

LOG NO: 1207	RD.
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ASSESSMENT REPORT

FILMED

GEOLOGY AND GEOCHEMISTRY

Laura Property

Omineca Mining District

M930/5W

by

Arthur A. D. Halleran

December 1, 1989

SUB-RECORDER  
RECEIVED  
DEC - 5 1989  
M.R. # ..... \$ .....  
VANCOUVER, B.C.

GEOLOGICAL BRANCH  
ASSESSMENT REPORT  
19,404

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## INTRODUCTION

The Laura Property is located east of Manson River on a western spur of Mt. Bisson. The property covers a series of alkalic rock units that are enriched in rare earth metals. The units range from an alkalic overprinting of the Wolverine gniesses to allanite pegmatites. The 1989 work consists of mapping a new rare earth bearing pegmatite and alkalic overprinting and to resample units of interest. The samples were than analyzed for REE by INAA. Previous work was done in 1988 (Halleran 1989).

## LOCATION AND ACCESS

The Laura Property is located in central British Columbia approximately 160 Km north of Fort St. James. Access to the area is via the Fort St. James - Manson Creek road and the Munro Creek logging road.

## CLAIM STATISTIC

The Laura 1 & 2 are two poster claims and the Laura 3 is a four poster staked using the modified grid system.

<u>CLAIM</u>	<u>RECORD</u>	<u>UNIT</u>	<u>DATE</u>	<u>OWNERS</u>
Laura 1	8790	1	Aug 14/1987	A.A.D.Halleran
Laura 2	8791	1	Aug 14/1987	A.A.D.Halleran
Laura 3	8801	20	Sept 8/1987	A.A.D.Halleran

These claims are included in the Laura Grouping.

## GEOLOGY

The new area mapped (see figures) consists of an allanite pegmatite about 75 metres long by 2-5 metres

wide, (93+75N-93+50E to 93+00N-93+50E). The allanite (REE mineral) occurs throughout the pegmatite but varies considerably from traces to 30vol%. Surrounding this rich allanite pegmatite is an alkalic overprint unit that has allanite concentrated in mafic bands but never >1 vol%. This alkalic overprint unit is recognized in the field by its apple green pyroxenes and high vol% of sphene and rutile. Two smaller allanite pegmatites occur (92+00N-93+25E and 91+75N-94+75E) but are <25 metres long and have only traces of allanite. One of these smaller allanite pegmatites has an associated alkalic overprinted Wolverine gniess.

Other units present are; i) large bodies of coarse grained quartz feldspar pegmatites and ii) a fine grained monzonite intrusion. The host rocks are the Wolverine amphibolite gniesses and biotite schists.

### GEOCHEMISTRY

A total of 10 rock samples, 6 duplicates and 2 standards were sent to Bondar-Clegg for Inst. Neutron Activ. for the following elements; Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, U and Yb. The samples represent the average of the rock units types except for UG-7826 and UG-7911 which are representative of the allanite enriched zones of the allanite pegmatites. The samples were crushed in a jaw crusher to 1cm size and hand picked by the writer to eliminate all the weathered surfaces and large pieces. The samples were then pulverized in a stainless

steal ring mill and than passed through a <80 mesh screen. The ring mill and screen were throughly cleaned with water and blown dry will compressed air between each sample prep. 2 grams of the rock powder was sent to Bonder-Clegg for analysis (Table ). The two standards W1 and P1 are thoroughly mixed rock powders from the University of British Columbia and were unshed to test accuracy of the analysis. The 6 duplicates were used to test the precision of the analysis.

The analysis indicates the accuracy and precision of the INAA is very good. The allanite pegmatite mineralization contains >3% rare earth metals and the alkalic overprinted wolverine units also have interesting concentration of rare earth metals. Two samples, magnetite bearing pegmatite (UG-7844) and the quartz-feldspar pegmatite (UG-7835) have much lower rare earth metal concentrations but are still anomalous.

The dominant rare earth metals are athe light rare earths but heavier rare earths are also present but in very small amounts.

#### CONCLUSION

The INAA analysis is deemed to have high precision and accuracy and the REE content of the samples sent in are significant. The pegmatites and alkalic overprint units are very prospective for rare earths. Further detail prospecting and mapping of the Laura property is warranted.

