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LOG NO: 1021	RD.
FILE NO:	

ASSESSMENT REPORT

THE GEOLOGY AND GEOCHEMISTRY
OF THE
LEFTY PROPERTY

CLAIMS: LEFTY 1, LEFTY 2, ANT 1, SPIDER 1

OWNED BY: ATNA RESOURCES LTD

OPERATOR: ATNA RESOURCES LTD

SMITHERS MAP SHEET
93 L/5,6

LATITUDE 54° 23' N
LONGITUDE 127° 32' W

FILMED

OMINECA MINING DIVISION

WRITTEN BY COLIN HARIVEL

FEBRUARY 1988

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,868

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INTRODUCTION:

The claim was staked in the summer of 1987. In addition to three single-day visits to the property, two fly camps of 2 and 8 days duration were established on the claims. Preliminary prospecting, as well as assessment of the ground and geologic setting, was completed in July and August, 1987, and is summarized in this report.

LOCATION AND ACCESS:

The Lefty property is located 55 km southwest of Smithers (Figure 1). The claims are in the headwaters of Starr Creek on the south side of the basin. Starr Creek drains into the Telkwa River which in turn drains into the Bulkley River.

The claims cover ground which ranges from subalpine forest to open alpine upland, and elevations range from 3700' (1128m) to 5600' (1707m) above sea level. Relief on the southwestern parts of the property is steep but otherwise, apart from local cliffs, the ground is gently rolling.

Access is by helicopter from Smithers. The nearest roads are the Telkwa River Forest Road to the northeast, some 30 km distant, and the West Morice Forest Road from near the proposed crossing of the Morice River, a distance of about 25 km.

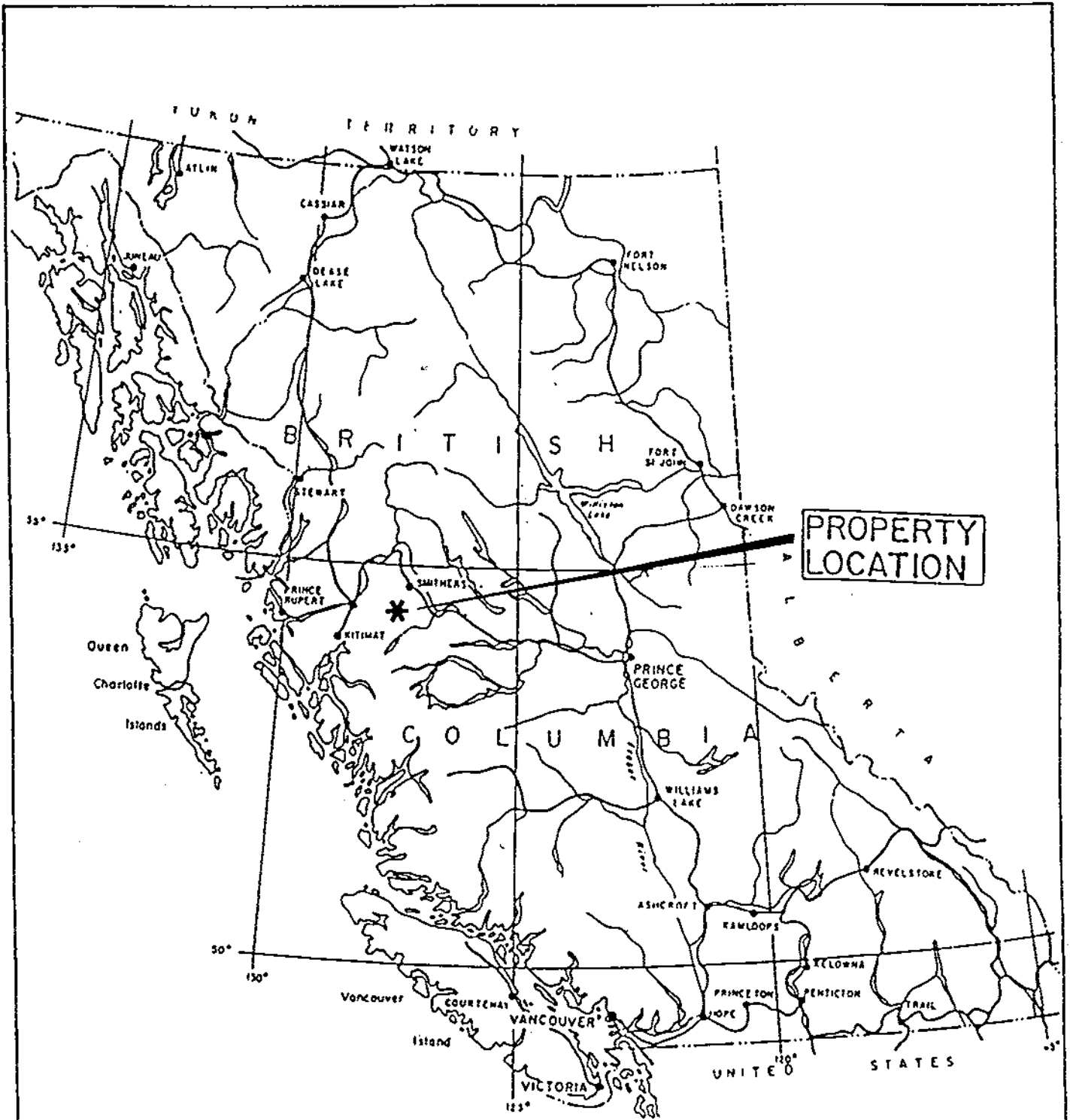
HISTORY OF THE PROPERTY:

The property was staked in the course of regional exploration by Atna Resources Ltd. Previous staking was done by Smithers residents Joe L'Orsa and Lefty Gardiner, but no assessment work was recorded.

CLAIMS AND OWNERSHIP:

The Lefty Property is owned by Atna Resources Ltd. and consists of the following claims (Figure 2):

<u>Claim</u>	<u># Units</u>	<u>Record #</u>	<u>Expiry Date</u>
Lefty 1	20	8605	July 31, 1988
Lefty 2	20	8606	July 31, 1988
Ant 1	20	8755	Aug. 24, 1988
Spider 1	20	8756	Aug. 24, 1988



PROPERTY
LOCATION

ATNA RESOURCES LTD.

LEFTY PROPERTY

PROJECT:

PROPERTY LOCATION

FIGURE 1

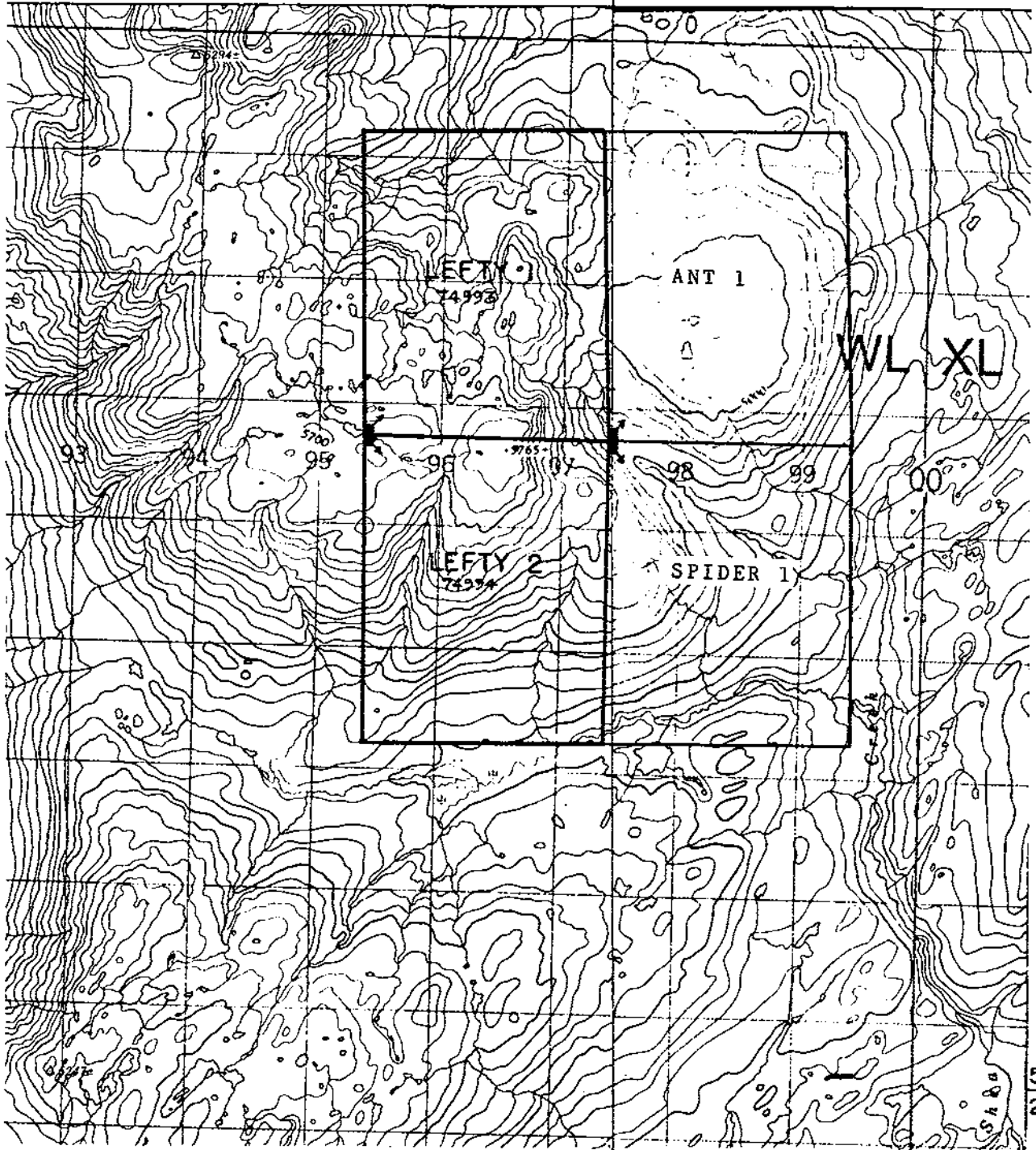
SCALE

DRAWN

DATE June/88

MAP 93 L/5

MAP 93 L/6



1 : 50,000

127° 32'



0 1 2 3 Km

A horizontal scale bar with markings at 0, 1, 2, and 3 kilometers.

ATNA RESOURCES LTD.

LEFTY PROPERTY

PROJECT:

CLAIMS MAP

FIGURE 2

SCALE 1:50,000 DRAWN

DATE June/88

ECONOMIC ASSESSMENT:

Textural and geochemical evidence suggests mineralization was formed at the higher temperature limits of epithermal systems. Silicification over hundreds of meters of structural length demonstrate the potential for mineable tonnages of epithermal precious metal deposits.

