BRITISH COLUMBIA

PROSPECTORS ASSISTANCE PROGRAM

MINISTRY OF ENERGY AND MINES

GEOLOGICAL SURVEY BRANCH

PROGRAM YEAR:	2001/2002
REPORT #:	PAP 01-7
NAME:	WILLIAM WELSH

D. TECHNICAL REPORT

BRITISH COLUMBIA
Ministry of Energy and Mines
Energy and Minerals Division

- One technical report to be completed for each project area.
- **Refer to Program Regulations 15 to 17, page 6.**

SUMMARY OF RESULTS

- *This summary section must be filled out by all grantees, one for each project area*

Information on this form is confidential for one year and is subject to the provisions of the *Freedom of Information Act*.

Name WILLIAM WELSH Reference Number 01/02-P10

LOCATION/COMMODITIES

Project Area (as listed in Part A) DUNCAN RIVER MINFILE No. if applicable 082K NE071 082K NE071 206 102

Location of Project Area NTS 82K/7 11 14 Lat 50° 45' 35" Long 117° 10' 45"

Description of Location and Access PROSPECTING AREA IS LOCATED ALONG DUNCAN LAKE (EAST SIDE) AND THE DUNCAN RIVER TO THE BATTLE RANGE BATHOLITH. ACCESS IS VIA THE DUNCAN RIVER FORREST ACCESS RD

Prospecting Assistants(s) - give name(s) and qualifications of assistant(s) (see Program Regulation 13, page 6)
BARBARA WELSH HONS BSC GEOLOGICAL ENGINEERING, QUEENS UNIVERSITY (1980)

Main Commodities Searched For TANTALUM, RARE ELEMENTS (Ta Nb Li Rb Cs)

Known Mineral Occurrences in Project Area TIN CITY (082K NE071) Be Sn W LOCATED AT COCKLE CREEK ON THE EAST SIDE OF DUNCAN LAKE

WORK PERFORMED

1. Conventional Prospecting (area) 8096 Ha
2. Geological Mapping (hectares/scale) 2104 Ha
3. Geochemical (type and no. of samples) ROCK SAMPLES - ICP 20
4. Geophysical (type and line km)
5. Physical Work (type and amount)
6. Drilling (no. holes, size, depth in m, total m)
7. Other (specify)

FEEDBACK: comments and suggestions for Prospector Assistance Program

IT WOULD BE NICE IF FORMS COULD BE FORMATTED TO ALLOW DATA ENTRY FROM A COMPUTER (AS IN MINEKAL TENURE FORMS) AS IT WOULD MAKE IT MORE LEGIBLE (ALSO I GET WRITERS CRAMP EASILY)

I HAVE ENJOYED PARTICIPATING IN THIS PROGRAM AND HOPE IT IS CONTINUED (ONE HIT AND THE PAYBACK WOULD BE A THOUSAND FOLD)

D. TECHNICAL REPORT (continued)

REPORT ON RESULTS

- Those submitting a copy of an Assessment Report or a report of similar quality that covers all the key elements listed below are not required to fill out this section.
- Refer to Program Regulation 17D on page 6 for details before filling this section out (use extra pages if necessary)
- **Supporting data must be submitted with the following TECHNICAL REPORT or any report accepted in lieu of.**

Information on this form is confidential for one year from the date of receipt subject to the provisions of the *Freedom of Information Act*.

Name WILLIAM WELSH Reference Number 01/02 P10

1. LOCATION OF PROJECT AREA [Outline clearly on accompanying maps of appropriate scale.]

THE PROJECT AREA LIES WITHIN A NARROW AREA ALONG DUNCAN LAKE AND THE DUNCAN RIVER AND INCLUDES VARIOUS GRANITIC INTRUSIONS AND PEGMATITES WHICH ARE RELATED TO THE BATTLE RANGE BATHOLITH TO THE BATHOLITH ITSELF.

2. PROGRAM OBJECTIVE [Include original exploration target.]

TO LOCATE TANTALUM - BEARING GRANITE PEGMATITES (COMPLEX - TYPE, LCT FAMILY) ALONG THE WESTERN MARGIN AND AS SATELLITE BODIES TO THE BATTLE RANGE BATHOLITH. THE SELECTION OF THIS TARGET WAS GUIDED LARGELY BY ANOMALOUS STREAM SEDIMENT SAMPLES (FOR Ta) FROM THE RGS PROGRAM (Comp to ?

3. PROSPECTING RESULTS [Describe areas prospected and significant outcrops/float encountered. Mineralization must be described in terms of specific minerals and how they occur. These details must be shown on accompanying map(s) of appropriate scale; prospecting traverses should be clearly marked.] ?? - should discuss

ALTHOUGH ANOMALOUS ZINC RESULTS WERE OBTAINED FOR SAMPLES IN THE SOUTHERN PART OF THE PROSPECTING AREA AND ONE SAMPLE WAS ANOMALOUS FOR Zr (ZIRCON IS AN INDICATOR MINERAL FOR COMPLEX - TYPE PEGMATITES, FOR THE MOST PART THERE WERE NO SIGNIFICANT RESULTS FOR TANTALUM. HOWEVER THE PROSPECTING AREA WAS EXTREMELY LARGE, AND IT WOULD NOT BE IMPRUDENT TO CARRY OUT MORE FOCUSSED WORK IN THE NORTHERN PART OF THE PROSPECTING AREA, ESPECIALLY IN THE VICINITY OF KNOWN ALASKITE INTRUSIONS WITHIN THE BATTLE RANGE BATHOLITH.

→ What are you looking for in the Rocks?
- structure
- sulphides
- geology ?

D. TECHNICAL REPORT (continued)

REPORT ON RESULTS (continued) – No discussion of Geochem Results.

5. GEOPHYSICAL RESULTS [Specify the objective of the survey, the method used and the work done. Discuss the results and show the data on an accompanying map of appropriate scale. Any anomalous areas must be indicated on maps by the use of contouring, or some other suitable technique.]

5. OTHER RESULTS [**Drilling** - describe objective, type and amount of drilling done. Discuss results, including any significant intersections obtained. Indicate on a map of appropriate scale the drill-hole collar location, the angle of inclination and azimuth. Drill logs correlated with assay results must be included. **Physical Work** - describe the type and amount of physical work done and the reasons for doing it (where not self-evident). This includes lines/grids, trails, trenches, opencuts, underground work, reclamation, staking of claims, etc. Discuss results where pertinent.]

Signature of Grantee _____ Date DEC 12/2001

Signature of person filling out Final Prospecting Report if other than grantee _____

D. TECHNICAL REPORT

BRITISH COLUMBIA
Ministry of Energy and Mines
Energy and Minerals Division

- One technical report to be completed for each project area.
- **Refer to Program Regulations 15 to 17, page 6.**

SUMMARY OF RESULTS

- This summary section must be filled out by all grantees, one for each project area

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Name WILLIAM WELSH Reference Number 01/02-P10

LOCATION/COMMODITIES

Project Area (as listed in Part A) INCOMAPPLEUX RIVER MINFILE No. if applicable 082KNW 217, 45

Location of Project Area NTS 82K/13 Lat 50°56'46" Long 117°36'12"

Description of Location and Access PROSPECTING AREA IS LOCATED ALONG THE INCOMAPPLEUX RIVER NORTHEAST OF BEATON. ACCESS IS VIA TRUCK AND ATV ON A UNMAINTAINED LOGGING ROAD TO BULLARD CR. THEN ON FOOT TO M°DOUGAL CR

Prospecting Assistants(s) - give name(s) and qualifications of assistant(s) (see Program Regulation 13, page 6)
BARBARA WELSH - HONS B.SC. GEOLOGICAL ENGINEERING QUEENS UNIVERSITY (1980)

Main Commodities Searched For TANTALUM, RARE ELEMENTS (Ta Nb Li Rb Cs)

Known Mineral Occurrences in Project Area TIN, M°DOUGAL CREEK - Sn BEARING PEGMATITES (IMPROPERLY LOCATED IN MINFILE)

WORK PERFORMED

1. Conventional Prospecting (area) 1275 HA
2. Geological Mapping (hectares/scale) 370 HA
3. Geochemical (type and no. of samples) ROCK SAMPLES - ICP 16
4. Geophysical (type and line km)
5. Physical Work (type and amount)
6. Drilling (no. holes, size, depth in m, total m)
7. Other (specify)

FEEDBACK: comments and suggestions for Prospector Assistance Program

D. TECHNICAL REPORT (continued)

REPORT ON RESULTS

- Those submitting a copy of an Assessment Report or a report of similar quality that covers all the key elements listed below are not required to fill out this section.
- Refer to Program Regulation 17D on page 6 for details before filling this section out (use extra pages if necessary)
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Name WILLIAM WELSH Reference Number 01/02 P10

1. LOCATION OF PROJECT AREA [Outline clearly on accompanying maps of appropriate scale.]

THE PROJECT AREA IS LOCATED ALONG THE INCOMAPPLEUX RIVER NORTH OF LEXINGTON CREEK TO THE THIRD TRIBUTARY OF McDOUGAL CREEK. THIS AREA LIES ON THE EASTERN MARGIN OF THE BATTLE RANGE BATHOLITH.

2. PROGRAM OBJECTIVE [Include original exploration target.]

TO LOCATE AND SAMPLE PEGMATITE DYKES RELATED TO THE BATTLE RANGE BATHOLITH THAT MAY OR MAY NOT CONTAIN TIN - TUNGSTEN MINERALIZATION, BUT REPRESENT COMPLEX TYPE, LCT - FAMILY TANTALUM BEARING PEGMATITES

3. PROSPECTING RESULTS [Describe areas prospected and significant outcrops/float encountered. Mineralization must be described in terms of specific minerals and how they occur. These details must be shown on accompanying map(s) of appropriate scale; prospecting traverses should be clearly marked.]

TWO SAMPLES YIELDED ANOMALOUS TANTALUM RESULTS

1R 08 7 PPM Ta ✓

1R 11 13 PPM Ta ✓

WITH LITTLE OR NO NIOBIUM DETECTED. THEREFORE THE PEGMATITES ARE WELL FRACTIONATED AND THE GEOLOGY IS SUFFICIENTLY FAVOURABLE TO WARRANT FURTHER EXPLORATION FOR TANTALUM DEPOSITS IN THIS AREA, IN SPITE OF THE DIFFICULT ACCESS. AS WELL THE SAMPLES SHOWED LITTLE OR NO URANIUM/THORIUM CONTENT, WHICH MAKES IT A PREFERRED TARGET OVER MOST OF THE KNOWN TANTALUM DEPOSITS IN BC

Should be a more detailed description of Results.

D. TECHNICAL REPORT (continued)

REPORT ON RESULTS (continued)

5. GEOPHYSICAL RESULTS [Specify the objective of the survey, the method used and the work done. Discuss the results and show the data on an accompanying map of appropriate scale. Any anomalous areas must be indicated on maps by the use of contouring, or some other suitable technique.]

5. OTHER RESULTS [**Drilling** - describe objective, type and amount of drilling done. Discuss results, including any significant intersections obtained. Indicate on a map of appropriate scale the drill-hole collar location, the angle of inclination and azimuth. Drill logs correlated with assay results must be included. **Physical Work** - describe the type and amount of physical work done and the reasons for doing it (where not self-evident). This includes lines/grids, trails, trenches, opencuts, underground work, reclamation, staking of claims, etc. Discuss results where pertinent.]

