



Energy, Mines and  
Resources Canada

Geological Survey  
of Canada Sector

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

803560

December 20, 1990

B. Way  
Newhawk Gold Mines Ltd.  
860-625 Howe Street  
Vancouver, B.C.  
V6C 2T6

Dear Barry:

Attached are gold and other analyses for samples collected in 1989 and a sketch location map for an unexplored area south and west of the Electrum Zone. The main reason for this letter is to draw attention to several gold-bearing quartz-calcite (pyrite, arsenopyrite) veins that I have identified in the area. Analyses on some 1987 and 1988 samples from this area were sent to Fred Hewett, previously. Please excuse me for not taking more time to improve the presentation but I wanted Newhawk to have this information without further delay.

This area contains many quartz (carbonate, pyrite) veins most of which are not shown on the sketch map. Emphasis is placed mainly on veins with very fine-grained disseminated arsenopyrite. These veins consistently contain gold but negligible silver. Most of these veins probably contain about 0.06 to 0.1 ounces gold per ton and range in width from 0.5 to 6 metres. The main "EW" vein in the "Napoleon Zone" averages about 4 to 6 m wide and has been traced intermittently for about 0.5 km along strike.

The most significant vein found to date is the "Arsenic Vein". Although it seems to pinchout to the west, for most of its strike length it is about 7 m wide and could contain as much as 0.3 to 0.5 oz Au/t. Note that it is offset on a northeast-trending steep fault. The nearby "Old Lace Vein" contains less Au because of much postmineral quartz and calcite in the vein system but it is about 9 m wide and could prove to be a promising target elsewhere.

Sample KQ-89-97C confirms encouraging precious metal values in the isolated bold outcrop in the "Bridge" ("Island") Zone. Important precious metal-bearing veins might be hidden under the ice in this area.

Canada

B. Way

December 20/90

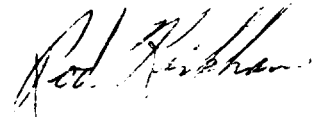
The "Mammoth Vein" (samples KQ-89-48E and 98A), although of the less interesting quartz (pyrite) type is worthy of special mention because it is probably at least 10 to 15 m wide. It is the widest vein that I have seen in the entire Sulphurets region. Moreover, samples KQ-89-48E and 98A also contained 2520 and 1000 ppm Au, respectively, which are clearly anomalous.

In the "Agatha" to "Arsenic South" area, the arsenopyrite-bearing veins trend uniformly approximately east-west and appear to be about 20 to 40m (?) apart. Therefore, potentially several veins could be intersected in individual drillholes or in underground crosscuts (a large flat area occurs west of the Knipple Icefield in this region - a suitable site for underground support facilities). Also, the ice might not be very thick in this area (could be checked with seismic).

My observations in this area support further work. Hopefully, some wide veins with significant tonnages and high gold contents will eventually be located in the region.

Best regard and happy holidays.