REGIONAL GEOLOGY:

The region is situated along the west-central part of the Stikine Terrane. Stratified and plutonic rocks range in age from Upper Paleozoic to Early Tertiary, with rocks of Jurassic age and younger being dominant.

Four major tectono-stratigraphic elements dominate the region.

The Lower and Middle Jurassic Hazelton Group comprises a marine and non-marine arc assemblage that is the preponderant rock assemblage in the area of interest. These strata are mainly non-marine rhyolitic to andesitic flows, pyroclastics and hypabyssal intrusives comprised of interfingering assemblages of flows, ignimbrites, lahars, air fall tuffs and breccias, volcaniclastic sediments and high level intrusive units. Consanguineous with the volcanics are diorite to granite plugs and stocks of the Topley Intrusions.

The interval between Upper Jurassic and Early Upper Cretaceous time is occupied by two sedimentary assemblages that appear to have little bearing on mineralization in this area.

To the immediate north of the area of interest, Upper Jurassic to mid-Lower Cretaceous Bowser Lake Group comprise a northwardly thickening wedge of deltaic-foredeep deposits. The source of the sediments was the Hazelton Group to the south and the depositional basin is known as the Bowser Basin. The locus of the strand lines across the southern limit of the Bowser Basin defines a structure known as the Skeena Arch, one of the most intensely mineralized belts in the Canadian Cordillera.

Between the mid-Lower Cretaceous and early Upper Cretaceous, the Skeena Group sediments were deposited across the entire region. This unit represents a continental margin clastic wedge, whose sediments were derived from the east, off the Omineca Terrane.

The late Upper Cretaceous to Eocene time is represented by a suite of continental transtensional arc volcanics that were deposited in an array of down-drop volcanic basins within the Stikine Terrane from latitude 55°30'N southward. These volcanics (the Kasalka and Ootsa Lake Groups) and their coeval intrusives (Bulkley, Babine, Nanika) are associated with the development of

basin and range geomorphology that typifies this segment of the Stikine Terrane.

Post-Eocene time was one of uplift, erosion and local deposition of basalt. It served to expose mineralization.

Early and Middle Jurassic age arc-related mineralization is widespread and precious metals based. Included within this epoch is the Toodoggone gold silver camp, and the major deposits of Silbak-Premier, Big Missouri and Granduc along the east flank of the Coast Range. Mineralization in the Smithers-Whitesail area likely of this epoch includes the Dome Mountain deposits and those of the Topley-Richfield area.

Late Cretaceous - Early Tertiary aged mineralization in the Skeena Arch is presently the most varied, widespread and significant of the two epochs. All the copper, molybdenum, tungsten and gold-bearing porphyries belong to this stage. Precious metals properties include Equity Silver, New Nadina, Silver Standard, Cronin and a host of smaller properties. Most of these deposits are related to the evolution of down-drop basins and calderas associated with volcanism, related plutonism and the development of a basin-and-range geomorphology. These deposits range from low temperature epithermal to high temperature mesothermal types.

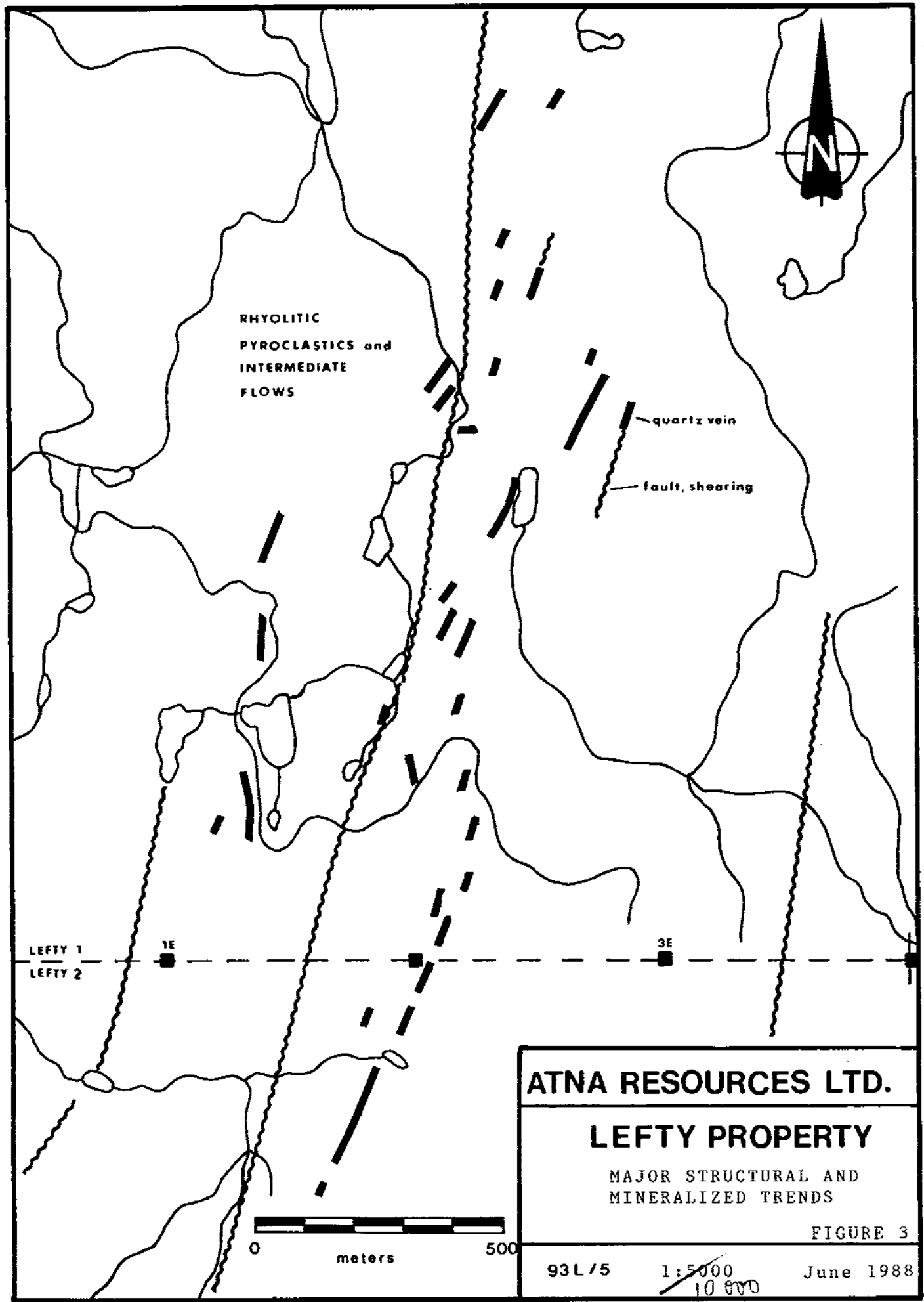
PROPERTY GEOLOGY:

The claims are underlain by volcanics of the Jurassic Hazelton Group. Rock types include andesitic-dacitic feldspar porphyry flows, massive to flow-banded rhyolites and thick sequences of tuffaceous agglomerates, lahars and crystal-lithic-vitric tuffs.

The strata are relatively undisturbed except for minor tilting and faulting. Major north to northwest trending faults divide the stratigraphic assemblages into separate panels.

MINERALIZATION AND ALTERATION:

The mineralized zone extends for some 3 km north-south, and extends over 600m in width (Figure 3). It is characterized by intermittent, en echelon quartz veins, zones of silicification, quartz-flooded breccias, stockwork zones and elongated gossans. The mineralization is structurally controlled, possibly as a set of splays, gashes and en echelon veins related to a throughgoing fault. Continuity of mineralized structures is obscured by overburden: the relatively flat upland surface of the property gently slopes off into lower sub-alpine scrub timber, and much of the area of interest is covered by a thin veneer of ground moraine.



Anomalous gold mineralization has been noted throughout the mineralized zone, concentrated particularly in the southern portion of the system. Gold is associated with silica and minor sulphides (pyrite, chalcopyrite). Local zones of massive chalcopyrite are not correlative with gold. Separate, exposed mineralized zones are usually less than 1m wide and traceable for up to 10m, although quartz-flooded breccia zones and stockwork zones are known to have widths greater than 2m. One composite chip sample gave 0.145 oz/ton across 4' width. Mineralized zones trend 020° to 060°.

Alteration includes bleaching and silicification of the host volcanics associated with widespread propylitization. Ankerite, limonite, quartz and epidote are peripheral to the mineralized zone.

ROCK GEOCHEMISTRY:

Rock chips were collected in the course of prospecting and geological traverses. A total of 87 samples were collected and are plotted on Figure 4. Samples were analyzed by ICP techniques for 28 elements and by FA & AAS for gold. Analyses were conducted by Vangeochem Labs, Vancouver, and are included in the Appendix. Anomalous gold values are plotted on Figure 5.

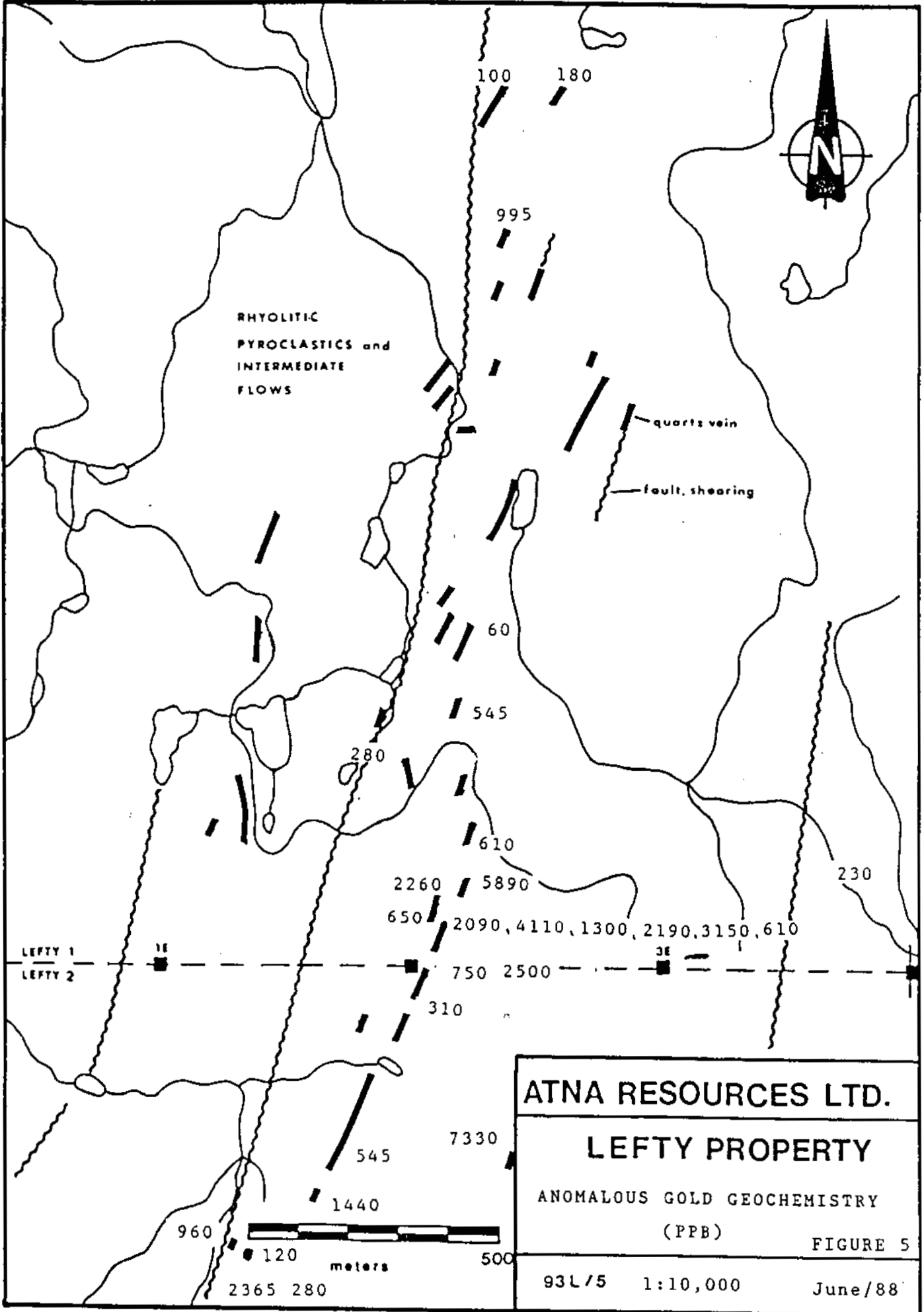
Continuous chip sampling at location TR 20-28 gave the following results:

