YEIP
2002-009
2002

Report
On
Phase #1
Alkalic Porphyry Copper Gold Recce Project

By
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For
Y.M.I.P.
Focused Regional Module
2002-9

Overview

Location – The project area is located in the central Yukon Territory, east, north-west and south-west of Carmacks

Access – Access was by helicopter or ATV to all targets in the project area

History – The project area has seen moderate amounts of exploration work in the search for various target types including placer gold, porphyry copper-gold and coal

Geology – Geological mapping (1 250,000 scale) shows the targets to be underlain by Triassic to Jurassic volcanics, intrusives and sediments Epidote within the volcanics in the area of targets C1 to C4 is a widespread regional scale alteration feature

Work Program – Work consisted of a 5 day program of prospecting and silt sampling over 8 targets within the project area Silt samples were sieved to minus 80 mesh where sufficient material existed, where there was insufficient minus 80 mesh, minus 40 mesh was used All samples were analysed by International Plasma

Results – The program resulted in 10 silt samples and 32 rock samples

Conclusions – Recce style silt and rock sampling is not easily accomplished within any of the target areas There was an almost total lack of silt development in the upper reaches of the various drainages that were to be sampled, and there is very limited rock exposure for prospecting It is also very difficult to locate adequate landing spots for helicopters due to dense vegetation

Recommendations – Further work is recommended as the exploration model is still valid and has not been fully assessed Further work should consist of recce style soil sampling possibly in combination with geophysical surveying

Budget	Bernie Kreft	(5 days x $375/day)	=	$1875 00
	Erwin Kreft	(4 days x $200/day)	=	$800 00
	Charles Waugh	(4 days)	=	$900 00
	ATV Rental	(3 days x $125/day)	=	$375 00
	Truck Travel	(2048km x $0 48/km)	=	$983 04
	TNTA	(3 9 hours)	=	$4369 07
	Assaying	(10 silt, 32 rock)	=	$894 52
	Report Preparation	(2 days x $375/day)	=	$750 00
	Duplication		=	$50 00
	Food And Camp Supplies	(13 man days x $48/day)	=	$624 00
		TOTAL	=	$11620 63

Map A1

Location – Located at UTM coordinates 514650E/6848800N, 7km west of the confluence of the Big Salmon and North Big Salmon Rivers, on NTS mapsheet 105-E-15, in the Whitehorse Mining District

Access – Access was by helicopter from Carmacks, 92km one way A winter road passes 15km to the east

History – Discovered in 1970, and explored several different times since, most recently by Noranda during 1986-1987 They completed soil sampling, hand trenching and geophysical surveys before dropping their option

Geology – Geology consists of Upper Triassic Lewes River Group tuffs, basalt flows and limestone

Target – Known showing indicating potential for alkalic porphyry copper-gold mineralization

Work Program – A total of 3 rock samples and 3 silt samples were taken while evaluating the area of the showing Work conducted by Bernie Kreft, Erwin Kreft and Charles Waugh on July 3rd

Results – Only 3 silt samples were taken, no anomalous values were returned A rock sub-crop sample returned 4670 ppm copper and 121 ppb gold This sample represents new mineralization located 200m NW of the existing showing, limited prospecting did not locate a significant amount of mineralization at this site An angular float boulder/cobble of weakly chalcopyrite and malachite mineralized andesite was located 1 5km NW of the known showing

Conclusions – Alkalic porphyry copper-gold type mineralization is present at this site Silt sampling is not a viable exploration method at this site The presence of angular copper mineralized float suggests the presence of further mineralized zones

Recommendations – Further work is recommended, and should consist of grid soil sampling on a 2 0km x 2 0km grid (200m x 100m), with the baseline starting at the known showing and extending directly towards, and beyond, sample site CWA1R-1 Recce type prospecting to the south and east of the area of the grid is also warranted

Map A2

Location -- Located at UTM coordinates 503600E/6850000N, just east of Big Eddy on the Yukon River, on NTS mapsheet 105-E-15, in the Whitehorse Mining District

Access – Access was by helicopter from Carmacks, 80km one way The Robert Campbell Highway is located 40km to the north

History – There is no previous exploration work documented in the area

Geology – Geology consists of Triassic to Jurassic volcanics and sediments

Target – RGS silt sample site with highly anomalous copper

Work Program – A total of 2 rock samples were taken while prospecting in the drainage basin upstream from the anomalous RGS silt sample site Work completed by Erwin Kreft, Bernie Kreft and Charles Waugh on July 3rd

Results – Two rock samples returning 196 ppm Cu and 1687 ppm Cu were taken from an area of malachite and azurite stained talus No silt samples were taken, as there was no silt development above the RGS site Much of the area is overburden covered

Conclusions – Anomalous copper values in rock were returned from a new mineralized occurrence The full extent of the showing remains to be assessed as much of the area is covered by (what appears to be thin) overburden

Recommendations – A 500m x 500m soil grid with sample spacings of 50m x 50m should be centred over the showing Prospecting and rock sampling should be concentrated within a 2 0km x 1 0km NW trending area centred over the discovery occurrence

Map A4

Location – Located at UTM coordinates 482500E/6866450N, 2km north of Claire Lakes, on NTS mapsheet 105-E-14, in the Whitehorse Mining District

Access – Access was by helicopter from Carmacks, 50km one way Bulldozer roads associated with forest fire fighting extend to within 10km to the west

History -- Coal was reportedly found by the GSC in the Claire Creek area during the 1960's The reported coal occurrence has reportedly never been followed up

Geology – Geology consists of Triassic to Jurassic sediments and lesser volcanics Similar aged granitic plutons outcrop just west of the area prospected

Target – RGS silt sample site with anomalous copper-gold

Work program – A total of 2 silt samples and 5 rock samples were taken while prospecting in the vicinity of the RGS anomaly Work conducted by Erwin Kreft, Bernie Kreft and Charles Waugh on July 3rd

Results – High background/weakly anomalous values of copper were returned from several grab samples of pyrite and pyrrhotite mineralized hornfelsed sedimentary rocks Copper in silt values immediately downstream from the pyrite and pyrrhotite mineralized area are of similar tenor to values returned from rock samples

Conclusions – The copper-gold RGS silt anomaly is adequately explained by the mineralization encountered

Recommendations – No further work is recommended for this target area

Map C1

Location – Located at UTM coordinates 440950E/6842000N, 2km south of Kirkland Creek, on NTS mapsheet 115-H-9, in the Whitehorse Mining District

Access – Access was by helicopter from Carmacks, 45km one way The Klondike Highway passes 10km to the east

History – Staked as the Ah claims in 1967 by Atlas Exploration Work included soil sampling and mapping

Geology – Geology consists of Triassic to Jurassic volcanics and lesser sediments

Target – RGS silt sample sites with anomalous copper, known showing

Work Program – A total of 3 silt samples and 5 rock samples were taken while prospecting upstream of the anomalous RGS sites, and in the vicinity of the known showing Work conducted by Bernie Kreft and Charles Waugh on July 7th

Results – An anomalous copper value of 95 ppm was returned from silt sample CWKKS-1 This sample site is in a moderately overburden covered area, and may represent the presence of nearby mineralization A sample of weakly brecciated diorite with trace chalcopyrite and trace potassic alteration (BKKKR-3) returned 303 ppm copper

Conclusions – Anomalous copper values in silt and rock have been returned from a predominantly overburden covered area Silt sampling is not an effective way to trace mineralization in this area

Recommendations – Further work is recommended and should consist of soil sampling on a 1 0km x 0 5km grid oriented north/south, and extending 250m north of sample CWKKS-1 and 250m south of samples BKKKR-1/2/3, with the baseline running N/S directly between the above two sample areas/sites Samples spaced 50m on lines spaced 100m apart

Map C2

Location – Located at UTM coordinates 436000E/6837075N, 5km south of Kirkland Creek, on NTS mapsheet 115-H-9, in the Whitehorse Mining District

Access – Access was by helicopter from Carmacks, 45km one way The Klondike Highway passes 17km to the east

History – No documented work has been conducted in the area

Geology – Geology is mapped as Triassic to Jurassic volcanics and lesser sediments

Target – RGS silt sample site with anomalous copper

Work Program – Work consisted of prospecting within the copper anomalous drainage Work conducted by Bernie Kreft and Charles Waugh on July 7th

Results – No silt was encountered above the RGS sample site Only limited, un-mineralized outcrop was encountered

Conclusions – Silt sampling is not a workable exploration method at this site, or in similar nearby terrain

Recommendations – Contour soil sampling within the basin is recommended to explore for the source of the copper silt anomaly The execution of this program is dependant on favourable results being returned from work conducted on map C1

Map C3

Location – Located at UTM coordinates 438950E/6834375N, 4km north of Cattle Creek, on NTS mapsheet 115-H-9 in the Whitehorse Mining District

Access – Access was by helicopter from Carmacks, 54km one way An old tote road ends at the Mack's Copper prospect, 1 5km to the southeast

History – Extensive exploration history since the discovery of Mack's Copper in 1904 Majority of this work was directed towards copper skarn potential of the area

Geology – Triassic volcanics and minor sediments intruded by a syenite plug Volcanics are epidote altered on a regional scale

Target – Possible porphyry copper potential associated with a skarn occurrence

Work Program – Work consisted of prospecting to the northeast of the known showing Work conducted by Charles Waugh and Bernie Kreft on July 7th

Results – No mineralization was encountered

Conclusions – Limited potential for porphyry copper type mineralization exists in the area immediately to the northeast of Mack's Copper

Recommendations – No further work is recommended in this area

Map C4

Location – Located at UTM coordinates 422400E/6825200N, just east of Kirkland Creek, on NTS mapsheet 115-H-9, in the Whitehorse Mining District

Access – Access was by helicopter from Carmacks, 65km one way A tote trail extends from the Aishihik road to within 4km to the southwest

History – Staked as the Kirk claims by the Aishihik Syndicate, in 1967 Limited prospecting and soil sampling encountered minor amounts of copper and some low order soil anomalies

Geology – Target straddles the contact between Triassic andesite and a granodiorite intrusive of likely similar age

Target – Known showing with porphyry copper-gold potential

Work Program – Work consisted of silt sampling (2) and prospecting within a gully that cuts through the area of reported mineralization Work conducted by Charles Waugh and Bernie Kreft on July 7th

Results – Two silt samples were taken at this site No anomalous values were returned No mineralization was encountered during the prospecting traverse Placer workings from about the late 70's to early 80's are present at the apex of the alluvial delta formed by this gully The workings are not extensive, and involved hand methods only Extensive placer workings were noted to the SW at coordinates 822750N/421750E

Conclusions – Work conducted does not appear to suggest the presence of significant nearby hard-rock mineralization

Recommendations – No further hard-rock exploration work is recommended for this area Placer exploration may be warranted on creeks in this area that are large enough to have cut through a thick layer of till, and which are oriented perpendicular to glacial travel

Map B

Location – Located at UTM coordinates 405150E/6921075N, 2km northwest of Hoochekoo Creek, on NTS mapsheet 115-I-7, in the Whitehorse Mining District

Access – Access was by truck to the intersection of the Williams Creek deposit road and the Freegold road, then by ATV along a series of rough roads

History – Discovered in 1976 by United Keno Hill Mines who conducted extensive work including diamond drilling, trenching, soil sampling and airborne as well as ground geophysics Several high grade ddh intersections grading up to 3 51% Cu, 2 5 g/t Au and 18 4 g/t Ag over 13 5m were returned Most results were much lower

Geology – Geology consists of Triassic volcanics and granodiorite

Target – Known showing, and several unexplained copper soil anomalies underlain by both granodiorite and volcanics