Signature of Grantee _____ Date DEC 12/2001

Signature of person filling out Final Prospecting Report if other than grantee _____

D. TECHNICAL REPORT

BRITISH COLUMBIA
Ministry of Energy and Mines
Energy and Minerals Division

- One technical report to be completed for each project area.
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SUMMARY OF RESULTS

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Name WILLIAM WELSH Reference Number 01/02 P10

LOCATION/COMMODITIES

Project Area (as listed in Part A) GREEN BUSH MINFILE No. if applicable 082LNE015

Location of Project Area NTS 82 L/16 Lat 50° 45' 29" Long 118° 13' 25"

Description of Location and Access PROJECT AREA IS LOCATED TO THE SOUTH OF THE MOUNT BEGBIE BERYL OCCURRENCE ON THE FLANKS OF BLANKET MTN. ACCESS IS BY MEANS OF GREEN BUSH LAKE AND A LOGGING ROAD

Prospecting Assistants(s) - give name(s) and qualifications of assistant(s) (see Program Regulation 13, page 6)
BARBARA WELSH HONS B.SC. GEOLOGICAL ENGINEERING QUEENS U (1980)

Main Commodities Searched For TANTALUM, RARE ELEMENTS (Ta Nb Li Cs Rb)

Known Mineral Occurrences in Project Area N/A

WORK PERFORMED

1. Conventional Prospecting (area) 1400 HA
2. Geological Mapping (hectares/scale) 175 HA
3. Geochemical (type and no. of samples) ROCK SAMPLES - ICP 6
4. Geophysical (type and line km)
5. Physical Work (type and amount)
6. Drilling (no. holes, size, depth in m, total m)
7. Other (specify)

FEEDBACK: comments and suggestions for Prospector Assistance Program

D. TECHNICAL REPORT (continued)

REPORT ON RESULTS

- Those submitting a copy of an Assessment Report or a report of similar quality that covers all the key elements listed below are not required to fill out this section.
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Information on this form is confidential for one year from the date of receipt subject to the provisions of the *Freedom of Information Act.*

Name WILLIAM WELSH Reference Number 01/02 P10

1. LOCATION OF PROJECT AREA [Outline clearly on accompanying maps of appropriate scale.]

THE PROSPECTING AREA IS ON THE FLANKS OF BLANKET MTN WHICH IS THE SOUTHERNMOST EXTREMITY OF A SWARM OF GRANITE PEGMATITES THAT INCLUDES THE MT. BEGBIE BERYL OCCURENCE

2. PROGRAM OBJECTIVE [Include original exploration target.]

TO LOCATE AND SAMPLE COMPLEX-TYPE TANTALUM-BEARING PEGMATITES. AS THE MT. BEGBIE REPRESENTS THE SIMPLE TYPE BERYL PEGMATITE, THE SOUTHERN OCCURRENCE PORTION OF THE SWARM WAS CHOSEN IN THE HOPES THAT THE PEGMATITES FARTHEST AWAY FROM THE FRENCHMANS CAP DOME WOULD BE THE MOST FRACTIONATED AND ENRICHED IN TANTALUM

3. PROSPECTING RESULTS [Describe areas prospected and significant outcrops/float encountered. Mineralization must be described in terms of specific minerals and how they occur. These details must be shown on accompanying map(s) of appropriate scale; prospecting traverses should be clearly marked.]

AS ACCESS TO THE AREA PROVED TO BE EXTREMELY DIFFICULT GIVEN THE SCOPE OF THIS PROSECT, IT WAS NOT POSSIBLE TO SUFFICIENTLY SAMPLE THE PEGMATITES THAT OCCUR THROUGHOUT THIS AREA. NONE OF THE SAMPLES YIELDED SIGNIFICANT RESULTS, BUT THAT DOES NOT MEAN THAT THIS AREA SHOULD BE DISMISSED AS BEING CAPABLE OF HOSTING ECONOMICALLY SIGNIFICANT TANTALUM BEARING PEGMATITES

D. TECHNICAL REPORT (continued)

REPORT ON RESULTS (continued)

5. GEOPHYSICAL RESULTS [Specify the objective of the survey, the method used and the work done. Discuss the results and show the data on an accompanying map of appropriate scale. Any anomalous areas must be indicated on maps by the use of contouring, or some other suitable technique.]

5. OTHER RESULTS [**Drilling** - describe objective, type and amount of drilling done. Discuss results, including any significant intersections obtained. Indicate on a map of appropriate scale the drill-hole collar location, the angle of inclination and azimuth. Drill logs correlated with assay results must be included. **Physical Work** - describe the type and amount of physical work done and the reasons for doing it (where not self-evident). This includes lines/grids, trails, trenches, opencuts, underground work, reclamation, staking of claims, etc. Discuss results where pertinent.]

Signature of Grantee _____ Date DEC 12/2001

Signature of person filling out Final Prospecting Report if other than grantee _____

MAP LEGEND -- DUNCAN RIVER

LAYERED ROCKS

CAMBRIAN to DEVONIAN(?)

CmDLI **LARDEAU GROUP** **Index Fm** micaceous schist and impure marble

LOWER CAMBRIAN

lCmB **Badshot Fm** marble, dolomite and limestone (locally includes Mohican Fm

lCmM **Mohican Fm**

UPPER PROTEROZOIC to LOWER CAMBRIAN

PrCmH **HAMILL GROUP** quartzite

UPPER PROTEROZOIC (Hadrynian)

PrHsc **HORSETHIEF CREEK GROUP** coarse clastics

INTRUSIV E ROCKS

CRETACEOUS

Kqm quartz monzonite

Kgd granodiorite

GPS waypoint; if outcrop sampled, sample number designated by DR-**xx**

MINFILE occurrence

——— contact, defined

— — — contact, inferred

GPS Waypoints (location of outcrop / sample sites)

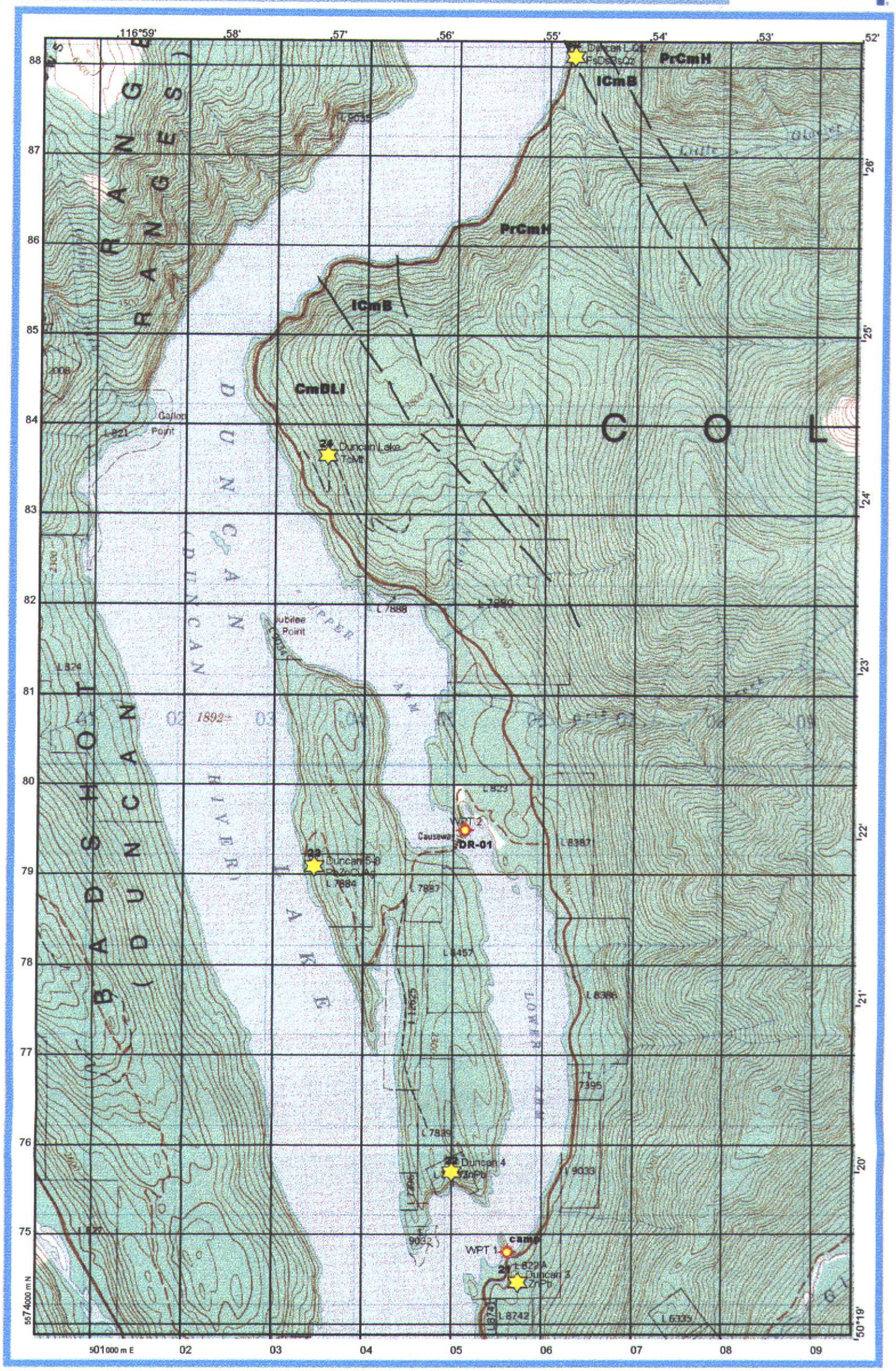
DUNCAN RIVER

B-C

Sample #	WPT	UTME	UTMN	FIELD SAMPLE #/DESCRIPTION	
	1	505623	5574804	campsite	
476501	2	505121	5579276	DR-01	quartz vein in chlorite-muscovite schist; pale mauve mica at selvages
476502	3	506873	5590005	DR-02	quartz monzonite; med-coarse-grained mixture of K-spar, plagioclase,quartz
476503	4	507517	5590330	DR-03	granitic gneiss; fine-med. Grained granular granite-K-spar, quartz, lesser plag., biotite
476504	5	505631	5589976	DR-04	talc schist; yellow-green mica shist (altered biotite?, talc along bedding planes
	6	504530	5592927	contact	Hamill quartzite, Horsethief Creek Gp clastic seds and schists
476505	7	499884	5601522	DR-05	quartz vein; minor fine-grained sulphides, tourmaline, sericite
476506	8	499697	5601620	DR-06	altered granite; med.grained, K-feldspar, quartz, sericite
476507	9	499645	5604607	DR-07	finegrained, grey-black micaceous quartzite (Hamill Gp.)
476508	10	497809	5606405	DR-08	fine-grained chlorite-feldspar schist
476509	11	496195	5609446	DR-09	fine-medium grained quartz-feldspar grit, some cross-bedding
476510	12	495365	5612418	DR-10	fine-grained, light grey slate
476511	13	493972	5614742	DR-11	quartz vein in fine-grained black siliceous limestone (Mohican Fm)
476512	14	493653	5614427	DR-12	lt.pink, fine-coarse gr. K-spar+quartz vein containing minor tourmaline
476513	15	492067	5617630	DR-13	plagioclase trachyte; fine-coarse-gr plagioclase, biotitein granular K-spar
476514	16	487359	5622893	DR-14	(float) coarse-grained granite, mainly quartz, K-feldspar
476515	17	487049	5623576	DR-15	albitized granodiorite cut by small x-cutting quartz veins, well-formed XLs
476516	18	486550	5627621	DR-16	aplite dyke; fine-med.grained plagioclase and quartz
476517	19	486884	5628077	DR-17	sugary-textured quartz diorite comprised of feldspar and quartz
476518	20	486929	5632661	DR-18	quartz vein in mica schist; small flakes of scheelite, f.gr.white Py in stringers
476519	21	486935	5635182	DR-19	granodiorite; K-spar, plagioclase, quartz, biotite, hornblende
476520	22	486390	5641068	DR-20	biotite granodiorite; med-coarse-gr, sericite alteration