Sample	ppb	Assay	Width
23	2090	0.169	2' qtz brx
24	4110	0.120	2' " "
27	2190	0.064	2'
28	3150	0.092	2'

Grab samples from other localities on the mineralized system gave:

<u>ppb</u>	<u>oz/ton</u>
2365	(0.069)
1440	(0.042)
2260	(0.066)
7330	(0.214)
2500	(0.073)
5890	(0.172)

Copper ranged to values greater than 10%. The highest base-metal values gave 13,605 ppm Zn and 1524 ppm Pb.



Silver results are consistently low, with the highest reported value at 22 ppm.

The system remains open to the south and appears closed off to the north.

STREAM AND SOIL GEOCHEMISTRY:

A total of 28 soil samples were collected from selected areas, and 6 stream sediment samples were collected within and immediately surrounding the property (Figure 4).

Silt samples returned gold values to 30 ppb and barium to 786 ppm. Soil samples gave low gold values, the highest being 10 ppb, but other elements returned 1.1 ppm Ag, 194 ppm Cu, 421 ppm Zn and 99 ppm Pb.

CONCLUSIONS AND RECOMMENDATIONS:

The textural and geochemical evidence within the structural setting displayed on the Lefty property suggests a higher temperature, lower level epithermal system. Gold grades are sufficiently high to warrant further work toward the definition of mineable tonnage.

Preliminary prospecting has been done and the 1988 program should include the following:

1. Construction of a grid for geochemical and geophysical surveys.
2. VLF-EM in conjunction with fluxgate magnetometer surveys.
3. A soil-sample survey over the upland surface astride the fault system that is apparently associated with mineralization.
4. Detailed geological mapping of the upland surface, with detailed prospecting of the southern and eastern end of the property.
5. A 3000' first-phase drilling program carried out on the southern part of the mineralized system, with further sites contingent upon results of the proposed surface investigation.

STATEMENT OF COSTS

PERSONNEL

Bruce Holden, Prospector;	June 6 & 7, 1987	
	2 days @ \$175/day	\$350
Stephan Soby, Field Asst.;	June 6 & 7, 1987	
	2 days @ \$150/day	\$300
Myron Kozak, Field Asst.;	June 6 & 7, 1987	
	2 days @ \$150/day	\$300
Dan Ethier, Prospector;	June 6 & 7, 1987	
	2 days @ \$175/day	\$350
Ellen Lambert, Geologist;	August 12-19, 1987	
	8 days @ \$200/day	\$1600
Kaaren Soby, Field Asst.;	August 12-19, 1987	
	8 days @ \$150/day	\$1200
Stephan Soby, Field Asst.;	August 12-19, 1987	
	8 days @ \$150/day	\$1200
Colin Harivel; Geologist;	July 13, 14, 22, 1987	
	3 days @ \$300/day	\$900

TRANSPORTATION

Trucks	4 days @ \$55/day	\$220
Helicopter	7.5 hours @ \$550/hour	\$4125

CAMP AND SUPPLIES	32 man days @ \$75/man/day	\$2400
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MOTELS		\$200
--------	--	-------

GEOCHEMISTRY		\$1984
--------------	--	--------

OFFICE		\$500
--------	--	-------

REPORT, INCLUDING DRAFTING		<u>\$3000</u>
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TOTAL		\$18629
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AUTHOR'S STATEMENT

I, Colin Harivel, do hereby state:

1. I am a mineral exploration geologist with business address P.O. Box 233, Smithers, B.C. Postal Code V0J2N0.
2. I graduated from the University of British Columbia in 1972 with a B.Sc. in geology and I have since then practised my profession in Australia, Canada and the United States of America.
3. I am a Fellow of the Geological Association of Canada.
4. I have explored for ore deposits of the type that may be contained in the Lefty Property, the subject property in this report.
5. I visited the property on July 13, 14 and 22, 1987. This report is based on observations made by me and my associates who conducted work on the property.

Signed:

A handwritten signature in black ink, appearing to read 'Colin Harivel', written over a horizontal line. The signature is stylized and cursive.

COLIN HARIVEL, B.Sc., F.G.A.C.

APPENDIX
Assay Certificates



VANGEOCHEM LAB LIMITED

MAIN OFFICE
1521 PEMBERTON AVE.
NORTH VANCOUVER, B.C. V7P 2S3
(604) 986-5211 TELEX: 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-6656

REPORT NUMBER: 871127 6A

JOB NUMBER: 871127

ATNA RESOURCES

PAGE 1 OF 1

SAMPLE #	Au ppb
LEF01	5
LEF02	5
LEF03	5
LEF04	5
LEF05	10
LEF06	5
LEF07	5
LEF08	5
LEF09	5
LEF10	nd
LEF11	nd
LEF12	nd
LEF13	5
LEF14	nd
LEF15	nd
LEF16	10
LEF17	nd
LEF18	nd
LEF19	nd
LEF20	nd
LEF21	nd
LEF22	nd
LEF23	10
LEF24	nd
LEF25	nd
LEF26	nd



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(604) 251-6656

REPORT NUMBER: 870866 6A

JOB NUMBER: 870866

ATNA RESOURCES

PAGE 1 OF 1

TR-03	10
TR-04	60
TR-05	nd

VANGEOCHEM LAB LIMITED

MAIN OFFICE: 1521 PEMBERTON AVE. N. VANCOUVER B.C. V7P 2B3 PH: (604)986-5211 TELEX: 04-35257
 BRANCH OFFICE: 1630 PANDORA ST. VANCOUVER B.C. V5L 1L6 PH: (604)251-3656

ICAP GEOCHEMICAL ANALYSIS

A .5 GRAM SAMPLE IS DIGESTED WITH 5 ML OF 3:1:2 HCL TO HNO3 TO H2O AT 95 DEG. C FOR 90 MINUTES AND IS DILUTED TO 10 ML WITH WATER.
 THIS LEACH IS PARTIAL FOR SH, HM, FE, CA, P, CR, NI, BA, PB, AL, K, U, PT AND SR. AU AND PB DETECTION IS 3 PPM.
 IS= INSUFFICIENT SAMPLE, ND= NOT DETECTED, - = NOT ANALYZED

COMPANY: ATNA RES. LTD.
 ATTENTION:
 PROJECT:

REPORT#: PA
 JOB#: 870866
 INVOICE#: NA

DATE RECEIVED: 87/07/28
 DATE COMPLETED: 87/08/04
 COPY SENT TO: VANCOUVER & SMITHERS

ANALYST W. Preece

PAGE 1 OF 1

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CB	CO	CR	CU	FE	K	MG	HM	MO	NA	NI	P	PB	PD	PT	SB	SH	SR	U	V	ZN	
	PPM	I	PPM	PPM	PPM	PPM	I	PPM	PPM	PPM	PPM	I	I	I	PPM	PPM	I	PPM	I	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	
TR-3	34.7	.64	171	ND	4	ND	.03	3.9	4	149	2903	12.48	.03	.13	381	17	.29	1	.01	48	ND	ND	ND	ND	2	ND	ND	280	
TR-4	7.5	.76	14	ND	130	8	.06	26.3	5	104	1964	2.73	.09	.19	907	6	1.17	6	.01	27	ND	ND	ND	87	ND	3	ND	ND	4049
TR-5	1.7	4.32	29	ND	36	7	.02	.1	20	59	8934	13.86	.01	1.78	3673	27	.37	12	.02	14	ND	ND	ND	33	ND	1	ND	ND	362

COMPANY: ATNA RESOURCES
 ATTENTION:
 PROJECT: A-001/SMITHERS REGIONAL/LEE

REPORT#: B71127PA
 JOB#: 871127
 INVOICE#: 871127NA

DATE RECEIVED: 87/08/21
 DATE COMPLETED: 87/09/11
 COPY SENT TO:

