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ANALYTICAL RESULTS FROM ROCK AND PAN CONCENTRATE SAMPLES, TYONEK D-6 AND PARTS OF ADJACENT QUADRANGLES, ALASKA

by

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ANALYTICAL RESULTS FROM ROCK AND PAN CONCENTRATE SAMPLES, TYONEK D-6 AND PARTS OF ADJACENT QUADRANGLES, ALASKA

Introduction

Eighty-three rock samples for geochemical analysis and fifteen pan concentrate samples were taken in the Tyonek D-6, D-7 and C-6 quadrangles during the 1990 ADGGS field mapping project in the Skwentna and Hayes River area (Plate 1). The results of this reconnaissance geochemical survey are presented in this report (Tables 1 and 2). All station and sample locations from the 1990 field season are shown on Plate 1, which serves as our ground truth map for the geologic mapping project. For ease of location, pan concentrate sample sites are also shown on Figure 1. Additional data, including igneous rock major oxide and selected trace element compositions, preliminary geologic map and rock unit descriptions based on hand sample and thin section examination, will be released as they become available.

This report supercedes ADGGS Public Data File which reported only the pan concentrate analyses. For convenience of the user, those data are included in this report.

Sampling Technique

Rock samples for geochemical analysis were collected as grab samples during geologic mapping traverses. They generally represent areas of anomalous alteration, veining, and/or visible mineralization.

Pan concentrate samples were collected by Ellen E. Harris. Sample sites were chosen to represent, on a reconnaissance level, drainage from the major rock types present within the map area. Samples were collected from the channel center of smaller creeks, usually under or behind a boulder, or from the leading edge of gravel bars on larger streams. A hole was dug as deep as possible with a long-handled shovel, through the gravels down to silt- and clay-bearing material. Each sample represents two 16-inch pans of material which were screened to minus 1/4-inch mesh. The resulting sample was then carefully panned down to the point at which the black sand just began to be lost, and these final concentrates were placed in watertight plastic bags for transport.

Analytical Technique

The rock and pan concentrate samples were sent to Chemex Labs Ltd., Vancouver, B.C., Canada for analysis. Tables 3 and 4 describe the sample preparation and analytical procedures as reported by Chemex Labs Ltd. for the two types of samples.

Discussion

Tables 1 and 2 show the results of analyses, as well as comments about each sample taken from field notes. Of the rock samples collected, the greater percentage of anomalously high values is from the Tyonek D-7 quadrangle. These include mineralized felsic intrusives and mineralized black siltstone and sandstone, which are commonly hornfelsed.

Very fine gold was visible in six of the fifteen concentrate samples. Of these, gold was detected analytically in all except 90Ha144, of which there was insufficient material from which to fuse a 30 gram sample. Only four samples did not contain gold above the detection limit. Due to the limitation of analyzing only 30 grams of a sample, which in some cases was more than 200 grams, it is possible for gold to have been present in the pan concentrate but not detected in the analyzed portion of the sample. Sulfides, including chalcopyrite, were observed during the panning of some samples (see Table 2). Copper analyses do not reflect the presence of these minerals, due to the elimination of the sulfides in the panning process. Much more detailed sampling is necessary in order to fully evaluate the placer potential of the area.

