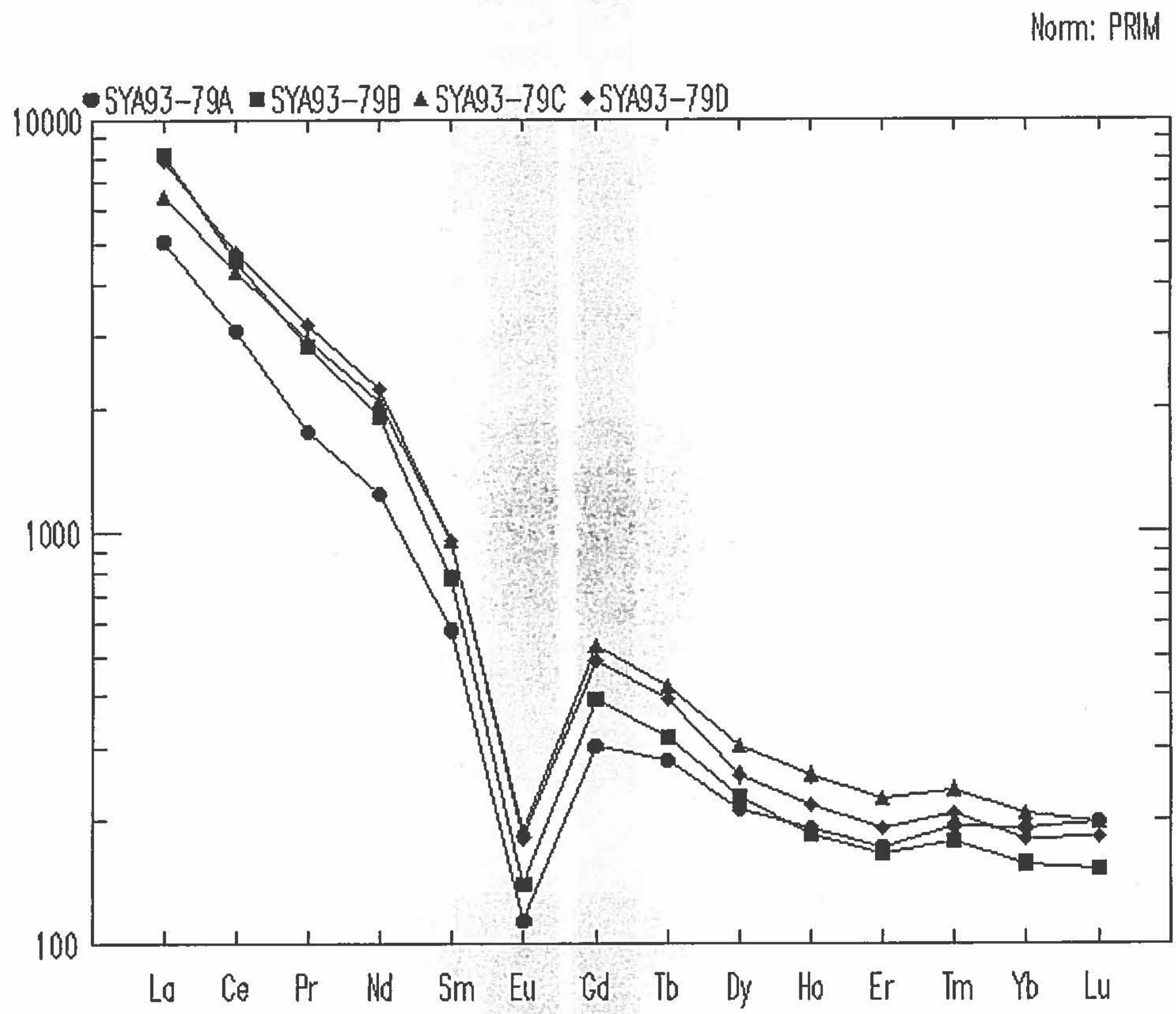


Fig. 1 Chondrite-normalized plot of REE from the LANCER property, Yukon.

