

PUBLIC DATA FILE 90-22

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

by

Diana N. Solie and Ellen E. Harris

November 1990

THIS REPORT HAS NOT BEEN REVIEWED FOR TECHNICAL CONTENT  
(EXCEPT AS STATED IN THE TEXT) OR FOR CONFORMITY TO THE  
EDITORIAL STANDARDS OF DGGS

794 University Avenue, Suite 200  
Fairbanks, Alaska 99709-3645 9

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

### **Introduction**

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 (Figure 1). The results of this reconnaissance pan concentrate survey are presented in this report. Additional data, including rock sample geochemical analyses, igneous rock major oxide and selected trace element compositions, preliminary geologic map, sample location maps, and rock unit descriptions based on hand sample and thin section examination, will be released as they become available.

### **Sampling Technique**

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 pan concentrate samples were sent to Chemex Labs Ltd., Vancouver, B.C., Canada for analysis. Table 1 describes the sample preparation and analytical procedures as reported by Chemex Labs Ltd.

### **Discussion**

Table 2 shows the results of analyses, as well as comments about each sample taken from field notes, and a brief description of rock types drained by the sampled creek. 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.

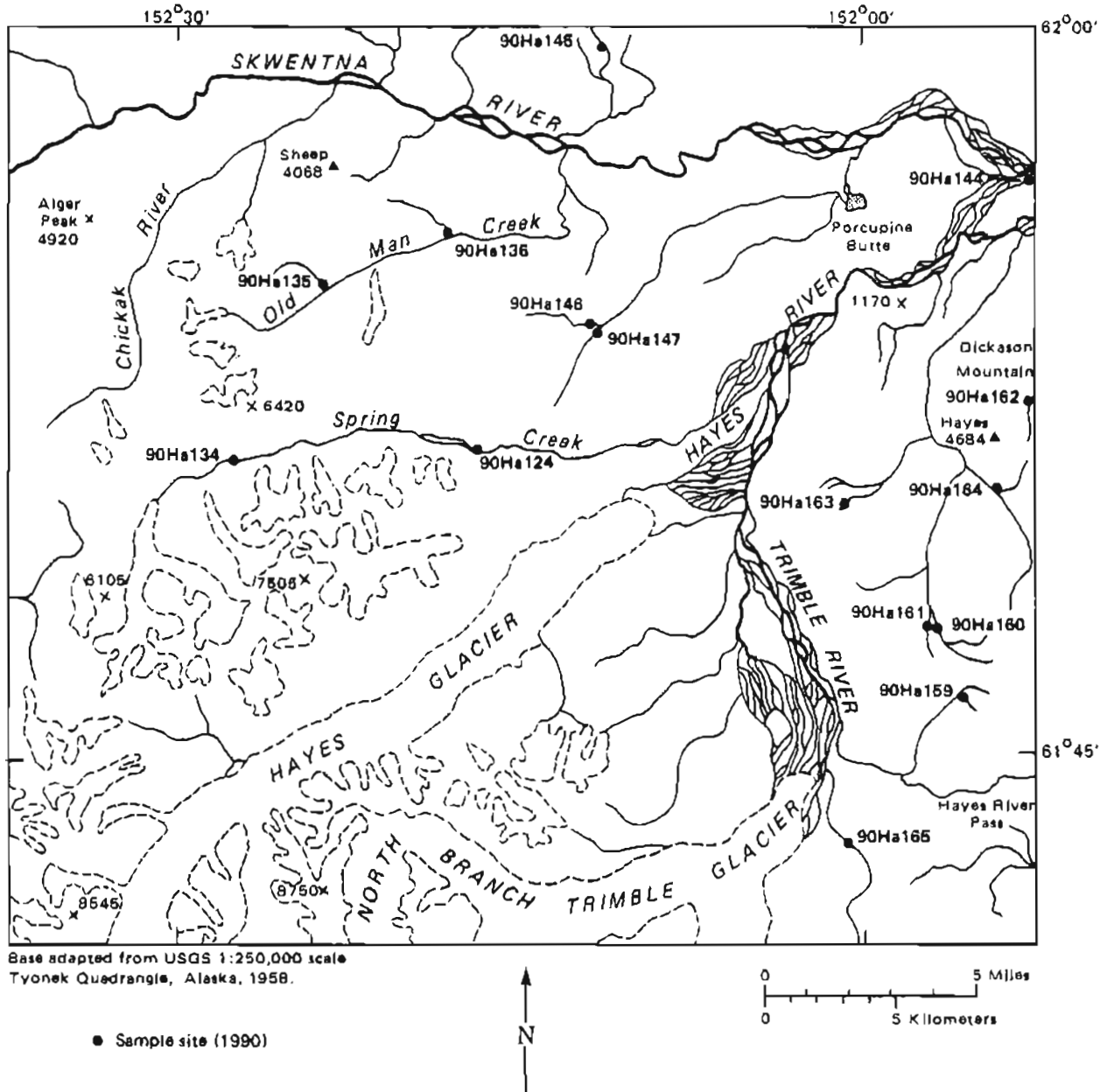


Figure 1. Location map of pan concentrate samples from the Tyonek D-6, D-7, and C-6 Quadrangles, Alaska.