Duncan River 1/5

SoftMap



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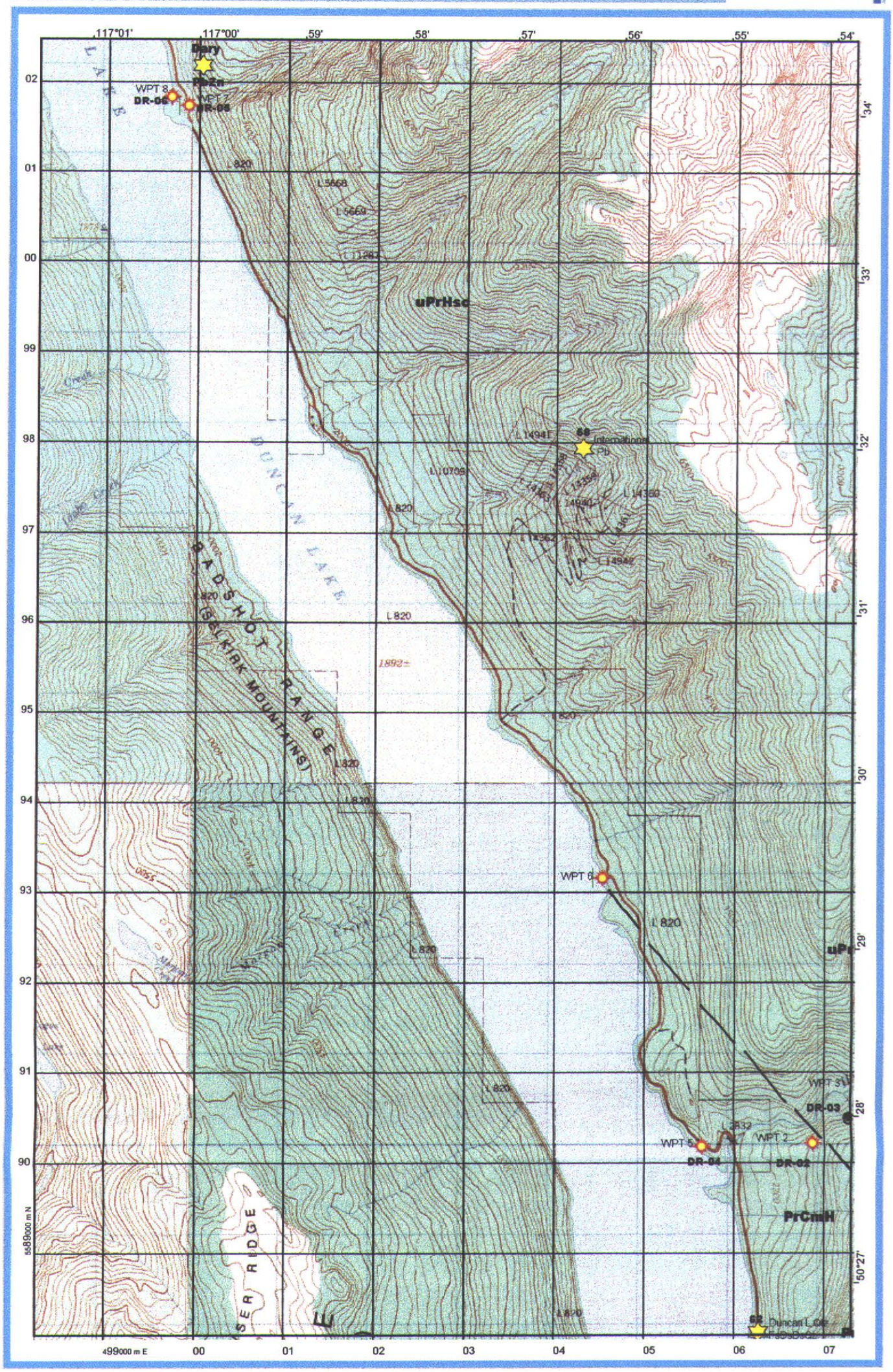
Duncan River 2/5

SoftMap



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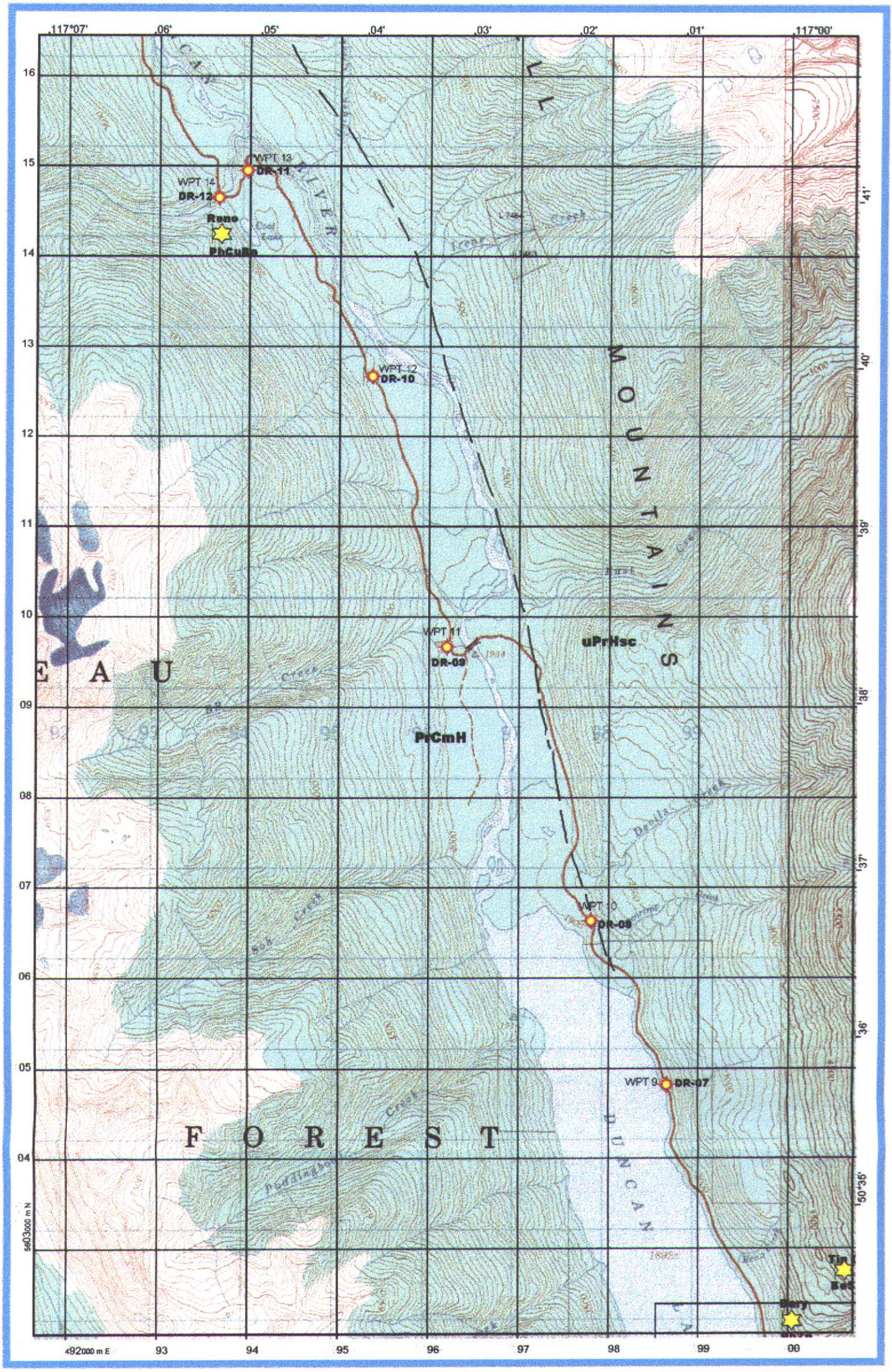
Scale 1 : 50 000

Duncan River 3/5

SoftMap



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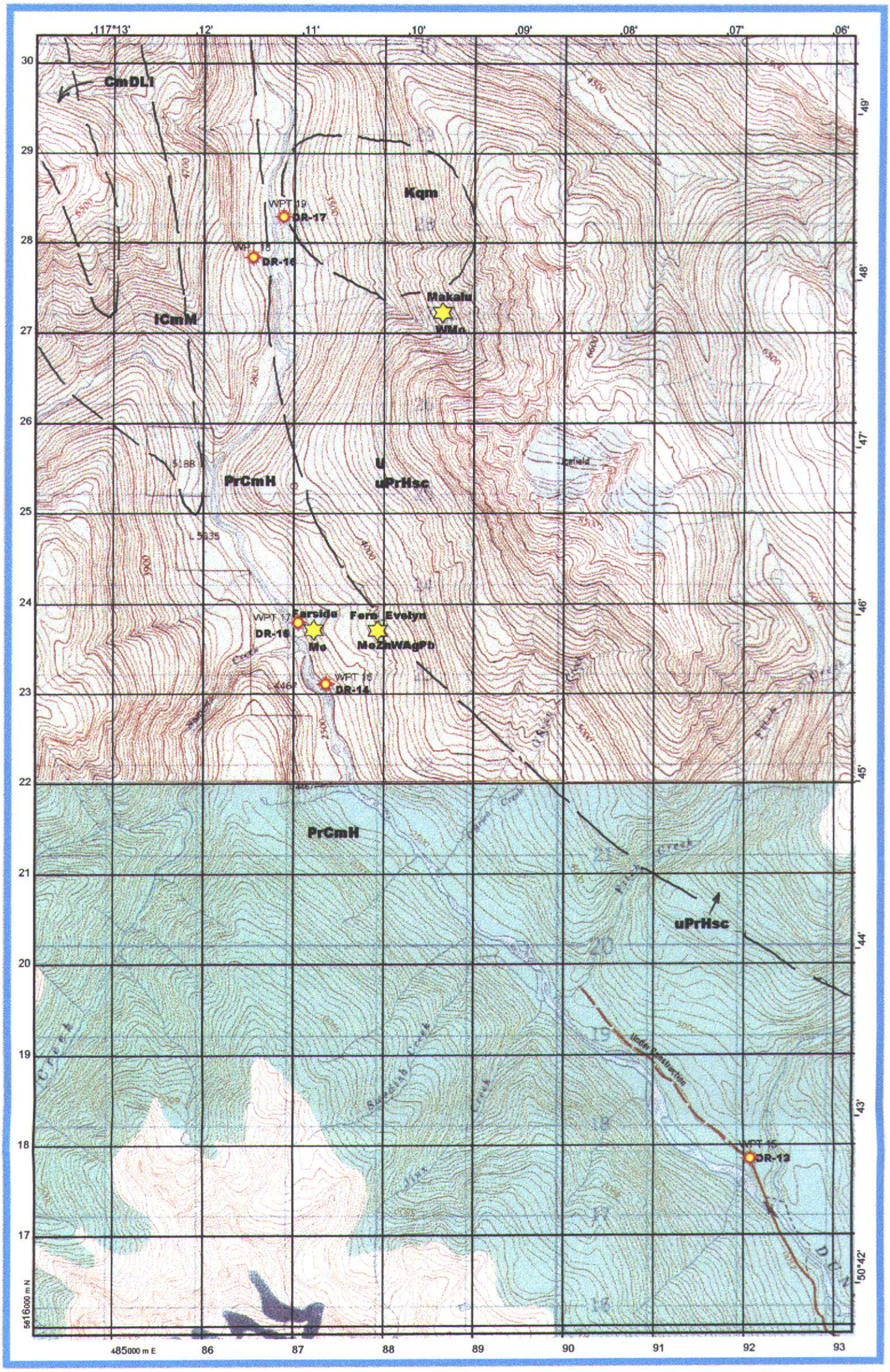
Scale 1 : 50 000