SYA-93-79A-1

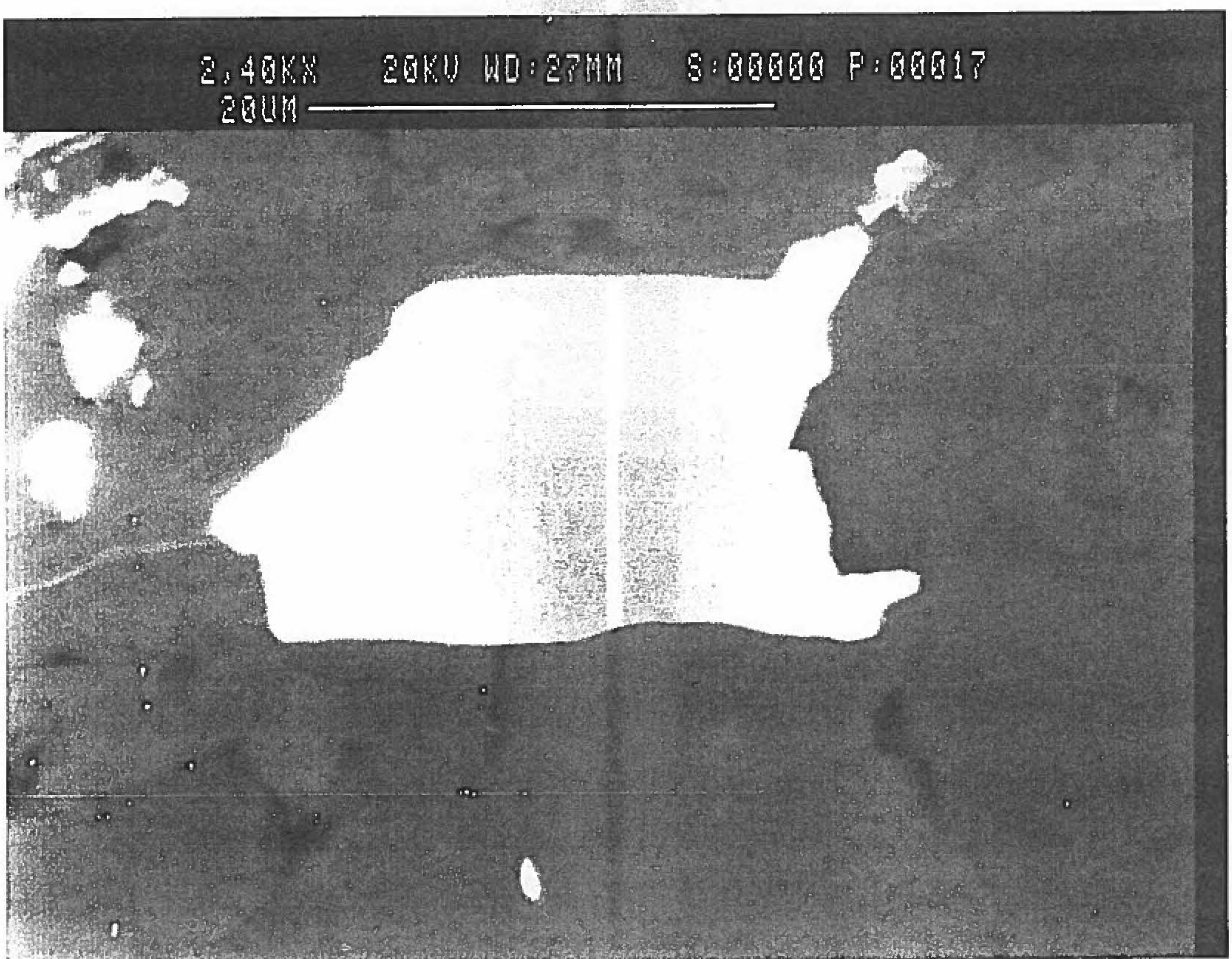


Fig. 3 SEM image of Y, Nb, Ti - rich mineral; enlargement of mineral indicated in Fig. 2.

SYA-93-79A-1

Fig. 2 SEM image of opaque minerals, Lancer property, Yukon
Arrow points to Y, Nb, Ti-rich phase.