ANALYST W. Preece

PAGE 1 OF 1

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CB	CO	CR	CU	FE	K	MG	HM	MO	NA	NI	P	PB	PD	PT	SB	SH	SR	U	V	ZN
	PPM	I	PPM	PPM	PPM	PPM	I	PPM	PPM	PPM	PPM	I	I	I	PPM	PPM	I	PPM	I	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
LEF 01	.6	1.95	8	ND	89	ND	.14	.5	23	16	81	4.33	.01	.48	2380	1	.01	26	.08	70	ND	ND	ND	ND	9	ND	ND	758
LEF 02	.5	2.47	29	ND	120	4	.16	.2	28	21	69	4.37	.01	.52	1352	12	.01	27	.15	99	ND	ND	ND	ND	14	ND	5	227
LEF 03	.6	5.39	10	ND	625	4	.25	.4	25	30	81	3.82	.01	.53	885	12	.01	27	.29	90	ND	ND	ND	ND	19	ND	ND	261
LEF 04	.3	2.24	24	ND	77	5	.10	1.1	26	21	50	3.83	.01	.40	998	9	.01	22	.15	91	ND	ND	ND	ND	10	ND	6	141
LEF 05	.3	2.47	8	ND	356	ND	.20	.8	22	19	22	1.70	.01	.44	386	3	.01	23	.05	80	ND	ND	ND	ND	14	ND	ND	146
LEF 06	.4	1.88	21	ND	371	3	.26	.4	24	16	24	4.35	.01	.40	786	5	.01	21	.04	80	ND	ND	ND	ND	29	ND	4	202
LEF 07	.7	2.67	11	ND	196	ND	.13	.6	30	21	50	4.54	.01	.70	877	4	.01	28	.07	76	ND	ND	ND	ND	10	ND	ND	321
LEF 08	.7	2.08	9	ND	397	ND	.20	.6	25	24	52	4.25	.01	.44	954	4	.01	26	.04	70	ND	ND	ND	ND	15	ND	ND	301
LEF 09	.4	2.27	18	ND	64	ND	.10	.6	24	20	45	4.75	.01	.46	1323	4	.02	25	.11	76	ND	ND	ND	ND	10	ND	ND	192
LEF 10	.3	2.99	19	ND	48	ND	.10	.9	23	20	36	4.23	.01	.48	862	6	.04	26	.08	75	ND	ND	ND	ND	9	ND	ND	156
LEF 11	.1	2.00	ND	ND	81	ND	.10	.6	17	15	20	2.54	.01	.20	460	2	.08	15	.08	56	ND	ND	ND	ND	12	ND	3	74
LEF 12	1.1	3.20	ND	ND	204	ND	.24	.7	30	18	77	3.85	.01	1.12	2971	ND	.01	26	.08	57	ND	ND	ND	ND	13	ND	ND	421
LEF 13	.6	2.25	ND	ND	195	ND	.22	.1	17	16	194	2.90	.01	.53	735	ND	.01	20	.08	45	ND	ND	ND	ND	13	ND	ND	258
LEF 14	.3	2.54	ND	ND	73	ND	.12	.1	21	20	55	4.84	.01	.55	1381	1	.02	23	.08	58	ND	ND	ND	ND	11	ND	ND	163
LEF 15	.3	2.92	5	ND	93	ND	.08	.2	19	21	32	3.58	.01	.34	902	4	.12	25	.13	61	ND	ND	ND	ND	12	ND	ND	136
LEF 16	.4	2.87	4	ND	130	ND	.17	.1	22	21	73	5.09	.01	.64	1741	2	.01	29	.10	58	ND	ND	ND	ND	15	ND	ND	192
LEF 17	.3	2.22	5	ND	123	ND	.26	.4	20	15	23	4.05	.01	.48	1265	2	.11	22	.11	52	ND	ND	ND	ND	19	ND	ND	149
LEF 18	.3	2.97	ND	ND	94	ND	.14	.6	18	19	34	3.39	.01	.45	684	ND	.11	21	.10	50	ND	ND	ND	ND	14	ND	ND	140
LEF 19	.4	2.20	ND	ND	72	ND	.08	.4	23	18	147	4.44	.01	.58	1984	1	.04	26	.08	49	ND	ND	ND	ND	10	ND	ND	207
LEF 20	.3	2.20	ND	ND	57	ND	.08	.4	21	17	35	3.59	.01	.43	872	2	.17	16	.07	48	ND	ND	ND	ND	10	ND	ND	139
LEF 21	.3	2.25	3	ND	273	ND	.32	.5	23	20	39	4.25	.01	.48	667	3	.20	41	.07	47	ND	ND	ND	ND	18	ND	ND	158
LEF 22	.2	2.58	ND	ND	154	ND	.10	.7	17	20	59	.86	.01	.24	219	2	.39	26	.05	50	ND	ND	ND	ND	7	ND	ND	108
LEF 23	.4	1.77	ND	ND	97	ND	.26	.6	22	15	98	4.51	.01	.68	2173	ND	.03	25	.08	33	ND	ND	ND	ND	16	ND	ND	175
LEF 24	.3	1.83	ND	ND	84	ND	.15	.2	18	16	101	3.79	.01	.66	1841	ND	.06	24	.08	25	ND	ND	ND	ND	11	ND	ND	143
LEF 25	.4	2.32	ND	ND	78	ND	.13	.1	19	17	99	3.84	.02	.48	1332	ND	.13	25	.11	30	ND	ND	ND	ND	11	ND	ND	167
LEF 26	.3	2.33	ND	ND	90	ND	.10	.2	20	17	48	4.04	.07	.44	2797	ND	.20	24	.17	27	ND	ND	ND	ND	12	ND	ND	125
DETECTION LIMIT	.1	.01	3	3	1	3	.01	.1	1	1	1	.01	.01	.01	1	1	.01	1	.01	2	3	5	2	2	1	5	3	1



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REPORT NUMBER: 870748 GA

JOB NUMBER: 870748

ATMA RESOURCES

PAGE 1 OF 1

SAMPLE #

Au
ppb
nd

*Smith. Regional
Lefty*

K9 001

08/06/87 01:09 ☎604 684 8887

INTERACTION RES. --- See Moore Stat ☑019/028



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REPORT NUMBER: 870858 GA

JOB NUMBER: 870858

ATMA RESOURCES

PAGE 1 OF 1

DE 266
DE 267

nd
nd

DE 268
DE 269
DE 271
DE 272
DE 273

nd
nd
7330
650
30

DE 274
DE 275
DE 276
DE 277

750
2500
5890
610

08/06/87 01:10 ☎604 684 8887

INTERACTION RES. --- See Moore Stat ☑021/028



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REPORT NUMBER: 870856 GA

JOB NUMBER: 870856

ATMA RESOURCES

PAGE 1 OF 1

SAMPLE #

Au
ppb
30

DE 270

Lefty

VANGEOCHEM LABORATORIES LIMITED

MAIN OFFICE: 1521 PEMBERTON AVE. N. VANCOUVER B.C. V7P 2G3 PH: (604) 986-5211 TELEX: 04-352578
 BRANCH OFFICE: 1630 PANDORA ST. VANCOUVER B.C. V5L 1L6 PH: (604) 251-5656

ICAP GEOCHEMICAL ANALYSIS

.5 GRAM SAMPLE IS DIGESTED WITH 5 ML OF 3:1:2 HCL TO HNO3 TO H2O AT 95 DEG. C FOR 90 MINUTES AND IS DILUTED TO 10 ML WITH WATER.
 THIS LEACH IS PARTIAL FOR SN, NI, FE, CA, P, CR, Ni, BA, PB, AL, NA, K, U, PT AND SR. AU AND PD DETECTION IS 3 PPM.
 IS= INSUFFICIENT SAMPLE, ND= NOT DETECTED, -- NOT ANALYZED

COMPANY: ATNA
 ATTENTION:
 PROJECT: SMITHERS REGIONAL

REPORT#: 870856PA
 JOB#: 870835
 INVOICE#: 870856NA

DATE RECEIVED: 87/08/27
 DATE COMPLETED: 87/09/30
 COPY SENT TO:

ANALYST W. Pears

PAGE 1 OF 2

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CB	CC	CD	CE	CF	CG	CH	CI	CO	CU	FE	K	MG	NI	NO	NA	NI	P	PD	PI	PT	SB	SI	SR	U	V	ZN
	PPM	Z	PPM	PPM	PPM	PPM	I	PPM	PPM	PPM	I	I	I	PPM	PPM	I	PPM	I	I	I	PPM	I	PPM	I	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
DE 270	.1	1.02	29	ND	214	ND	.13	.1	6	139	316	4.12	.05	.36	1776	8	.13	5	.01	75	ND	ND	7	ND	6	6	ND	239						
DETECTION LIMIT	.1	.01	3	3	1	3	.01	.1	1	1	1	.01	.01	.01	1	1	.01	1	.01	2	3	5	2	2	1	5	3	1						

MAIN OFFICE: 1521 PEMBERTON AVE. N. VANCOUVER B.C. V7P 2G3 PH: (604) 986-5211 TELEX: 04-352578
 BRANCH OFFICE: 1630 PANDORA ST. VANCOUVER B.C. V5L 1L6 PH: (604) 251-5656

ICAP GEOCHEMICAL ANALYSIS

.5 GRAM SAMPLE IS DIGESTED WITH 5 ML OF 3:1:2 HCL TO HNO3 TO H2O AT 95 DEG. C FOR 90 MINUTES AND IS DILUTED TO 10 ML WITH WATER.
 THIS LEACH IS PARTIAL FOR SN, NI, FE, CA, P, CR, Ni, BA, PB, AL, NA, K, U, PT AND SR. AU AND PD DETECTION IS 3 PPM.
 IS= INSUFFICIENT SAMPLE, ND= NOT DETECTED, -- NOT ANALYZED

COMPANY: ATNA RESOURCES LTD.
 ATTENTION:
 PROJECT: SMITHERS REG./WELFY

REPORT#: PA
 JOB#: 858
 INVOICE#: NA

DATE RECEIVED: 87/7/28
 DATE COMPLETED: 87/7/31
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ANALYST W. Pears

PAGE 1 OF 1

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CB	CC	CD	CE	CF	CG	CH	CI	CO	CU	FE	K	MG	NI	NO	NA	NI	P	PD	PI	PT	SB	SI	SR	U	V	ZN
	PPM	I	PPM	PPM	PPM	PPM	I	PPM	PPM	PPM	I	I	I	PPM	PPM	I	PPM	I	I	I	PPM	PPM	I	PPM	I	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
ME266	.1	2.09	ND	ND	150	6	.32	.1	10	57	32	4.35	.01	1.45	1605	4	.01	11	.06	8	ND	ND	10	ND	10	ND	10	ND	10	ND	ND	ND	ND	174
ME267	.1	1.13	ND	ND	54	4	.46	2.1	5	130	327	2.43	.03	.36	1990	8	.01	5	.05	9	ND	ND	5	ND	3	3	ND	ND	ND	ND	ND	ND	890	
ME268	9.3	.24	103	ND	674	ND	.54	15.1	6	10	334	2.81	.04	.30	2401	ND	.01	2	.02	27	ND	ND	7	ND	16	ND	ND	ND	ND	ND	ND	ND	2005	
ME269	.8	.34	ND	ND	257	4	.13	5.9	5	99	78	4.00	.03	.11	2105	5	.01	5	.01	20	ND	ND	3	ND	2	ND	ND	ND	ND	ND	ND	ND	697	
ME270	.2	.81	5	ND	105	4	.32	15.8	4	9	95	2.52	.02	.36	600	6	.01	4	.05	13	ND	ND	3	5	9	ND	ND	ND	ND	ND	ND	ND	2376	
ME271	.1	1.39	99	ND	8	ND	.05	1.3	6	11	1115	16.29	.01	.33	1419	15	.02	2	.01	105	ND	ND	5	ND	2	ND	ND	ND	ND	ND	ND	ND	569	
ME273	.1	.41	26	ND	82	ND	.03	.1	4	27	36	3.74	.04	.07	1757	19	.01	5	.02	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	84
ME274	7.1	1.04	120	ND	11	ND	.02	.1	4	84	639	7.30	.01	.20	806	50	.01	1	.01	30	ND	ND	3	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	81
ME275	.1	2.37	51	4	19	3	.17	2.2	53	16	7850	12.01	.01	.96	2314	16	.01	5	.02	30	ND	ND	8	ND	1	ND	ND	ND	ND	ND	ND	ND	150	
ME276	44.5	.20	327	7	2	3	.05	.2	21	23	427	16.28	.01	.07	140	22	.01	2	.01	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	246	
ME277	6.1	3.59	26	ND	12	ND	.01	.1	22	33	16521	14.06	.01	1.21	2024	9	.01	4	.02	35	ND	ND	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	271	
DETECTION LIMIT	.1	.01	3	3	1	3	.01	.1	1	1	1	.01	.01	.01	1	1	.01	1	.01	2	3	5	2	2	1	5	3	1						