Work Program – Work consisted of prospecting in the vicinity of the showings and geochem anomalies Work was conducted by Bernie Kreft, Erwin Kreft and Charles Waugh on June 6th and June 8th, and on June 5th by Bernie Kreft and Erwin Kreft A total of 24 claims were staked over the known occurrences

Results – Insufficient silt was encountered to conduct a silt sampling program The majority of rock exposures are within old bulldozer trenches It was therefore decided to re-sample old un-assayed sections of core No new intersections of copper mineralization were encountered, and of the 13 samples of core, the highest result was 127ppm Cu Limited sampling within trenches returned values of up to 13,536ppm Cu from a grab sample of foliated and heavily malachite stained gneissic biotite granite

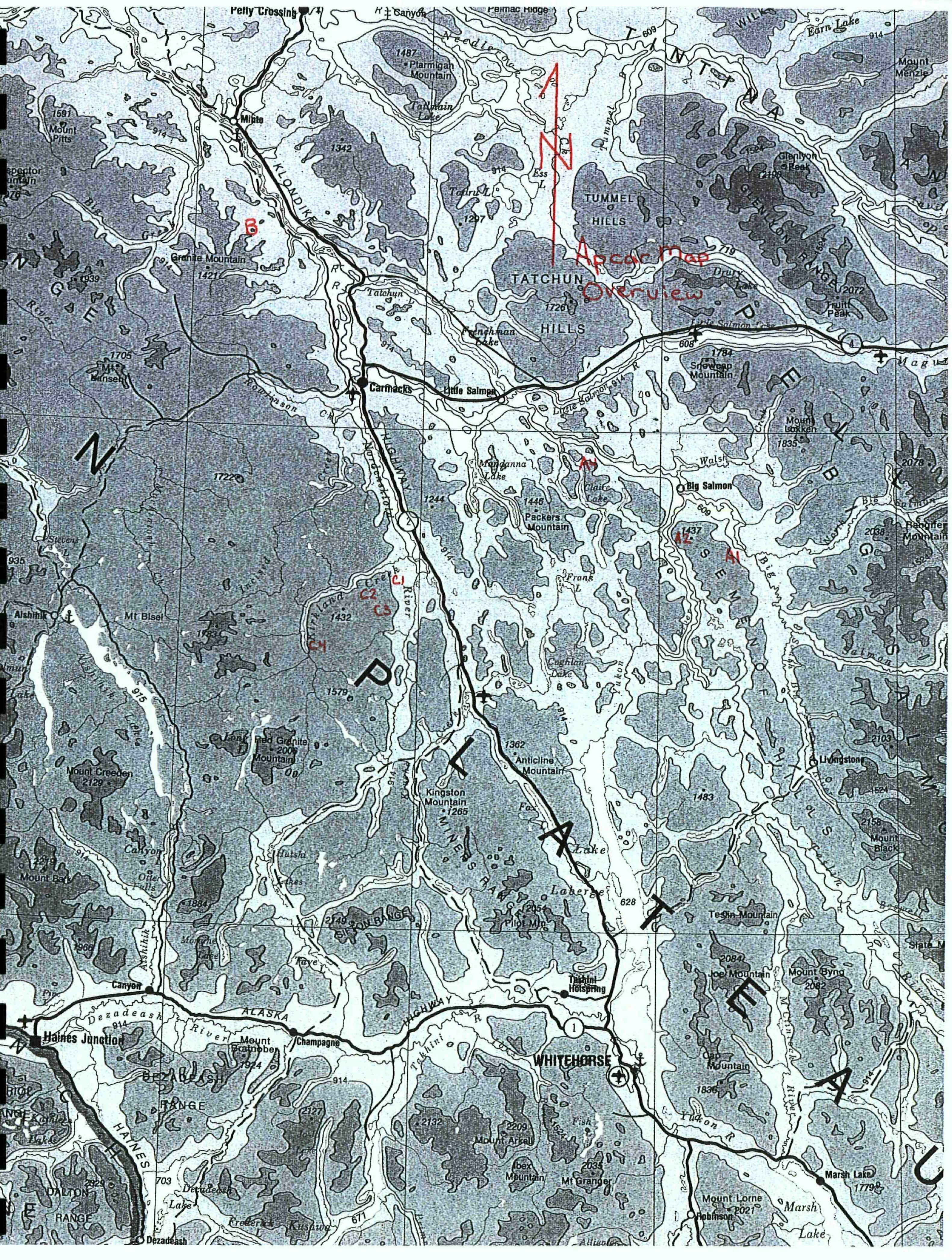
Conclusions – Recce style silt sampling and prospecting cannot be easily accomplished within the area assessed due to a lack of outcrop and poor silt development

Recommendations – Further work is recommended for the target area It should consist of soil sampling along wide spaced (400m-500m) NE/SW trending lines, at 25m sample spacings, with any anomalies (even single point) to be followed up by prospecting or excavator trenching

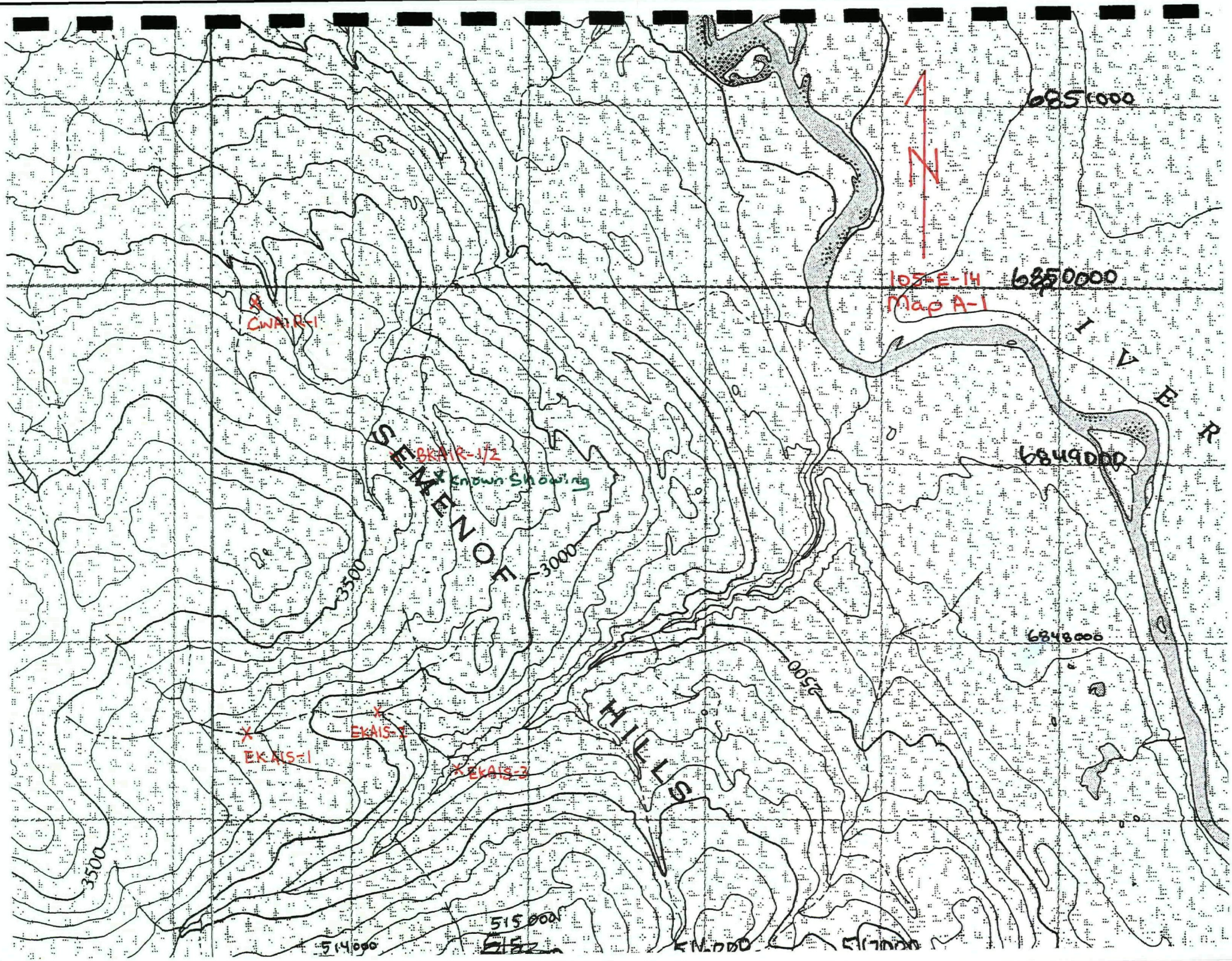
Rock Sample Descriptions

Stur-1	Foliated granodiorite hole 80-24, 500ft-520ft
Stur-2	Weakly epidote altered granite 80-24, 309ft-324ft
Stur-3	Weakly epidote and chlorite altered granodiorite 80-26, 287ft-307ft
Stur-4	gneissic biotite rich zone cut by several cm wide qtz veins trace malachite 4ft chip sample
Stur-5	grab sample qtz malachite vein
Stur-6	Weakly chlorite altered granite with qtz calcite and epidote along fractures 80-27, 473ft-496ft
Stur-7	80-28, 408ft-418ft granite cut by mafic dyke
Stur-8	potassic altered fracture zone 80-25, 503 4-523 6ft

Stur-9	weakly chlorite and epidote altered fracture zone in granodiorite 80-23, 568ft-588ft
Stur-10	547ft-569ft, 80-23 granodiorite with trace diss pyrite
Stur-11	80-25, 284 5ft-305 8ft, weakly epidote altered granodiorite
Stur-12	weakly limonitic and epidote altered granite 80-24, 256-279 1ft
Stur-13	grab weakly epidote altered mafic dyke 80-24, 208ft
Stur-14	80-25, 138 3ft-164ft granodiorite with weak epidote and trace pyrite
Stur-15	80-25, 164-184 2ft granodiorite with weak chlorite alteration
Stur-16	2 foot chip foliated biotite granite
Stur-17	rep grab malachite stained outcrop of foliated biotite granite
CWKKR-1	dense green fine grained hflsd sed with trace diss pyrite grab outcrop
BKKKR-1	weakly brecciated dense black rock (diorite?) with trace diss py and chalco, minute pink to red alteration haloes (potassic alteration?) formed around what is presumed to be chalco (possibly pyrite) grains, outcrop sample
BKKKR-2	as above, outcrop sample
BKKKR-3	as above
BKKKR-4	fine grained green hflsd sed with about 0 25% diss pyrite
CWA1R-1	heavily epidote altered andesite float boulder/cobble trace diss chalco, trace malachite
BKA1R-1	dioritic intrusive with weak limonite on fractures, calcite on fractures, trace malachite, subcrop
BKA1R-2	heavily epidote altered andesite with heavily diss chalco and malachite, subcrop
BKA2R-1	dense grey sed rock cut by a qtz calcite py Cu? Vein, subcrop
BKA2R-2	dense sed rock with malachite on fractures, subcrop
EKA4R-1	4ft chip sample of hflsd sed rock with limonite and pyrite on fractures
EKA4R-2	Skarn?? outcrop
BKA4R-1	fine sed cut by carbonate stkwk outcrop
BKA4R-2	very hard hflsd limonitic sed with py-po on fractures outcrop
BKA4R-3	proximal talus sample as above with about 5% py-po on fractures