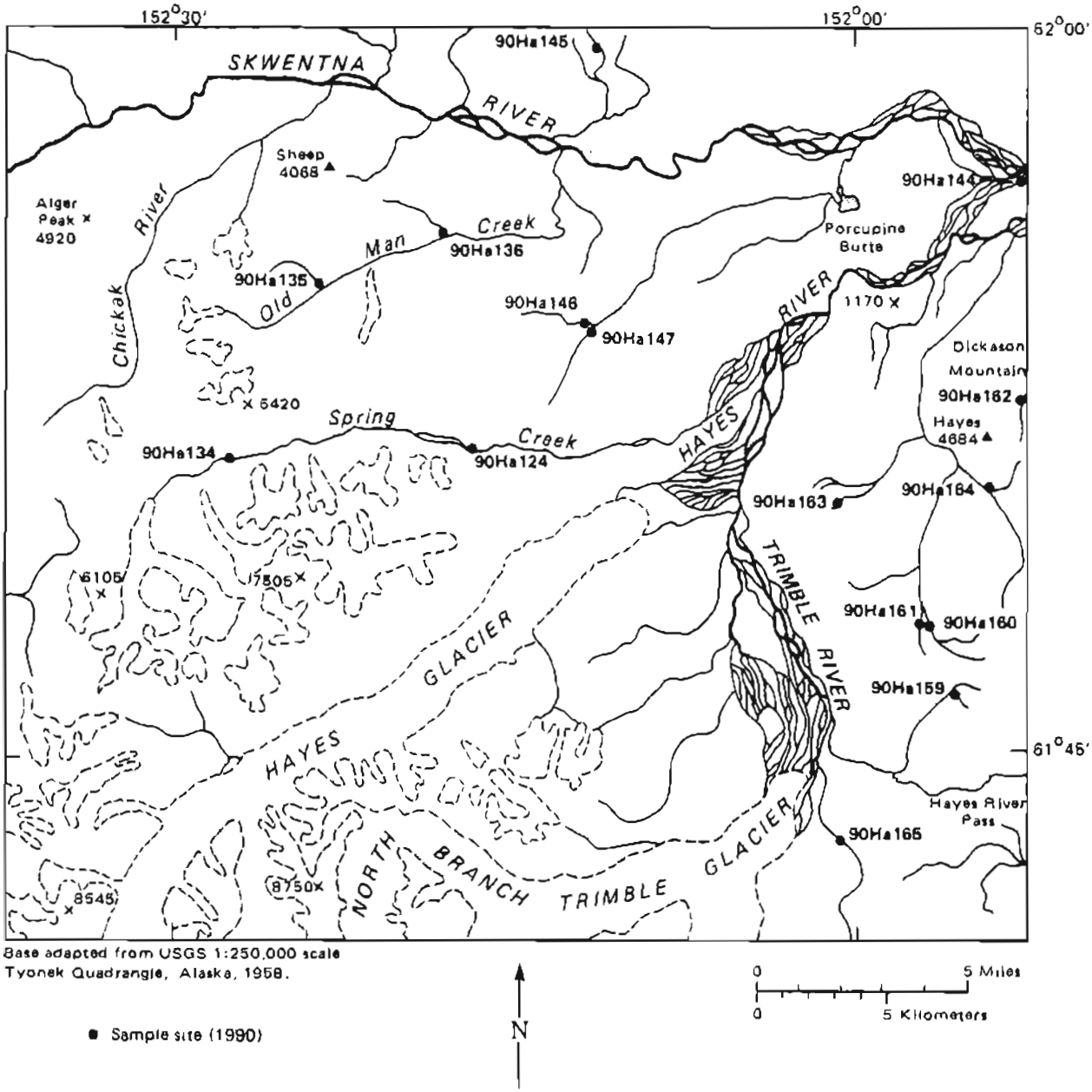

Figure 1. Location map of pan concentrate samples from the Tyonek D-6, D-7, and C-6 Quadrangles, Alaska.

Table 1: Analytical results of rock geochemical samples.