REFERENCES

Erdman L.R. (1985) *Chemistry of neogene basalts of British Columbia and the adjacent Pacific Ocean Floor: A test of tectonic discrimination diagrams*: MSc Thesis, University of British Columbia 294 pages.

Halleran A.A.D. (1988): *Geology, Geochemistry and Geophysics of the Ursa Property*: Ministry of Energy, Mines and Petroleum Resources, Assessment Report No. 17872.

Thompson M., Howarth R.J. (1978) A new approach to the estimation of analytical precision. *Journal of Geochemical Exploration*, 9:23-30.

Statement of Expenditure

I) Field Costs

1) Labour

A.A.D. Halleran	Aug 25, 26, 27, 28	
	4 days x \$300/day	\$1200

W. Halleran	Aug 25, 26, 27, 28	
	4 days x \$250/day	\$1000

2) Room and Board

\$40/manday x 8		\$320
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3) Transportation

4x4	4 x \$55/day	
ATV	4 x \$45/day	\$300

Fuel		\$100
------	--	-------

5) Geochemical analysis

18 rx samples at	\$45.00	
prep	\$2.50	
		\$855

II) Office Costs

1) sample prep.

A.A.D. Halleran	Sept 30	
	1day at \$300	\$300

2) Data interpretation and report writing

A.A.D. Halleran	Dec 1	
		\$300

TOTAL

\$4375



CERTIFICATION OF QUALIFICATIONS

I, Arthur A. D. Halleran, of 7183 Bridgewood Dr. Burnaby,  
B.C. do hereby declare:

- 1) I am a 1980 graduate of the University of British Columbia  
with an Honours B.Sc. Degree in Geology.
- 2) I have practiced my profession continuously since  
graduation in the Yukon, B.C. and Alberta.
- 3) This report is based on my field examination of the  
property and available government reports.