Duncan River 4/5

SoftMap



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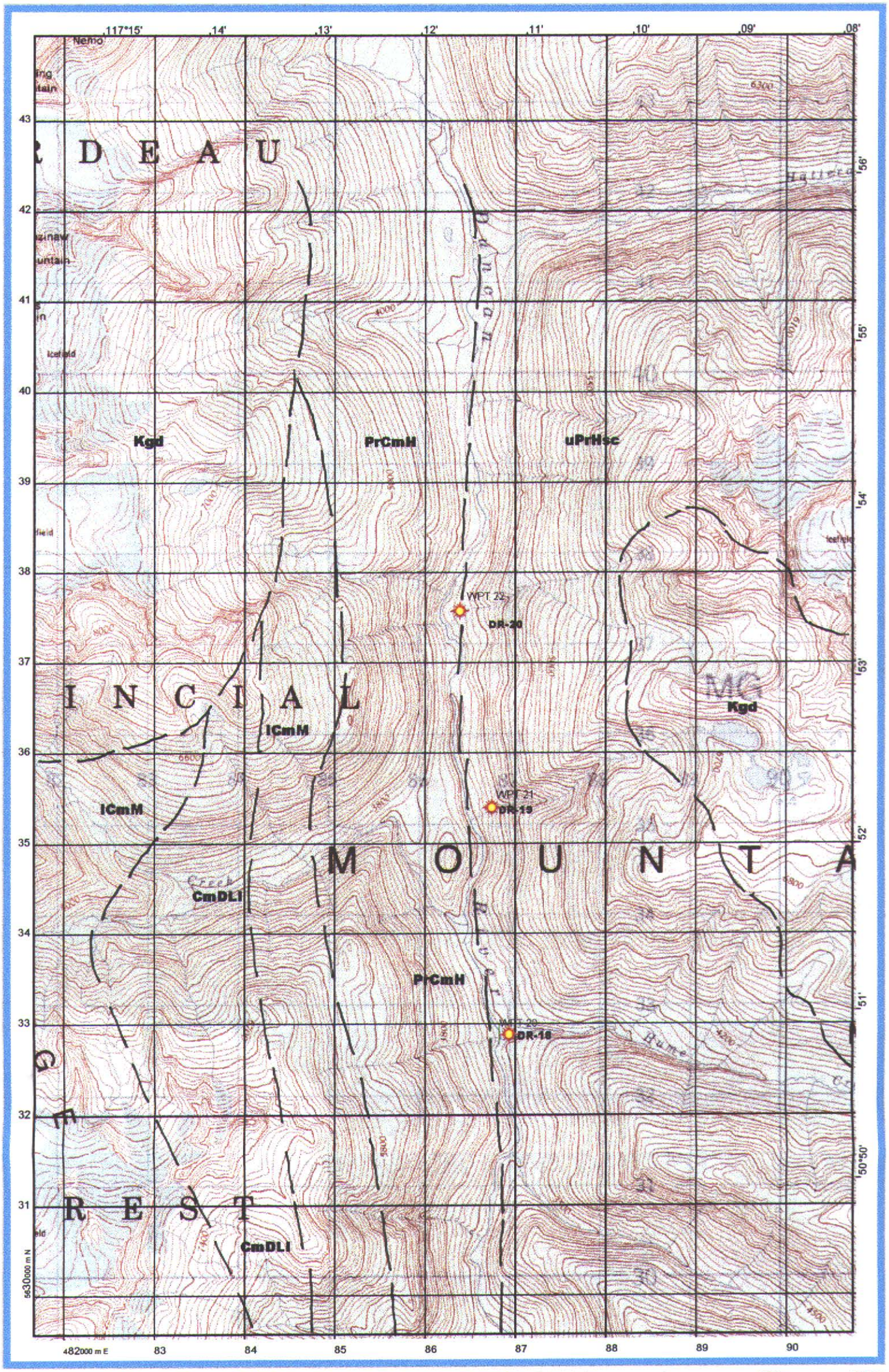
Scale 1 : 50 000

Duncan River 5/5

SoftMap



0 m 1250 m 2500 m

Scale 1 : 50 000

MAP LEGEND -- INCOMAPPLEUX RIVER

LAYERED ROCKS

CAMBRIAN to DEVONIAN(?)

CmDLB	LARDEAU GROUP	Broadview Fm	phyllite, limestone
CmDLJ		Jowett Fm	metavolcanics
CmDLI		Index Fm	micaceous schist and impure marble

UPPER PROTEROZOIC to LOWER CAMBRIAN

PrCmH	HAMILL GROUP	quartzite

INTRUSIV E ROCKS

CRETACEOUS

KB	granodiorite, alaskite -- Battle Range Batholith

GPS waypoint; if outcrop sampled, sample number designated by DR-xx

MINFILE occurrence

contact, defined

contact, inferred

pegmatite dyke

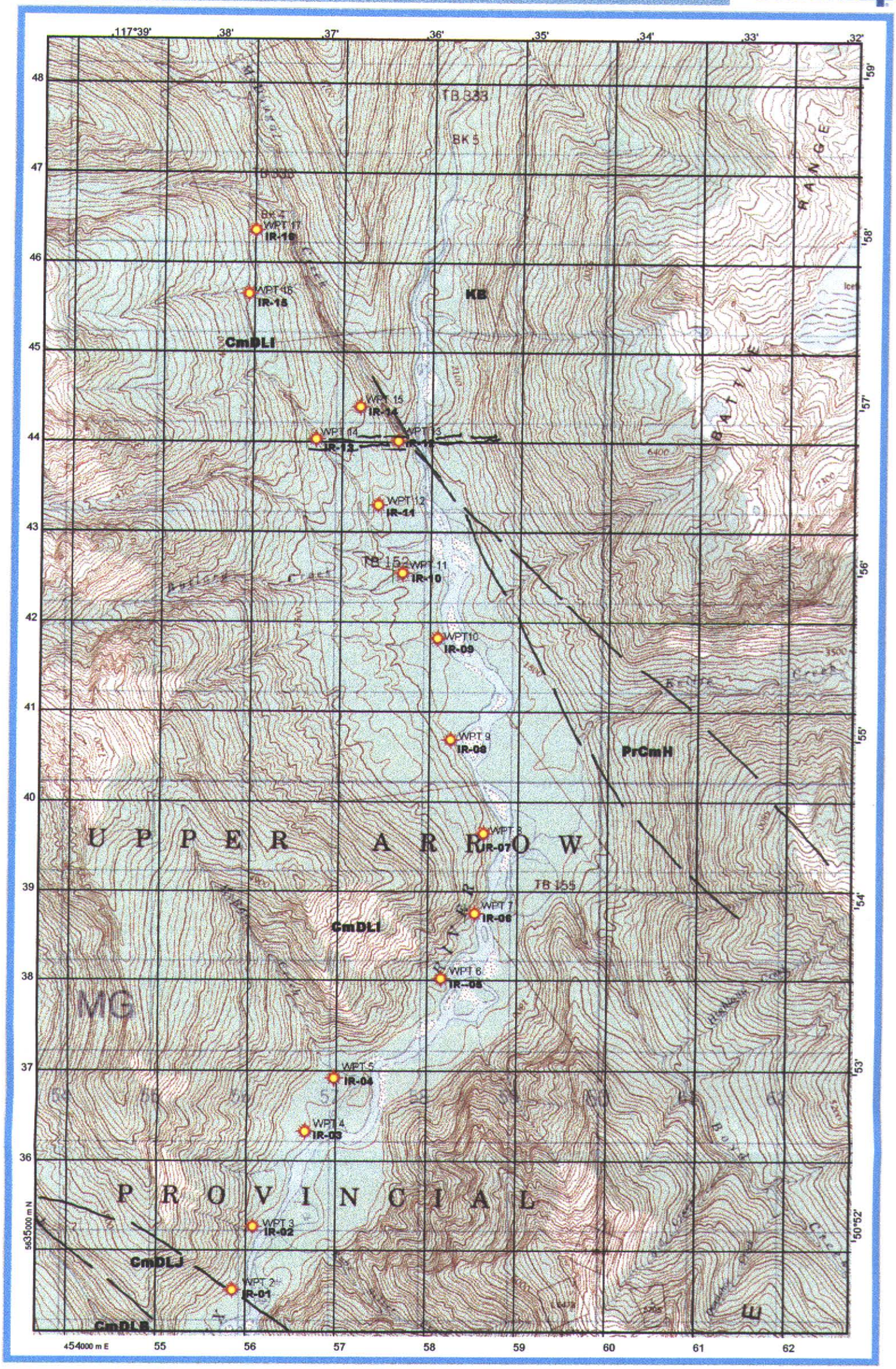
GPS Waypoints on Traverses (location of outcrop / sample sites)

INCOMAPPLEUX RIVER

B-C Sample #	WPT	UTME	UTMN	FIELD SAMPLE	DESCRIPTION
	1	451066	5623441	campsite	
476521	2	455853	5634340	IR-01	fine-grained greenish-black metabasalt, contained numerous contorted veinlets
476522	3	456079	5635269	IR-02	brown-weathering, chlorite-muscovite schist intruded by f.gr. Basic dykes
476523	4	456653	5636336	IR-03	mineralized quartz-carbonate veins within mica schist
476524	5	456970	5636922	IR-04	flat-lying seams of impure marble, three layers or more, approx. 50 m apart
476525	6	458150	5638025	IR-05	green chlorite-biotite schist, cut by numerous steeply dipping carbonate veins
476526	7	458519	5638537	IR-06	thinly-banded grey limestone, cave at base of cliff
476527	8	458612	5639429	IR-07	quartz-carbonate veins in chorite schist
476528	9	458231	5640473	IR-08	Ta=7ppm med-grained, granodiorite; quartz, K-feldspar, biotite
476529	10	457678	5641608	IR-09	med.-coarse-grained graphic granite; quartz, feldspar, biotite
476530	11	457618	5642325	IR-10	fine-grained med. Grey, micaceous metaquartzite
476531	12	457399	5643081	IR-11	Ta=13ppm v.coarse-gr. Granite pegmatite, white mica, no cassiterite
476532	13	457618	5643799	IR-12	fine-coarse-grained porphyritic granite; quartz, K-spar, muscovite, lesser biotite
476533	14	456699	5643822	IR-13	dark-green, brown-weathering chlorite-biotite schist
476534	15	457188	5644183	IR-14	quartz vein in chlorite-feldspar schist
476535	16	456002	5645431	IR-15	granite gneiss; fine-med. Grained, quartz, K-feldspar, biottie
476536	17	456008	5646142	IR-16	med.-coarse-grained graphic granite; quartz, feldspar, biotite

Incomappleux River

SoftMap



0 m 1250 m 2500 m

Scale 1 : 50 000

MAP LEGEND -- GREENBUSH LAKE/ MT. BEGBIE

MONASHEE TERRANE

PROTEROZOIC TO (?) LOWER PALEOZOIC
MONASHEE COMPLEX

PM Undivided; Basement orthogneiss and paragneiss overlain by quartzite, calcsilicate gneiss, marble, quartz feldspar paragneiss, pelitic schist and minor amphibolite (units below are not ir stratigraphic order)

PMp Biotite-quartz-feldspar paragneiss; layered gneiss; garnet schist and gneiss; sillimanite schist and impure quartzite

PMcs Calcsilicate gneiss, amphibolite, marble, schist, quartzite

PMq Quartzite, mica schist; carbonate-diopside quartzite

PM1 Basal unit (PM1q -basal quartzite)