SAMPLE NO.	Au(ppb)	As(ppm)	Ag(ppm)	Co(ppm)	Cu(ppm)	Fe(%)	Mn(ppm)	Mo(ppm)	Ni(ppm)	Pb(ppm)	Zn(ppm)	W(ppm)	Sn(ppm)
90DNS3	10	68	<0.5	22	96	3.26	195	<1	33	18	72	<2	<2
90DNS10	5	17	<0.5	12	77	2.95	335	<1	6	8	80	<2	<2
90DNS19	<5	10	<0.5	1	4	0.68	65	<1	3	10	36	<2	<2
90DNS38a	60	22	<0.5	<1	4	0.66	15	<1	3	20	36	<2	<2
90DNS38b	1500	>10000	20.5	28	104	4.95	6380	10	12	402	6750	<2	<2
90DNS38c	40	430	0.5	13	25	3.33	1105	<1	20	30	350	<2	<2
90DNS47	15	134	<0.5	12	23	3.23	380	<1	15	16	168	<2	<2
90DNS48	<5	34	<0.5	10	28	3.52	970	<1	1	14	110	<2	<2
90DNS57	15	15	<0.5	2	42	5.46	305	<1	1	18	48	3	<2
90DNS58a	5	50	<0.5	10	28	3.82	655	<1	7	18	96	2	<2
90DNS58b	30	14	0.5	38	102	9.28	1355	<1	22	54	2180	2	<2
90DNS58c	<5	9	<0.5	15	8	5.35	855	<1	2	10	146	<2	<2
90DNS58d	<5	22	<0.5	9	25	4.43	975	<1	7	16	82	2	<2
90DNS61b	10	16	1.0	11	331	2.11	295	<1	10	36	74	3	<2
90DNS66	<5	17	<0.5	1	6	2.31	605	<1	1	10	106	<2	<2
90DNS75	<5	6	<0.5	4	13	1.77	440	1	5	8	74	<2	<2
90DNS80a	10	11	<0.5	7	92	5.60	320	<1	11	10	56	<2	<2
90DNS80b	<5	6	<0.5	10	47	3.83	400	<1	20	6	68	<2	<2
90Ha107	35	20	<0.5	10	226	1.74	85	<1	24	6	18	<2	<2
90Ha118	290	8	<0.5	2	11	3.94	535	<1	4	14	14	<2	<2
90Ha122	25	18	<0.5	25	469	8.08	1295	<1	5	20	158	<2	<2
90Ha123	25	11	0.5	7	394	3.16	640	9	2	10	68	<2	<2
90Ha140	<5	7	<0.5	3	28	1.99	165	1	8	8	86	<2	<2
90SAL6	<5	4	<0.5	<1	4	0.83	160	<1	1	14	50	<2	<2
90SAL42a	15	30	<0.5	22	4	3.98	480	<1	38	12	68	<2	<2
90SAL42b	<5	8	<0.5	8	44	3.76	590	<1	8	18	416	<2	<2
90KK6	<5	23	0.5	10	196	1.65	215	2	13	18	58	<2	<2
90MR109c	<5	6	<0.5	5	7	2.19	555	<1	5	4	54	<2	<2
90MR113b	<5	14	<0.5	6	20	4.43	1560	<1	14	8	32	<2	<2
90MR119b	<5	17	<0.5	19	38	5.49	3880	<1	19	10	>10000	<2	4

Table 1: Analytical results of rock geochemical samples.