Pelly Crossing
Pelmac Ridge
Ptarmigan Mountain
Earn Lake
Mount Menzie
Minto
Mount Pitts
KLONDIKE
TUMMEL HILLS
Apcar Map Overview
N
TATCHUN HILLS
Glenlyon Peak
Fruitt Peak
Granite Mountain
Frenchman Lake
Carmacks
Little Salmon
Snowcap Mountain
Mount Lokken
Mandanna Lake
Big Salmon
Packers Mountain
Aishihik
Mt Bisel
Mount Creeden
Kingston Mountain
Anticline Mountain
Livingstone
Mount Black
Mount Bark
Pilot Mtn
Teslin Mountain
Joe Mountain
Mount Byng
Takhini Hotspring
Canyon
ALASKA HIGHWAY
Haines Junction
Champagne
WHITEHORSE
Cap Mountain
DEZADEASH RANGE
Mount Arkell
Ibex Mountain
Mt Granger
Marsh Lake
Mount Lorne
Robinson
DALTON RANGE
Dezadeash


N
6851000
105-E-14
Map A-1
6850000
CWAIR-1
I V E R
BKAIR-1/2
Known Showing
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3500
6848000
2500
EKAIS-1
EKAIS-1
EKAIS-2
HILLS
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515000
514000
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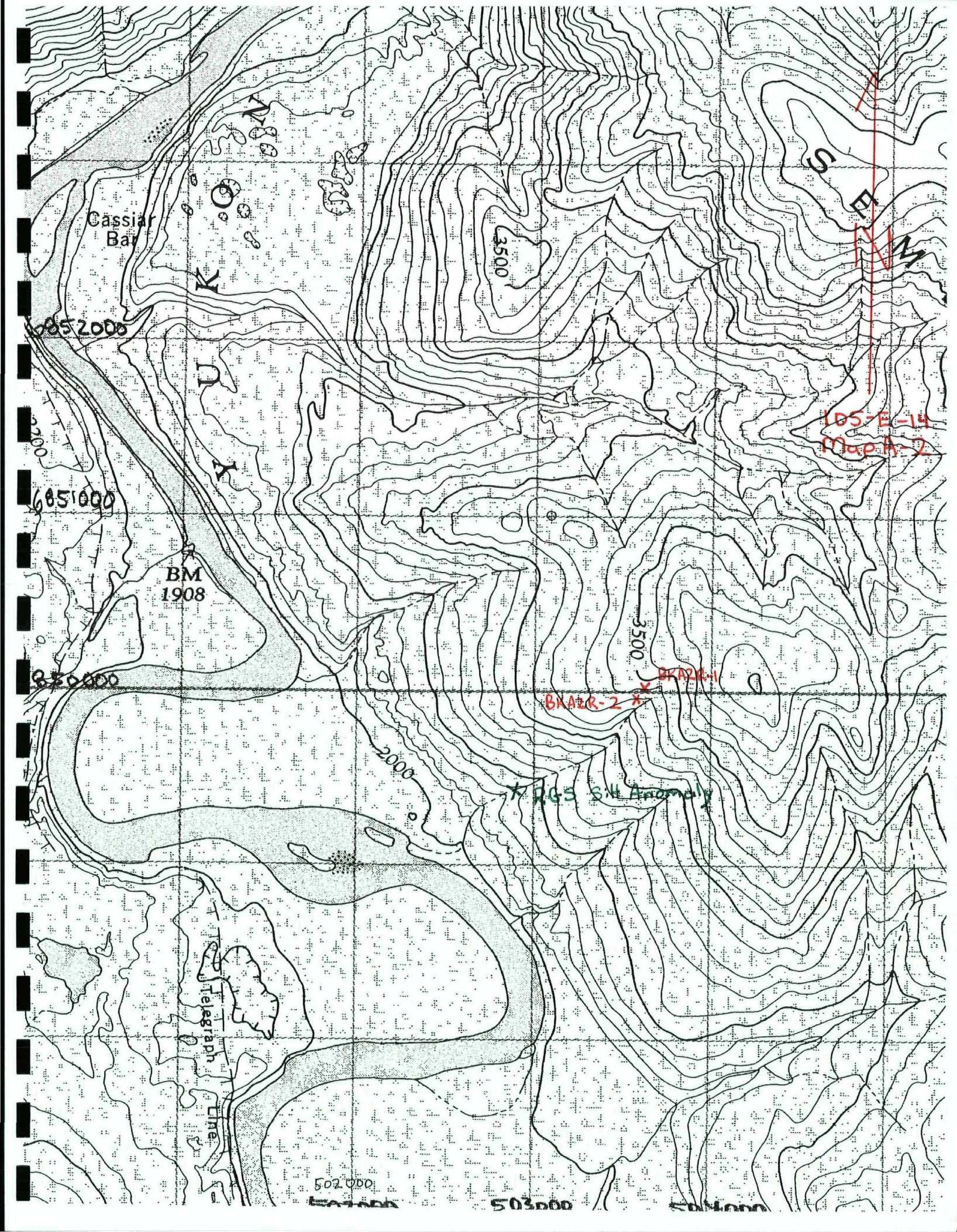
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6852000
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BM 1908
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3500
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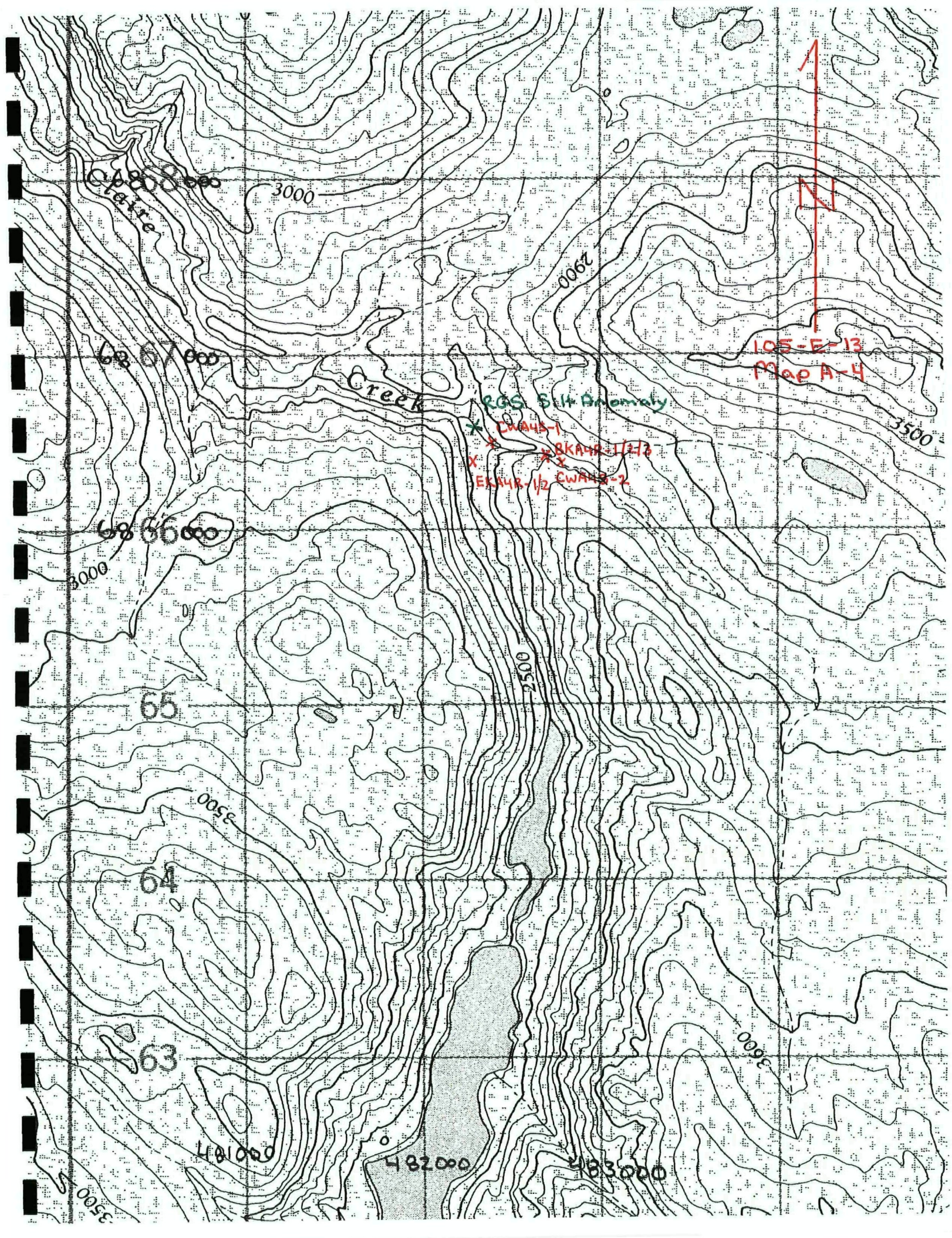
BKAZR-1
BKAZR-2
RGS Silt Anomaly
IDS-E-14
Map A-2
SEAM
Telegraph Line
502 000
503000