0404

INTERACTIVE Moore Stat

684 8887



VANGEOCHEM LAB LIMITED

MAIN OFFICE
1521 PEMBERTON AVE.
NORTH VANCOUVER, B.C. V7P 2S3
(604) 986-6211 TELEX: 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-6658

1

REPORT NUMBER: 1

JOB NUMBER: 871122

ATMA RESOURCES

PAGE 1 OF 1

SAMPLE #	Au ppb
EL 125	nd
EL 126	20
EL 127	10
EL 128	nd
EL 129	100
EL 130	nd
EL 131	nd
EL 132	nd
EL 133	nd
KS 01	nd
KS 02	nd
KS 03	nd
KS 04	nd
KS 05	95
KS 06	10
KS 07	nd
KS 08	110
KS 09	nd
KS 10	15
KS 11	nd
KS 12	nd
KS 13	nd
KS 14	nd



VANGEOCHEM LAB LIMITED

MAIN OFFICE
1521 PEMBERTON AVE.
NORTH VANCOUVER, B.C. V7P 2S3
(604) 986-6211 TELEX: 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-6658

REPORT NUMBER: 870859 6A

JOB NUMBER: 870859

ATMA RESOURCES

PAGE 1 OF 1

BD-60	180
BD-61	40

VANGEOCHEM LAB LIMITED

MAIN OFFICE: 1521 PEMBERTON AVE. N. VANCOUVER B.C. V7P 2B3 PH: (604) 906-5211 TELE: (604) 352578
 BRANCH OFFICE: 1630 PANDORA ST. VANCOUVER B.C. V6L 1L6 PH: (604) 251-3636

ICAP GEOCHEMICAL ANALYSIS

A .5 GRAM SAMPLE IS DIGESTED WITH 5 ML OF 3:1:2 HCL TO HNO3 TO H2O2 AT 95 DEG. C FOR 90 MINUTES AND IS DILUTED TO 10 ML WITH WATER.
 THIS LEACH IS PARTIAL FOR SA, NI, FE, CA, P, CR, MG, BA, PB, AL, NA, K, N, PT AND SR. NI AND PB DETECTION IS 3 PPM.
 IS= INSUFFICIENT SAMPLE, ND= NOT DETECTED, -A= NOT ANALYZED

COMPANY: ATNA RESOURCES
 ATTENTION:
 PROJECT: A-002/SMITHERS REG/LEFTY

REPORT#: 871122PA
 JOB#: 871122
 INVOICE#: 871122NA

DATE RECEIVED: 87/08/21
 DATE COMPLETED: 87/09/21
 COPY SENT TO:

ANALYST *W. Pines*

PAGE 1 OF 1

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CD	CO	CR	CU	FE	K	MG	NI	NO	NA	NI	P	PB	PB	PT	SB	SH	SR	U	W	ZN
	PPM	%	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	%	%	%	PPM	PPM	%	PPM	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
EL 125	.1	1.01	21	ND	29	ND	.05	.1	5	82	23	4.72	.06	.31	942	16	.12	5	.02	10	ND	ND	3	ND	5	ND	ND	52
EL 126	2.1	3.49	25	3	82	ND	.08	.1	20	52	16063	10.81	.06	1.31	2155	28	.41	10	.02	18	ND	ND	ND	ND	3	ND	ND	189
EL 127	2.7	2.68	64	3	41	ND	.09	.1	25	36	4152	11.45	.06	.89	1630	90	.36	ND	.05	22	ND	ND	3	ND	3	ND	ND	149
EL 128	.4	.88	8	ND	162	5	.37	.2	4	70	163	2.00	.06	.22	585	3	.03	1	.04	1	ND	ND	4	2	26	ND	ND	36
EL 129	.4	1.04	5	ND	676	ND	.49	.1	5	99	1228	2.09	.06	.30	804	3	.05	5	.03	77	ND	ND	4	ND	37	ND	ND	56
EL 130	.1	1.72	7	ND	80	ND	.02	.1	9	67	252	4.50	.05	.53	1483	2	.14	2	.01	9	ND	ND	3	ND	2	ND	ND	104
EL 131	.4	.17	5	ND	23	4	.07	.3	2	146	31	.73	.05	.03	583	10	.01	4	.01	8	ND	ND	5	1	1	ND	3	42
EL 132	.1	.20	ND	4	2816	ND	12.77	3.4	27	10	15	5.90	.03	2.97	3944	ND	.42	19	.01	24	ND	ND	ND	ND	283	ND	ND	491
EL 133	9.5	2.22	36	ND	100	ND	1.08	32.0	14	58	17321	5.49	.08	.82	2314	25	2.41	10	.03	216	ND	ND	ND	ND	115	ND	ND	5366
KS 1	.8	2.42	15	ND	196	ND	.21	2.2	16	29	705	5.68	.07	.91	1550	29	.30	3	.04	409	ND	ND	ND	ND	14	ND	ND	404
KS 2	1.3	1.13	15	ND	131	ND	.54	1.0	13	84	1511	3.76	.07	.41	745	27	.15	6	.01	68	ND	ND	4	ND	8	ND	ND	173
KS 3	.3	.60	ND	ND	883	3	.20	.3	5	90	74	1.34	.06	.11	558	3	.03	4	.02	10	ND	ND	4	1	26	ND	ND	64
KS 4	.1	1.29	36	ND	62	3	.06	.1	6	96	416	6.22	.06	.32	1327	20	.18	3	.02	23	ND	ND	4	ND	3	ND	ND	111
KS 5	1.6	1.74	49	4	7	ND	.02	.1	42	50	55449	17.83	.07	.48	1125	6	.62	4	.01	50	ND	ND	ND	ND	1	ND	ND	154
KS 6	.2	2.86	20	ND	87	ND	.12	.1	17	53	3027	9.00	.06	.98	1690	10	.27	3	.06	8	ND	ND	ND	ND	5	ND	ND	119
KS 7	.1	1.94	24	ND	122	3	.11	.1	9	75	181	5.89	.06	.67	1383	8	.16	2	.06	7	ND	ND	ND	ND	6	ND	ND	89
KS 8	.1	4.26	28	4	32	ND	.19	.1	26	33	1394	12.49	.07	1.61	3554	192	.40	11	.05	27	ND	ND	ND	ND	2	ND	ND	215
KS 9	.2	2.39	28	ND	84	ND	.12	.1	10	70	177	6.54	.07	.71	1968	59	.19	4	.05	27	ND	ND	ND	ND	4	ND	ND	108
KS 10	.1	.53	4	ND	214	ND	7.73	.9	2	41	1974	2.38	.07	.73	2179	1	.13	1	.04	5	ND	ND	ND	ND	95	ND	ND	202
KS 11	.4	.22	21	ND	183	ND	.43	1.2	5	65	97	2.52	.06	.18	1012	5	.13	3	.01	30	ND	ND	4	ND	10	ND	3	253
KS 12	.1	.36	8	ND	61	ND	2.71	.1	6	56	17	2.27	.06	1.00	1104	1	.09	11	.03	1	ND	ND	ND	ND	81	ND	ND	91
KS 13	.9	2.65	18	3	61	5	.52	.1	14	28	65	7.25	.05	1.99	1789	1	.75	9	.08	97	ND	ND	ND	5	16	ND	ND	176
KS 14	.7	2.65	21	3	73	7	.77	.1	22	76	74	5.74	.05	2.80	1903	2	.21	57	.09	11	ND	ND	ND	5	11	ND	ND	155
DETECTION LIMIT	.1	.01	3	3	1	3	.01	.1	1	1	1	.01	.01	.01	1	1	.01	1	.01	2	3	5	2	2	1	5	3	1

LEFTY

VANGEOCHEM LAB LIMITED

COMPANY: ATNA RES.LTD.
 ATTENTION:
 PROJECT: SMITHERS REGIONAL

REPORT#: PA
 JOB#: 870659
 INVOICE#: NA

DATE RECEIVED: 87/07/28
 DATE COMPLETED: 87/08/04
 COPY SENT TO: VANCOUVER & SMITHERS

ANALYST *W. Pines*

89-60	3.7	1.56	ND	ND	339	4	.06	1.1	12	30	533	3.91	.05	.51	880	30	.11	2	.01	33	ND	ND	6	ND	28	ND	ND	159
80-61	4.3	1.95	393	ND	14	ND	.02	15.8	73	126	2631	9.49	.03	.60	991	71	.34	5	.01	367	ND	ND	9	ND	3	ND	ND	636



VANGEOCHEM LAB LIMITED

MAIN OFFICE
1521 PEMBERTON AVE.
NORTH VANCOUVER, B.C. V7P 2S3
(604) 966-5211 TELEX: 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V6L 1L8
(604) 261-5658

REPORT NUMBER: B70705 6A

JOB NUMBER: B70705

ATMA RESOURCES

PAGE 1 OF 1

SAMPLE #	Au
	ppb
BH 20 ROCK	210
BH 21 ROCK	995
BH 22 ROCK	5
BH 23 ROCK	nd
BH 24 ROCK	45
BH 25 ROCK <i>Lefty</i>	280
BH 26 ROCK	960
BH 27 ROCK	120
BH 28 ROCK	2260
BH 29 ROCK	70
BH 30 ROCK	45
BH 31 ROCK	50
BH 32 ROCK	20
BH 33 ROCK	70



VANGEOCHEM LAB LIMITED

MAIN OFFICE
1521 PEMBERTON AVE.
NORTH VANCOUVER, B.C. V7P 2S3
(604) 966-5211 TELEX: 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V6L 1L8
(604) 251-5658

REPORT NUMBER: B70857 6A

JOB NUMBER: B70857

ATMA RESOURCES

PAGE 1 OF 1

SAMPLE #	Au
	ppb
TR-11	230
TR-12	5
TR-13	nd
TR-14	nd
TR-15	5
TR-16	90
TR-17	80
TR-18	10
TR-20 <i>Lefty</i>	130
TR-20A	nd
TR-21	40
TR-22	nd
TR-23	2090
TR-24	4110
TR-25	1300
TR-26	1330
TR-27	2190
TR-28	3150
TR-31	90
TR-32	70
TR-33	280