SAMPLE NO.	QUAD	LATITUDE	LONGITUDE	DESCRIPTION OF SAMPLE
90DNS3	D6	61 48'2"	152 0'20"	Fe-stained hornfels w/ pyrite
90DNS10	D6	61 50'3"	152 2'32"	Altered hb, pyx monzodiorite(?) w/ tourmaline
90DNS19	D5	61 52'2"	151 52'23"	Quartz pod in porphyritic qtz, kspar rhyolite
90DNS38a	D7	61 53'32"	152 20'52"	Gossanous felsic dike in blk. ss & siltstone
90DNS38b	D7	61 53'32"	152 20'52"	Sulfide-rich veins in blk. seds
90DNS38c	D7	61 53'32"	152 20'52"	Carbonate vein network in blk. seds
90DNS47	D6	61 45'56"	152 12'32"	Orange wxing hf ss, po dissem. & in qtz veinlets
90DNS48	D6	61 45'53"	152 12'31"	Felsite dike w/sulfides
90DNS57	D7	61 51'44"	152 16'58"	Orange wxing felsic intrusive
90DNS58a	C6	61 43'13"	152 2'51"	Sulfide-rich veins in gossanous blk. seds
90DNS58b	C6	61 43'13"	152 2'51"	Pods of massive sulfide in blk. seds
90DNS58c	C6	61 43'13"	152 2'51"	Fine-gr. greenish dike, disseminated py
90DNS58d	C6	61 43'13"	152 2'51"	Sulfide-rich veins in blk. seds
90DNS61b	C6	61 42'7"	152 3'19"	Porphyritic feldspar dike w/ pyrite
90DNS66	D6	61 46'34"	151 53'42"	Fine-gr. quartz monzonite(?)
90DNS75	D6	61 51'30"	152 9'6"	Orange-wxing lithic crystal tuff
90DNS80a	D6	61 45'16"	152 8'4"	Cherty argillite, sulfides in fractures/veinlets
90DNS80b	D6	61 45'16"	152 8'4"	Black argillite
90Ha107	D6	61 49'56"	152 1'25"	Hf ss & siltstone w/sulfides
90Ha118	D6	61 46'29"	151 58'17"	Quartz vein, 1-2' thick, w/ sulfide, in ss
90Ha122	D7	61 51'26"	152 17'18"	Orange-wxing hornfels ss w/ disseminated sulfides
90Ha123	D7	61 51'17"	152 17'1"	Felsic dike, disseminated sulfide
90Ha140	D6	61 46'42"	152 12'31"	Black mudstone surrounding calcareous pod
90SAL6	C6	61 42'59	151 58'47"	Altered felsic tuff
90SAL42a	D7	61 52'16"	152 15'7"	Hf blk. seds w/ sulfide
90SAL42b	D7	61 52'16"	152 15'7"	Dike w/ pyrite
90KK6	C6	61 38'59"	152 2'50"	Tourmaline vein network in granitic w/ sulfides
90MR109c	D6	61 48'46"	151 57'32"	Aplite dike w/ py in blk. seds
90MR113b	D6	61 49'34"	151 57'13"	Silicified and brecciated lithic ss w/ sulfides
90MR119b	D7	61 53'19"	152 18'30"	Calc-silicate skarn, ls layers <25cm

Table 1: Analytical results of rock geochemical samples.

SAMPLE NO.	Au(ppb)	As(ppm)	Ag(ppm)	Co(ppm)	Cu(ppm)	Fe(%)	Mn(ppm)	Mo(ppm)	Ni(ppm)	Pb(ppm)	Zn(ppm)	W(ppm)	Sn(ppm)
90MR121c	<5	11	<0.5	15	39	4.36	1015	<1	68	10	322	<2	<2
90MR125e	<5	11	1.5	1	5	1.16	120	<1	2	34	182	2	<2
90MR127c	<5	2	1.0	3	2	1.48	650	1	1	10	92	<2	<2
90MR127e	<5	3	0.5	21	55	5.72	995	<1	36	10	112	<2	<2
90MR138c	<5	4	1.0	2	6	2.50	1305	8	1	116	414	3	2
90MR139c	<5	5	0.5	<1	31	1.11	170	<1	1	18	56	<2	<2
90MR145c	<5	3	<0.5	9	67	2.56	380	<1	5	2	48	<2	<2
90MR145f	<5	6	<0.5	21	367	6.32	260	2	18	<2	64	4	<2
90MR146a	<5	7	<0.5	<1	6	1.12	230	2	1	10	46	2	<2
90MR146c	<5	8	<0.5	<1	2	1.01	260	1	2	18	62	<2	<2
90MR146d	<5	7	<0.5	2	14	2.00	470	2	2	20	108	3	<2
90MR148c	<5	4	<0.5	2	5	1.52	235	<1	2	6	48	<2	<2
90WG102	<5	4	<0.5	12	72	4.43	975	<1	5	4	74	2	<2
90WG105	<5	3	<0.5	12	81	4.33	560	<1	9	6	78	<2	<2
90WG109	<5	7	<0.5	<1	4	0.78	50	2	1	10	64	3	<2
90WG113	<5	3	<0.5	6	10	2.80	220	<1	3	8	66	2	<2
90WG125	<5	7	<0.5	16	75	4.57	900	<1	16	18	88	2	<2
90WG129	<5	26	<0.5	32	119	4.94	1310	4	92	8	224	2	<2
90WG130	<5	15	<0.5	17	74	5.26	1035	2	18	8	94	<2	<2
90WG136	<5	10	<0.5	12	78	4.51	375	<1	27	6	84	<2	<2
90WG138	245	6	<0.5	30	737	9.49	590	<1	22	10	56	400	<2
90WG139	10	11	<0.5	20	61	5.55	560	<1	70	6	102	5	<2
90WG141	<5	3	<0.5	5	14	0.82	>10000	<1	3	16	12	7	<2
90WG142	<5	7	<0.5	18	92	3.36	665	<1	58	6	60	<2	<2
90WG148b	<5	10	<0.5	3	44	4.04	475	<1	9	8	42	<2	<2
90WG152	<5	6	<0.5	9	56	3.51	355	<1	20	2	42	<2	<2
90WG155	<5	10	<0.5	10	73	3.81	190	<1	40	4	28	<2	<2
90WG156	<5	9	<0.5	12	64	4.57	360	<1	41	8	66	<2	<2
90WG163	15	6	<0.5	22	310	6.89	775	<1	4	8	56	<2	<2
90WG165	<5	3	<0.5	1	9	1.34	640	4	2	26	124	<2	3