Claire
Creek
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2900
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3600
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68 66 000
65
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63
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483000
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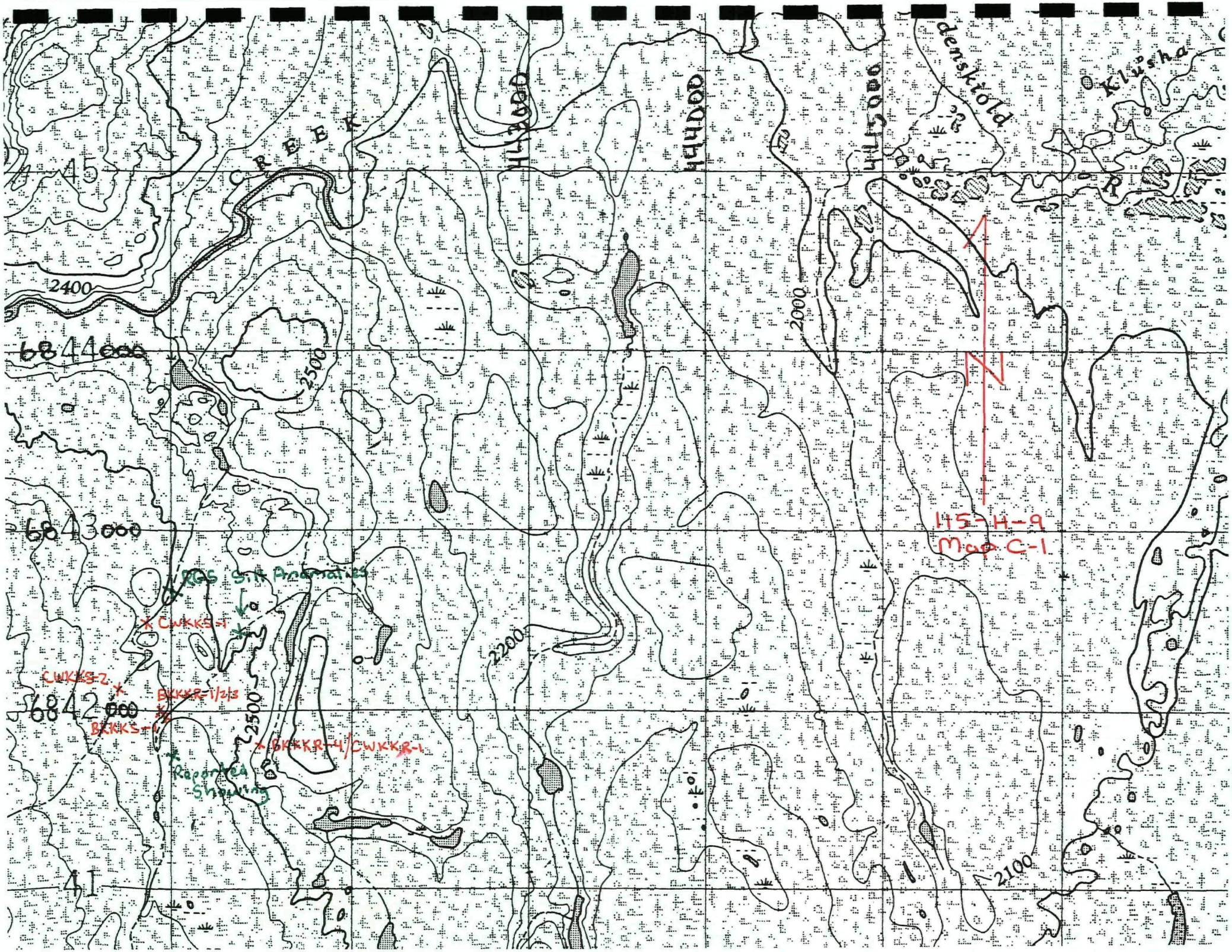
105-E-13
Map A-4
RGS Silt Anomaly
CWA4S-1
BKA4R-1/2-13
EKA4R-1/2
CWA4S-2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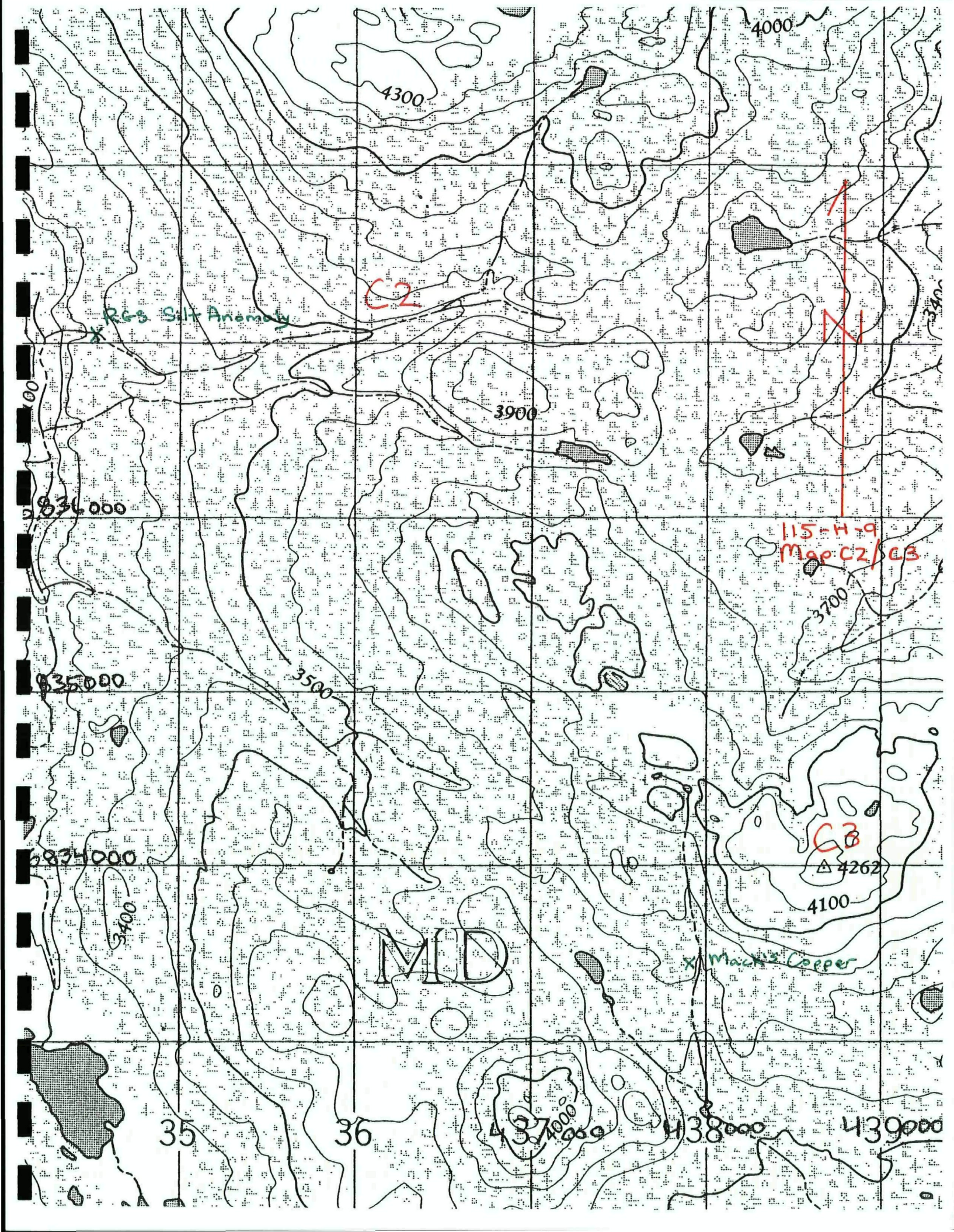
RGS Silt Anomalies
CWKKS-1
CWKKS-2
BKKKS-1
BKKKR-1/2/3
BKKKR-4/CWKKR-1
Reported Showing
115-H-9
Map C-1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C2
RGS Silt Anomaly
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115-H-9
Map C2/C3
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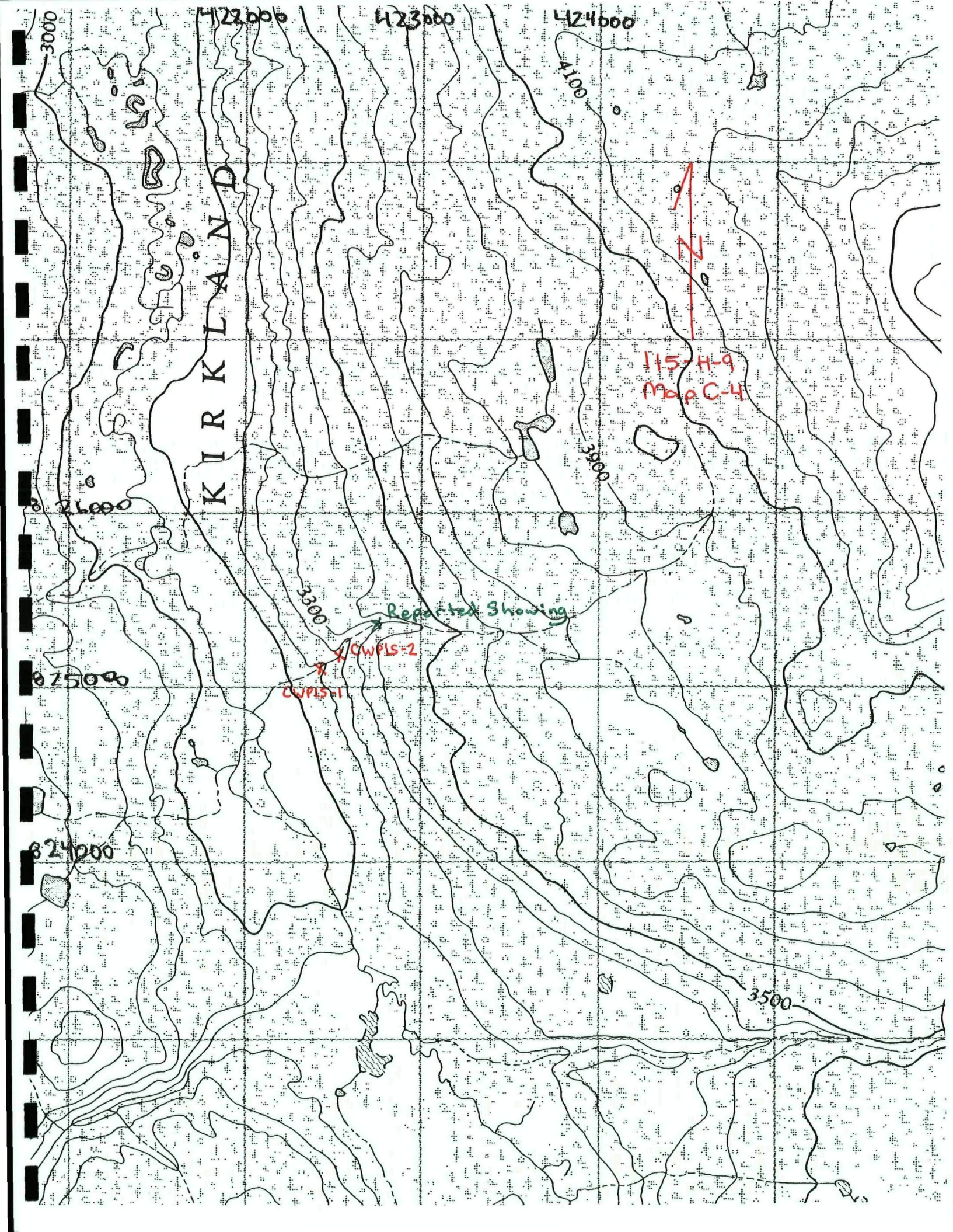
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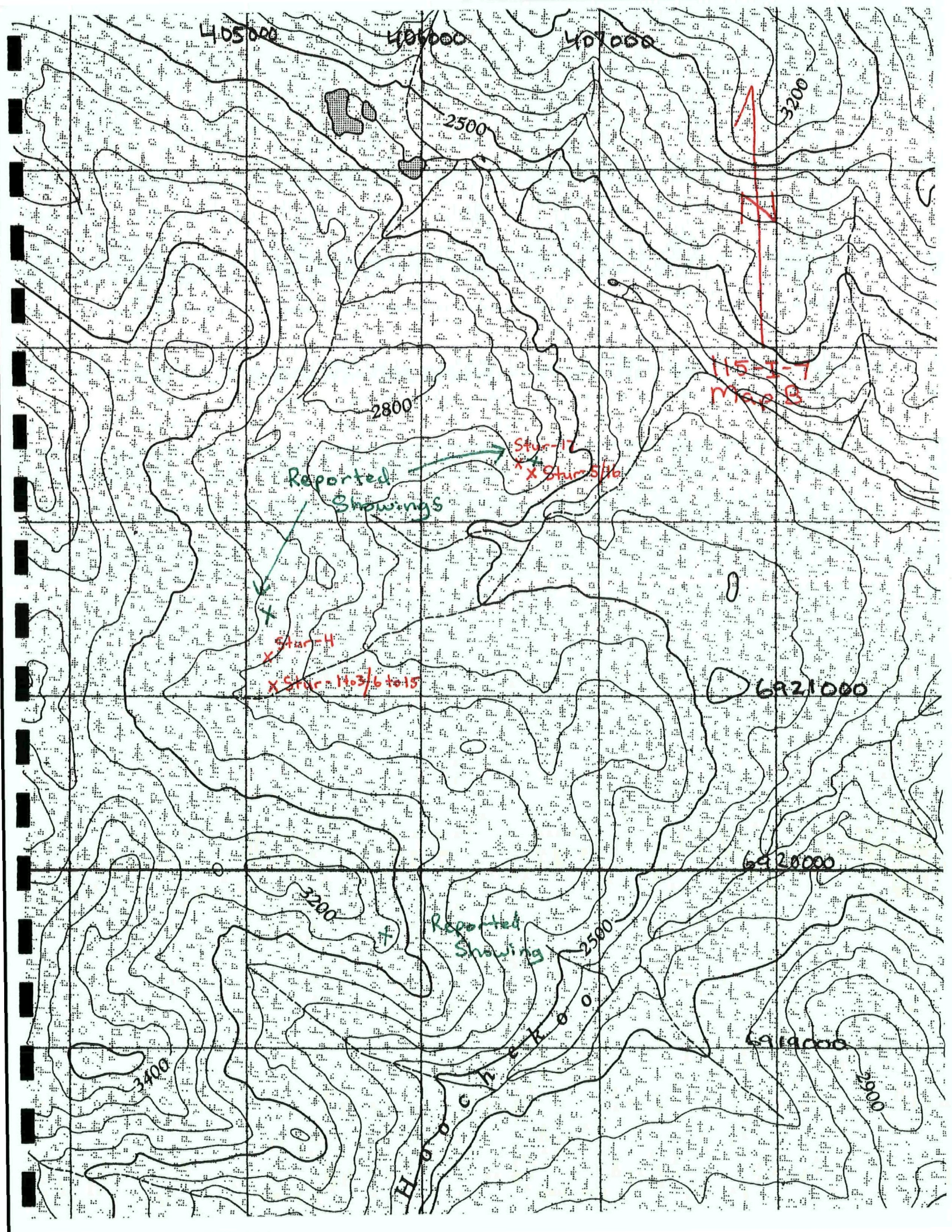
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Stur-1 to 3/6 to 15
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6920000
3200
2500
Reported
Showing
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3400
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Hotchekoo