LOWER PROTEROZOIC
CORE GNEISS

lPogn Orthogneiss

lPpgn Paragneiss

GPS waypoint; if outcrop sampled, sample number designated by GL-**xx**

contact, defined

contact, inferred

pegmatite dyke

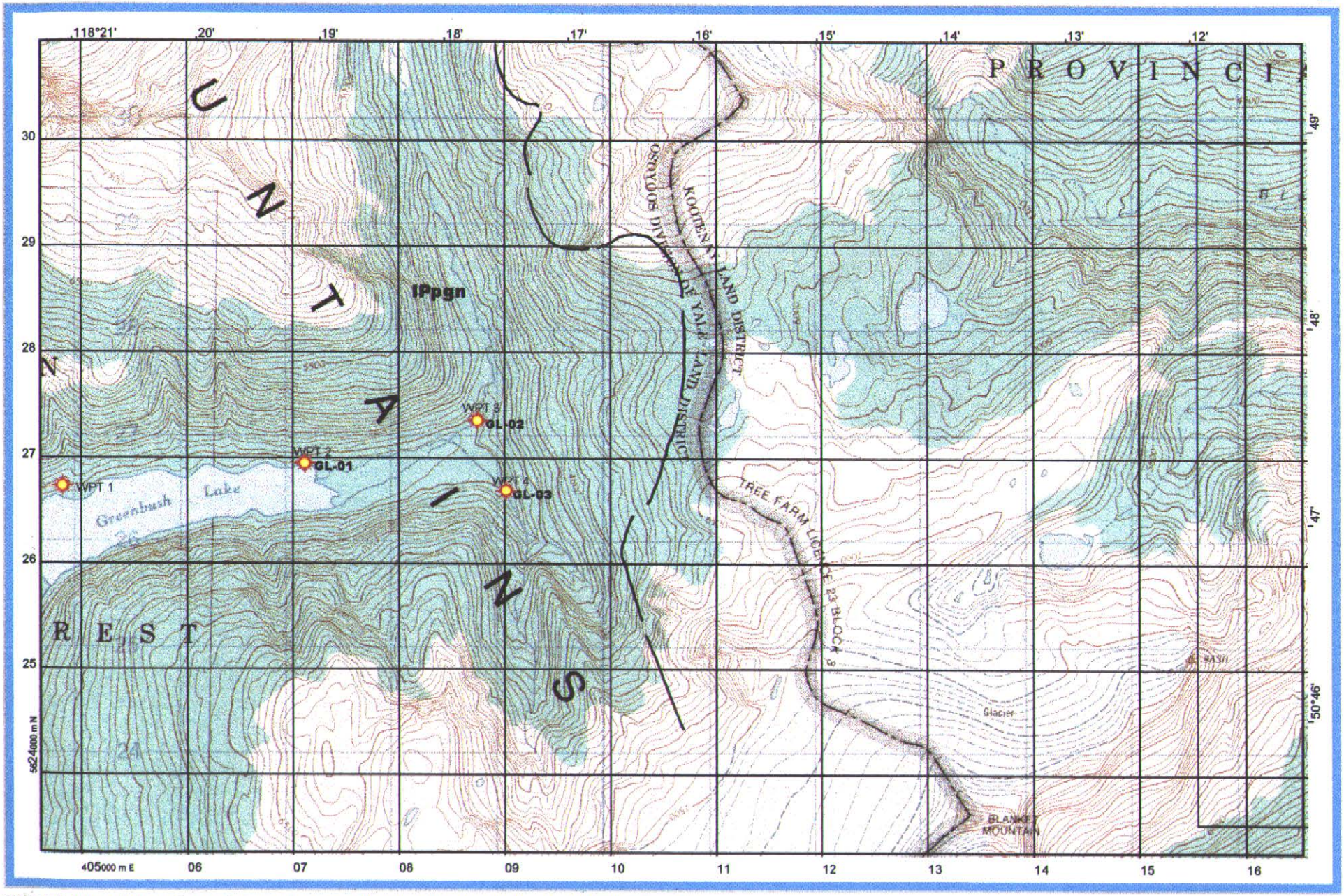
GPS Waypoints on Traverses (location of outcrop / sample sites)

GREENBUSH LAKE – BLANKET MTN.

B-C Sample #	WPT	UTME	UTMN	FIELD SAMPLE	DESCRIPTION
	1	404816	5626511	campsite	
476537	2	407108	5626733	GL-01	granite gneiss; quartz, feldspar, biotite, muscovite
476538	3	408736	5627139	GL-02	fine-medium grained quartzite; mainly quartz, some feldspar, muscovite
476539	4	409009	5626473	GL-03	banded granitic gneiss, containing lenses of pegmatite
476540	5	423126	5628004	GL-04	fine-grained, buff coloured calcareous gneiss
476541	6	421879	5627290	GL-05	fine-grained micaceous quartzite interbedded with grey-green phyllite
476542	7	421613	5626395	GL-06	dark grey, fine-grained slate, interbedded with phyllite

Greenbush L/Blanket Mtn 1/2

SoftMap

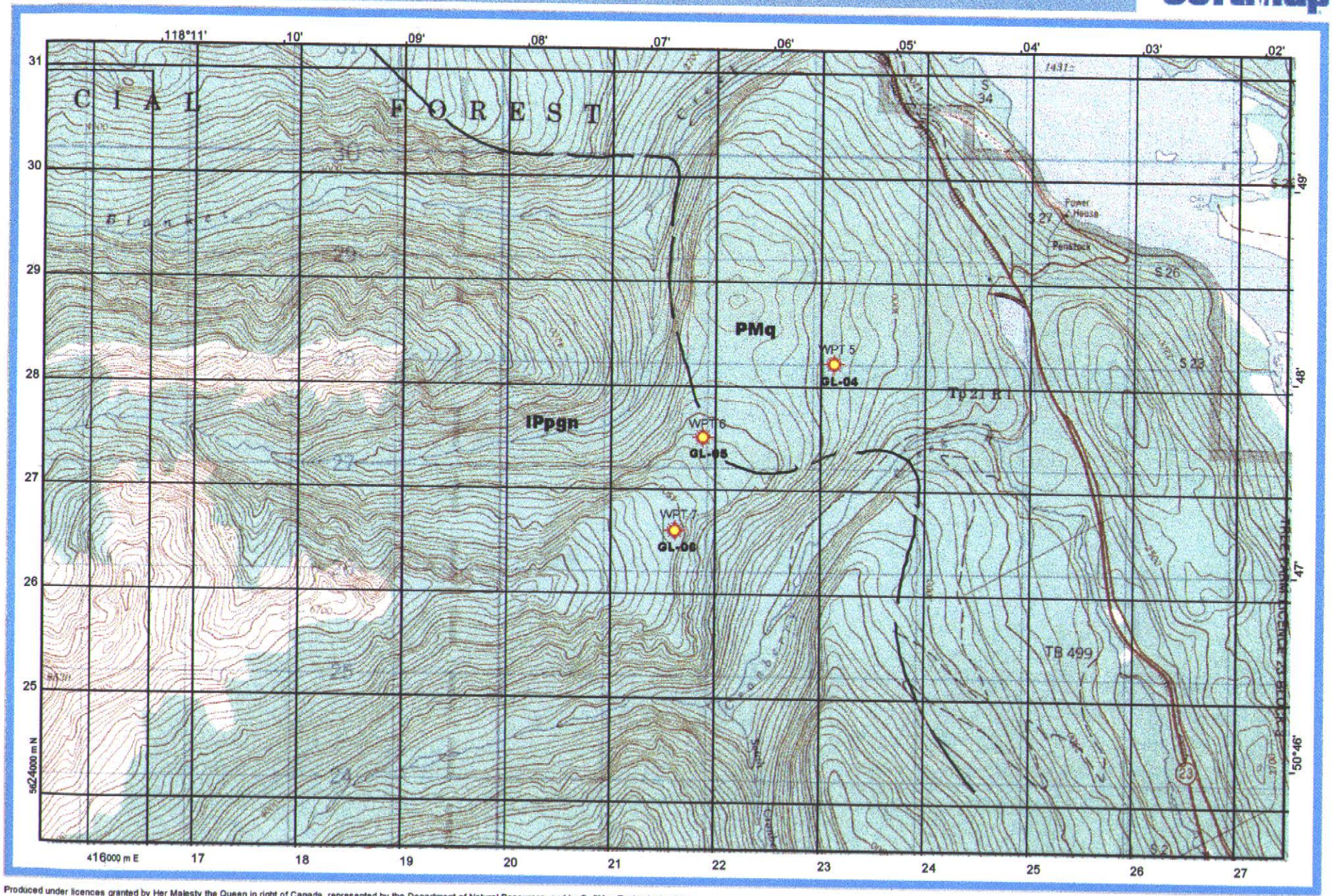


0 m 1250 m 2500 m

Scale 1 : 50 000

Greenbush L/Blanket Mtn 2/2

SoftMap



0 m 1250 m 2500 m

Scale 1 : 50 000

BONDAR CLEGG

Geochemical Lab Report

CLIENT: WILLIAM WELSH

REPORT: V01-30009.0 (COMPLETE)

PROJECT: NONE GIVEN

DATE RECEIVED: 18-SEP-01 DATE PRINTED: 24-SEP-01 PAGE 1 OF 4

SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Cu PPM	Pb PPM	Zn PPM	Mo PPM	Ni PPM	Co PPM	Cd PPM	Bi PPM	As PPM	Sb PPM	Fe Tot PCT	Mn PPM	Te PPM	Ba PPM	Cr PPM	V PPM	Sn PPM	W PPM	La PPM	Al PCT	Mg PCT	Ca PCT	Na PCT	K PCT	Sr PPM	Y PPM	Ga PPM	Li PPM	Nb PPM	Sc PPM	Ta PPM	Ti PCT	Zr PPM	S PCT
476501		<.5	5	11	66	<1	11	7	<1.0	<5	<5	<5	2.29	782	<25	1078	138	82	<20	<20	13	7.07	0.63	1.31	3.47	3.11	822	9	10	9	13	<5	<5	0.23	24	0.011
476502		<.5	5	18	46	<1	<1	3	<1.0	<5	<5	<5	1.57	517	<25	1429	24	48	<20	<20	14	8.99	0.16	0.62	3.14	3.58	911	8	15	8	13	<5	<5	0.19	17	0.006
476503		<.5	125	22	2548	2	<1	5	91.5	<5	<5	<5	2.29	1134	<25	1415	34	127	<20	<20	20	6.86	0.43	1.56	1.64	2.82	879	18	19	11	22	<5	<5	0.34	25	0.805
476504		<.5	19	<2	34	<1	7	5	<1.0	87	5	<5	1.82	342	<25	74	118	26	<20	<20	28	2.16	0.39	0.39	0.12	0.40	83	13	<10	7	<5	<5	<5	0.24	6	0.169
476505		<.5	15	8	50	<1	8	2	<1.0	<5	8	<5	2.25	143	<25	47	127	26	<20	<20	<5	3.34	0.74	0.14	0.28	0.15	59	<5	<10	8	<5	<5	<5	0.08	<5	0.014
476506		<.5	24	21	59	<1	22	10	<1.0	<5	<5	<5	2.71	906	<25	325	76	60	<20	<20	30	4.61	0.81	4.38	0.36	1.64	362	16	<10	31	10	5	<5	0.14	9	0.178
476507		<.5	4	3	92	<1	18	8	<1.0	<5	<5	<5	2.43	476	<25	736	67	39	<20	<20	38	6.31	3.27	1.67	0.92	2.54	64	39	<10	56	11	6	<5	0.27	<5	0.038
476508		<.5	36	17	101	<1	27	13	<1.0	<5	<5	<5	4.01	464	<25	355	125	69	<20	<20	38	6.91	1.67	1.07	0.68	2.25	177	18	<10	88	<5	9	<5	0.27	<5	0.783
476509		<.5	17	14	55	<1	6	9	<1.0	<5	<5	<5	2.23	270	<25	294	112	58	<20	<20	25	6.13	1.25	0.26	0.44	1.89	95	12	<10	49	<5	6	<5	0.18	<5	0.436
476510		<.5	31	11	78	<1	27	15	<1.0	<5	<5	<5	4.25	853	<25	555	71	69	<20	<20	52	9.11	1.60	0.67	0.70	2.96	58	18	13	67	16	11	<5	0.36	7	0.014
476511		<.5	42	10	117	<1	32	13	<1.0	<5	6	<5	5.46	209	<25	429	125	67	<20	<20	34	7.27	1.40	0.94	0.68	2.29	272	16	<10	63	10	9	<5	0.25	5	0.186
476512		<.5	68	<2	142	<1	29	55	<1.0	<5	7	<5	>10.00	1548	<25	1976	34	315	<20	<20	104	6.11	3.93	6.69	1.53	2.53	937	33	<10	35	67	24	<5	0.97	27	0.133
476513		0.7	16	<2	27	<1	14	6	<1.0	<5	<5	<5	1.78	270	<25	274	102	34	<20	<20	18	4.14	1.00	1.89	0.17	2.13	106	16	<10	67	<5	<5	<5	0.21	<5	0.047
476514		<.5	11	9	58	<1	14	11	<1.0	<5	<5	<5	3.12	434	<25	522	78	65	<20	<20	44	7.41	0.62	0.60	2.80	1.70	134	15	<10	49	15	9	<5	0.36	<5	0.014
476515		<.5	11	29	71	<1	26	15	<1.0	<5	18	<5	2.90	955	<25	331	104	39	<20	<20	26	5.11	0.70	2.20	0.34	1.09	123	<5	<10	46	<5	6	<5	0.22	9	0.098
476516		<.5	31	<2	123	<1	40	20	<1.0	<5	<5	<5	4.64	440	<25	1406	113	117	<20	<20	53	9.09	1.18	1.99	0.61	2.76	288	7	13	67	16	13	<5	0.43	19	0.681
476517		<.5	17	20	101	<1	12	12	<1.0	<5	7	<5	3.18	830	<25	1507	52	70	<20	<20	136	7.50	0.92	1.52	3.37	3.53	615	21	<10	18	102	<5	<5	0.40	296	0.020
476518		<.5	16	9	108	<1	22	18	<1.0	8	<5	<5	7.13	1027	<25	845	114	44	<20	55	48	3.63	0.53	1.27	0.41	1.62	72	29	<10	37	11	<5	<5	0.45	<5	4.134
476519		<.5	7	12	41	<1	11	7	<1.0	<5	6	<5	2.12	451	<25	1108	113	49	<20	<20	59	5.96	0.71	1.78	2.47	2.92	447	17	<10	36	63	<5	<5	0.26	14	0.015
476520		<.5	5	17	41	<1	<1	5	<1.0	<5	<5	<5	1.73	490	<25	995	51	31	<20	<20	49	7.17	0.39	1.21	2.33	3.17	390	16	12	48	71	<5	<5	0.22	18	0.010
476521		<.5	14	10	57	<1	16	8	<1.0	<5	<5	<5	2.26	275	<25	418	71	32	<20	<20	28	5.09	0.55	>10.00	0.45	1.80	690	13	<10	40	7	<5	<5	0.22	40	0.085
476522		1.3	12	7	38	<1	9	3	<1.0	<5	<5	<5	2.88	567	<25	920	60	15	<20	<20	8	1.84	0.78	>10.00	0.15	0.55	2189	8	<10	11	<5	<5	<5	0.07	10	0.518
476523		0.9	6	14	21	<1	<1	<1	<1.0	<5	<5	<5	1.51	1044	<25	25	52	3	<20	<20	5	0.47	0.26	>10.00	0.03	0.17	1577	15	<10	<2	<5	<5	<5	0.01	<5	0.151
476524		0.7	7	11	66	<1	2	2	<1.0	<5	10	<5	1.48	500	<25	625	40	19	<20	198	43	3.93	0.36	>10.00	1.06	1.65	1576	14	<10	44	27	<5	<5	0.13	11	0.123
476525		<.5	8	4	49	<1	16	4	<1.0	<5	5	<5	>10.00	6079	<25	15	40	14	<20	<20	6	1.16	0.85	>10.00	0.03	0.16	1251	10	<10	11	<5	<5	<5	0.02	<5	0.282
476526		<.5	5	8	46	<1	16	5	<1.0	<5	<5	<5	2.36	1024	<25	113	61	25	<20	<20	17	2.54	0.53	>10.00	0.11	0.79	1583	10	<10	18	<5	<5	<5	0.11	7	0.096
476527		<.5	14	<2	95	<1	13	11	<1.0	<5	<5	<5	4.72	1161	<25	360	65	66	<20	<20	35	7.68	1.20	7.22	1.13	2.65	817	9	11	63	20	12	<5	0.28	52	0.166
476528	IR-08	<.5	3	<2	6	<1	4	2	<1.0	<5	<5	<5	0.69	404	<25	43	93	13	<20	<20	9	1.09	0.12	1.40	0.26	0.23	59	<5	<10	6	<5	<5	7	0.07	<5	0.013
476529		<.5	7	14	26	<1	3	5	<1.0	<5	<5	<5	1.80	1073	<25	162	32	25	<20	<20	16	4.63	0.63	4.45	1.46	1.13	197	8	<10	15	<5	<5	<5	0.15	8	0.222
476530		<.5	5	10	55	<1	2	9	<1.0	<5	<5	<5	2.39	443	<25	1654	64	57	<20	<20	84	6.10	0.69	1.82	2.52	2.77	627	17	12	37	54	<5	<5	0.30	5	0.017