*Arthur Halleran*

Arthur A. D. Halleran



A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

DATE PRINTED: 25-OCT-89

REPORT: V89-06778.0

PROJECT: NONE GIVEN PAGE 1A

SAMPLE NUMBER	ELEMENT UNITS	Ce PPM	Dy PPM	Er PPM	Eu PPM	Gd PPM	Ho PPM	La PPM	Lu PPM	Nd PPM	Pr PPM	Sc PPM
P4 P1		25	3.1	<100	0.7	<200	<1.0	12.0	0.29	14	<50	10.80
P4 P1												
P4 UG-1		1370	5.2	<100	2.7	<200	<1.0	751.0	<0.10	450	140	1.30
P4 UG-23		553	55.0	<100	22.0	<200	12.0	152.0	1.30	380	70	69.30
P4 UG-38		300	9.1	<100	4.9	<200	3.0	137.0	0.35	110	<50	23.00
* P4 UG-38H		>20000	101.0	<100	159.0	<500	<20.0	>9000.0	1.10	7970	2600	95.60
P4 UG-43		300	2.0	<100	1.4	<200	<1.0	185.0	<0.10	56	<50	2.80
P4 UG-100A		47	2.1	<100	1.2	<200	<1.0	28.0	0.10	20	<50	6.20
P4 UG-7803		889	14.0	<100	12.0	<200	2.5	359.0	0.63	330	83	57.00
P4 UG-7808		38	1.9	<100	0.6	<200	<1.0	19.0	0.26	13	<50	19.90
P4 UG-7809		130	8.3	<100	3.6	<200	1.5	59.7	0.35	63	<50	22.80
P4 UG-7819		120	3.1	<100	1.8	<200	<1.0	66.9	0.19	39	<50	2.90
P4 UG-7819B		120	3.2	<100	1.6	<200	<1.0	62.7	0.19	35	<50	2.90
P4 UG-7822		130	2.1	<100	0.9	<200	<1.0	72.2	<0.10	34	<50	2.40
P4 UG-7822B		75	1.8	<100	<0.5	<200	<1.0	45.0	<0.10	27	<50	2.40
P4 UG-7823		1700	8.2	<100	11.0	<200	1.5	865.0	0.46	490	190	38.30
* P4 UG-7826		>20000	117.0	<100	77.8	<500	12.0	>9000.0	2.00	4190	1400	26.10
P4 UG-7834		1170	6.7	<100	6.5	<200	1.0	874.0	0.24	250	120	76.30
P4 UG-7834B		1190	6.6	<100	6.6	<200	1.1	873.8	0.33	260	72	77.90
P4 UG-7835		290	4.7	<100	1.6	<200	<1.0	169.0	0.18	77	<50	24.90
P4 UG-7835B		290	4.0	<100	1.8	<200	<1.0	175.0	0.19	70	<50	24.80
P4 UG-7837		1470	6.6	<100	5.5	<200	1.2	1210.0	0.19	270	98	22.60
P4 UG-7840A		909	6.6	<100	5.6	<200	1.0	633.0	0.15	210	55	7.40
P4 UG-7842-52		2440	33.0	<100	18.0	<200	3.7	1240.0	0.15	430	240	7.60
P4 UG-7842B-52B		2530	34.0	<100	18.0	<200	5.6	1270.0	0.12	380	130	7.80
P4 UG-7844		150	2.8	<100	0.8	<200	<1.0	81.8	0.31	35	<50	0.33
P4 UG-7856		47	<1.0	<100	0.7	<200	<1.0	27.0	<0.10	13	<50	2.70
P4 UG-7857		140	4.4	<100	2.7	<200	<1.0	61.8	0.23	55	<50	11.70
P4 UG-7910		4130	26.0	<100	30.0	<200	3.9	2140.0	0.45	1230	340	20.10
P4 UG-7910B		4240	26.0	<100	31.0	<200	3.3	2120.0	0.46	1260	410	20.70
* P4 UG-7911		16400	51.0	<100	30.0	<200	7.4	>9000.0	1.30	2630	750	28.70
* P4 UG-7911B		16500	52.0	<100	32.0	<200	7.6	>9000.0	1.40	2660	920	29.10
P4 UG-NH		66	1.2	<100	0.8	<200	<1.0	37.0	<0.10	22	<50	3.80
P4 UG-NHB		67	1.6	<100	0.8	<200	<1.0	36.0	<0.10	21	<50	3.70
P4 WP1		28	2.2	<100	0.9	<200	<1.0	13.0	0.17	14	<50	10.00

P4 WP1

Bondar-Clegg & Company Ltd.  
 130 Pemberton Ave.  
 North Vancouver, B.C.  
 V7P 2R5  
 (4) 985-0681 Telex 04-352667



**Geochemical  
 Lab Report**

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

REPORT: V89-06778.0 ( COMPLETE )

REFERENCE INFO:

CLIENT: MR. ARTHUR HALLERAN  
 PROJECT: NONE GIVEN

SUBMITTED BY: A. HALLERAN  
 DATE PRINTED: 25-OCT-89

ORDER	ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Ce Cerium	34	2 PPM		Inst. Neutron Activ.
2	Dy Dysprosium	34	0.5 PPM		Inst. Neutron Activ.
3	Er Erbium	34	50 PPM		Inst. Neutron Activ.
4	Eu Europium	34	0.5 PPM		Inst. Neutron Activ.
5	Gd Gadolinium	34	100 PPM		Inst. Neutron Activ.
6	Ho Holmium	34	0.5 PPM		Inst. Neutron Activ.
7	La Lanthanum	34	0.2 PPM		Inst. Neutron Activ.
8	Lu Lutetium	34	0.05 PPM		Inst. Neutron Activ.
9	Nd Neodymium	34	5 PPM		Inst. Neutron Activ.
10	Pr Praseodymium	34	25 PPM		Inst. Neutron Activ.
11	Sc Scandium	34	0.05 PPM		Inst. Neutron Activ.
12	Sm Samarium	34	0.05 PPM		Inst. Neutron Activ.
13	Tb Terbium	34	0.5 PPM		Inst. Neutron Activ.
14	Th Thorium	34	0.2 PPM		Inst. Neutron Activ.
15	Tm Thulium	34	1 PPM		Inst. Neutron Activ.
16	U Uranium	34	0.5 PPM		Inst. Neutron Activ.
17	Yb Ytterbium	34	0.2 PPM		Inst. Neutron Activ.