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Bernie Kreft WO# 020009

Certified by

	Sample #	Au ppb
r	BKOL - 1	<5
r	BKOL - 2	<5
r	BKOL - 3	<5
r	BKOL - 4	2650
r	BKOL - 5	<5
r	BKOL - 6	15
r	BKOL - 7	556
r	BKOL - 8	14
r	STUR - 1	6
r	STUR - 2	<5
r	STUR - 3	<5
r	STUR - 4	<5
r	STUR - 5	61
r	STUR - 6	<5
r	STUR - 7	<5
r	STUR - 8	<5
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r	STUR - 10	39
r	STUR - 11	<5
r	STUR - 12	<5
r	STUR - 13	<5
r	STUR - 14	7
r	STUR - 15	<5
r	STUR - 16	6
r	STUR - 17	40

W O# 020009

Sample #	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
BKOL 1	<0 1	61	119	575	<5	<5	<3	4	<10	<2	<0 1	43	50	10	<5	52	272	518	5	22	2	19	0 02	3 67	4 68	6 77	3 07	0 08	0 02	0 09
BKOL - 2	<0 1	15	7	61	<5	<5	<3	4	<10	<2	<0 1	34	55	8	<5	52	208	1371	3	15	2	11	0 04	3 68	2 04	8 6	2 09	0 1	0 02	0 09
BKOL 3	0 3	399	9	14	8	<5	<3	<1	<10	<2	<0 1	3	5	17	<5	23	5	155	22	1	4	1	<0 01	0 26	0 07	0 58	0 04	0 17	0 02	0 02
BKOL 4	0 2	838	4	26	405	<5	<3	3	<10	<2	<0 1	107	192	7	<5	98	5	1588	5	2	2	1	<0 01	0 4	0 17	2 89	0 44	0 11	0 02	0 01
BKOL - 5	0 2	1817	4	20	13	<5	<3	3	<10	<2	<0 1	17	46	5	<5	75	5	871	<2	4	1	1	<0 01	1 18	0 81	3 13	1 12	0 06	0 02	0 01
BKOL - 6	<0 1	769	8	50	19	<5	<3	5	<10	<2	<0 1	41	74	10	<5	45	15	9251	5	2	3	4	<0 01	1 7	0 11	10 76	1 91	0 06	0 01	0 01
BKOL 7	2 8	19500	9	28	381	<5	<3	3	<10	<2	<0 1	313	191	3	6	66	8	821	<2	9	2	4	<0 01	0 3	1 62	4 81	0 79	0 01	0 04	0 02
BKOL 8	<0 1	609	4	30	<5	<5	<3	3	<10	<2	<0 1	51	36	<2	<5	73	170	378	6	6	2	13	0 01	2 67	0 61	5 24	2 29	0 01	0 06	0 14
STUR 1	<0 1	127	7	51	<5	<5	<3	1	<10	<2	<0 1	10	4	1356	<5	75	22	506	14	76	<1	4	<0 01	0 98	2 9	1 92	0 47	0 19	0 04	0 08
STUR - 2	<0 1	42	8	48	<5	<5	<3	1	<10	<2	<0 1	6	4	261	<5	72	28	458	9	83	1	3	0 01	0 81	1 76	1 66	0 39	0 16	0 06	0 06
STUR 3	<0 1	60	4	53	<5	<5	<3	3	<10	<2	<0 1	22	17	280	5	53	90	364	9	45	2	7	0 21	1 68	1 68	2 91	1 74	0 3	0 12	0 23
STUR - 4	0 2	1550	6	62	<5	<5	<3	3	<10	<2	<0 1	14	2	276	<5	43	92	407	19	17	1	5	0 23	1 35	0 39	2 69	1 03	0 97	0 05	0 1
STUR - 5	0 5	2102	9	88	<5	<5	<3	3	<10	<2	<0 1	13	<1	35	<5	59	61	853	19	25	3	3	0 14	1 13	0 51	3 38	0 77	0 24	0 07	0 08
STUR 6	<0 1	30	5	53	<5	<5	<3	3	<10	<2	<0 1	9	1	89	<5	50	50	479	10	92	1	4	0 07	1 04	1 3	2 14	0 78	0 18	0 06	0 09
STUR - 7	<0 1	24	6	58	<5	<5	<3	2	<10	<2	<0 1	14	4	443	<5	33	80	498	11	81	2	6	0 18	2 04	2 85	2 7	1 15	0 16	0 1	0 15
STUR - 8	<0 1	6	<2	44	<5	<5	<3	1	<10	<2	<0 1	5	4	68	<5	64	25	362	13	34	1	2	0 06	0 68	0 82	1 3	0 45	0 08	0 06	0 03
STUR - 9	<0 1	9	9	48	<5	<5	<3	1	<10	<2	<0 1	7	<1	111	<5	57	37	528	11	89	2	4	0 05	1 17	1 95	1 87	0 71	0 1	0 05	0 06
STUR - 10	<0 1	6	8	58	<5	<5	<3	2	<10	<2	<0 1	8	2	82	<5	49	38	640	11	112	1	3	0 03	1 57	2 8	2 18	0 79	0 12	0 04	0 07
STUR 11	<0 1	27	8	74	<5	<5	<3	2	<10	<2	<0 1	8	3	464	<5	55	36	686	17	63	1	2	0 01	1 12	2 13	2 26	0 85	0 12	0 04	0 07
STUR - 12	<0 1	9	6	55	<5	<5	<3	2	<10	<2	<0 1	7	2	507	<5	39	27	521	10	118	<1	4	0 01	0 84	2 1	1 76	0 38	0 16	0 04	0 07
STUR - 13	<0 1	9	7	53	<5	<5	<3	2	<10	<2	<0 1	6	3	333	<5	37	23	655	14	298	<1	4	<0 01	0 88	3 09	1 81	0 31	0 17	0 04	0 08
STUR - 14	<0 1	43	7	55	<5	<5	<3	2	<10	<2	<0 1	7	1	967	<5	63	29	660	17	64	1	3	0 01	1 03	2 26	2 02	0 71	0 14	0 05	0 08
STUR - 15	<0 1	3	6	49	<5	<5	<3	1	<10	<2	<0 1	6	1	700	<5	53	23	565	12	60	<1	2	0 01	0 9	2 3	1 69	0 61	0 12	0 04	0 07
STUR - 16	0 4	2831	4	88	<5	<5	<3	2	<10	<2	<0 1	14	1	394	<5	62	81	687	22	23	1	1	0 16	1 19	0 33	2 98	0 96	1 03	0 07	0 09
STUR 17	6 9	13536	10	153	<5	<5	<3	8	<10	<2	<0 1	18	<1	1621	6	47	63	708	43	61	3	4	0 17	1 24	0 44	2 85	0 86	0 36	0 05	0 09
Min Limit	0 1	1	2	1	5	5	3	1	10	2	0 1	1	1	2	5	1	2	1	2	1	1	1	0 01	0 01	0 01	0 01	0 01	0 01	0 01	0 01
Max Reported	99 9	20000	20000	20000	9999	9999	9999	9999	999	999	99 9	999	999	9999	999	9999	999	9999	9999	9999	999	99	1 00	9 99	9 99	9 99	9 99	9 99	5 00	5 00

--=No Test ins=Insufficient Sample m=Estimate/1000 %=Estimate Max=No Estimate

Certificate# 02H0828
Client Northern Analytical Laboratories
Project W O 020019
No of Samples 79
Date In Aug 02, 2002
Date Out Aug 08, 2002

Sample Na	SampleTyp	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm
BKGRBS-1	Pulp	<0 1	17	14	133	<5	<5	3
BKGRBS-2	Pulp	0 1	19	23	221	<5	<5	<3
BKGRBS-3	Pulp	0 1	25	36	637	<5	<5	<3
BKGRBS-4	Pulp	0 2	34	37	818	<5	<5	<3
BKGRBS-5	Pulp	0 1	35	18	290	<5	<5	<3
BKGRBS-6	Pulp	0 2	43	24	278	<5	<5	<3
BKGRBS-7	Pulp	0 1	43	22	249	<5	<5	<3
BKGRCS-1	Pulp	0 1	106	46	230	<5	<5	<3
BKGRCS-2	Pulp	<0 1	47	44	481	<5	<5	<3
BKGRCS-3	Pulp	<0 1	63	39	295	<5	<5	<3
BKGRCS-4	Pulp	<0 1	60	32	259	<5	<5	<3
BKGRCS-5	Pulp	<0 1	51	35	210	<5	<5	<3
BKGRCS-6	Pulp	<0 1	44	29	170	<5	<5	<3
BKGRCS-7	Pulp	<0 1	46	37	215	<5	<5	<3
BKGRCS-8	Pulp	<0 1	47	33	211	<5	<5	<3
BKGRS-1	Pulp	0 1	61	12	84	<5	<5	<3
BKGRS-2	Pulp	<0 1	50	16	80	<5	<5	<3
BKGRS-3	Pulp	0 1	95	10	75	<5	<5	<3
BKGRS-4	Pulp	<0 1	57	10	57	<5	<5	<3
BKGRS-5	Pulp	<0 1	32	15	48	<5	<5	<3
BKKKS-1	Pulp	<0 1	47	11	66	<5	<5	<3
BKMELS-1	Pulp	0 2	95	16	74	<5	<5	<3
BKMELS-2	Pulp	0 2	161	19	59	13	5	<3
BKMELS-3	Pulp	0 7	99	19	36	<5	<5	<3
BKMELS-4	Pulp	0 1	79	21	76	<5	<5	<3
BKMELS-5	Pulp	<0 1	60	11	22	<5	<5	<3
BKMELS-6	Pulp	<0 1	108	6	26	<5	<5	<3
BKMELS-7	Pulp	<0 1	89	8	22	<5	<5	<3
BKMELS-8	Pulp	0.1	72	8	29	<5	<5	<3
BKNEWS-1	Pulp	0 1	134	15	32	<5	<5	<3
BKNEWS-2	Pulp	0 1	136	18	34	<5	<5	<3
BKNEWS-3	Pulp	0 1	157	22	33	<5	<5	<3
BKOLS-1	Pulp	0 1	61	55	92	<5	5	<3
BKOLS-2	Pulp	0 1	74	42	85	<5	<5	<3
BKOLS-3	Pulp	0 6	145	98	281	62	<5	<3
BKOLS-4	Pulp	0 3	361	25	64	19	<5	<3
BKOLS-5	Pulp	<0 1	205	19	50	<5	<5	<3
BKOLS-6	Pulp	0 1	59	16	58	<5	<5	<3
CWA4S-1	Pulp	1	143	42	167	<5	<5	<3
CWA4S-2	Pulp	0 1	141	19	110	<5	<5	<3
CWGRBS-1	Pulp	0 3	90	53	706	<5	<5	<3