BONDAR CLEGG

Geochemical Lab Report

CLIENT: WILLIAM WELSH
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DATE RECEIVED: 18-SEP-01 DATE PRINTED: 24-SEP-01 PROJECT: NONE GIVEN

SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Cu PPM	Pb PPM	Zn PPM	Mo PPM	Ni PPM	Co PPM	Cd PPM	Bi PPM	As PPM	Sb PPM	Fe Tot PCT	Mn PPM	Te PPM	Ba PPM	Cr PPM	V PPM	Sn PPM	W PPM	La PPM	Al PCT	Mg PCT	Ca PCT	Na PCT	K PCT	Sr PPM	Y PPM	Ga PPM	Li PPM	Nb PPM	Sc PPM	Ta PPM	Ti PCT	Zr PPM	S PCT
476531	IR-11	<.5	2	6	19	<1	6	6	<1.0	<5	<5	<5	1.19	445	<25	118	65	25	<20	<20	27	3.36	0.08	0.71	1.59	0.78	50	<5	<10	6	<5	<5	13	0.24	14	0.011
476532	IR-12	1.4	<1	<2	19	<1	<1	<1	<1.0	<5	<5	<5	0.53	187	<25	22	12	4	<20	<20	5	0.47	0.22	>10.00	0.05	0.19	3553	<5	<10	3	<5	<5	<5	0.02	5	0.223
476533	IR-13	1.0	9	3	39	<1	15	11	<1.0	<5	<5	<5	2.46	293	<25	198	56	53	<20	<20	51	6.64	0.89	>10.00	0.64	2.55	1265	14	12	59	12	10	<5	0.23	36	0.378
476534	IR-14	<.5	22	25	82	<1	24	12	<1.0	<5	<5	<5	3.80	720	<25	474	96	64	<20	<20	42	6.64	0.93	3.95	0.94	1.92	279	10	<10	55	9	10	<5	0.29	41	0.081
476535	IR-15	0.5	13	51	56	<1	16	10	<1.0	<5	<5	<5	3.17	923	<25	238	53	30	<20	<20	20	3.59	0.88	3.13	0.63	1.17	208	6	<10	12	<5	5	<5	0.13	23	0.353
476536	IR-16	<.5	12	61	41	<1	10	5	<1.0	<5	<5	<5	4.19	1374	<25	113	115	23	<20	<20	11	2.37	1.37	5.18	0.78	0.51	305	8	<10	13	<5	<5	<5	0.07	17	0.119
476537	GL-01	<.5	6	11	69	<1	<1	7	<1.0	<5	<5	<5	2.46	842	<25	705	23	64	<20	<20	18	6.39	0.52	2.42	3.23	3.05	674	18	13	25	11	5	<5	0.25	12	0.024
476538	GL-02	<.5	11	8	67	<1	<1	8	<1.0	<5	<5	<5	2.71	885	<25	714	62	67	<20	<20	15	6.16	0.55	2.53	2.84	2.79	582	16	13	28	10	5	<5	0.26	16	0.045
476539	GL-03	<.5	6	7	70	<1	<1	8	<1.0	<5	<5	<5	2.72	917	<25	718	13	67	<20	<20	17	7.23	0.58	2.67	3.01	2.50	721	20	12	24	12	6	<5	0.26	14	0.020
476540	GL-04	<.5	6	6	67	<1	<1	8	<1.0	<5	<5	<5	2.55	852	<25	664	67	68	<20	<20	17	6.28	0.51	2.35	3.01	2.74	656	17	<10	22	12	5	<5	0.26	12	0.018
476541	GL-05	<.5	5	13	67	<1	<1	7	<1.0	<5	<5	<5	2.48	850	<25	734	57	64	<20	<20	20	7.02	0.55	2.69	2.97	2.56	761	19	<10	26	12	6	<5	0.25	12	0.024
476542	GL-06	<.5	89	<2	104	<1	11	33	1.2	<5	<5	<5	7.01	1428	<25	386	9	311	<20	<20	6	7.88	2.05	6.03	2.24	1.18	242	19	<10	19	18	29	<5	0.53	27	0.049
476543	REPEAT 6	<.5	83	<2	83	<1	44	35	<1.0	<5	<5	<5	6.63	1122	<25	176	152	283	<20	<20	6	7.66	3.12	7.63	1.80	0.55	276	15	<10	17	19	32	<5	0.42	23	0.063

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STANDARD NAME	ELEMENT UNITS	Ag PPM	Cu PPM	Pb PPM	Zn PPM	Mo PPM	Ni PPM	Co PPM	Cd PPM	Bi PPM	As PPM	Sb PPM	Fe Tot PCT	Mn PPM	Te PPM	Ba PPM	Cr PPM	V PPM	Sn PPM	W PPM	La PPM	Al PCT	Mg PCT	Ca PCT	Na PCT	K PCT	Sr PPM	Y PPM	Ga PPM	Li PPM	Nb PPM	Sc PPM	Ta PPM	Ti PCT	Zr PPM	S PCT
GS91-1		<.5	102	<2	92	<1	45	26	<1.0	<5	11	<5	5.45	922	<25	719	76	183	<20	<20	10	7.22	2.02	2.08	1.54	1.04	245	12	<10	25	15	17	<5	0.49	50	0.031
Number of Analyses		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mean Value		0.3	102	1	92	<1	45	26	0.5	3	11	3	5.45	922	13	719	76	183	10	10	10	7.22	2.02	2.08	1.54	1.04	245	12	5	25	15	17	3	0.49	50	0.031
Standard Deviation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accepted Value		0.7	99	11	88	2	40	18	0.1	1	8	1	4.95	850	-	800	108	175	4	2	10	8.30	1.90	1.85	1.82	1.00	265	13	4	32	17	18	1	0.51	60	0.030
ANALYTICAL BLANK		<.5	<1	<2	<2	<1	<1	<1	<1.0	<5	<5	<5	0.01	<5	<25	<5	<2	<2	<20	<20	<5	<.01	<.01	<0.01	<.01	<.01	<1	<5	<10	<2	<5	<5	<5	<.01	<5	<.002
ANALYTICAL BLANK		<.5	<1	<2	<2	<1	<1	<1	<1.0	<5	<5	<5	<0.01	<5	<25	<5	<2	<2	<20	<20	<5	<.01	<.01	<0.01	<.01	<.01	<1	<5	<10	<2	<5	<5	<5	<.01	<5	<.002
Number of Analyses		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mean Value		0.3	<1	1	1	<1	<1	<1	0.5	3	3	3	0.01	3	13	3	1	1	10	10	3	<.01	<.01	<0.01	<.01	<.01	<1	3	5	1	3	3	3	<.01	3	0.001
Standard Deviation		-	-	-	-	-	-	-	-	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accepted Value		0.2	1	2	1	1	1	1	0.5	2	5	5	0.05	1	<1	<1	1	1	<1	<1	<1	-	<.01	<0.01	-	<.01	<1	<1	<1	<1	<1	<1	<1	<.01	<1	<.001
CANMET LKSD-2		<.5	35	40	213	<1	24	20	<1.0	<5	<5	<5	4.11	1840	<25	729	50	89	<20	<20	67	4.73	0.92	1.39	1.62	2.37	224	42	<10	24	14	11	<5	0.33	155	0.177
Number of Analyses		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mean Value		0.3	35	40	213	<1	24	20	0.5	3	3	3	4.11	1840	13	729	50	89	10	10	67	4.73	0.92	1.39	1.62	2.37	224	42	5	24	14	11	3	0.33	155	0.177
Standard Deviation		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accepted Value		0.8	37	44	209	2	26	17	0.8	-	9	1	4.30	2020	-	780	57	77	5	-	68	6.50	1.01	1.57	1.43	2.19	220	44	-	20	16	13	<1	0.40	128	0.140