SYA-93-79A-1

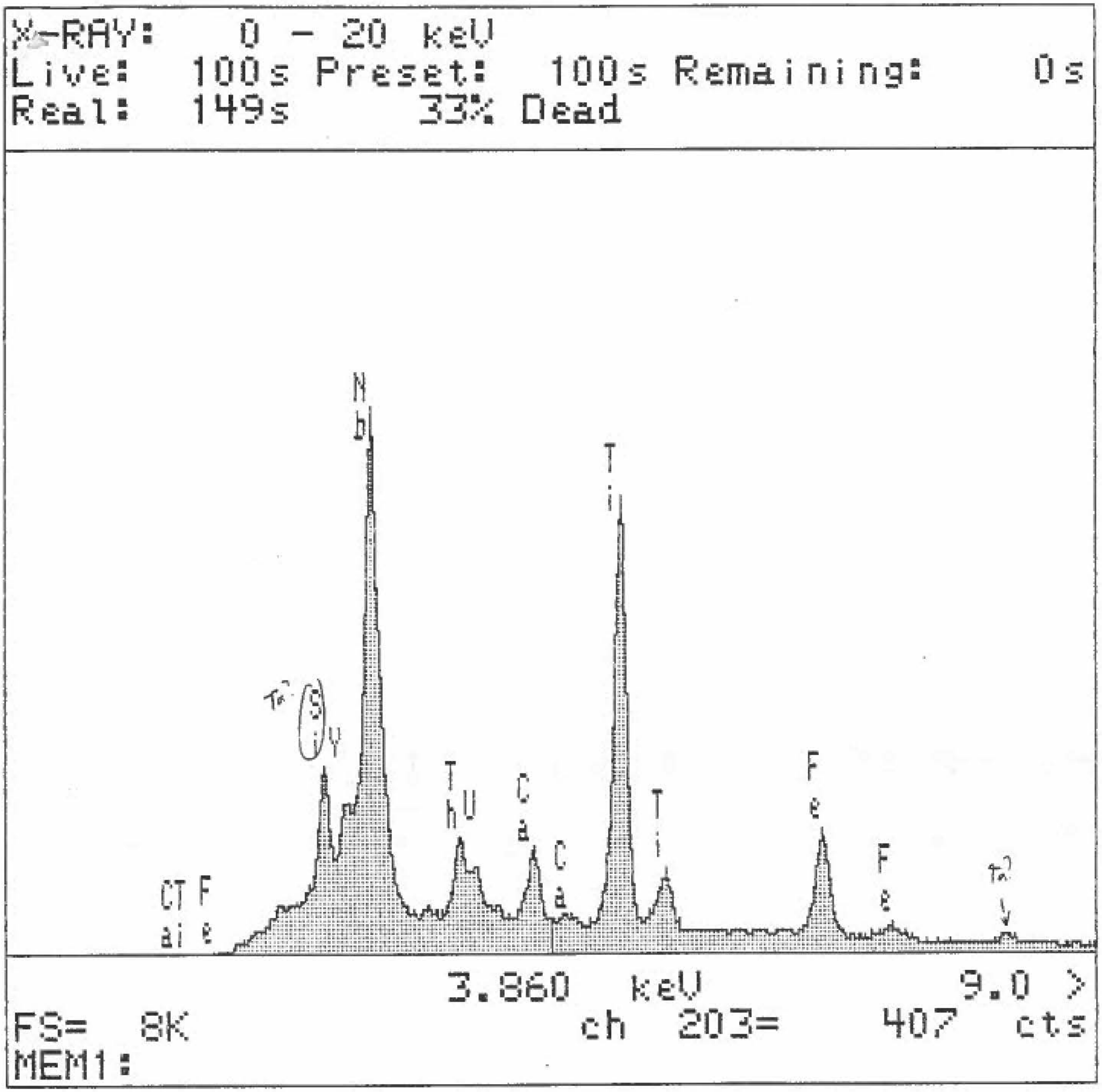


Fig. 5: X-ray spectrum of Y, Nb, Ti - rich mineral.