Sincerely



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RVK/ss



DATE PRINTED: 16-FEB-90

PROJECT: 23233-6-1332

PAGE 1C

REPORT: 089-54132.0

SAMPLE NUMBER	ELEMENT UNITS	Tb PPM	Yb PPM	Lu PPM	Hf PPM	Ta PPM	W PPM	Ir PPB	Au PPB	Th PPM	U PPM	WT g
1048	899505 KQ8940A	0.9	<2	<0.2	2	<0.5	<1	<50	150	4.1	2.3	10.58
1048	899506 KQ8940B	2.2	7	<0.2	5	1.3	<1	<50	48	14.0	4.8	9.50
1048	899507 KQ8940C	1.8	6	<0.2	5	1.2	<1	<50	10	9.5	4.4	10.00
1048	899508 KQ8942	0.9	<2	0.2	2	0.9	<1	<50	10	0.8	0.3	12.42
1048	899509 KQ8942B	0.7	3	<0.2	3	0.7	1	<50	3	8.6	4.7	9.83
1048	899510 KQ8942C	0.6	3	<0.2	3	0.8	1	<50	7	9.3	5.3	9.68
1048	899511 KQ8942D	0.7	<2	<0.2	3	<0.5	2	<50	5	10.0	5.3	10.56
1048	899512 KQ8943	<0.5	<2	<0.2	<1	<0.5	<1	<50	5	0.2	0.9	10.47
1048	899513 KQ8944A	<0.5	<2	<0.2	3	0.6	<1	<50	4	5.3	2.4	10.50
1048	899514 KQ8944B	0.7	2	<0.2	3	0.7	<1	<50	<2	5.7	3.6	9.80
1048	899515 KQ8944C	0.6	2	<0.2	2	0.9	<1	<50	<2	5.7	2.9	10.45
1048	899516 KQ8944D	0.5	3	<0.2	3	0.7	<1	<50	<2	5.9	2.8	7.78
1048	899517 KQ8944E	0.8	3	<0.2	2	0.9	<1	<50	<2	5.8	2.9	8.04
1048	899518 KQ8945A	<0.5	<2	<0.2	<1	<0.5	<1	<50	3480	<0.2	0.8	8.80
1048	899519 KQ8945B	<0.5	9	0.6	<2	<0.5	49	<50	903	<0.9	<1.5	9.47
1048	899520 KQ8945C	<0.5	3	<0.2	2	0.5	7	<50	308	4.5	2.6	8.74
1048	899521 KQ8945D	<0.5	5	<0.2	<1	<0.5	<1	<50	4720	2.0	1.1	7.74
1048	899522 KQ8945E	<0.5	<2	<0.2	<1	<0.5	5	<50	636	2.7	1.4	7.38
1048	899523 KQ8945F	<0.5	<2	<0.2	<1	<0.5	<1	<50	1060	1.0	<0.4	9.59
1048	899524 KQ8945G	<0.5	3	<0.2	<1	<0.5	2	<50	673	1.1	1.5	8.37
1048	899525 KQ8945H	<0.5	2	<0.2	<1	<0.5	4	<50	417	2.6	1.8	7.77
1048	899526 KQ8946	<0.5	5	<0.2	<1	<0.5	8	<50	1780	1.9	0.4	8.39
1048	899527 KQ8947A	<0.5	3	<0.2	2	<0.5	2	<50	7	4.2	2.8	7.41
1048	899528 KQ8947B	<0.5	7	0.8	<1	<0.5	<1	<50	898	1.7	<0.5	8.40
1048	899529 KQ8947C	<0.5	5	<0.2	<1	<0.5	<14	<50	13900	1.6	<0.9	8.75
1048	899530 KQ8947D	<0.5	<2	<0.2	<1	<0.5	<15	<50	7530	2.7	2.0	9.43
1048	899531 KQ8947E	<0.5	8	0.7	<1	<0.5	<1	<50	1330	0.9	<0.5	7.96
1048	899532 KQ8947F	<0.5	11	<0.5	<2	<0.5	3	<50	423	5.0	2.7	7.74
1048	899533 KQ8947G	<0.5	9	<0.5	<2	<0.5	<1	<50	1250	<1.0	<0.7	9.06
1048	899534 KQ8947H	<0.5	7	0.7	<1	<0.5	<17	<50	9300	1.7	<1.1	9.14
1048	899535 KQ8947I	0.7	3	<0.2	2	<0.5	<1	<50	39	4.4	2.9	8.55
1048	899536 KQ8947J	<0.5	8	<0.5	<1	<0.5	3	<50	681	1.5	1.1	8.36
1048	899537 KQ8948A	<0.5	<2	<0.2	2	0.5	4	<50	9	4.3	2.3	7.96
1048	899538 KQ8948B	<0.5	12	<0.5	<2	<0.5	4	<50	120	4.0	2.2	7.29
1048	899539 KQ8948C	<0.5	<2	<0.2	2	<0.5	3	<50	63	4.2	3.2	8.34
1048	899540 KQ8948D	<0.5	5	<0.2	<1	<0.5	3	<50	4470	2.6	1.4	7.84
1048	899541 KQ8948E	<0.5	4	0.4	<1	<0.5	5	<50	97	1.1	<0.2	7.78
1048	899542 KQ8948F	<0.5	6	<0.5	<1	<0.5	<1	<50	2520	1.5	1.3	9.68
1048	899543 KQ8949A	0.6	2	<0.2	2	0.8	<1	<50	93	5.4	3.4	6.53
1048	899544 KQ8950A	<0.5	<2	<0.2	1	<0.5	14	<50	698	2.1	1.8	8.62