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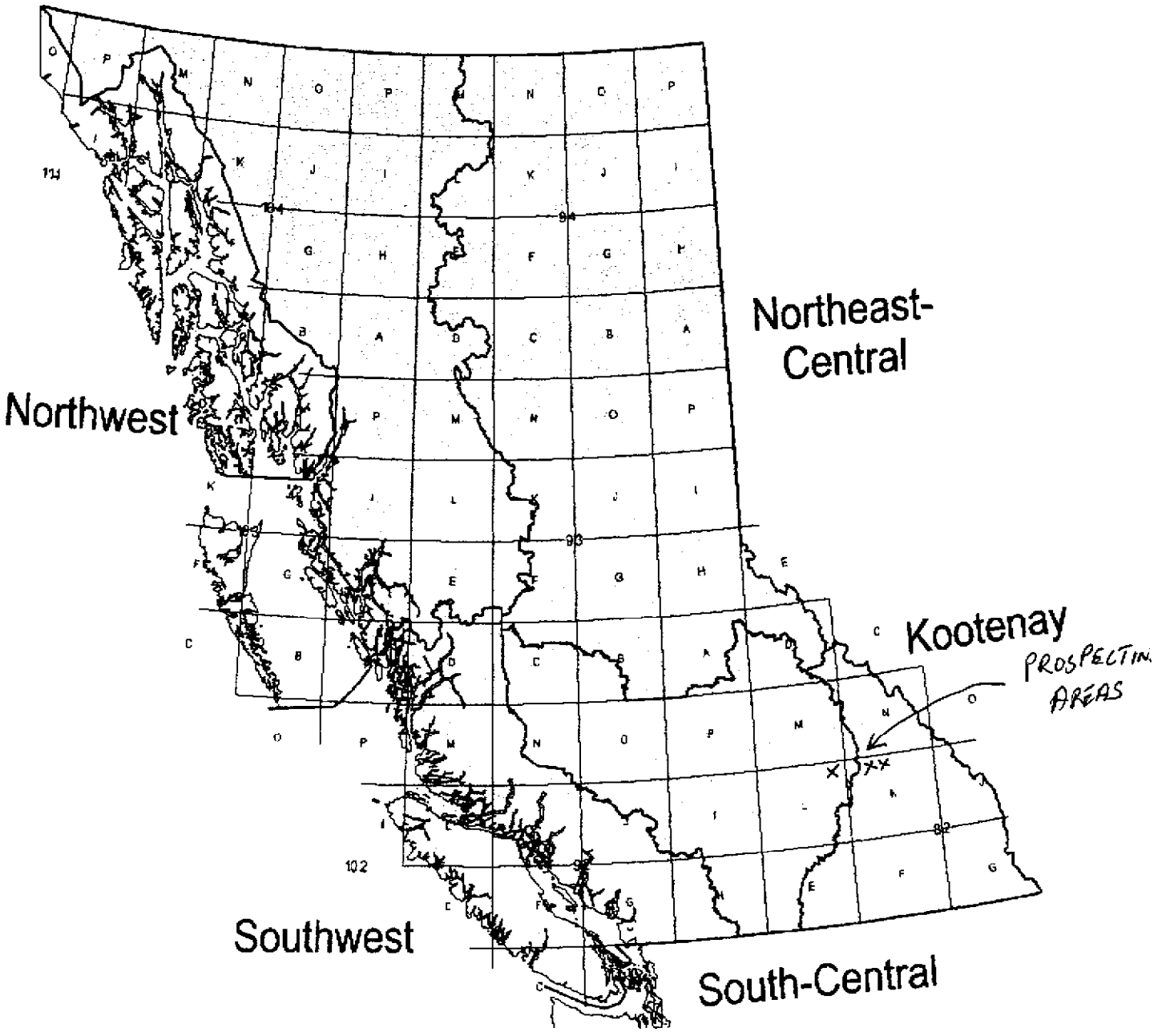
476510		<.5	31	11	78	<1	27	15	<1.0	<5	<5	<5	4.25	853	<25	555	71	69	<20	<20	52	9.11	1.60	0.67	0.70	2.96	58	18	13	67	16	11	<5	0.36	7	0.014
Duplicate		<.5	27	14	76	<1	25	16	<1.0	<5	<5	<5	4.11	810	<25	537	82	78	<20	<20	50	8.24	1.57	0.65	0.76	3.12	71	20	10	75	15	13	<5	0.36	10	0.018
476527		<.5	14	<2	95	<1	13	11	<1.0	<5	<5	<5	4.72	1161	<25	360	65	66	<20	<20	35	7.68	1.20	7.22	1.13	2.65	817	9	11	63	20	12	<5	0.28	52	0.166
Duplicate		<.5	13	3	85	<1	11	11	<1.0	<5	<5	<5	4.84	1178	<25	356	72	68	<20	<20	41	7.77	1.23	6.98	1.18	2.77	862	9	<10	69	19	13	<5	0.30	55	0.177

PROGRAM PROPOSAL - PART B
Location of Proposed Project(s)

Indicate on this map (using an "X") the general location of each of the projects covered by this proposal.



PROGRAM PROPOSAL

For the

PROSPECTORS ASSISTANCE PROGRAM

Covering: **BLANKET MTN.**
NTS 82L/16, 50°-53'-18"N x 118°-14'-52"W
McDOUGAL CREEK
NTS 82K/13, 50°-59'-54"N x 117°-37'-58"W
HOUSTON CREEK
NTS 82K/14, 50°-58'-00"N x 117°-23'-04"W

Work Planned: July 15-August 31, 2001

Prepared by: William Welsh,
619 North Fork Rd., RR #1,
Lumby, B.C. V0E 2G0
(250) 547-6642
e-mail: krv@telus.net

February 20, 2001

(a) PROJECT LOCATION

The target of this prospecting proposal is tantalum-bearing granite pegmatites (Complex-type, LCT family), in two different areas located to the south of, and east of, Revelstoke, B.C. These two areas were chosen based on their favourable lithology and highly anomalous stream sediment samples from the B.C. Regional Geochemical Survey. Of five different classes of tantalum-bearing pegmatites recognized, the most favourable targets are the Type (ii) and (iii), Complex-type pegmatites, which have a high degree of fractionation (and low Nb:Ta ratio), and in some cases, the Type (iv) pegmatites which may be of very large tonnage.

One area extends from Mount Begbie south to Blanket Mountain, where there are granite pegmatites associated with the Frenchmans Cap Gneiss Dome, that contain beryl, lepidolite and tourmaline in mica schists. In the past, exploration was hampered by extensive snowfields, but recently these have receded substantially. The second target area is located on the western and eastern margin of the Battle Range Batholith. This batholith is one of a series of granitic intrusions that occur along the margin of the Ancestral North American terrane. The target on the western edge of the batholith is up the Incomappleux River at McDougal Creek where the G.S.C. noted the presence of granite pegmatites that contain cassiterite. On the eastern side, on Houston Creek, the Regional Geochemical Survey shows consistently anomalous tantalum, cesium, and rubidium in creeks draining the Schooner Range. The MINFILE occurrences of interest are:

Mt. Begbie	GSBy	082LNE015
McDougal Creek	Sn	082KNW045
Tin	Sn	082KNW217
Mad	Mo	082KNW167

(b) PREVIOUS WORK

Although the carbonatites related to the Frenchmans Cap Dome have been studied for rare earth elements, the Nb:Ta ratio is quite high. For the most part, the mineral deposits in the area were followed up for their gemstone potential, or industrial minerals (garnet, apatite, or mica). There are no claims staked in the any of the prospecting areas.

(c) ACCESS

Access to the Mount Begbie beryl occurrence can be gained via a hiking trail, from Highway 23 approximately 10 kilometres south of Revelstoke. Once the summit is achieved, a network of trails provides access to a chain of lakes around Mount Begbie. Blanket Mountain can be accessed from roads on its eastern flank, and also from Greenbush Lake. Access to McDougal Creek can be gained via the Incomappleux River road, approximately 35 kilometres northeast of Beaton, and access to Houston Creek can be gained via the Duncan River forest access road, about 96 km north of Argenta.

(d) PROSPECTING TARGET

(i) Commodity: -- Ta-Rb-Cs-Nb-Li
-- gemstones (beryl, tourmaline, zircon, topaz)

(ii) Deposit Type(s): Tantalum-bearing pegmatites
Gemstones in pegmatites

(iii) Geology:

Boron, fluorine, and phosphorous are important volatile components responsible for the complexing and transportation of rare elements in granitic pegmatite systems; therefore, positive indicator minerals include tourmaline, fluorite, lepidolite, and apatite.

In G.S.C. Memoir 296, A.G. Jones describes the Mount Begbie pegmatites:

"Many pegmatite dykes in the vicinity of Mount Begbie south of Revelstoke bear conspicuous amounts of black tourmaline (schorlite) in thick,

prismatic crystals up to 3 inches long. One small dyke on the northeast side of the peak, on the lower edge of the great snowfield, carries not only schorlite but also green and red varieties of tourmaline, green beryl, red garnet, and lepidolite.... Tourmaline-bearing pegmatites are especially abundant in and near the laminated quartzites that cap Mount Begbie and that appear in places as far south as Blanket Mountain."

Since the snowpack in the Monashee Mountains is approximately 40% of normal this year, it is an ideal time to prospect for additional pegmatites in this area, as typically they occur in swarms, and the distance from Mount Begbie to Blanket Mountain is more than 13 kilometres. Similarly, the area underlain by the Battle Range Batholith is very mountainous, and lighter snow conditions than usual this year will benefit exploration. The McDougal Creek tin occurrences are not well documented and, if the "Catalogue of Canadian Minerals" (G.S.C. Paper 80-18) is accurate, the location given for these pegmatites in the MINFILE database is incorrect. The most compelling evidence for the presence of economic concentrations of tantalum in these pegmatites comes from the Regional Geochemical Survey, as shown below:

Table 1. R.G.S. data for the Battle Range Batholith (95% data only) NTS 82K

MAP	ID	UTME	UTMN	FORM	*Ta*	*Percent*	*Rb*	*Percent*	*Cs*	*Percent*
82K14	5194	473797	5642200	EKgd	24.0	99.6%				
82K14	5175	485770	5643151	LEs	23.0	99.4%	200	98.2%		
82K14	5185	478926	5645930	EKgd	22.0	99.3%	180	97.4%		
82K14	5186	476503	5648676	EKgd	20.0	99.2%				
82K14	5183	480923	5647474	EKgd	17.0	98.6%	200	98.2%	12.0	97.9%
82K13	5054	458906	5641813	EKgd	15.0	98.2%				
82K14	5184	479016	5644913	Ekgd	15.0	98.2%	270	99.8%	14.0	98.9%
82K14	5078	466562	5647408	EKgd	13.0	97.6%				
82K14	5077	467190	5649457	EKgd	12.0	97.5%				
82K13	5051	458444	5648436	EKgd	11.0	97.0%				
82K14	5189	478478	5639936	EKgd	11.0	97.0%				
82K14	5200	486099	5637565	LEs	11.0	97.0%				
82K14	5177	484933	5645494	LEs	10.0	96.5%	180	97.4%	14.0	98.9%
82K13	5052	459287	5648183	EKgd	10.0	96.5%				
82K14	5075	469627	5649099	EKgd	7.0	95.5%	170	96.9%	10.0	96.0%
82K14	5182	480569	5646549	EKgd	6.3	95.1%	270	99.8%	14.0	98.9%
82K14	5213	489748	5632632	Hs	6.7	95.3%			10.0	96.0%

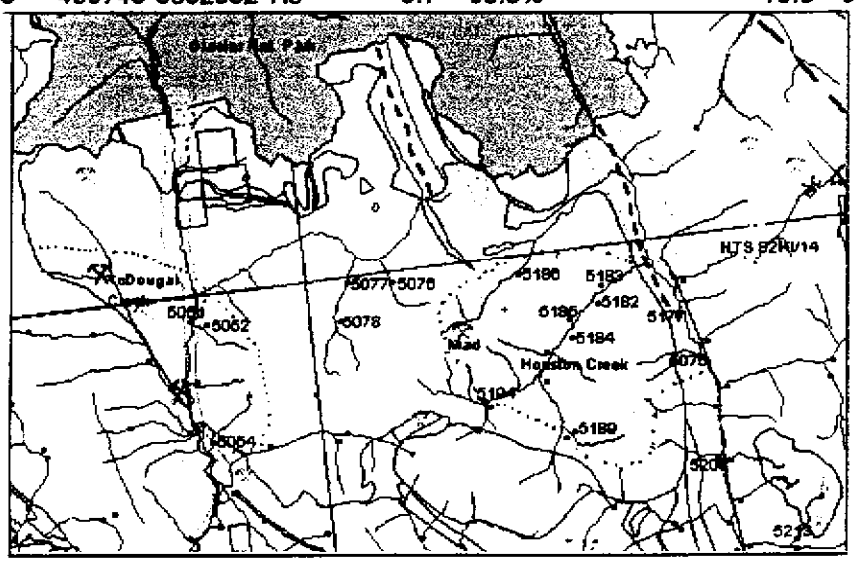


Fig. 1 – Location of R.G.S. samples and prospecting areas (hatched), N.T.S. 82K13, 14

Table 2. R.G.S. data for the Mt. Begbie area (95% data only) NTS 82L.