Table 1: Sample preparation and analytical procedures as reported by Chemex Labs Ltd., Vancouver, B.C., Canada.

SAMPLE PREPARATION	
NUMBER SAMPLES	DESCRIPTION
15	Fan 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: HNO <sub>3</sub> -aqua regia digest,	AAS-HYDRIDE/EDL	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: HClO <sub>4</sub> -HNO <sub>3</sub> -HF digest	AAS	2	10000
15	Sn ppm: NH <sub>4</sub> I sublimation, extrac	AAS	2	1000
15	Hg ppb: HNO <sub>3</sub> -HCl digestion	AAS-FLAMELESS	10	100000

Table 2: Analytical results of pan concentrate samples

<u>Sample</u>	<u>Au(ppb)</u>	<u>As(ppm)</u>	<u>Ag(ppm)</u>	<u>Co(ppm)</u>	<u>Cu(ppm)</u>	<u>Fe(%)</u>	<u>Mn(ppm)</u>	<u>Mo(ppm)</u>	<u>Ni(ppm)</u>	<u>Pb(ppm)</u>	<u>Zn(ppm)</u>	<u>Cr(ppm)</u>	<u>Sn(ppm)</u>
90Ha124	6390	64	1.6	58	19	>15	2830	5	43	14	604	880	2
90Ha134	905	56	<0.8	37	43	>15	1515	1	34	<2	274	530	<2
90Ha135	20	16	<0.8	57	<1	>15	2620	4	17	6	532	162	<2
90Ha136	7020	816	<0.8	40	64	>15	1430	1	33	<2	332	105	<2
90Ha144	not/ss	160	<0.8	41	<1	>15	2700	11	16	<2	470	350	32
90Ha145	20	8	<0.8	40	<1	>15	2220	6	11	2	394	138	5
90Ha146	55	4320	<0.8	77	<1	>15	2580	4	13	<2	678	185	8
90Ha147	65	128	<0.8	58	2	>15	2330	6	23	8	522	185	3
90Ha159	150	8	<0.8	74	<1	>15	2950	3	11	<2	776	170	2
90Ha160	<5	8	<0.8	65	<1	>15	2700	5	7	<2	662	130	2
90Ha161	<5	8	<0.8	52	<1	>15	2090	4	10	<2	454	150	2
90Ha162	<5	<8	<0.8	68	<1	>15	2710	<1	3	<2	692	155	2
90Ha163	<5	8	<0.8	28	<1	>15	2410	9	5	6	246	258	10
90Ha164	not/ss	16	<0.8	45	<1	>15	2570	13	6	22	500	220	4
90Ha165	10	144	<0.8	66	<1	>15	2750	5	13	50	666	140	3

<u>Sample</u>	<u>Hg(ppb)</u>	<u>Comments about sample</u>	<u>Rock types drained</u>
90Ha124	140	visible gold (5 flecks)	blk. siltstone & ss; felsic dikes
90Ha134	130	visible gold (1 fleck)	blk. siltstone & ss; felsic dike
90Ha135	120	sulfides	laminated argillite w/sulfides
90Ha136	170	visible gold (2 flecks); sulfides	laminated argillite w/sulfides
90Ha144	140	visible gold (2 flecks); from bank of Tert. gravels	Tertiary cgl, ss & coal
90Ha145	30	sparse material at sample site due to large boulders	intermediate pluton
90Ha146	80	visible gold (2 flecks)	ss & cgl; shale; basalt
90Ha147	250	silvery mineral	porphyritic intrusive; siltstone & ss; basalt
90Ha159	40	visible gold (1 fleck), tourm., abundant black sands	green ss; Tertiary ss, cgl & coal; felsic tuff
90Ha160	30	silvery mineral	granitic intrusive; blk. siltstone & ss
90Ha161	40	minimal black sands	green ss
90Ha162	20	abundant black sands	Dickason porphyritic intrusive
90Ha163	30	abundant black sands	diorite/monzodiorite
90Ha164	40	silvery mineral, minimal black sands	gossanous porphyritic intrusive
90Ha165	30	sulfides	gossanous felsite

not/ss = not sufficient sample