DATE PRINTED: 16-FEB-90

PROJECT: 23233-6-1332

PAGE 4C

REPORT: 089-54132.0

SAMPLE NUMBER	ELEMENT UNITS	Tb PPM	Yb PPM	Lu PPM	Hf PPM	Ta PPM	W PPM	Ir PPB	Au PPB	Th PPM	U PPM	WT g
1048	899625 KQ8974	<0.5	<9	<1.7	<4	<0.5	<180	<150	564 ppm >90000	<1.8	5.8	9.40
1048	899626 KQ8975	<0.5	2	0.4	2	0.5	2	<50	207	4.1	2.5	9.50
1048	899627 KQ8978	<0.5	<4	<0.5	<2	<0.5	<173	<140	22800	<0.7	<1.4	10.33
1048	899628 KQ897II	<0.5	3	<0.2	3	0.9	2	<50	110	4.8	3.1	8.95
1048	899629 KQ8980A	<0.5	<2	<0.2	<1	<0.5	<1	<50	10	1.9	1.2	8.81
1048	899630 KQ8980B	<0.5	<2	<0.2	2	<0.5	<1	<50	6	3.2	2.0	10.45
1048	899631 KQ8982	<0.5	<2	<0.2	2	0.6	10	<50	<2	4.1	2.7	8.93
1048	899632 KQ8983A	<0.5	2	0.4	<1	<0.5	1	<50	36	1.5	0.9	10.45
1048	899633 KQ8984A	<0.5	<2	0.3	<1	<0.5	8	<50	18	2.1	1.4	10.82
1048	899634 KQ8984B	<0.5	<2	<0.2	<1	<0.5	3	<50	110	1.6	0.6	7.09
1048	899635 KQ8985A	<0.5	3	<0.2	2	<0.5	24	<50	140	2.8	1.9	8.10
1048	899636 KQ8985B	<0.5	<2	<0.2	<1	<0.5	9	<50	91	1.5	0.8	7.27
1048	899637 KQ8985C	0.5	<2	<0.2	<1	<0.5	3	<50	266	1.9	1.6	7.70
1048	899638 KQ8985D	0.6	7	<0.5	<1	0.8	4	<50	1570	5.0	2.9	7.05
1048	899639 KQ8986	0.5	<2	<0.2	2	<0.5	3	<50	10	6.0	3.9	8.18
1048	899640 KQ8987	<0.5	<2	<0.2	<1	<0.5	<15	<50	4700	1.5	<0.8	7.65
1048	899641	<0.5	2	0.3	2	1.3	2	<50	100	2.4	1.9	10.18
1048	899642 KQ8988	<0.5	3	0.4	<1	0.7	<1	<50	16	1.9	0.7	10.08
1048	899643 KQ8989A	<0.5	<2	<0.2	2	<0.5	<1	<50	<2	2.1	1.0	8.20
1048	899644 KQ8989B	<0.5	3	0.5	<1	<0.5	10	<50	<4	0.6	<0.2	10.51
1048	899645 KQ8989C	0.6	<2	0.3	1	<0.5	2	<50	<2	2.0	0.8	8.31
1048	899646 KQ8989D	0.7	4	0.3	4	0.9	<1	<50	11	3.5	2.2	9.52
1048	899647 KQ8989E	<0.5	3	0.3	2	<0.5	2	<50	31	1.7	1.5	9.80
1048	899648 KQ8990	0.9	5	0.5	3	<0.5	<1	<50	<2	3.5	2.4	8.84
1048	899649 KQ8991	<0.5	2	<0.2	3	<0.5	<1	<50	<2	5.1	4.3	8.45
1048	899650 KQ8992	0.7	<2	<0.2	2	0.8	1	<50	13	5.2	3.7	10.96
1048	899651 KQ8993	0.5	2	0.5	2	1.2	2	<50	96	2.2	1.9	11.87
1048	899652 KQ8994	0.7	2	0.3	2	<0.5	<1	<50	8	5.3	3.5	9.51
1048	899653 KQ8995	<0.5	3	0.3	1	<0.5	2	<50	19	4.0	1.9	8.39
1048	899654 KQ8995A	<0.5	2	0.3	3	0.6	9	<50	<2	3.2	2.0	10.15
1048	899655 KQ8996	<0.5	<2	<0.2	2	<0.5	<1	<50	32	7.0	5.2	9.71
1048	899656 KQ8996A	0.8	<2	<0.2	3	0.9	<1	<50	31	4.0	2.7	9.82
1048	899657 KQ8996A	0.5	<2	<0.2	2	<0.5	<1	<50	<2	1.5	0.9	9.97
1048	899658 KQ8997A	<0.5	6	<0.4	2	<0.5	<1	<50	200	4.4	2.9	8.40
1048	899659 KQ8997B	<0.5	4	<0.4	<1	<0.5	2	<50	770	2.0	0.8	8.05
1048	899660 KQ8997C	<0.5	7	0.9	<3	<0.5	<3	<50	3890	2.6	<0.8	8.35
1048	899661	0.6	3	<0.2	2	<0.5	2	<50	3	3.2	2.6	11.13
1048	899662 KQ8998	<0.5	8	<0.5	<1	<0.5	<1	<50	855	3.0	2.2	8.59
1048	899663 KQ8998A	<0.5	3	<0.2	<1	<0.5	<1	<50	1000	<0.2	<0.2	9.27
1048	899664 KQ8998B	<0.5	<2	<0.2	<1	<0.5	1	<50	543	1.5	0.9	8.04