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
P PREPARED PULP	36	4 AS REC'D	36	AS RECEIVED, NO SP	36

REPORT COPIES TO: 7183 BRIDGEWOOD DR.  
 DR. J. K. RUSSELL

INVOICE TO: 7183 BRIDGEWOOD DR.

A DIVISION OF INCHCAPE INSPECTION & TESTING SERVICES

DATE PRINTED: 25-OCT-89

REPORT: V89-06778.0








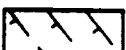
PROJECT: NONE GIVEN

PAGE 1B







SAMPLE NUMBER	ELEMENT UNITS	Sm PPM	Tb PPM	Th PPM	Tm PPM	U PPM	Yb PPM
P4 P1		2.90	<1.0	3.5	<2	1.2	1.9
P4 P1							
P4 UG-1		60.60	2.0	305.0	<2	6.1	<0.5
P4 UG-23		98.48	10.0	4.1	2	4.6	12.0
P4 UG-38		19.48	1.6	23.0	<2	4.1	2.7
- P4 UG-38H		>200.00	25.0	1310.0	<5	36.0	19.0
P4 UG-43		7.80	<1.0	162.0	<2	20.0	<0.5
P4 UG-100A		3.50	<1.0	5.8	<2	2.3	0.8
P4 UG-7803		53.70	3.0	94.6	<2	5.8	4.2
P4 UG-7808		1.90	<1.0	5.2	<2	3.5	1.5
P4 UG-7809		12.90	1.4	41.0	<2	4.3	2.3
P4 UG-7819		6.00	<1.0	19.0	<2	6.6	1.2
P4 UG-7819B		5.80	<1.0	20.0	<2	6.1	1.2
P4 UG-7822		5.60	<1.0	74.8	<2	8.9	0.7
P4 UG-7822B		4.10	<1.0	31.0	<2	6.2	0.7
P4 UG-7823		53.70	2.1	45.0	<2	3.4	3.3
P4 UG-7826		>200.00	24.0	3050.0	<5	91.0	13.0
P4 UG-7834		28.50	1.4	3.8	<2	1.4	2.2
P4 UG-7834B		28.40	1.3	4.2	<2	2.8	2.1
P4 UG-7835		11.00	<1.0	33.0	<2	1.6	1.4
P4 UG-7835B		11.40	<1.0	33.0	<2	1.5	1.4
P4 UG-7837		25.30	1.0	131.0	<2	5.8	1.8
P4 UG-7840A		23.20	1.6	4.8	<2	5.3	2.0
P4 UG-7842-52		77.50	6.0	1910.0	<5	93.0	1.7
P4 UG-7842B-52B		79.30	6.2	2020.0	<2	105.0	1.5
P4 UG-7844		4.90	<1.0	58.4	<2	10.0	1.8
P4 UG-7856		2.10	<1.0	17.0	<2	3.0	<0.5
P4 UG-7857		10.50	1.0	14.0	<2	2.7	1.5
P4 UG-7910		139.08	6.0	225.0	<2	32.0	4.2
P4 UG-7910B		137.00	6.0	231.0	<2	35.0	3.8
P4 UG-7911		>200.00	12.0	1090.0	<2	25.0	8.4
P4 UG-7911B		>200.00	13.0	1110.0	<2	25.0	10.0
P4 UG-NH		3.20	<1.0	13.0	<2	1.5	0.6
P4 UG-NHB		3.10	<1.0	13.0	<2	2.0	0.7
P4 WP1		3.18	<1.0	2.1	<2	1.4	1.2

P4 WP1

LITHOLOGY

<i>Alkaline dike rocks :</i>		
	<i>distinct and strong pattern</i>	1) syenite
	<i>single dikes</i>	2) barren pegmatites
		3) allanite pegmatite
	<i>Breccia</i>	
	<i>Quartz feldspar porphyry</i>	
	<i>Laura alkalic unit</i>	
	<i>Will N°2 alkalic unit</i>	
	<i>Mt. Bisson intrusions</i>	
	<i>Wolverine metamorphic rocks</i>	