Table 1: Analytical results of rock geochemical samples.

SAMPLE NO.	QUAD	LATITUDE	LONGITUDE	DESCRIPTION OF SAMPLE
90MR121c	D7	61 53'36"	152 17'28"	Fine-gr. felsic dike w/ py, in shales
90MR125e	D7	61 52'42"	152 21'7"	Felsic dike, at least 6 miles long
90MR127c	D6	61 45'8"	152 11'15"	Float of altered coarse-gr. quartz syenite
90MR127e	D6	61 45'8"	152 11'15"	Silicified sandstone w/ red mineral, Hg=40ppb
90MR138c	C6	61 41'23"	151 55'42"	Medium-gr. granite w/ vugs
90MR139c	C6	61 41'25"	151 55'56"	Quartz veinlets in granite
90MR145c	C6	61 44'50"	152 0'28"	Hf ss & shale, w/ pyrite
90MR145f	C6	61 44'50"	152 0'28"	Altered fine-gr. diorite(?) w/ sulfide
90MR146a	C6	61 41'58"	151 59'42"	Heavily Fe-stained/ altered felsic volcanic
90MR146c	C6	61 41'58"	151 59'42"	Altered felsic tuff w/ black material
90MR146d	C6	61 41'58"	151 59'42"	Gossanous felsic volcanic
90MR148c	C6	61 40'10"	151 54'29"	Fine-gr. granite w/ black veinlets
90WG102	D6	61 48'14"	152 0'51"	Porphyritic hb dike in hf ss
90WG105	D6	61 49'2"	152 1'23"	Fe-stained hf siltstone & ss w/ pyrite
90WG109	D6	61 50'33"	151 52'56"	Fe-stained fine-gr porphyritic granite
90WG113	D6	61 52'39"	151 54'20"	Porphyritic volcanic, cataclastic texture
90WG125	D6	61 56'27"	152 13'8"	Pyritic green-wxing breccia
90WG129	D6	61 57'9"	152 11'45"	Fe-stained pyritic argillite
90WG130	D6	61 45'44"	151 56'14"	Pyritic green sandstone & siltstone
90WG136	D7	61 56'16"	152 15'41"	Fe-stained silicified fine-gr ss
90WG138	D7	61 56'16"	152 16'30"	Gossanous altered rock w/ sulfides
90WG139	D7	61 53'33"	152 20'53"	Pyritic sandstone
90WG141	D7	61 53'16"	152 20'42"	Siltstone
90WG142	D7	61 52'49"	152 20'31"	Fe-stained basalt
90WG148b	D6	61 48'3"	152 11'28"	Fe-stained ss & siltstones, 4m thick horizon
90WG152	D6	61 45'51"	152 2'20"	Hf pyritic fine-gr. green sandstone
90WG155	D6	61 52'10"	152 14'42"	Pyritic argillaceous chert
90WG156	D7	61 52'20"	152 15'6"	Fe-stained chert w/ py on fractures
90WG163	D7	61 51'41"	152 16'57"	Intermediate intrusive w/ pyrite
90WG165	C6	61 37'27"	152 1'59"	Coarse-gr magnetite-rich granite

Table 1: Analytical results of rock geochemical samples.

SAMPLE NO.	Au(ppb)	As(ppm)	Ag(ppm)	Co(ppm)	Cu(ppm)	Fe(%)	Mn(ppm)	Mo(ppm)	Ni(ppm)	Pb(ppm)	Zn(ppm)	W(ppm)	Sn(ppm)
90WG167c	10	5	<0.5	57	513	7.04	210	<1	83	8	70	2	<2
90JK180	10	64	<0.5	1	12	2.32	405	1	2	8	74	<2	<2
90JK185	10	5	<0.5	24	159	3.56	1830	<1	43	12	44	7	<2
90JK193a	<5	5	<0.5	7	20	2.21	645	<1	26	<2	38	2	<2
90JK195	<5	6	<0.5	18	86	5.41	790	<1	31	4	102	<2	<2
90JK201b	<5	18	<0.5	9	37	4.26	1370	<1	33	4	40	<2	<2
90JK204	<5	5	<0.5	12	80	4.65	565	<1	28	6	92	<2	<2
90JK205	<5	6	<0.5	10	71	4.68	550	<1	22	6	100	<2	<2
90JK207	<5	8	<0.5	14	73	2.77	460	4	38	8	100	<2	<2
90JK208	<5	12	<0.5	1	28	3.44	160	<1	6	8	30	<2	<2
90JK212a	<5	2	<0.5	4	3	1.83	545	1	5	6	50	2	<2
90JK222a	<5	2	<0.5	1	3	1.41	90	<1	<1	4	60	2	<2
90JK226	<5	7	<0.5	29	126	6.16	505	<1	31	12	92	2	<2
90JK235	60	26	<0.5	20	67	3.31	490	2	53	10	176	2	<2
90JK236	15	13	<0.5	16	94	5.14	495	<1	43	4	112	2	<2
90JK237	<5	4	<0.5	7	56	2.52	385	5	9	6	50	2	<2
90JK238	20	4	<0.5	12	83	4.30	475	<1	27	6	64	2	<2
90JK239	<5	3	<0.5	8	77	2.46	180	2	33	2	20	2	<2
90JK240	<5	5	<0.5	12	69	4.54	455	<1	37	6	88	2	<2
90JK242	<5	14	<0.5	2	71	1.84	190	9	10	10	32	3	<2
90JK243	<5	19	<0.5	13	105	4.13	805	3	21	24	78	2	2
90JK244	<5	19	<0.5	10	49	3.57	350	3	21	8	56	2	<2
90JK255	<5	3	<0.5	1	3	1.00	180	4	1	12	28	<2	<2

Table 1: Analytical results of rock geochemical samples.

SAMPLE NO.	QUAD	LATITUDE	LONGITUDE	DESCRIPTION OF SAMPLE
90WG167c	C6	61 38'18"	152 3'12"	Py-rich pyroxenite(?)
90JK180	D6	61 46'18"	151 59'38"	Fine-gr. monzonite(?) in blk. seds
90JK185	D7	61 55'4"	152 19'33"	Black siltstone w/ sulfide
90JK193a	D6	61 54'45"	152 14'40"	Altered basalt
90JK195	D6	61 54'36"	152 14'5"	Gossanous shale
90JK201b	D6	61 54'34"	152 13'32"	Fine-gr greenish ss and blk. shale
90JK204	D7	61 56'38"	152 20'58"	Sulfides in sheared argillite
90JK205	D7	61 56'40"	152 20'31"	Sulfides in argillite
90JK207	D7	61 56'39"	152 18'49"	Silicified argillite w/disseminated pyrite
90JK208	D6	61 47'0"	152 12'5"	Fe-stained shale
90JK212a	D6	61 47'0"	152 11'29"	Porphyritic mafic dike, assoc. w/felsic dike
90JK222a	C6	61 37'40"	152 3'21"	Fe-stained volcaniclastic rock
90JK226	C6	61 37'55"	152 3'32"	Coarse-gr. gabbro dike w/ sulfide
90JK235	D7	61 56'37"	152 18'33"	Cherty argillite w/ disseminated sulfides
90JK236	D7	61 56'32"	152 18'31"	Cherty argillite w/ disseminated sulfides
90JK237	D7	61 56'33"	152 18'1"	Heavily Fe-stained cherty argillite
90JK238	D7	61 56'23"	152 17'51"	Cherty argillite w/ sulfides
90JK239	D7	61 56'19"	152 17'16"	Cherty argillite w/ sulfides
90JK240	D6	61 59'35"	152 14'52"	Pyrite stringers, about 1mm, in black shale
90JK242	D6	61 59'33"	152 14'31"	Hf siltstone w/ pyrite stringers
90JK243	C6	61 44'22"	152 7'21"	Hf ss w/ sulfide
90JK244	C6	61 44'5"	152 7'5"	Hf ss & shale near contact with intrusive
90JK255	C6	61 38'42"	152 6'55"	Gossanous felsic intrusive

Table 2: Analytical results of pan concentrate samples

SAMPLE NO.	QUAD	LATITUDE	LONGITUDE	Au(ppb)	As(ppm)	Ag(ppm)	Co(ppm)	Cu(ppm)	Fe(%)	Mn(ppm)	Mo(ppm)	Ni(ppm)	Pb(ppm)
90Ha124	D7	61 51'15"	152 16'43"	6390	64	1.6	58	19	>15	2830	5	43	14
90Ha134	D7	61 51'2"	152 28'4"	905	56	<0.8	37	43	>15	1515	1	34	<2
90Ha135	D7	61 54'42"	152 23'39"	20	16	<0.8	57	<1	>15	2620	4	17	6
90Ha136	D7	61 55'43"	152 18'9"	7020	816	<0.8	40	64	>15	1430	1	33	<2
90Ha144	D6	61 56'53"	151 53'5"	not/ss	160	<0.8	41	<1	>15	2700	11	16	<2
90Ha145	D6	61 59'37"	152 11'21"	20	8	<0.8	40	<1	>15	2220	6	11	2
90Ha146	D6	61 53'55"	152 11'51"	55	4320	<0.8	77	<1	>15	2580	4	13	<2
90Ha147	D6	61 53'51"	152 11'35"	65	128	<0.8	58	2	>15	2330	6	23	8
90Ha159	D6	61 46'17"	151 56'4"	150	8	<0.8	74	<1	>15	2950	3	11	<2
90Ha160	D6	61 47'35"	151 57'11"	<5	8	<0.8	65	<1	>15	2700	5	7	<2
90Ha161	D6	61 47'38"	151 57'31"	<5	8	<0.8	52	<1	>15	2090	4	10	<2
90Ha162	D6	61 52'18"	151 53'6"	<5	<8	<0.8	68	<1	>15	2710	<1	3	<2
90Ha163	D6	61 50'6"	152 1'3"	<5	8	<0.8	28	<1	>15	2410	9	5	6
90Ha164	D6	61 50'19"	151 54'25"	not/ss	16	<0.8	45	<1	>15	2570	13	6	22
90Ha165	C6	61 43'11"	152 1'4"	10	144	<0.8	66	<1	>15	2750	5	13	50

not/ss = not sufficient sample

Table 2: Analytical results of pan concentrate samples

SAMPLE NO.	Zn(ppm)	Cr(ppm)	Sn(ppm)	Hg(ppb)	Comments about sample	Rock types drained
90Ha124	604	880	2	140	visible gold (5 flecks)	blk. siltstone & ss; felsic dikes
90Ha134	274	530	<2	130	visible gold (1 fleck)	blk. siltstone & ss; felsic dike
90Ha135	532	162	<2	120	sulfides	laminated argillite w/sulfides
90Ha136	332	105	<2	170	visible gold (2 flecks); sulfides	laminated argillite w/sulfides
90Ha144	470	350	32	140	visible gold (2 flecks); from bank of Tert. gravels	Tertiary cgl, ss & coal
90Ha145	394	138	5	30	sparse material at sample site due to large boulders	intermediate pluton
90Ha146	678	185	8	80	visible gold (2 flecks)	ss & cgl; shale; basalt
90Ha147	522	185	3	250	silvery mineral	porphyritic intrusive; siltstone & ss; basalt
90Ha159	776	170	2	40	visible gold (1 fleck), tourm., abundant black sands	green ss; Tertiary ss, cgl & coal; felsic tuff
90Ha160	662	130	2	30	silvery mineral	granitic intrusive; blk. siltstone & ss
90Ha161	454	150	2	40	minimal black sands	green ss
90Ha162	692	155	2	20	abundant black sands	Dickason porphyritic intrusive
90Ha163	246	258	10	30	abundant black sands	diorite/monzodiorite
90Ha164	500	220	4	40	silvery mineral, minimal black sands	gossanous porphyritic intrusive
90Ha165	666	140	3	30	sulfides	gossanous felsite

not/ss = not sufficient sample

Table 3: Sample preparation and analytical procedures for rock sample analyses, as reported by Chemex Labs Ltd., Vancouver, B.C., Canada.

SAMPLE PREPARATION

NUMBER SAMPLES	DESCRIPTION
83	Geochem ring to approx 150 mesh
83	Crush and split (0-10 pounds)
83	NITRIC-AQUA REGIA DIGESTION

ANALYTICAL PROCEDURES

NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
83	Au ppb: Fuse 30 g sample	FA-AAS	5	10000
83	As ppm: HNO3-aqua regia digest	AAS-HYDRIDE/EDL	1	10000
83	Ag ppm: 9 element,soil and rock	ICP-AES	0.5	200
83	Co ppm: 9 element, soil & rock	ICP-AES	1	10000
83	Cu ppm: 9 element, soil & rock	ICP-AES	1	10000
83	Fe %: 9 element, soil & rock	ICP-AES	0.01	15.00
83	Mn ppm: 9 element, soil & rock	ICP-AES	5	10000
83	Mo ppm: 9 element, soil & rock	ICP-AES	1	10000
83	Ni ppm: 9 element, soil & rock	ICP-AES	1	10000
83	Pb ppm: 9 element,soil and rock	ICP-AES	5	10000
83	Zn ppm: 9 element, soil & rock	ICP-AES	2	10000
83	W ppm: K pyrosulfate fusion	COLORIMETRIC	2	1000
83	Sn ppm: NH4I sublimation, extrac	AAS	2	1000
1	Hg ppb: HNO3-HCl digestion	AAS-FLAMELESS	10	100000

Table 4: Sample preparation and analytical procedures for pan concentrate sample anayses, as reported by Chemex Labs Ltd., Vancouver, B.C., Canada.

SAMPLE PREPARATION

NUMBER SAMPLES	DESCRIPTION
15	Pan con ring to approx 150 mesh
15	NITRIC-AQUA REGIA DIGESTION
15	PERCHLORIC-NITRIC-HYDROFLUORIC D

ANALYTICAL PROCEDURES

NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
13	Au ppb: Fuse 30 g sample	FA-AAS	5	10000
15	As ppm: HNO3-Aqua regia digest	AAS-HYDRIDE/KDL	1	10000
15	Ag ppm: 9 element, soil and rock	ICP-AES	0.5	200
15	Co ppm: 9 element, soil & rock	ICP-AES	1	10000
15	Cu ppm: 9 element, soil & rock	ICP-AES	1	10000
15	Fe %: 9 element, soil & rock	ICP-AES	0.01	15.00
15	Mn ppm: 9 element, soil & rock	ICP-AES	5	10000
15	Mo ppm: 9 element, soil & rock	ICP-AES	1	10000
15	Ni ppm: 9 element, soil & rock	ICP-AES	1	10000
15	Pb ppm: 9 element, soil and rock	ICP-AES	5	10000
15	Zn ppm: 9 element, soil & rock	ICP-AES	2	10000
15	Cr ppm: HClO4-HNO3-HF digest	AAS	2	10000
15	Sn ppm: NH4I sublimation, extrac	AAS	2	1000
15	Hg ppb: HNO3-HCl digestion	AAS-FLAMELESS	10	100000