CWGRBS2Pulp	0 4	39	21	336	<5	<5	<3
CWGRBS3Pulp	0 3	64	41	637	<5	<5	<3
CWGRBS4Pulp	<0 1	61	27	197	<5	<5	<3
CWGRBS5Pulp	0 2	49	38	471	<5	<5	<3
CWGRBS6Pulp	0 2	47	33	496	<5	<5	<3
CWGRBS7Pulp	0 1	37	20	272	<5	<5	<3
CWGRBS8Pulp	0 3	39	34	389	<5	<5	<3
CWGRCS1Pulp	0 2	75	25	140	<5	<5	<3
CWGRCS2Pulp	0 4	74	20	140	<5	<5	<3
CWGRCS3Pulp	1 2	84	16	218	<5	<5	<3
CWGRCS4Pulp	0 2	87	30	218	<5	<5	<3
CWGRDS1Pulp	1	396	423	180	443	34	<3
CWGRDS2Pulp	<0 1	46	18	87	<5	<5	<3
CWGRDS3Pulp	0 1	74	21	107	<5	<5	<3
CWGRDS4Pulp	0 2	75	26	151	<5	<5	<3
CWGRDS5Pulp	0 2	71	23	150	<5	<5	<3
CWGRDS6Pulp	0 2	82	31	166	<5	<5	<3
CWGRDS7Pulp	<0 1	62	14	94	<5	<5	<3
CWGRDS8Pulp	0 1	68	17	148	<5	<5	<3
CWKKS-1 Pulp	<0 1	93	14	76	<5	<5	<3
CWKKS-2 Pulp	<0 1	54	68	167	<5	<5	<3
CWPLS-1 Pulp	<0 1	12	8	40	<5	<5	<3
CWPLS-2 Pulp	<0 1	11	11	37	<5	<5	<3
EKA1S-1 Pulp	<0 1	28	10	44	<5	<5	<3
EKA1S-2 Pulp	<0 1	26	17	45	<5	<5	<3
EKA1S-3 Pulp	<0 1	50	13	57	<5	<5	<3
EKGRBS-1Pulp	<0 1	9	8	31	<5	<5	<3
EKGRBS-2Pulp	<0 1	10	17	40	<5	<5	<3
EKGRBS-3Pulp	<0 1	15	14	60	<5	<5	<3
EKGRBS-4Pulp	0 3	10	7	48	<5	<5	<3
EKGRBS-5Pulp	<0 1	14	17	65	<5	<5	<3
EKGRCS-1Pulp	0 3	52	18	285	<5	<5	<3
EKGRCS-2Pulp	0 1	89	24	210	<5	<5	<3
EKGRCS-3Pulp	<0 1	80	22	185	<5	<5	<3
EKGRCS-4Pulp	0 1	66	28	173	<5	<5	<3
EKGRCS-5Pulp	0 1	67	32	194	<5	<5	<3
EKGRDS-1Pulp	<0 1	44	17	60	<5	<5	<3
EKGRDS-2Pulp	<0 1	22	6	48	<5	<5	<3
Minimum detection	0 1	1	2	1	5	5	3
Maximum detection	100	20000	20000	20000	10000	1000	10000
Method	ICP	ICP	ICP	ICP	ICP	ICP	ICP

Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm
6	<10	<2	<0 1	10	21	203	11	13
5	<10	<2	1 3	11	21	169	12	16
7	<10	<2	3 8	12	41	175	8	20
7	<10	<2	6 2	14	60	170	12	25
5	<10	<2	0 3	16	39	197	14	23
8	<10	<2	<0 1	16	41	210	8	24
9	<10	<2	<0 1	12	39	209	16	32
4	<10	<2	<0 1	20	38	146	11	44
3	<10	<2	<0 1	19	166	210	10	78
5	<10	<2	<0 1	20	135	191	13	83
6	<10	<2	<0 1	21	98	264	13	70
4	<10	<2	<0 1	20	74	198	11	55
6	<10	<2	<0 1	19	64	249	10	75
4	<10	<2	<0 1	18	63	323	16	49
3	<10	3	<0 1	18	60	276	10	55
4	<10	<2	<0 1	21	40	354	15	27
5	<10	<2	<0 1	21	30	297	12	28
5	<10	<2	<0 1	16	30	356	14	30
3	<10	<2	<0 1	16	20	268	14	24
3	<10	<2	<0 1	15	16	307	12	29
3	<10	<2	<0 1	11	9	119	12	18
7	<10	<2	<0 1	46	45	68	15	11
6	<10	<2	<0 1	48	52	78	10	11
5	<10	<2	<0 1	43	53	88	17	14
4	<10	<2	<0 1	28	29	57	13	13
3	<10	<2	<0 1	18	15	46	14	9
4	<10	<2	<0 1	25	17	49	16	4
3	<10	<2	<0 1	19	17	35	13	4
4	<10	<2	<0 1	18	22	42	15	9
4	<10	<2	<0 1	25	28	145	16	13
4	<10	<2	<0 1	27	29	174	10	13
5	<10	<2	<0 1	26	22	161	15	12
8	<10	<2	<0 1	23	25	64	13	14
7	<10	<2	<0 1	22	29	40	13	17
11	<10	4	<0 1	30	52	62	10	10
7	<10	<2	<0 1	57	62	74	14	11
5	<10	4	<0 1	34	43	99	20	25
4	<10	<2	<0 1	24	23	59	8	8
11	<10	<2	<0 1	37	24	56	12	30
13	<10	<2	<0 1	49	31	86	13	42
9	<10	<2	2 2	24	69	609	24	34

12	<10	<2	1	10	70	78	12	14
11	<10	<2	2 7	21	87	359	14	28
6	<10	<2	<0 1	16	31	417	16	35
9	<10	<2	<0 1	17	62	362	10	31
10	<10	<2	0 9	17	62	318	20	26
6	<10	<2	0 1	16	34	202	11	21
8	<10	<2	1 1	14	59	239	13	30
9	<10	<2	<0 1	28	76	325	12	91
10	<10	<2	<0 1	26	73	306	13	85
25	<10	<2	<0 1	13	54	189	8	15
9	<10	<2	<0 1	32	77	364	17	91
8	<10	3	<0 1	30	100	221	184	167
5	<10	<2	<0 1	29	26	266	13	40
7	<10	<2	<0 1	25	37	267	12	30
10	<10	<2	<0 1	29	78	311	8	93
9	<10	<2	<0 1	30	98	318	17	105
11	<10	<2	<0 1	31	96	327	10	111
8	<10	<2	<0 1	26	127	272	12	161
8	<10	<2	<0 1	30	119	275	18	127
8	<10	<2	<0 1	44	29	370	23	49
7	<10	<2	<0 1	25	28	274	13	63
3	<10	<2	<0 1	8	7	110	13	12
3	<10	<2	<0 1	8	4	103	17	13
4	<10	<2	<0 1	13	15	144	11	30
3	<10	<2	<0 1	13	17	152	14	27
4	<10	<2	<0 1	17	21	148	10	34
3	<10	<2	<0 1	7	10	40	20	11
2	<10	<2	<0 1	8	8	48	13	14
4	<10	<2	<0 1	10	14	88	18	17
2	<10	<2	<0 1	9	11	66	10	14
2	<10	<2	<0 1	9	14	103	15	19
10	<10	<2	<0 1	17	68	947	13	35
7	<10	<2	<0 1	25	86	441	12	98
7	<10	<2	<0 1	22	66	498	6	78
8	<10	3	<0 1	20	53	340	9	65
9	<10	5	<0 1	20	58	290	12	69
4	<10	<2	<0 1	16	14	187	9	25
3	<10	<2	<0 1	15	11	80	15	14
1	10	2	0 1	1	1	2	5	1
1000	1000	10000	100	10000	10000	10000	1000	10000
ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %
46	913	20	25	1	2	0 06	1 02	0 63
53	573	30	30	1	2	0 07	1 21	0 81
128	444	21	41	1	3	0 07	1 49	0 88
185	472	25	38	1	4	0 07	1 72	1 08
97	553	32	46	1	4	0 09	1 75	0 89
114	559	32	46	2	4	0 09	1 86	1 05
106	379	21	42	<1	3	0 06	1 61	1 7
48	475	11	37	1	3	0 06	1 2	1 72
29	423	25	25	2	1	0 02	1 13	0 84
35	1008	18	41	1	2	0 03	1 03	2 22
44	2265	12	45	2	2	0 04	0 92	2 09
40	1486	14	36	2	2	0 04	1	1 56
41	2143	13	34	1	2	0 04	0 88	1 31
32	1660	13	39	1	2	0 03	0 93	1 68
35	1177	15	39	1	2	0 04	0 9	2 06
59	3678	13	126	3	5	0 06	1 04	2 03
72	2185	13	97	4	5	0 07	1 11	1 7
62	1161	11	110	3	5	0 05	1 07	1 66
66	1059	11	85	4	5	0 08	1 17	1 28
83	1999	14	94	4	5	0 09	1 14	1 27
58	506	8	66	2	5	0.04	1 42	1 33
21	4177	18	14	5	5	0 01	0 71	0 56
19	3888	19	12	3	5	0 01	0 62	0 4
15	2167	12	12	4	2	<0 01	0 46	0 18
15	1470	28	5	2	2	0 01	0 85	0 08
15	1001	29	3	1	2	0 01	0 88	0 07
42	1244	18	2	3	2	<0 01	0 42	0 04
24	1006	18	1	4	1	<0.01	0 38	0 03
14	1091	21	3	2	2	0 01	0 68	0 05
28	1459	20	3	4	3	0 01	1 11	0 14
25	1577	21	4	4	3	0 01	1 06	0 15
23	1559	20	4	6	3	<0 01	0 96	0 21
24	2682	17	18	3	4	0 02	1 02	6 95
27	1956	12	20	3	4	0 02	1 08	9 95
26	2811	18	20	2	4	0 01	0 63	5 76
20	3846	16	11	3	5	0 01	0 7	0 33
34	2032	19	11	2	4	0 02	1 14	0 22
13	2105	19	8	2	2	0 01	0 56	0 2
147	963	5	64	6	11	0 12	3 28	2 55
208	1263	6	91	10	17	0 26	3 99	3 93
158	600	24	75	2	5	0 09	2 48	1 44

83	270	21	39	1	1	0 03	0 9	2 99
125	620	26	51	1	4	0 08	1 94	1 5
92	438	38	86	1	5	0 11	2 74	1 21
141	478	25	60	2	5	0 09	2 1	1 86
120	437	32	53	1	4	0 08	1 81	1 54
71	536	32	43	1	4	0 08	1 62	0 99
162	399	27	48	1	3	0 07	1 91	2 1
109	647	15	44	2	7	0 12	2 47	0 76
104	613	14	46	2	7	0 11	2 34	0 75
39	544	11	376	7	3	0 01	0 58	5 45
129	840	22	55	3	9	0 15	3 01	0 96
57	1178	20	60	5	4	0 08	1 25	3 38
116	1994	12	61	7	8	0 15	2 11	1 45
77	1381	15	65	5	6	0 09	1 21	1 54
108	656	16	47	2	7	0 12	2 48	0 79
110	754	15	48	1	7	0 14	2 86	0 98
120	778	16	47	1	8	0 13	2 92	0 88
116	414	13	36	2	6	0 11	1 56	0 8
108	526	14	40	2	6	0 12	1 85	0 83
153	7514	10	75	4	7	0 1	1 95	1 44
86	4730	27	73	4	5	0 1	1 56	2 47
49	341	15	70	4	3	0 06	0 78	0 78
56	308	15	63	5	3	0 07	0 71	0 73
85	455	13	62	7	5	0 15	1 32	1 33
66	445	13	59	6	5	0 13	1 31	1 29
101	777	13	68	9	7	0 16	1 5	2 2
20	175	22	27	1	2	0 06	0 85	0 7
22	217	25	31	1	2	0 08	1 08	0 52
30	261	35	37	1	3	0 09	1 4	0 65
23	328	28	32	<1	2	0.07	1 07	0 6
41	311	34	54	<1	3	0.07	1 28	1 7
49	546	20	45	2	2	0 04	0 96	2 19
77	653	9	29	1	4	0 09	1 75	1 75
67	622	11	28	1	4	0 08	1 4	1 79
66	479	10	27	2	4	0 08	1 45	1 64
70	556	9	23	1	4	0 08	1 57	1 33
79	666	10	51	5	5	0 13	1 36	1 45
61	581	6	22	5	3	0 11	1 22	0 89
2	1	2	1	1	1	0 01	0 01	0 01
10000	10000	10000	10000	10000	10000	1	10	10
ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