MAP	ID	UTME	UTMN	FORM	*Ta*	*Percent*	*Rb*	*Percent*	*Cs*	*Percent*
82L16	9160	421806	5624750	PPns	3.3	96.6%	130	91.7%		
82L16	5308	423879	5629944	PPns					6.8	96.5%
82L16	9166	419011	5627042	PPgn			160	98.3%		
82L16	9164	421374	5628730	PPns			160	98.3%		
82L16	9176	411659	5635153	PPns			140	95.3%		
82L16	5313	417380	5638294	PPns			140	95.3%		
82L16	9175	411688	5634708	PPns			140	95.30%		
82L16	9187	410002	5640706	PPns			140	95.30%	6.1	94.90%
82L16	9168	415363	5627182	PPgn			160	98.30%		
82L09	9163	416910	5622161	PPgn			210	99.60%		

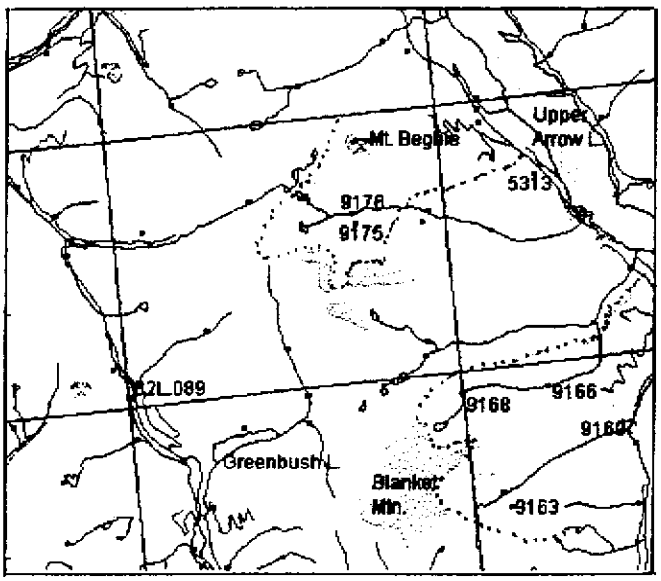


Fig. 2 – Location of R.G.S. samples and prospecting areas, N.T.S. 82L16, 9

PROSPECTING METHODS

P. Cerny (1989) has defined five different types of tantalum-bearing pegmatites:

(i) beryl type, with beryl-columbite and beryl-columbite-phosphate subtypes
(ii) complex type, including spodumene, petalite and amblygonite subtypes
(iii) complex type, lepidolite subtype
(iv) albite-spodumene type; and
(v) albite type

Of these five types, the complex type (ii) is the most favourable exploration target because the Nb:Ta ratio is low, the Ta values significantly high, and the total resources reach respectable tonnages. The least attractive target is the type (i) beryl pegmatite because the Nb:Ta ratio is high, ore grades are low, and tonnages small. Types (iv) and (v) are quasi-homogeneous, and for that reason, type (iv) is also a favourable exploration target because although the grade is low, the mineralization is uniformly distributed over a very large volume. In some cases, tantalum-bearing cassiterite can attain significant levels.

Within the Battle Range Batholith, there is a MINFILE occurrence called "Mad" which is said to be hosted by an alaskite intrusion within the granite batholith. These alaskite intrusions may be some form of type (iv) or (v) pegmatite, and it happens that the Mad occurrence is associated with high Ta values in the stream sediments.

From the fertile granites outwards, pegmatites become more fractionated and complex in their internal structure and paragenesis, and extensively replaced and mineralized. The beryl type pegmatites are generally restricted to the intermediate

portion of the regional zoning pattern. Types (ii) to (v) are found in the outer reaches of such pegmatite groups.

In a paper entitled "Exploration Strategy for Pegmatite Deposits of Tantalum, Cerny describes the type of mineral associations found with an increasing level of fractionation. This is crucial in discerning the tantalum-rich, complex-type pegmatites from the barren, less fractionated pegmatites in the swarm. These include:

---- plagioclase becomes more sodic with increasing pegmatite fractionation. The number, variety, and volumes of albitization also increase.

---- rose quartz is found in the barren, tourmaline-Nb-Ta mineralized pegmatites, including Li, Fe, Mn phosphates, but is not found in spodumene or Li, F-bearing pegmatites. The Mount Begbie beryl pegmatite contains rose quartz, but it is possible that other pegmatites occurring towards Blanket Mountain may be more fractionated since they are further away from the Frenchmans Cap Dome.

---- brownish and dirty-green muscovite is contra-indicative of Complex-type pegmatites. Coarse-flaked, yellow-green and silver muscovite is a positive indicator (Type (i) and (ii).

---- the number of mica generations and the compositional diversity (muscovite-lithian type-mixed type-lepidolite) reflect progressive fractionation (Type (ii) and (iii).

---- black tourmaline is contra-indicative, but blue-green tourmaline in albitized pegmatite with Sn, Nb, Ta, and green, pink, and colourless tourmaline indicate increased Li, Rb, Cs, potential of Complex pegmatites (Type (ii)).

---- with respect to beryl, coarse, columnar, greenish, yellow, or brownish colour is bad; pale coloured to white, white to pink, stubby or tabular beryl associated with albite units and lepidolite replacement in Complex pegmatites is good (Type (ii) and (iii).

---- blue apatite indicates at least Be, Nb-Ta mineralization. Increasing intensity of blue reflects the extent of rare element mineralization.

---- greater complexity of Ta mineralization (wodginite, several species of the pyrochlore group, microlite, and their alteration products) reflect a more complex pegmatite, versus columbite-tantanite in the moderately fractionated pegmatites.

---- in the Type (iv) pegmatites, spodumene occurs as green, small columnar crystals uniformly distributed throughout the pegmatite. In Type (ii) pegmatites, spodumene occurs as white, columnar crystals adjacent to quartz cores.

(e) AMOUNT AND TYPE OF WORK

It is planned to spend a total of 30 days, by two people, between July 15 and August 30, 2001. Work will consist of the following activities:

(i) Prospecting using the MINFILE occurrences listed above as starting points, with particular emphasis on the zonation of pegmatites and the mineralogy and various indicator minerals, as described above. The attached newspaper article, from the Chronicle Journal of Thunder Bay, Ont. in January of this year, places strong emphasis on basic prospecting as the primary means of making new discoveries of tantalum.

(ii) Rock sampling, sample description, description of outcrop (size, shape, orientation), mineralogy, zonation and structure, and alteration. XRF analysis for Ta-Rb-Cs-Nb-Sn plus AA for Li costs $25.00 per sample.

(iii) Stream sediment sampling, (i.e./ gold panning) of area streams and tributaries for visual observation of heavy minerals. Analysing pan concentrates can be an effective means of prioritizing various catchment areas based on their enrichment in tantalum, rubidium and cesium, niobium and tin.

(iii) Detailed Geological mapping , in the areas indicated by the stream sediment sampling, and around the MIFILE occurrences listed above.

(iv) Scintillometer Survey, since the rocks being sought are often somewhat radioactive, due in part to the substitution of uranium or thorium ions for sodium and calcium in the pyrochlore-microlite solid solution series, or possibly due to the presence of lepidolite (as a result of potassium decaying to argon, and Ca^{40} and rubidium decaying to Sr^{87}.

(f) REFERENCES

1) Cerny, P. (1989) "Characteristics of Pegmatite Deposits of Tantalum." In *Lanthanides, Tantalum and Niobium* - proceedings of a workshop in Berlin, November 1986, pp. 195-239.

2) Cerny, P (1989). "Exploration Strategy and Methods for Pegmatite Deposits of Tantalum" (as above), pp.275-302.

3) Cerny, Petr (1991) "Rare-element Granitic Pematites, Part I: Anatomy and Internal Evolution of Pegmatite Deposits", Geoscience Canada Vol.18, Number 2.

4) Cerny, Petr (1991). "Rare-element Granitic Pegmatites, Part II: Regional to Global Environments and Petrogenesis", Geoscience Canada, Vol. 18, number 2

5) Jones, A.G. (1959). Vernon Map Area, British Columbia, G.S.C. Memoir 296, 185 p.

6) Moller, P. and Morteani, G. (1987) "Geochemical exploration Guide for Tantalum Pegmatites.", Econ. Geol. Vol 82, pp. 1888-1897.

7) Morris, T.F. and Breaks, F.W. (2000). Heavy Mineral Study, Separation Lake Greenstone Belt Region, Northwestern Ontario., Ontario Geological Survey.

8) Morteani, G and Gaupe, R. (1989) "Geochemical Evaluation of the Tantalum Potential of Pegmatites" in *Lanthanides, Tantalum and Niobium*, pp. 304-310.

9) Traill, R.J. (1980) Catalogue of Canadian Minerals. G.S.C. Paper 80-18,432 p.

10) Wilson, Bradley S. (1999). Gemstone Occurrences in British Columbia. Canadian Rockhound, Jan. 1999.

Rare metal tucked away in NWO

BY BRYAN MEADOWS
NORTHWEST BUREAU

Northwestern Ontario may be in for a gold rush of sorts.

But it's not gold that is drawing the interest of prospectors and mining companies.

It's tantalum, a rare metallic element used primarily in the electronics industry.

With the metal in short supply and buyers scrambling for it, prices for tantalum have skyrocketed ten-fold over the past year from about $40 a pound to more than $400 US a pound just before Christmas.

It was selling for about $363 US per pound last week.

Kenora district geologist Peter Hinz said in an interview that the potential for a major tantalum discovery in Northwestern Ontario "is high."

"There are some really good properties being explored," Hinz said.

One mining company in the hunt is Avalon Ventures Ltd.

It's Big Whopper petalite discovery north of Kenora and Lilypad Lake property north of Thunder Bay hold promise of tantalum production.

Avalon chief geologist Ian Campbell said an "extreme shortage of tantalum" is prodding more mining companies to concentrate on exploring for the elusive metal.

Campbell said tantalum is used in miniature high-efficiency electronic capacitors found in cell phones, lap-top computers, Sony PlayStation 2 and Nintendo's Gameboy.

Because it has a high melting point and is resistant to corrosion, other uses include surgical implants, jet fighters, weapon systems and the cutting edges of high-speed tools.

"Continued growth in the electronics industry coupled with tantalum's growing use in super alloys, semi-conductors and the fibre-optics industry will ensure continued growth in demand in the foreseeable future," Campbell said.

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NEWS A5

Big Whopper source of rare materials

• Continued from page A1

Avalon's Big Whopper petalite discovery at Separation Rapids, about 60 kilometres north of Kenora, contains tantalum-enriched rock, Campbell said.

Petalite is also a rare material, used in the manufacture of ceramics and other heat-resistant glass construction.

Campbell said the Big Whopper discovery is currently the largest known petalite deposit in the world, estimated at about 11.4 million tonnes, grading at 1.34 per cent petalite.

Petalite is worth about $270 US per tonne.

The deposit also contains .007 to 0.1 per cent tantalum, he said.

Campbell said his company is working on the feasibility and financing of opening an open-pit mine on the property within two years.

He said tantalum is "a difficult exploration target.

"It's not magnetic so it won't show up on geophysical surveys," he said.

He said it is basically found by "on-the-ground prospecting and grub sampling."

Hinz agreed with Campbell about tantalum being difficult to find.

"Prospectors have to cover a lot of ground and know the particular geology to look for," he said, adding that tantalum usually is found on the edge of where greenstone belts converge with granite.

Campbell said Avalon saw the shortage of tantalum coming so it acquired an interest in five other properties near Pickle Lake, Ignace, Marathon, Lac du Bonnet and north of Thunder Bay which show promise of harbouring the metal.

> *"Prospectors have to cover a lot of ground and know the particular geology to look for."*
>
> **Peter Hinz**
> *Kenora district geologist*

Because the market for tantalum "has gone through the roof," Hinz said, "there are several companies in the hunt for it, as well as Avalon Ventures.

They include Emerald Fields Resources Corp., Champion Bear Resources Ltd., Tantalum Mining Corp. of Canada Ltd. and Houston Lake Mining.

The major commercial deposits of tantalum are currently in Australia and Scandinavia.

North America's only tantalum mine is owned by Tantalum Mining near Lac du Bonnet, Man.