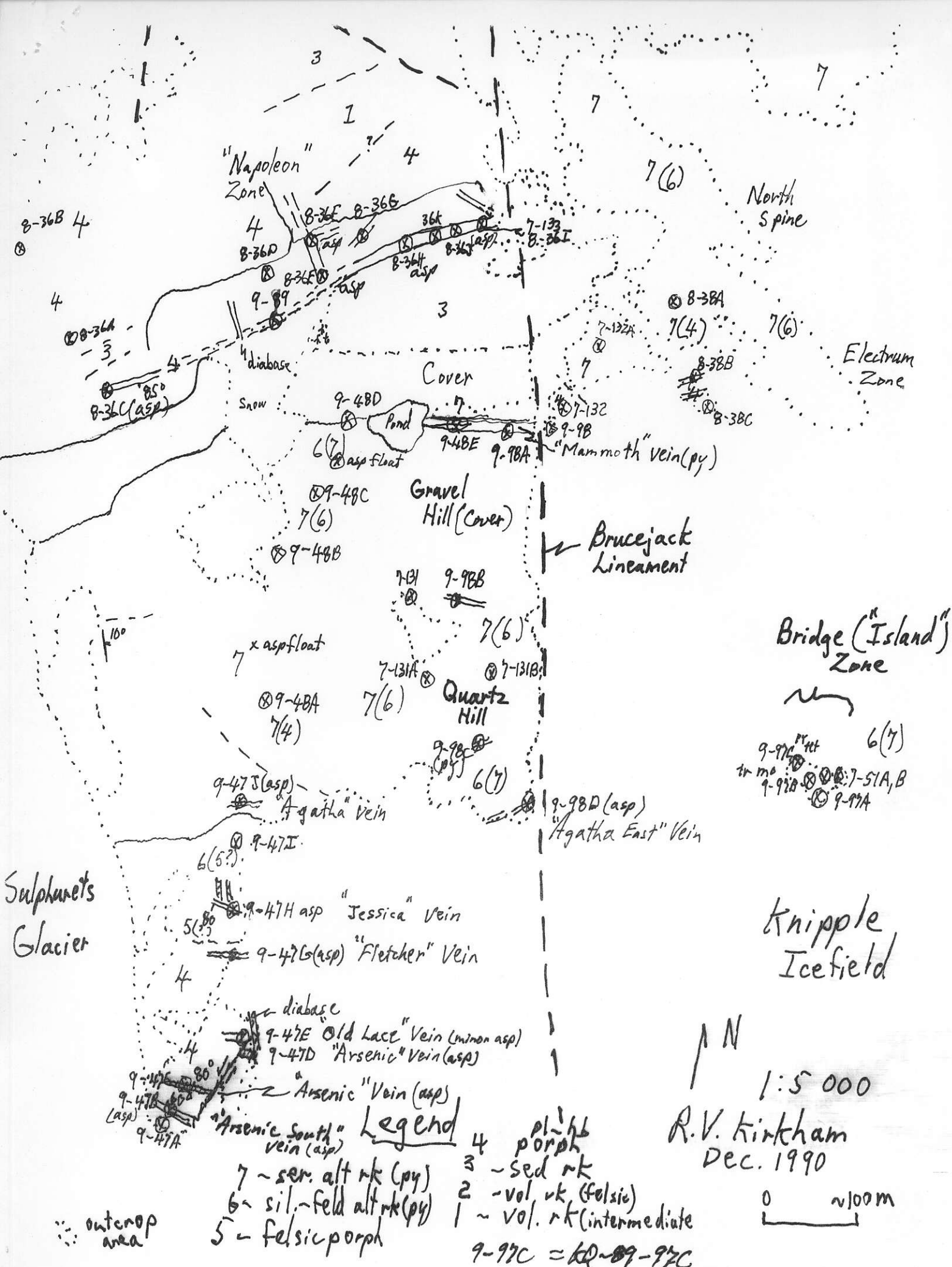
DATE PRINTED: 16 FEB 90

PROJECT: 23233-6-1332

PAGE 5C

PORT: 089-54132.0

SAMPLE NUMBER	ELEMENT UNITS	Tb PPM	Yb PPM	Lu PPM	Hf PPM	Ta PPM	W PPM	Ir PPB	Au PPB	Th PPM	U PPM	WT g
1048	899665 KQ8998C	1.0	7	0.5	<1	<0.5	<20	<50	3030	<0.5	<1.0	9.99
1048	899666 KQ8998D	<0.5	9	<0.6	<1	<0.5	<1	<50	2880	3.4	1.2	7.48
1048	899667 KQ8999	<0.5	5	<0.4	<1	<0.5	2	<50	2520	2.7	1.1	7.65
1048	899668 KQ89100	<0.5	<2	0.3	<1	0.5	<1	<50	44	2.8	1.3	9.82
1048	899669 KQ89100A	<0.5	<2	<0.2	<1	<0.5	2	<50	160	1.9	0.9	9.75
1048	899670 KQ89101	<0.5	<2	<0.2	3	0.8	<1	<50	10	1.9	1.0	10.61
1048	899671 KQ89102	<0.5	<2	<0.2	<1	<0.5	<1	<50	6	1.3	0.9	9.93
1048	899672 KQ89102A	<0.5	<2	<0.2	<1	0.6	2	<50	3	1.2	0.7	7.71
1048	899673 KQ89103A	<0.5	2	0.3	1	<0.5	<1	<50	<2	1.2	0.8	11.90



"Napoleon" Zone

North Spine

Electrum Zone

Bridge ("Island") Zone

Knipple Icefield

Brucejack Lineament

Quartz Hill

Gravel Hill (Cover)

"Jessica" Vein

"Fletcher" Vein

"Old Lace" Vein (minor asp)

"Arsenic" Vein (asp)

"Arsenic South" Vein (asp)

"Mammoth" vein (py)

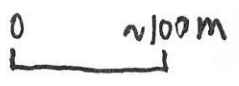
"Agatha" vein

"Agatha East" Vein

**Legend**

- 4 pl-hb porph
  - 3 - sed rk
  - 2 - vol rk (felsic)
  - 1 - vol. rk (intermediate)
  - 7 - ser. alt rk (py)
  - 6 - sil.-feld alt rk (py)
  - 5 - felsic porph
- 9-97C = 60-89-97C

R.V. Kirkham  
Dec. 1990



1:5000

outcrop area