Fe %	Mg %	K %	Na %	P %
1 6	0 51	0 13	0 06	0 14
1 68	0 63	0 19	0 06	0 14
1 96	1 11	0 24	0 06	0 18
2 39	1 42	0 27	0 07	0 17
2 38	1 1	0 38	0 07	0 15
2 61	1 21	0 41	0 07	0 16
2 01	1 39	0 42	0 08	0 15
2 75	1 48	0 07	0 05	0 08
2 97	1 18	0 05	0 06	0 08
2 97	1 61	0 06	0 05	0 08
4 17	1 44	0 04	0 05	0 09
3 08	1 29	0 05	0 05	0 07
3 36	1 11	0 04	0 05	0 08
2 86	1 13	0 05	0 05	0 08
2 78	1 09	0 05	0 05	0 08
2 93	0 8	0 08	0 06	0 09
3 23	0 88	0 07	0 05	0 09
2 85	0 78	0 07	0 06	0 09
2 65	0 91	0 06	0 06	0 09
2 85	0 79	0 06	0 06	0 09
2 76	0 52	0 1	0 07	0 08
5 89	0 61	0 09	0 05	0 05
5 2	0 43	0 09	0 05	0 05
4 81	0 37	0 06	0 05	0 04
4 16	0 35	0 09	0 05	0 03
2 7	0 4	0 09	0 05	0 02
4 88	0 18	0 05	0 05	0 02
4	0 16	0 04	0 05	0 02
3 99	0 33	0 05	0 04	0 02
4 03	0 8	0 07	0 05	0 03
4 05	0 74	0 06	0 04	0 03
4 33	0 68	0 06	0 04	0 03
3 22	4 75	0 15	0 05	0 06
3 36	5 07	0 2	0 05	0 04
4 61	3 29	0 13	0 05	0 08
5 7	0 46	0 09	0 05	0 04
4 94	0 56	0 1	0 05	0 05
4 06	0 34	0 06	0 05	0 04
6 33	1 35	0 07	0 08	0 07
7 03	1 69	0 05	0 08	0 07
3 73	1 72	0 67	0 08	0 24

1 79	1 71	0 25	0 05	0 13
3 24	1 53	0 46	0 07	0 18
3 06	1 64	0 62	0 08	0 21
2 84	1 83	0 51	0 08	0 22
2 75	1 55	0 47	0 08	0 2
2 32	0 91	0 33	0 08	0 19
2 28	1 79	0 51	0 07	0 16
3 92	1 78	0 54	0 09	0 12
3 88	1 68	0 47	0 08	0 13
2 43	0 58	0 11	0 05	0 22
4 45	2	0 68	0 1	0 12
3 81	2 36	0 2	0 13	0 07
4 55	1 87	0 08	0 06	0 09
3 71	1 06	0 09	0 06	0 06
4 1	1 8	0 46	0 09	0 12
4 01	2 18	0 56	0 09	0 09
4 34	2 22	0 49	0 08	0 11
4 34	1 53	0 41	0 08	0 17
4 01	1 67	0 4	0 08	0 16
5 89	1 35	0 08	0 1	0 09
3 64	1 64	0 19	0 11	0 09
1 81	0 3	0 08	0 07	0 08
1 94	0 28	0 06	0 07	0 08
2 55	0 68	0 07	0 07	0 08
2 11	0 67	0 06	0 07	0 08
3 08	1 02	0 06	0 07	0 08
1 14	0 32	0 18	0 06	0 23
1 32	0 43	0 23	0 06	0 12
1 68	0 52	0 29	0 06	0 15
1 29	0 41	0 22	0 06	0 16
1 5	0 48	0 28	0 06	0 63
2 8	1 66	0 1	0 05	0 12
3 02	2 24	0 14	0 05	0 09
2 72	2 02	0 13	0 05	0 08
3 12	1 99	0 1	0 05	0 09
3 16	1 98	0 11	0 05	0 08
2 85	1	0 07	0 06	0 08
2 53	1 15	0 04	0 05	0 06
0 01	0 01	0 01	0 01	0 01
10	10	10	5	5
ICP	ICP	ICP	ICP	ICP

Certificate# 02H0827
Client Northern Analytical Laboratories
Project W O 020019
No of Samples 68
Date In Aug 02, 2002
Date Out Aug 08, 2002

Sample Name	SampleType	Au ppb	Ag ppm	Cu ppm	Pb ppm
BKA1R-1	Pulp	<5	<0 1	59	8
BKA1R-2	Pulp	121	1	4670	8
BKA2R-1	Pulp	<5	0 1	196	17
BKA2R-2	Pulp	<5	0 1	1687	15
BKA4R-1	Pulp	<5	<0 1	39	25
BKA4R-2	Pulp	<5	0 1	99	17
BKA4R-3	Pulp	<5	0 1	101	18
BKFAR-1	Pulp	76	3 3	7785	24
BKFAR-2	Pulp	17	3	5715	111
BKFAR-3	Pulp	5	0 2	129	27
BKFAAR-1	Pulp	<5	<0 1	7	12
BKFAAR-2	Pulp	41	2 8	19198	<2
BKFAAR-3	Pulp	<5	<0 1	95	<2
BKFAAR-4	Pulp	<5	<0 1	852	<2
BKFAAR-5	Pulp	<5	<0 1	292	18
BKFAAR-6	Pulp	<5	<0 1	57	3
BKFAAR-7	Pulp	<5	<0 1	262	8
BKFAAR-8	Pulp	15	<0 1	564	13
BKFAAR-9	Pulp	<5	<0 1	15	2
BKFAAR-10	Pulp	<5	<0 1	655	19
BKFBR-1	Pulp	<5	<0 1	393	8
BKFBR-2	Pulp	<5	<0 1	135	14
BKFBR-3	Pulp	<5	<0 1	217	18
BKFBR-4	Pulp	<5	<0 1	47	19
BKFBR-5	Pulp	<5	<0 1	121	9
BKFBR-6	Pulp	8	3 6	61	9
BKFBR-7	Pulp	227	1 7	8257	110
BKFER-1	Pulp	209	<0 1	4541	13
BKKKR-1	Pulp	5	<0 1	85	15
BKKKR-2	Pulp	<5	<0 1	193	25
BKKKR-3	Pulp	<5	<0 1	303	16
BKKKR-4	Pulp	12	0 2	181	15
BKMELR-1	Pulp	94	1 8	5223	8
BKMELR-2	Pulp	8	<0 1	90	<2
BKMELR-3	Pulp	24	<0 1	66	2
BKMELR-4	Pulp	633	3	7960	3
BKMELR-5	Pulp	80	0 9	1577	5
BKMELR-6	Pulp	39	<0 1	72	<2
BKMELR-7	Pulp	<5	0 1	60	20
BKMELR-8	Pulp	28	0 9	2897	26
BKMELR-9	Pulp	<5	<0 1	225	25

BKMELR-10	Pulp	17	0 8	912	5
BKMELR-11	Pulp	51	0 4	1965	<2
BKMELR-12	Pulp	17	2 3	2777	<2
BKMELR-13	Pulp	<5	0 1	111	40
BKMELR-14	Pulp	6	<0 1	18	<2
BKMELR-15	Pulp	5	0 2	2271	3
BKMELR-16	Pulp	225	36	191915	35
BKNEWR-1	Pulp	9	<0 1	218	4
BKNEWR-2	Pulp	6	<0 1	15	<2
CWA1R-1	Pulp	13	<0 1	139	9
CWKKR-1	Pulp	9	<0 1	124	14
EKA4R-1	Pulp	27	<0 1	172	169
EKA4R-2	Pulp	<5	<0 1	129	17
KGBFR-1	Pulp	224	1 9	6189	43
KGBFR-2	Pulp	7	<0 1	432	17
KGBFR-3	Pulp	13	0 1	1778	17
KGF-2	Pulp	28	0 7	1015	22
KGF-3	Pulp	16	1 5	7102	6
KGF-3A	Pulp	20	1 7	10180	18
KGF-3B	Pulp	8	0 6	4015	19
KGF-4	Pulp	13	<0 1	2582	5
QSBRX-1	Pulp	<5	0 4	964	21
QSBRX-2	Pulp	<5	<0 1	32	21
QSBRX-3	Pulp	<5	<0 1	46	18
QSBRX-4	Pulp	<5	<0 1	10	18
QSBRX-5	Pulp	<5	<0 1	14	8
QSBRX-6	Pulp	<5	<0 1	50	23
Minimum detection		5	0 1	1	2
Maximum detection		10000	100	20000	20000
Method		FA/AAS	ICP	ICP	ICP

Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm
32	<5	<5	<3	5	<10	<2	<0 1	17
9	<5	<5	<3	2	<10	<2	<0 1	11
27	<5	<5	<3	4	<10	<2	<0 1	19
51	<5	<5	<3	4	<10	<2	<0 1	38
44	<5	<5	<3	7	<10	<2	<0 1	25
41	<5	<5	<3	10	<10	<2	<0 1	24
130	<5	<5	<3	16	<10	<2	<0 1	27
22	367	<5	<3	2	<10	23	<0 1	135
535	8	<5	<3	3	<10	3	5 4	30
157	<5	<5	<3	10	<10	<2	<0 1	87
8	<5	<5	<3	6	<10	<2	<0 1	50
<1	22	<5	<3	4	<10	<2	<0 1	136
5	<5	<5	<3	10	<10	<2	<0 1	191
4	<5	<5	<3	3	<10	<2	<0 1	95
23	<5	<5	<3	5	<10	3	<0 1	42
10	<5	<5	<3	7	<10	<2	<0 1	213
5	<5	<5	<3	6	<10	<2	<0 1	39
16	<5	<5	<3	9	<10	<2	<0 1	102
12	<5	<5	<3	6	<10	<2	<0 1	11
35	<5	<5	<3	7	<10	<2	<0 1	19
7	<5	<5	<3	6	<10	9	<0 1	4
63	<5	<5	<3	7	<10	<2	<0 1	53
40	<5	<5	<3	6	<10	<2	<0 1	23
69	<5	<5	<3	6	<10	<2	<0 1	73
27	<5	<5	<3	6	<10	<2	<0 1	41
24	<5	<5	<3	11	<10	<2	<0 1	30
96	<5	<5	<3	19	<10	<2	<0 1	96
9	2979	<5	<3	4	<10	<2	<0 1	636
75	<5	<5	<3	5	<10	<2	<0 1	34
52	<5	<5	<3	6	<10	<2	<0 1	30
48	<5	<5	<3	5	<10	<2	<0 1	24
352	<5	<5	<3	7	<10	<2	<0 1	16
4	5724	<5	<3	4	<10	7	<0 1	2552
37	<5	<5	<3	6	<10	<2	<0 1	28
8	42	<5	<3	3	<10	<2	<0 1	23
11	364	<5	<3	10	<10	<2	<0 1	175
19	148	<5	<3	9	<10	<2	<0 1	83
7	8	<5	<3	1	<10	<2	<0 1	12
72	<5	<5	<3	9	<10	<2	<0 1	43
24	110	<5	<3	5	<10	<2	<0 1	133
22	<5	<5	<3	7	<10	<2	<0 1	46