SYA-93-77A-1

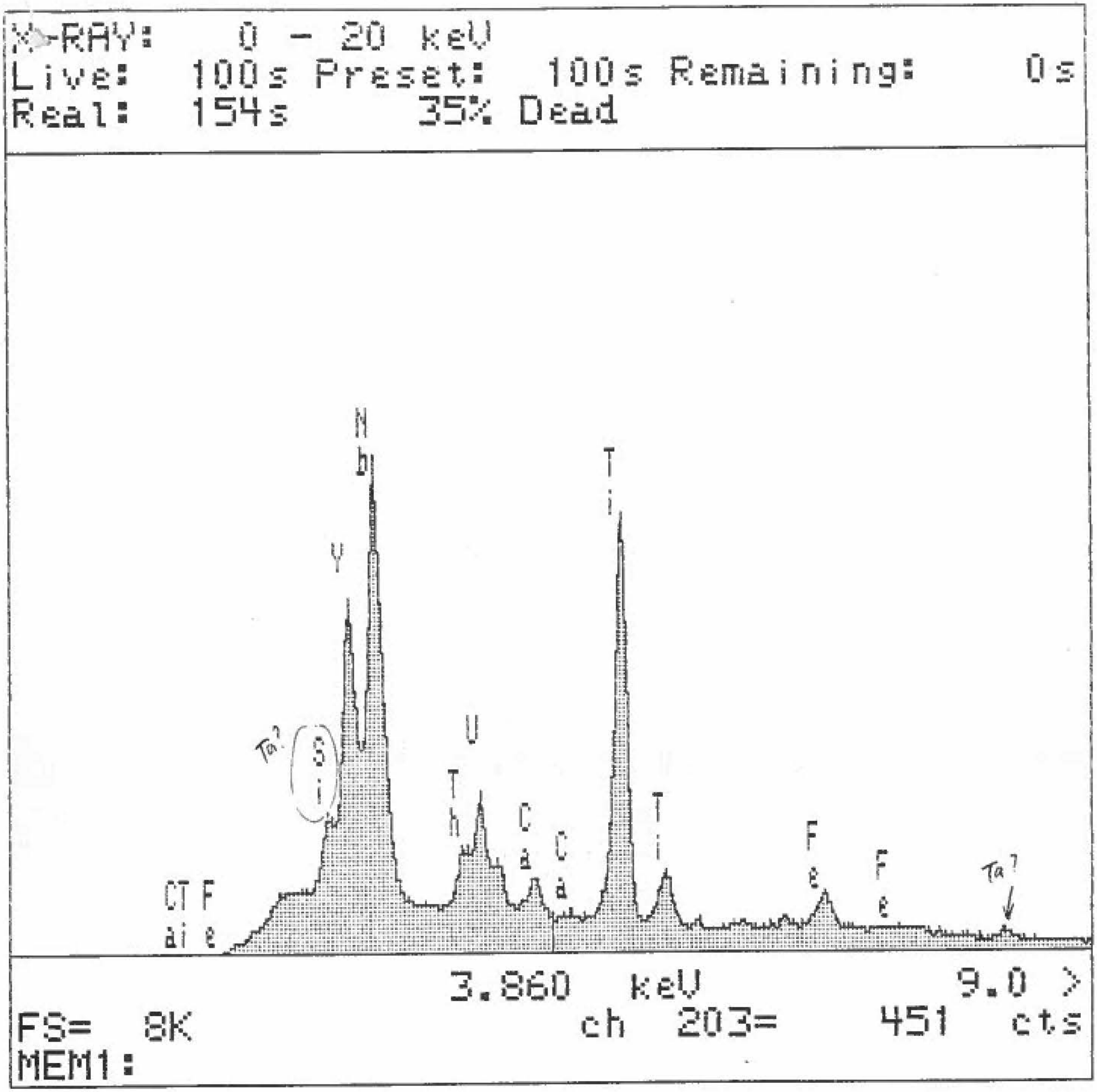


Fig. 4: X-ray spectrum of Y,Nb,Ti-rich mineral.