MAIN OFFICE: 1521 PEMBERTON AVE. N. VANCOUVER B.C. V7P 2S3 PH: (604) 986-5211 TELE: 04-332578
 BRANCH OFFICE: 1630 PANDORA ST. VANCOUVER B.C. V5L 1L6 PH: (604) 251-5656

ICAP GEOCHEMICAL ANALYSIS

A .5 GRAM SAMPLE IS DIGESTED WITH 5 ML OF 3:1:2 HCL TO HNO3 TO H2O AT 95 DEG. C FOR 90 MINUTES AND IS DILUTED TO 10 ML WITH WATER.
 THIS LEACH IS PARTIAL FOR SR, AN, FE, CA, P, CR, MG, BA, PO, AL, NA, K, N, PT AND SR. AN AND PO DETECTION IS 3 PPM.
 IS = INSUFFICIENT SAMPLE, ND = NOT DETECTED, - = NOT ANALYZED

COMPANY: ATNA RES. LTD.
 ATTENTION:
 PROJECT: SMITHERS REGIONAL

REPORT#: PA
 JOB#: B70705
 INVOICE#: NA

DATE RECEIVED: 87/07/13
 DATE COMPLETED: 87/07/25
 COPY SENT TO: VANCOUVER & SMITHERS OFFICES ANALYST *W. P. Jones*

PAGE 1 OF 1

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CO	CR	CU	FE	K	MG	NI	NO	NA	NI	P	PI	PO	PT	SB	SH	SR	U	V	ZN	
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	
IN-20ROCK	6.9	.91	27	ND	19	ND	.01	8.5	17	125	3918	6.81	.12	.24	477	81	.01	4	.01	194	ND	ND	ND	1	2	ND	ND	203
IN-21	.3	1.76	5	ND	28	ND	.02	.1	5	148	1351	6.23	.11	.46	2729	7	.01	6	.01	6	ND	ND	ND	2	2	ND	ND	112
IN-22	.3	.66	30	ND	8	ND	.01	.1	7	172	249	5.66	.11	.19	563	8	.01	6	.01	3	ND	ND	ND	12	ND	ND	73	
IN-23	22.1	1.82	42	ND	15	ND	.13	.1	15	107	50752	11.14	.10	.83	1643	19	.01	11	.01	46	ND	ND	ND	2	3	ND	ND	139
IN-24	.4	5.00	3	ND	152	86	7.15	.1	19	90	1929	5.32	.11	1.56	2752	4	.01	13	.04	14	ND	ND	ND	5	70	ND	ND	204
IN-25	2.1	.44	40	ND	9	ND	.05	52.4	4	123	786	3.04	.12	.12	375	15	.01	5	.01	715	ND	ND	3	ND	2	ND	ND	10679
IN-26	1.2	.76	148	ND	18	ND	.02	1.1	4	154	345	8.25	.12	.15	808	46	.01	4	.01	37	ND	ND	ND	1	1	ND	ND	335
IN-27	1.2	1.64	9	ND	96	ND	.25	2.8	11	109	3588	5.12	.11	.69	2200	5	.01	6	.01	16	ND	ND	ND	2	3	ND	ND	1871
IN-28	1.7	.08	124	ND	59	4	.01	.1	2	248	169	3.67	.18	.01	48	31	.01	6	.01	49	ND	ND	4	ND	1	ND	ND	35
IN-29	1.7	1.45	84	ND	16	4	.22	74.3	7	71	696	8.17	.13	.60	2122	83	.01	5	.04	139	ND	ND	ND	4	ND	ND	13515	
IN-30	2.9	1.62	21	ND	25	ND	.93	1.5	15	145	12277	6.25	.14	.75	1885	9	.01	7	.01	15	ND	ND	ND	1	9	ND	ND	236
IN-31	3.4	2.33	13	ND	20	ND	2.83	.6	9	131	5451	4.19	.14	.98	1078	8	.01	12	.02	29	ND	ND	ND	164	ND	ND	133	
IN-32	2.7	.96	81	ND	6	ND	.03	.6	7	146	9655	10.24	.14	.30	805	40	.01	6	.01	257	ND	ND	ND	1	3	ND	ND	147
IN-33	4.8	.60	25	ND	10	ND	.04	4.6	15	130	308	4.74	.15	.20	339	29	.01	6	.01	1524	ND	ND	ND	1	13	3	ND	459
IN-34	1	.2	6	ND	14	ND	0.70	0.7	00	01	160	6.90	0.11	0.11	1600	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

COMPANY: ATNA RESOURCES
 ATTENTION:
 PROJECT: SMITHERS REG.

REPORT#: PA
 JOB#: 657
 INVOICE#: NA

DATE RECEIVED: 87/7/28
 DATE COMPLETED: 87/7/31
 COPY SENT TO:

ANALYST *W. P. Jones*

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CO	CR	CU	FE	K	MG	NI	NO	NA	NI	P	PI	PO	PT	SB	SH	SR	U	V	ZN	
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	
TR11	.1	2.00	61	ND	20	ND	.03	.1	132	108	2607	8.73	.01	.01	908	8	.01	3	.01	15	ND	ND	4	ND	2	ND	ND	57
TR12	.1	1.70	10	ND	31	ND	.48	.1	8	101	2478	4.49	.01	.28	680	5	.01	2	.01	5	ND	ND	4	ND	3	ND	ND	61
TR13	.1	1.79	7	ND	20	3	.68	.1	42	109	3457	6.95	.01	.54	863	9	.01	3	.01	15	ND	ND	2	ND	10	ND	ND	125
TR14	.1	.76	ND	ND	63	ND	.87	.1	1	65	152	2.50	.14	.10	269	8	.01	ND	.02	8	ND	ND	ND	ND	3	12	7	15
TR15	.1	2.57	ND	ND	106	4	.75	.1	16	75	8216	5.77	.01	1.45	2437	6	.01	2	.06	17	ND	ND	4	ND	15	ND	ND	197
TR16	.3	2.41	258	ND	8	ND	.01	1.7	327	52	51000	19.85	.01	.85	861	8	.01	6	.01	84	ND	ND	4	ND	ND	ND	ND	365
TR17	8.1	2.16	461	ND	11	ND	.01	.1	48	49	3102	21.95	.01	.83	513	19	.01	8	.01	36	ND	ND	ND	ND	ND	ND	ND	241
TR18	5.1	.94	ND	ND	7	5	.01	.1	44	90	7563	12.94	.01	.41	626	39	.01	2	.01	25	ND	ND	3	ND	1	ND	ND	71
TR20A	2.1	.24	151	ND	5	ND	.01	.1	10	152	514	9.66	.01	.08	183	217	.01	2	.01	68	ND	ND	3	ND	ND	ND	ND	72
TR20	.1	3.55	18	ND	14	ND	.08	.1	19	49	562	8.08	.01	1.58	3428	44	.01	8	.05	21	ND	ND	7	ND	2	ND	ND	255
TR21	.1	2.52	28	ND	14	3	.04	.1	16	111	325	7.65	.01	1.03	2246	338	.01	7	.04	41	ND	ND	6	ND	1	ND	ND	113
TR22	1.3	.78	58	ND	131	5	.04	.1	2	66	96	5.23	.03	.17	485	304	.01	4	.02	45	ND	ND	ND	1	2	7	ND	74
TR23	.3	.22	7	ND	41	3	.01	24.8	ND	165	411	1.92	.01	.02	88	16	.01	5	.01	69	ND	ND	ND	1	1	ND	ND	3186
TR24	1.3	.60	ND	3	11	3	.01	10.1	ND	131	2917	3.17	.01	.12	463	11	.00	3	.01	61	ND	ND	ND	ND	5	ND	ND	1178
TR25	.5	.26	19	ND	40	4	.01	112.3	1	170	593	2.38	.01	.04	184	16	.01	4	.01	175	ND	ND	ND	ND	3	ND	ND	12645
TR26	.1	1.83	6	ND	36	ND	.01	2.1	2	108	2161	3.97	.01	.26	1945	12	.01	5	.01	21	ND	ND	ND	ND	1	5	ND	406
TR27	.3	2.22	ND	ND	58	ND	.13	3.7	12	73	2381	5.45	.01	.88	2299	5	.01	4	.03	13	ND	ND	6	ND	2	ND	ND	886
TR28	.8	.43	ND	ND	158	ND	.05	12.8	1	189	477	1.76	.01	.10	322	19	.01	5	.01	10	ND	ND	ND	ND	3	5	ND	1773
TR31	.1	1.22	6	ND	42	ND	.04	6.4	5	112	2872	4.04	.01	.28	2033	16	.01	3	.02	38	ND	ND	ND	ND	1	3	ND	1524
TR32	.1	1.45	117	ND	2	ND	.17	1.5	25	94	684	14.19	.01	.50	2176	419	.01	16	.02	171	ND	ND	2	ND	5	ND	ND	613
TR33	.1	.34	17	ND	133	3	.08	1.3	2	113	831	1.81	.01	.07	355	29	.01	5	.02	32	ND	ND	ND	ND	2	8	1	295
DETECTION LIMIT	.1	.01	3	3	1	3	.01	.1	1	1	1	.01	.01	.01	1	1	.01	1	.01	2	3	5	2	2	1	5	3	1



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(604) 251-6656

REPORT NUMBER: 870738 GA

JOB NUMBER: 870738

ATMA RESOURCES

PAGE 1 OF 1

SAMPLE #		Au
		ppb
DE 114 (SILT)	<i>LEFTY</i>	10
DE 115 (SILT)		nd
DE 116 (SILT)		nd
DE 117 (SILT)		20



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REPORT NUMBER: 870700 GA

JOB NUMBER: 870700

ATMA RESOURCES

PAGE 1 OF 1

SAMPLE #		Au
		ppb
DE 217-ROCK	<i>LEFTY</i>	15
DE 218-ROCK		2365
DE 219-ROCK		1440
DE 220-ROCK		545
DE 221-ROCK		nd
DE 222-ROCK	<i>SIMON</i>	nd
DE 223-ROCK		nd
DE 224-ROCK		620
DE 225-ROCK		nd
DE 226-ROCK		nd
DE 227-ROCK		310
DE 228-ROCK	<i>LEFTY</i>	10
DE 229-ROCK		nd
DE 230-ROCK		nd
DE 231-ROCK		nd
DE 232-ROCK		nd
DE 233-ROCK		nd
DE 234-ROCK		nd
DE 235-ROCK	nd	
DE 236-ROCK	40	
DE 237-ROCK		60

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ICAP GEOCHEMICAL ANALYSIS

A .5 GRAM SAMPLE IS DIGESTED WITH 5 ML OF 3:1:2 HCL TO HNO3 TO H2O AT 95 DEG. C FOR 90 MINUTES AND IS DILUTED TO 10 ML WITH WATER.
 THIS LEACH IS PARTIAL FOR SH, NH, FE, CA, P, CR, MG, BA, PB, AL, NA, K, V, PT AND SR. AU AND PD DETECTION IS 3 PPM.
 IS= INSUFFICIENT SAMPLE, ND= NOT DETECTED, -- NOT ANALYZED

COMPANY: ATNA RESOURCES LTD.
 ATTENTION:
 PROJECT: SMITHERS REGIONAL

REPORT#: PA
 JOB#: 870700
 INVOICE#: NA

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ANALYST *D. P. ...*

PAGE 1 OF 1

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CB	CD	CE	CF	K	MG	NH	NO	NA	NI	P	PB	PD	PT	SB	SH	SR	U	V	ZN	
	PPH	I	PPH	PPH	PPH	PPH	I	PPH	PPH	PPH	I	I	I	PPH	PPH	I	PPH	I	PPH	PPH	PPH	PPH	PPH	PPH	PPH	PPH	PPH	
DE-R217	.5	.28	11	ND	124	ND	.04	.2	1	142	37	.90	.05	.05	145	1	.02	5	.01	57	ND	ND	ND	ND	33	ND	ND	50
DE-R218	1.2	1.77	11	3	38	ND	.09	.2	13	99	13200	7.53	.04	.72	1863	4	.33	4	.01	9	ND	ND	ND	3	2	ND	ND	252
DE-R219	.9	1.86	16	3	15	ND	.01	.1	13	118	5519	7.39	.06	.76	1686	7	.28	3	.01	7	ND	ND	ND	7	1	ND	ND	185
DE-R220	.9	1.87	144	3	21	ND	.42	.8	45	129	18898	9.72	.08	.63	2635	9	.48	6	.01	32	ND	ND	ND	8	1	ND	ND	447
DE-R221	.1	1.70	ND	ND	439	ND	.20	.1	13	121	507	5.28	.06	.90	3104	2	.24	5	.01	3	ND	ND	ND	2	0	ND	ND	248
DE-R222	.1	.57	ND	ND	18	ND	4.60	.3	3	92	240	1.96	.11	.32	1005	ND	.08	5	.04	3	ND	ND	ND	ND	23	ND	ND	149
DE-R223	.6	.69	6	ND	10	ND	.85	.3	5	175	107	.65	.06	.31	460	6	.01	8	.03	11	ND	ND	ND	ND	46	ND	ND	85
DE-R224	.2	2.54	16	ND	30	4	.70	.1	17	50	142	6.18	.10	1.29	1532	4	.21	5	.05	10	ND	ND	ND	ND	26	ND	ND	164
DE-R225	.1	.35	ND	ND	73	ND	.06	.2	1	112	72	2.72	.07	.04	109	ND	.05	5	.04	4	ND	ND	ND	ND	4	ND	ND	30
DE-R226	.1	.28	3	ND	48	ND	.11	.1	1	79	37	2.40	.05	.03	85	ND	.03	2	.03	7	ND	ND	ND	ND	6	ND	ND	6
DE-R227	10.3	.22	3	ND	181	ND	.30	5.2	6	168	1928	3.01	.08	.42	3752	6	.23	5	.01	108	ND	ND	ND	ND	27	ND	ND	395
DE-R228	.3	.26	5	ND	84	ND	.10	.1	1	200	23	1.11	.10	.01	422	7	.01	5	.01	14	ND	ND	3	ND	3	ND	ND	16
DE-R229	.1	.20	ND	ND	2012	ND	.04	.1	1	156	6	1.32	.07	.01	213	1	.01	6	.02	18	ND	ND	ND	ND	16	3	ND	21
DE-R230	.1	.16	ND	ND	120	ND	.26	.1	ND	160	6	.49	.09	.01	536	ND	.01	2	.01	7	ND	ND	ND	ND	4	4	4	8
DE-R231	1.4	.20	38	ND	62	ND	.01	.2	1	113	42	1.05	.10	.01	94	7	.01	3	.01	161	ND	ND	4	ND	1	5	ND	56
DE-R232	.1	.48	8	ND	31	ND	.03	.1	1	108	5	2.09	.06	.48	257	5	.04	5	.08	6	ND	ND	3	ND	2	ND	ND	24
DE-R233	.1	.01	ND	ND	37	ND	.01	.2	ND	358	6	.36	.04	.01	46	ND	.01	8	.01	3	ND	ND	ND	ND	1	5	4	3
DE-R234	.1	.12	ND	ND	112	ND	1.33	.5	ND	141	4	.53	.11	.01	571	ND	.01	4	.01	9	ND	ND	ND	ND	27	ND	4	19
DE-R235	.1	1.51	19	ND	44	ND	.15	.1	6	66	12	6.86	.12	.58	1964	12	.20	4	.06	8	ND	ND	ND	ND	4	ND	ND	92
DE-R236	1.4	3.63	12	4	13	ND	.01	.1	26	68	24773	13.32	.05	1.77	3292	7	.53	5	.01	ND	ND	ND	ND	ND	ND	ND	ND	310
DE-R237	.1	.75	5	ND	66	ND	.18	.3	3	119	2856	2.56	.07	.27	1403	1	.09	3	.01	4	ND	ND	ND	ND	2	ND	ND	92
DETECTION LIMIT	.1	.01	3	3	1	3	.01	.1	1	1	1	.01	.01	.01	1	1	.01	1	.01	2	3	5	2	2	1	5	3	1

COMPANY: ATNA RESOURCES
 ATTENTION:
 PROJECT: SMITHERS REGIONAL

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PAGE 1 OF 1

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CB	CD	CE	CF	K	MG	NH	NO	NA	NI	P	PB	PD	PT	SB	SH	SR	U	V	ZN	
	PPH	I	PPH	PPH	PPH	PPH	I	PPH	PPH	PPH	I	I	I	PPH	PPH	I	PPH	I	PPH	PPH	PPH	PPH	PPH	PPH	PPH	PPH	PPH	
DE-114 STEEL	.1	.89	4	ND	321	ND	.62	.1	9	59	33	3.06	.08	.67	1468	1	.12	5	.05	9	ND	ND	ND	1	18	ND	ND	155
DE-115	.1	.70	11	ND	216	ND	.31	.2	11	52	32	4.39	.09	.43	2704	1	.16	5	.07	50	ND	ND	4	ND	38	3	ND	180
DE-116	.1	.74	18	ND	314	ND	.22	.1	15	32	36	4.84	.11	.28	2472	1	.17	7	.06	26	ND	ND	4	2	14	6	ND	157
DE-117	.1	1.10	5	ND	225	ND	.33	1.8	11	37	40	3.45	.09	.77	1875	1	.17	8	.07	4	ND	ND	ND	3	9	4	ND	250



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REPORT NUMBER: 870871 GA	JOB NUMBER: 870871	ATNA RESOURCES	PAGE 1 OF 1
DE 119	nd		
DE 120	nd		
TR 29	40		
TR 30	20		



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REPORT NUMBER: 871223 GA	JOB NUMBER: 871223	ATNA RESOURCES	PAGE 1 OF 1
TR 50	nd		
TR 51	nd		

VANGEOCHEM I B LIMITED

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 BRANCH OFFICE: 1630 PANDORA ST. VANCOUVER B.C. V5L 1L6 PH: (604)251-5656

ICAP GEOCHEMICAL ANALYSIS

A .5 GRAM SAMPLE IS DIGESTED WITH 5 ML OF 3:1:2 HCL TO HNO3 TO H2O AT 95 DEG. C FOR 90 MINUTES AND IS DILUTED TO 10 ML WITH WATER.
 THIS LEACH IS PARTIAL FOR SN,NI,FE,CA,P,CR,MO,BA,PD,AL,NA,K,W,PT AND SR. AU AND PB DETECTION IS 3 PPM.
 IS= INSUFFICIENT SAMPLE, ND= NOT DETECTED, -- NOT ANALYZED

COMPANY: ATNA RESOURCES LTD.
 ATTENTION:
 PROJECT: SMITHERS REGIONAL A-030 ?

REPORT#: 871223PA
 JOB#: 871223
 INVOICE#: 871223NA

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 DATE COMPLETED: 87/09/29
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PAGE 1 OF 1

SAMPLE NAME	AG	AL	AS	AU	BA	BI	CA	CD	CO	CR	CU	FE	K	MO	NI	NA	NI	P	PB	PD	PT	SB	SN	SR	U	W	ZN	
	PPM	%	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	%	%	PPM	PPM	%	PPM	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	
TR 50"	ND	3.45	32	4	38	ND	.01	.1	24	11	23474	12.22	.14	1.41	2021	8	.35	7	.01	65	ND	ND	ND	ND	2	ND	ND	223
TR 51	ND	.41	19	ND	97	ND	.11	.1	3	64	300	2.02	.01	.13	630	3	.05	5	.05	6	ND	ND	ND	ND	2	ND	ND	78
DETECTION LIMIT	.1	.01	3	3	1	3	.01	.1	1	1	1	.01	.01	.01	1	1	.01	1	.01	2	3	5	2	2	1	5	3	1

ICAP GEOCHEMICAL ANALYSIS

A .5 GRAM SAMPLE IS DIGESTED WITH 5 ML OF 3:1:2 HCL TO HNO3 TO H2O AT 95 DEG. C FOR 90 MINUTES AND IS DILUTED TO 10 ML WITH WATER.
 THIS LEACH IS PARTIAL FOR SN,NI,FE,CA,P,CR,MO,BA,PD,AL,NA,K,W,PT AND SR. AU AND PB DETECTION IS 3 PPM.
 IS= INSUFFICIENT SAMPLE, ND= NOT DETECTED, -- NOT ANALYZED

COMPANY: ATNA RESOURCES
 ATTENTION:
 PROJECT: SMITHERS/LEFTY

REPORT#: PA
 JOB#: 870871
 INVOICE#: NA

DATE RECEIVED: 87/07/28
 DATE COMPLETED: 87/08/11
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ANALYST W. P. Rous

PAGE 1 OF 1

DE 119	.1	1.45	5	ND	494	ND	.28	2.7	11	7	47	3.41	.07	.56	3215	1	.16	9	.08	18	ND	ND	4	ND	16	ND	ND	337
DE 120	.6	1.37	16	ND	786	ND	.17	1.5	14	8	87	4.10	.07	.55	3456	1	.17	11	.04	36	ND	ND	4	ND	17	ND	ND	361

APPENDIX 2

LEFTY PROPERTY 1987 SAMPLES

TR	3	rk	8" pyrite in qtz stockwork
	4	rk	3' chip on silic rhyolite w. Diss. Pyrite
	5	rk	chloritic-pyritic zone within stockwork
	11	rk	qtz brx stockwork
	12	rk	qtz stockwork
	13	rk	6" slab in fault; g'stone and cpy
	14	rk	rusty zone in w. Wall of fault
	15	rk	g'stone; altered, sheared; milky qtz strgrs
	16	rk	talus; grab, rusty blocks of py-cpy-chl
	17	rk	-
	18	rk	grab; 18" wide py-cpy chloritic qtz zone in g'stone
	19	rk	grab; qtz float chips from tuff w. qtz stringers
	20	rk	8cm qtz; 30% pyrite; weathered f.g. metallic min.
	20A	rk	grab; meta-diorite, propylitic alt'n w. py
	21	rk	10" chip qtz w. pyrite
	22	rk	16" chip across pyritic rusty zone w. weathered stringers of pyritic quartz
	23	rk	2' chip on rusty quartz breccia block; py, sphal
	24	rk	2' chip above 23 to ~h.w. qtz breccia
	25	rk	2' chip from f.w. area
	26	rk	chips across 3'; silic qtz breccia; py-cpy
	27	rk	2' chip f.w.; stockwork in g'stone w. cpy
	28	rk	grab at BH 28
	31	rk	qtz brx stockwork w. cpy
	32	rk	qtz brx stockwork; strong py-cpy
	33	rk	qtz brx stockwork; low sulphide py-cpy
EL	125	rk	rusty, silic'd fault breccia
	126	rk	qtz brx in andesite; local abundant cpy-py
	127	rk	small en echelon qtz-py-cpy veins
	128	rk	silic'd tuff w. diss py
	129	rk	qtz veins + epidote
	130	rk	float; qtz-flooded volcanics
	131	rk	qtz veining in red andesite
	132	rk	float; intense ank alteration
	133	rk	narrow qtz vein in green andesite
BH	20	rk	qtz veining + cpy
	21	rk	silica-pyrite zone
	22	rk	qtz stringer system
	23	rk	as above; further along strike
	24	rk	from very siliceous pyrite zone
	25	rk	stringer zone in green volcanic
	26	rk	5000' on main creek; qtz, prop., py, cpy + grey min
	27	rk	5400'; obvious qtz-pyrite zone; several meters wide
	28	rk	5400' - over top on strike from 27; old blast site; grey mineral
	29	rk	5450'; qtz-py froth small alteration zone
	30	rk	5450'; grey mineral, small show 1-2", grey mineral

31	rk	qtz-chalco in old working; 5300'
32	rk	probably same system, 100m from 31 on strike
33	rk	qtz py show at least 1' wide
34	rk	on opposite side north of hill by camp; 1' wide and striking down creek
39	rk	5100'; outcrop of green volcanic with tiny qtz stringers + cpy
DE 217	rk	float; qtz stockwork with py
218	rk	float; 5300'; rusty vol w. qtz fract. fillings; qtz has cpy
219	rk	as above
220	rk	as above
221	rk	as above
222	rk	in place; qtz filling w. cpy and calcite
223	rk	in place; 4950'; qtz-cal- cal.cpy vein
224	rk	massive py in brittle rx
225	rk	5900'; gossan nea end of o/c; silic'd rx w. lim.
226	rk	same gossan, vis. py
227	rk	float; qtz rich in cpy (ck flt) w. hem.
228	rk	qtz bubbles in vol
229	rk	small qtz stringers in brx
230	rk	5500'; band of qtz-rich rk
231	rk	qtz in lim-stained rock; pink rhyol?
232	rk	float; py and radiating dark mineral
233	rk	qtz vein; 6" wide; dark qtz
234	rk	large system of qtz bubbles and veining; chl+cal
235	rk	g'stone alt'd volc. w. py
236	rk	on strike w. prev; dense py and cpy
237	rk	qtz+cpy+py
266	rk	float; grn alt'd vol w. chunks of f'spars; py+cpy
267	rk	float; vol w. qtz stockwork veining
268	rk	lim. stained o/c, pink vol. w. py & soft grey min & a dark hard min.
269	rk	qtz -py and unknown; 5200'
270	rk	explosive vol.- qtz filled; red and green
271	rk	py in large band of silc'd, alt'd rx
272	rk	main showing; southern end, 200' from BH 28; dense py
273	rk	py in qtz
274	rk	py in qtz
275	rk	in vicinity 272; 30m NE; volc. w. py and qtz
276	rk	very dense pod of py in qtz
277	rk	sample of rusty vol in blast hole
KS 001	rk	rusty veinlets - qtz
2	rk	altered red-green vol; sparse diss py
3	rk	as above
4	rk	gossanous vol outcrop 20m wide; patches w. cpy, much diss. py. Some qtz veins
5	rk	cpy veins, some diss py as cubes

KS 006	rk	cccpy in gossanous zone; silicified? (v. hard) andes
7	rk	as above
8	rk	large gossan in andes?; 15m wide
9	rk	as above
10	rk	py+cal in andes? vol; yellow lim. weathered
11	rk	ankeritic alteration; finely diss py
12	rk	pod of ank alteration; very finely diss. py
13	rk	gossanous o/c andes?
14	rk	as above.

APPENDIX III
GEOCHEMICAL SAMPLING TECHNIQUE
AND
ANALYTICAL METHODS

Sampling Stream Sediment:

The sample is collected, wherever possible, from active stream bed using a stainless steel scoop to gather as much fine material as possible. A 500g to 1.3kg sample is placed in a suitably numbered kraft paper bag. The sample is dried in air and shipped to the Vancouver laboratory where it is further dried, sieved to -80 mesh size and digested for analysis.

Sampling Soils:

The sample is collected, wherever possible, from the B horizon using a combination of grub hoe, geopick and stainless steel scoop. The depth to the B horizon varies but is usually within 50 cm of the surface. Samplers are instructed to show a preference for rust-coloured samples from this horizon. A 300g to 500g sample is placed in a suitably numbered kraft paper bag. The sample is dried in air and shipped to the Vancouver laboratory where it is further dried, sieved to -80 mesh size and digested for analysis.

Sampling Rock:

Rock chip samples for analysis are collected using an average sample size of 300g, usually made up of 5 to 10 chips from 1cc to 10cc in size. The samples are placed in suitably numbered bags and shipped to the Vancouver laboratory where they are crushed and pulverized for analysis.

ANALYTICAL METHODS:

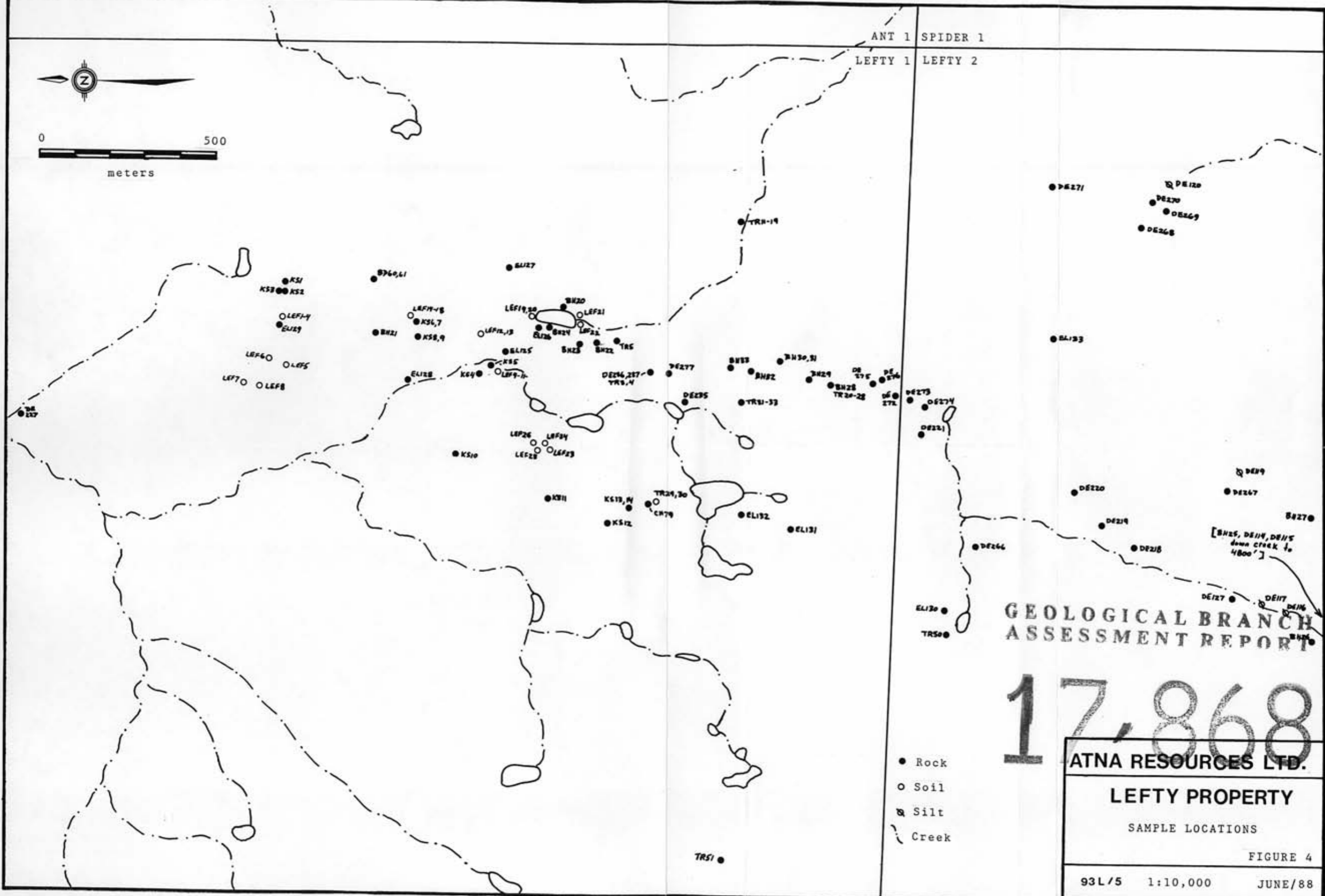
Geochemical Analysis for GOLD; "Fire-Assay with Atomic A.S. Finish."

Multi-element Geochemical Analyses; "26 Elements by Inductively Coupled Plasma (ICP) and Atomic Absorption Spectrophotometer".

A 0.5 gram sample is digested with 5 ml of 3:1:2 HCl to HNO₃ to H₂O at 95°C for 90 minutes and is diluted to 10 ml with water. This leach is partial for Sn, Mn, Fe, Ca, P, Cr, Mg, Ba, Pd, Al, Na, K, W, Pt, and Sr. Au and Pd detection is 3ppm.



ANT 1 SPIDER 1
LEFTY 1 LEFTY 2



[BH25, DE114, DE115
down creek to
4800']

GEOLOGICAL BRANCH ASSESSMENT REPORT

17,868

ATNA RESOURCES LTD.

LEFTY PROPERTY

SAMPLE LOCATIONS

FIGURE 4

- Rock
- Soil
- ⊗ Silt
- ~ Creek

TR51 ●