SYMBOLS

	<i>Outcrop</i>
UG-7837	<i>XRF sample location</i>
<i>Geological contact :</i>	
	<i>observed</i>
	<i>inferred</i>
	<i>gradational</i>
	<i>Strike and dip of strata</i>
	<i>Mineral fabric</i>
all	<i>Allanite</i>
mag	<i>Magnetite</i>
cp	<i>Chalcopyrite</i>
mal	<i>Malachite</i>

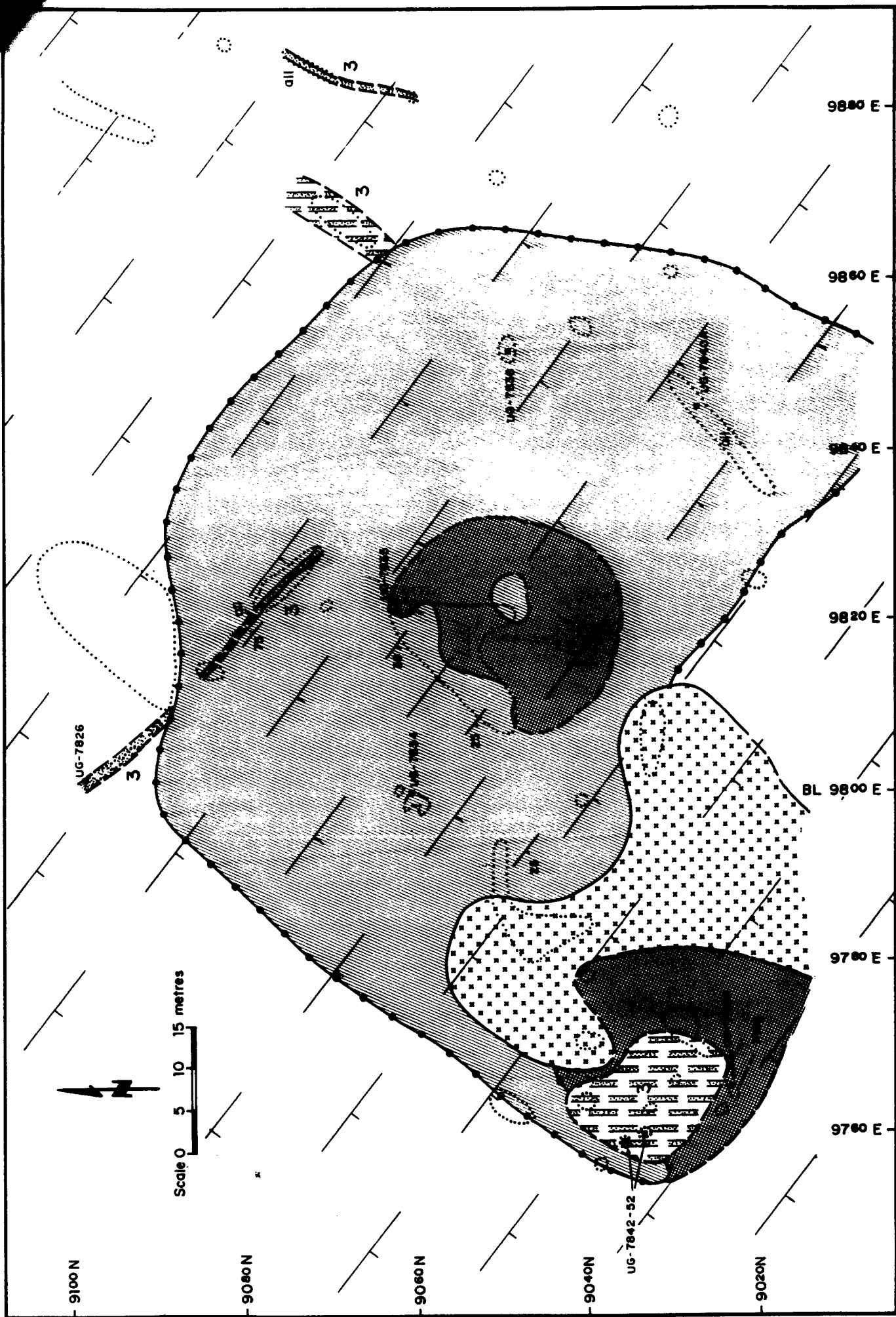
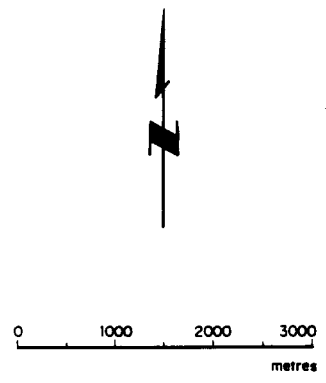
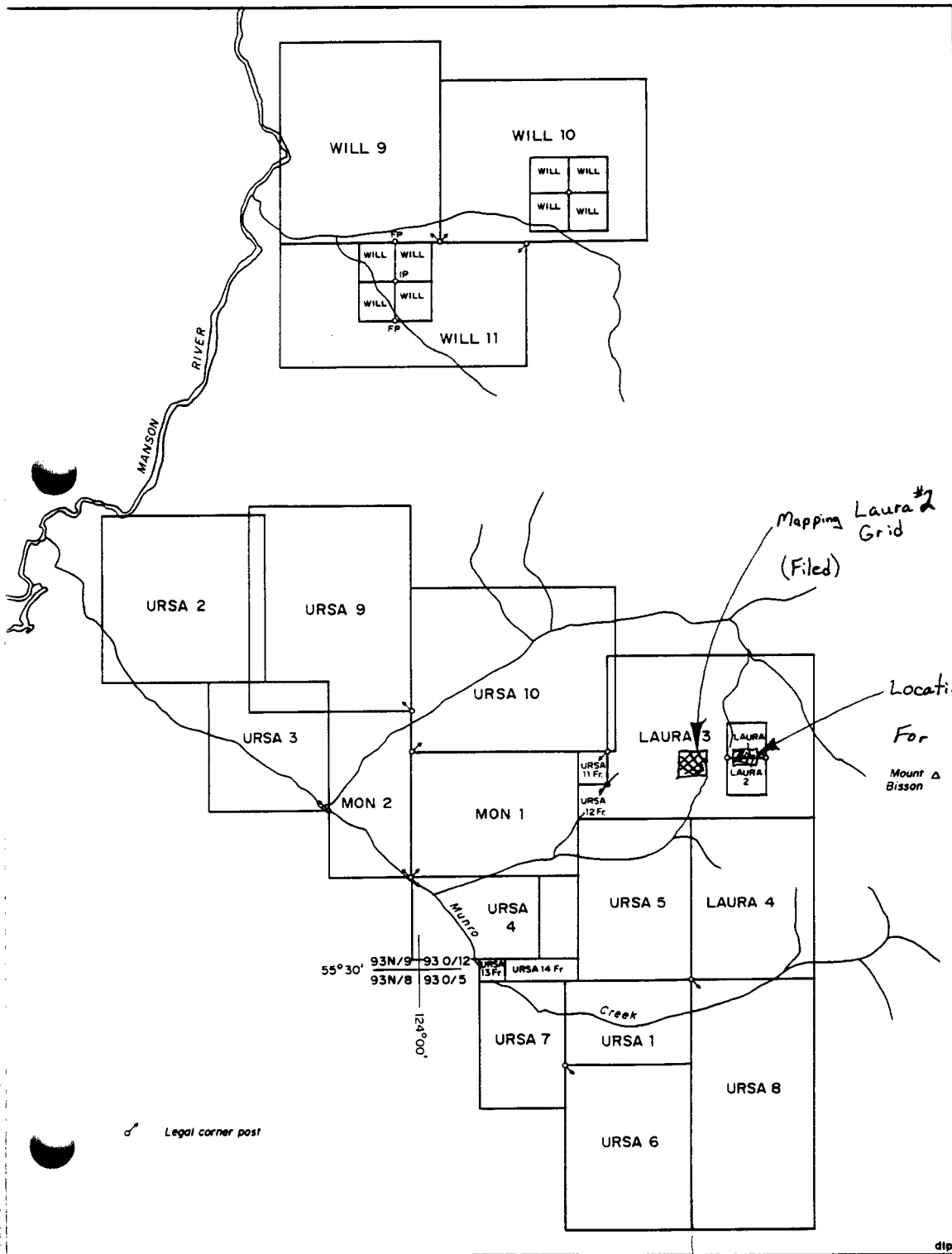


Figure 1-00-2  
Figure



Location Laura #1  
Grid  
For Sample location  
only  
(Filed for assessment)  
Mount a  
Bisson  
1988

OMINECA M.D., B.			
<b>URSA PROPERTY CLAIM MAP</b>			
NORTHWEST GEOLOGICAL CONSULTING LTD.			
SCALE	DATE	NTS	DWG NO
1:50000		93 N/8.9 93 O/5.12	2

dip

APPENDIX C

Precision of rare earth analysis (INAA) based on duplicates, also listed is detection limit.

Element	detection (ppm)	Precision %
Th	0.2	5.0
Ce	2.0	2.0
La	0.2	3.8
Sm	0.05	3.4
Dy	0.5	5.4
Eu	0.5	7.0
Nd	0.5	7.4
Pr	25.0	52.5
Yb	0.2	10.0
Lu	0.05	17.4
Sc	0.05	1.6
U	0.5	26.5

Precision calculated using Thompson and Howarth (1978) method.

$$P\% = \frac{2Sd}{C} + 100$$

Sd = of duplicates

C = mean conc. of duplicates

APPENDIX C

Accuracy: The U.B.C standards (wp-1 and p-1 ) were analyzed by Erdman (1985) and calibrated with numerous well known standards.

1 Standard deviation of error from repetitive analysis.

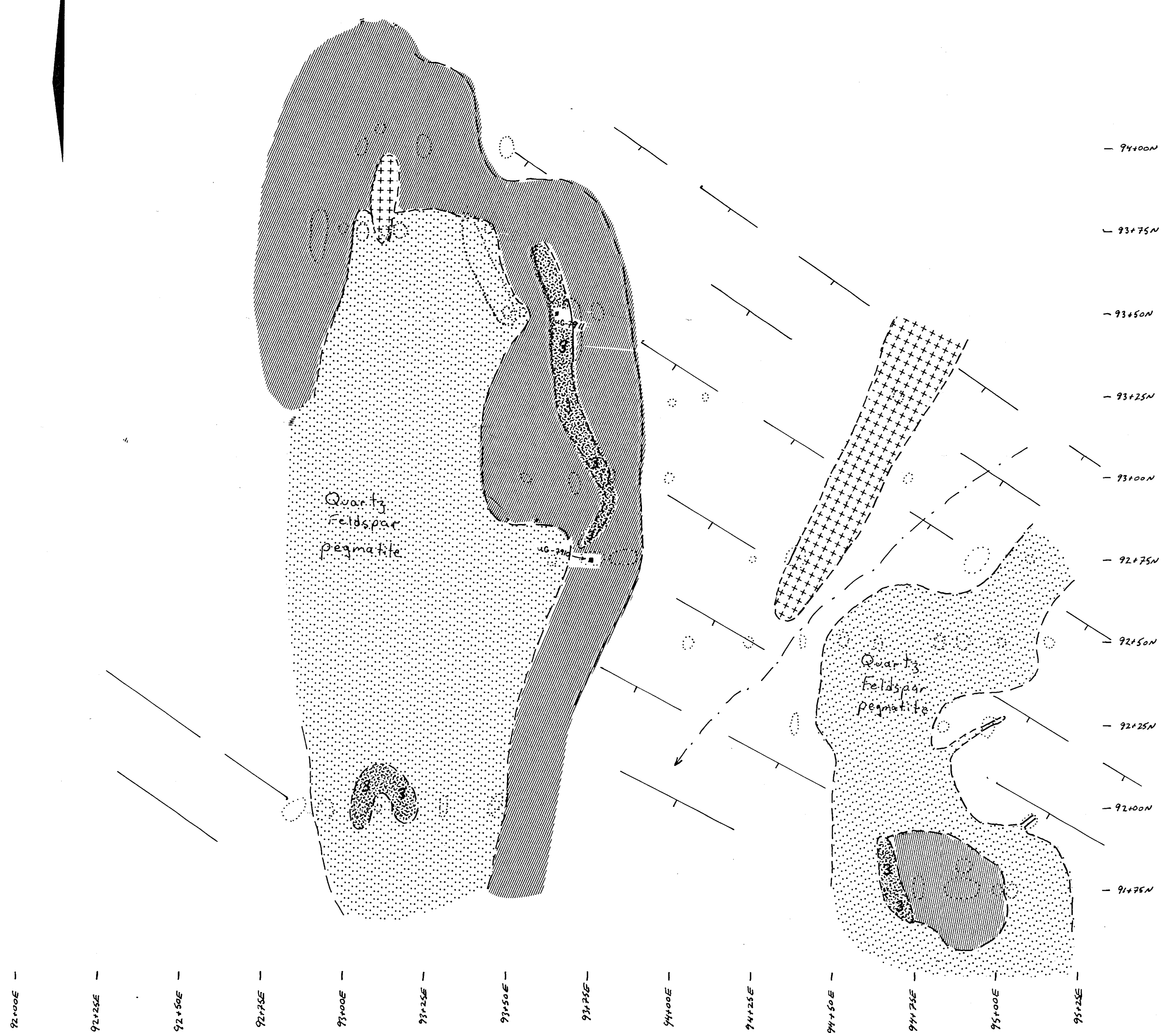
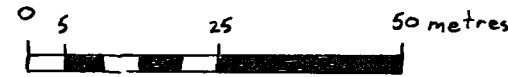
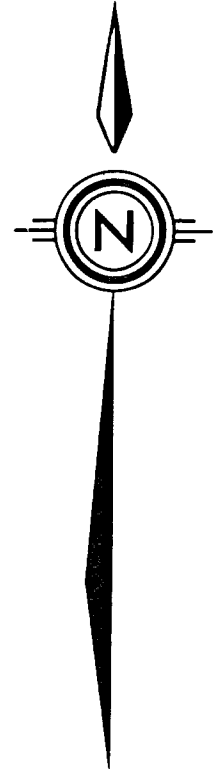
Element	WP-1*(ppm)	WP-1~	P-1*	P-1~	detection
Eu	0.7+/-0.12	0.9	0.6+/-0.06	.7	.5
La	12.8+/-0.43	13.0	12.0+/-0.28	12	.2
Lu	.2+/-0	.17	.3+/-0	.29	.05
Sc	9.2+/-0.2	10.0	10.4+/-0.41	10.8	.05
Sm	3.1+/-0.09	3.1	2.7+/-0.15	2.9	.05
Tb	0.5+/-0.34	<1.0	N/D	<1.0	-----
Th	2.2+/-0.27	2.1	3.7+/-0.18	3.5	.2
Yb	1.5+/-1.3	1.2	2.1+/-0.12	1.9	.2

\* Analysis by Erdman (1985) WP-1 repeated 12 times, P-1 repeated 8 times. Standards for calibration SY2, NIM-L, NIM-G, NIM-S, SY3, RGM-1, QLO-1, BHVO-1, GSP-1, STM-1, BCR-1 and ARCHO-1. WP-1~ and P-1~ analyzed by bondar-clegg INAA for A.Halleran



LIST OF ROCK DESCRIPTIONS

UG-7826 mineralized allanite pegmatite  
UG-7834 alkalic overprinted wolverine amphibolite  
gneisses  
UG-7834B duplicate of UG-7834  
UG-7835 Quartz-feldspar pegmatite +/- hornblende  
UG-7835B duplicate of  
UG-7837 alkalic overprinted wolverine amphibolite  
gneisses  
UG-7840A alkalic overprinted wolverine more mafic rich  
gneisses  
UG-7842-52 rare earth pegmatite more quartz rich than 7826  
UG-7842-52B duplicate  
UG-7844 Quartz-feldspar pegmatite +/- magnetite  
UG-7910 alkalic overprinted Wolverine amphibolite  
gneisses( rutile-sphene rich )  
UG-7910B duplicate  
UG-7911 mineralize allanite pegmatite  
UG-7911B duplicate  
UG-NH Metamorphosed fine grained intrusion  
UG-NHB duplicate



194104

Laura #2	
GEOLOGY	
Legend on Table #1	
Figure	Dec 2/89
	Scale 1:1,000
A. Halleran	