13	835	<5	<3	13	<10	<2	<0 1	542
5	<5	5	<3	4	<10	<2	<0 1	6
20	<5	<5	<3	20	<10	<2	<0 1	39
117	<5	<5	<3	5	<10	<2	<0 1	32
2	<5	<5	<3	13	<10	<2	<0 1	5
5	109	<5	<3	8	<10	<2	<0 1	40
1	<5	<5	<3	17	<10	5383	<0 1	18
12	<5	<5	<3	2	<10	<2	<0 1	4
7	<5	<5	<3	6	<10	<2	<0 1	31
34	<5	<5	<3	2	<10	<2	<0 1	24
47	<5	<5	<3	6	<10	<2	<0 1	23
49	<5	20	<3	6	<10	<2	<0 1	27
73	<5	<5	<3	5	<10	<2	<0 1	29
90	<5	<5	<3	10	<10	<2	<0 1	41
43	<5	<5	<3	8	<10	<2	<0 1	48
34	<5	<5	<3	8	<10	<2	<0 1	21
45	<5	<5	<3	9	<10	<2	<0 1	54
18	<5	<5	<3	6	<10	<2	<0 1	12
19	<5	<5	<3	9	<10	<2	<0 1	16
20	<5	<5	<3	10	<10	<2	<0 1	36
17	<5	<5	<3	7	<10	<2	<0 1	19
26	<5	<5	<3	3	<10	<2	<0 1	24
105	<5	<5	<3	7	<10	<2	<0 1	40
90	<5	<5	<3	8	<10	<2	<0 1	42
44	<5	<5	<3	6	<10	<2	<0 1	31
27	<5	<5	<3	4	<10	<2	<0 1	16
104	<5	<5	<3	6	<10	<2	<0 1	40
1	5	5	3	1	10	2	0 1	1
20000	10000	1000	10000	1000	1000	10000	100	10000
ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm
4	46	13	22	58	887	3	76	13
5	32	16	63	41	879	3	84	9
20	143	14	98	73	314	7	85	4
26	172	13	54	126	568	4	44	6
9	23	18	12	128	626	3	236	3
32	<2	16	84	114	264	6	8	16
31	7	15	36	166	454	7	8	12
62	3	21	133	3	75	3	2	1
24	3	15	131	14	400	7	18	3
82	20	16	89	319	3218	11	50	2
43	24	13	61	55	712	34	4	16
71	14	22	65	6	21	7	3	6
3	8	15	59	174	797	5	5	19
30	17	17	35	9	1253	40	32	15
39	21	19	74	26	876	3	7	7
30	10	16	102	158	148	<2	5	11
23	13	12	34	73	1642	12	47	12
72	10	17	73	104	1952	<2	13	8
8	43	16	56	38	4026	4	19	6
50	18	19	164	133	754	2	2	3
3	188	14	50	17	2877	9	31	5
73	36	17	78	127	1155	2	11	2
37	107	17	70	60	755	19	10	14
78	109	12	102	165	911	5	24	3
22	48	14	30	221	3285	7	75	2
32	18	23	60	101	1236	26	26	15
45	272	27	56	141	2164	35	29	19
1115	6	19	96	9	1218	3	24	3
27	19	17	58	139	1024	2	65	10
17	48	12	56	166	1016	2	91	11
18	55	11	74	147	895	4	95	11
1	36	15	27	124	923	7	18	11
368	6	16	123	5	473	2	3	2
28	14	16	31	10	2469	6	20	4
23	20	13	35	3	614	17	2	5
169	17	20	59	14	8300	2	12	3
98	18	21	41	18	9455	5	14	6
4	10	20	81	2	443	12	2	1
69	4	17	173	178	1814	<2	40	2
86	<2	15	94	17	350	6	<1	4
57	<2	11	33	24	199	44	1	7

156	9	11	19	8	7626	<2	41	1
10	7	18	57	3	419	17	8	6
<1	26	23	25	27	17632	<2	5	6
80	<2	19	244	86	713	3	11	3
<1	12	18	52	37	8939	<2	6	4
78	8	12	22	37	2778	2	48	1
37	12	59	1	42	2581	<2	2	6
11	30	14	119	6	4153	8	8	1
16	48	16	27	10	4578	6	36	3
7	11	11	50	84	418	6	86	4
3	53	17	35	97	684	9	24	13
27	52	10	47	104	425	5	122	10
19	26	18	38	150	522	3	68	4
67	33	21	88	106	1969	2	27	2
21	10	16	24	118	772	7	28	4
14	42	15	40	18	2219	7	75	10
197	62	22	100	28	1722	3	4	6
15	42	23	80	88	5353	4	19	2
33	37	20	58	167	320	5	3	4
54	14	16	52	196	1597	5	7	4
37	28	15	74	137	2295	4	8	3
15	4	14	149	102	437	28	807	14
61	62	17	142	81	913	26	26	11
92	26	13	146	100	1214	21	57	15
194	37	16	150	80	860	25	171	7
73	29	13	132	43	323	17	37	3
52	38	12	78	76	1566	22	27	8
1	2	5	1	2	1	2	1	1
10000	10000	1000	10000	10000	10000	10000	10000	10000
ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP

Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
6	0 24	1 18	2 92	2 53	1 08	0 06	0 08	0 11
5	0 21	0 76	4 12	1 43	0.38	0 02	0 05	0 08
5	0 12	1 73	1 55	2 16	1 2	0 41	0 23	0 1
5	0 26	2 36	1 74	3 32	1 6	0 8	0 14	0 11
11	0 22	4 42	2 64	3 79	1 8	0 08	0 21	0 05
3	0 19	3 14	4 67	3 2	0 25	<0 01	0 05	0 06
7	0 23	1 89	1 73	4 76	0 84	0 03	0 1	0 07
1	0 01	0 06	0 06	2 71	0 06	0 03	0 06	<0 01
1	<0 01	0 62	0 77	2 53	0 52	0 04	0 06	0 32
26	0 04	3 33	4 58	7 01	4 46	0 02	0 07	0 1
6	0 02	1 92	1 16	6 8	1 94	0 07	0 08	0 07
2	<0 01	0 09	0 11	3 32	0 02	0 03	0.12	0 05
6	0 04	0 33	1 28	8 43	0 64	0 01	0 11	0 07
4	<0 01	0.21	4 66	1 42	2 19	0 1	0 1	0 07
3	<0 01	1 73	1 58	3 31	1 77	0 22	0 06	0 03
1	0 01	0.22	0 48	8 45	0 17	0 04	0.12	0 11
13	0 01	0 27	6 26	2 04	3 01	0 05	0 09	0 2
17	<0 01	2 52	3 27	4 92	3.4	0 08	0 07	0.16
15	0 02	0 63	4 84	3 62	2 36	0 14	0 07	0 06
7	0 12	2 72	0 52	6 18	2 38	0 1	0 05	0 15
4	0 01	0 18	6 55	2 07	2 88	0 13	0 07	0 05
5	0.14	2 9	0 49	5 02	3.42	0 21	0 07	0 03
7	0 04	2 07	1 38	5 22	3 01	0 33	0 08	0 08
7	0 22	2 64	1 06	5 28	3 02	1 22	0 08	0 05
23	0 02	0 93	7 7	4 62	3 27	0 04	0 08	0 08
11	0 04	1.53	3	6 69	2.13	0 18	0 09	0 07
3	0 07	2 09	0 45	10 25	2 8	0 06	0 08	0 07
6	<0 01	0 24	3 62	2.6	1 59	0.04	0 07	<0 01
5	0 17	3 4	6 17	4 75	1 69	0 06	0 21	0 08
11	0 17	4 2	6 01	4 97	1 45	0 06	0.29	0.09
11	0 12	3 4	4 86	4 1	1 11	0 07	0 32	0 12
9	0 2	1.82	2 36	5 01	1.22	0 08	0 11	0 14
2	<0 01	0 16	0 03	3 97	0 1	0 01	0 07	<0 01
3	<0 01	0 87	2 56	6 15	1.6	0 1	0 05	0 01
1	<0 01	0 33	0 13	1 16	0 14	0 16	0 06	0 01
7	<0 01	0 51	1 89	10 67	1.54	0 04	0 06	<0 01
7	<0 01	0 65	1 82	11 5	1 59	0 09	0 06	0 01
<1	<0 01	0 21	0 19	0 74	0 11	0 13	0 06	0 01
26	<0 01	3 26	4 46	7 71	4 72	0 03	0 06	0 02
3	<0 01	2 36	0 03	2 8	3 5	0 02	0.05	<0.01
4	<0 01	3 87	0 06	2 74	5 45	0 03	0 05	<0 01

7	<0 01	0 06	11 52	7 48	11 27	<0 01	0 07	<0 01
3	<0 01	0 16	1 28	0 94	0.56	0 04	0 11	0 04
2	<0 01	0 02	0 24	27 62	5 01	<0 01	0 06	<0 01
2	0 14	2 25	0.77	3 72	2.04	0 03	0 07	0 03
5	<0 01	0 23	4 12	16 38	3.57	0 01	0 06	<0 01
18	<0 01	0 25	14 88	5 07	6 13	0 1	0 07	0 01
15	<0 01	0 01	0 43	26	0 58	<0 01	0 05	<0 01
<1	<0 01	0 41	2 08	2 41	0 6	0.09	0 06	0 01
5	<0 01	0 29	5 16	3 73	1 81	0 25	0 07	0 07
6	0 17	1 33	1 72	1.82	0 89	0 01	0.08	0 06
7	0 2	1 58	1 79	4 28	0 94	0 11	0 13	0 14
7	0 25	2 28	1 99	2 8	0.95	0.07	0 2	0 06
14	0 2	2 98	1 77	3 55	1 86	0 06	0 26	0 03
6	0 24	3 03	0 56	6 49	3.72	0 06	0 09	0 08
2	0 32	1 01	0 82	4 73	1 16	0 03	0 1	0 08
5	<0 01	0 87	9.81	1 6	0 72	0 08	0 07	0 08
2	<0 01	3 18	0 21	7 53	2 37	0 05	0 06	0 02
15	<0 01	1 27	5 56	6.08	2.1	0 09	0 07	0 02
10	<0 01	3 27	0 24	10 93	1 61	0 2	0 05	0 08
14	<0 01	3 97	1 51	10 14	2 39	0 19	0 05	0 1
14	<0 01	2 63	2 44	7 24	2 03	0 08	0 06	0 04
4	0 84	1 37	2 7	1 58	0 68	0 01	0.05	0.22
4	0 34	2 31	1 37	5 07	3 59	0 2	0 06	0 21
3	0 44	2 66	2 16	5 5	3.97	0 04	0 07	0 18
7	0 06	1 46	9 89	4 56	1 96	0 19	0 05	0 24
3	0 03	1 08	2 19	2 91	1 32	0 12	0 05	0 09
2	0 34	2 65	1 88	4 53	3 91	0 07	0 07	0 19
1	0 01	0 01	0 01	0 01	0 01	0 01	0 01	0 01
10000	1	10	10	10	10	10	5	5
ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP