

Public-data File 90-31

(Note: This publication supersedes Public-data File 90-9)

**ANALYTICAL RESULTS FOR ROCK, PAN CONCENTRATE, AND
STREAM SEDIMENT SAMPLES FROM THE TALKEETNA
MOUNTAINS B-2 QUADRANGLE AND THE NORTHERN PART
OF THE TALKEETNA MOUNTAINS A-2 QUADRANGLE**

by

K.H. Clautice, E.E. Harris, S.A. Liss, J.T. Kline,
T.K. Bundtzen, W.G. Gilbert, and C.J. Nye

Alaska Division of Geological and Geophysical Surveys
In cooperation with U.S. Bureau of Mines

December 1990

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

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

CONTENTS

	Page
Introduction	1
Sampling methods.....	1
Analytical methods.....	1

TABLES

1 a. 1989 Rock analyses.....	2
b. 1989 Rock sample locations and descriptions	6
2 a. 1989 Stream sediment analyses.....	8
b. 1989 Stream sediment sample locations	10
3 a. 1990 Rock analyses.....	11
b. 1990 Rock sample locations and descriptions	13
4 a. 1990 Pan concentrate analyses.....	15
b. 1990 Pan concentrate sample locations and descriptions	16
5 a. 1990 Stream sediment and soil analyses.....	15
b. 1990 Stream sediment and soil locations and descriptions	16

APPENDIX

Sample preparation and analytical procedures	17
--	----

ILLUSTRATION

Sample location map Talkeetna Mountains B-2 and northern portion of Talkeetna Mountains A-2 Quadrangles (attached)	
---	--

INTRODUCTION

This preliminary report lists the results from geochemical analyses of 97 rock, 30 stream sediment, 13 pan concentrate, and 1 soil sample collected during the 1989 and 1990 field seasons as part of a geologic mapping project in the Talkeetna Mountains B-2 Quadrangle. Because the analytical methods and elemental suites varied between the 1989 and 1990 data, results are tabulated by year as well as by sample type. This report supercedes Public-data File 90-9, which included only geochemical data from the 1989 field season. A geologic map of the Talkeetna Mountains B-2 Quadrangle, to include major oxide data and age dates, will be released at a later date.

This study was conducted as part of a cooperative agreement between the U.S. Bureau of Mines and the Alaska Division of Geological and Geophysical Surveys to investigate the geology and mineralization of the Valdez Creek Mining District.

SAMPLING METHODS

Pan concentrate samples were collected by E.E. Harris. Samples were collected mid-channel in smaller creeks, usually under or behind a boulder, or from the leading edge of gravel bars on larger streams. A hole was dug as deeply 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 that was 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.

Stream sediment samples were collected by compositing grabs of fine silt from five or six mid-channel locations to fill a 5 x 7 in. sample bag.

Most rock samples represent individual grab samples of approximately 2 pounds. Composite and chip samples are noted in the sample descriptions.

ANALYTICAL METHODS

All samples were analyzed by Chemex Labs Ltd., Vancouver, B.C. Sample preparation methods and analytical techniques, including detection and upper limits, are listed in the appendix to this report.

Results are listed in parts per million (ppm) unless otherwise indicated. Results listed as '0' analyzed at less than the detection limit.

Table 1a. 1989 Rock Analyses
(ppm unless otherwise noted)

Sample #	Au(ppb)	Pd(ppb)	Pt(ppb)	Ag	Sn	Mo	W	Zn	P	Cu	Pb	Bi	Cd	Co	Mi	Ba
32851	48	0	0	0.8	0	0	10	66	350	340	18	0	1.5	46	107	10
32852	0	0	0	0.8	0	0	0	58	550	38	4	0	0.5	21	15	190
32853	4	0	5	1.2	0	6	0	8	730	1	8	0	0.5	4	2	1310
32854	0	0	5	0.4	0	0	0	22	470	2	4	0	0	4	3	370
32855	4	0	20	0	0	0	0	40	1440	37	6	0	0	11	7	230
32856	76	0	15	8.4	0	7	10	436	990	6640	14	0	3.5	14	4	340
32857	0	0	10	0	0	0	0	70	970	79	4	0	0	6	2	570
32858	0	0	15	0	0	2	0	70	120	42	4	4	0	3	3	430
33255	0	0	0	0	2	0	10	70	570	55	0	0	0	31	28	90
33256	0	0	0	0	0	0	20	98	720	24	0	0	0	30	17	130
33257	0	0	0	0	0	0	20	90	780	78	0	4	0	28	12	100
33258	0	0	5	0	2	0	10	74	600	104	10	2	0	27	32	150
33259	4	0	5	0	2	0	10	64	480	39	0	2	0	39	59	320
33260	0	0	10	0	0	0	0	100	710	68	0	0	0	24	6	160
33261	0	0	0	0	0	0	10	54	680	22	0	12	0	12	5	1230
33262	2	0	0	0	0	0	10	78	1280	13	2	4	0	14	2	350
33263	4	0	0	0	0	2	10	60	1080	0	2	4	0	4	0	530
33264	0	0	5	0	0	0	10	68	450	69	0	0	0.5	43	65	60
33265	0	0	0	0	0	0	0	72	630	111	0	32	2.5	33	15	110
33266	0	0	0	0	0	5	30	102	1300	53	2	0	0	17	5	210
33669	0	0	0	0	0	3	10	50	1320	0	0	8	0	5	0	630
33670	0	0	0	0	0	0	20	62	750	114	0	0	0	19	6	450
33671	0	0	0	0	0	0	10	60	430	55	4	2	0	27	29	330
33672	0	0	0	0	0	0	0	110	990	17	4	0	0	8	2	450
33676	0	0	0	0	3	0	20	80	880	91	0	2	0	28	8	340

Table 1a. 1989 Rock Analyses (cont.)

Sample #	Fe%	Mn	Cr	Mg%	V	Al%	Be	Ca%	Ti%	Sr	Na%	K%
32851	5.98	2445	414	2.46	132	7.02	0	15.87	0.37	93	0.21	0.07
32852	4.95	1125	52	1.95	189	11.01	0	6.81	0.53	336	2.43	0.05
32853	2.03	230	89	0.11	16	7.37	0	1.04	0.49	217	2.46	4.26
32854	2.81	260	46	0.74	47	7.14	0	0.75	0.38	130	3.72	1.34
32855	4.82	545	59	1.56	101	7.97	0	1.69	0.76	231	3.79	0.82
32856	5.53	660	16	1.76	139	10.46	0	3.53	0.45	305	1.46	2.41
32857	3.46	1045	30	0.71	24	7.24	0	1.12	0.57	122	3.98	2.02
32858	1.31	735	52	1.17	1	6.14	0	0.22	0.11	46	1.71	2.23
33255	6.38	1125	48	2.46	209	8.71	0	4.92	0.51	540	2.13	0.53
33256	7.39	1700	60	2.72	274	8.83	0	5.49	0.68	261	2.21	0.32
33257	6.45	1350	27	2.21	262	9.15	0	4.81	0.61	350	1.58	0.37
33258	5.89	1020	121	2.38	242	8.52	0	2.73	0.54	269	1.34	0.59
33259	5.84	1090	141	3.39	165	7.95	0	4.89	0.47	311	1.87	0.29
33260	7.29	1410	30	1.91	277	7.86	0	5.01	1.18	198	2.97	0.35
33261	3.43	600	23	0.76	83	8.37	0	4.05	0.46	1130	2.64	0.52
33262	4.86	1240	12	1.38	100	8.44	0	3.62	0.61	314	2.98	1.08
33263	2.95	405	12	0.71	25	8.31	0	1.59	0.43	233	3.05	1.12
33264	5.94	1080	159	4.01	191	8.02	0	5.93	0.46	183	1.51	0.19
33265	5.76	1090	47	2.53	214	9.46	0	6.21	0.51	258	2.13	0.37
33266	5.85	1365	6	1.51	134	7.11	0	2.91	0.79	149	3.87	0.72
33669	3.41	520	18	0.81	28	8.62	0	1.75	0.41	280	3.55	1.22
33670	5.77	750	11	1.44	226	6.36	0	3.43	0.71	1390	1.86	0.82
33671	5.89	965	150	2.01	161	7.66	0	5.93	0.49	1025	1.76	0.26
33672	4.79	1275	24	0.82	12	7.18	0	1.74	0.54	362	3.41	1.15
33676	6.13	1140	42	2.77	242	8.37	0	3.91	0.68	2720	2.22	1.11

Table 1a. 1989 Rock Analyses (cont.)

Sample #	Au(ppb)	Pd(ppb)	Pt(ppb)	Ag	Sn	Mo	W	Zn	P	Cu	Pb	Bi	Cd	Co	Ni	Ba
33677	0	0	0	0	0	0	20	72	800	41	0	0	0	24	8	260
33678	0	0	0	0	0	0	20	94	690	57	0	0	1	34	27	210
33679	0	0	0	0	0	0	10	90	1270	6	2	0	0	12	3	330
33680	0	0	0	0	0	0	10	72	610	70	0	0	0	31	19	190
33682	0	0	0	0	0	0	20	92	1810	113	0	0	0	23	12	330
33683	0	0	0	0	0	0	0	78	1010	175	2	0	0	34	16	210
33684	0	0	0	0	0	0	0	66	1220	2	0	0	0	7	1	370
33688	0	0	0	0	0	1	0	50	570	11	0	0	0	4	1	600
33701	0	0	0	0	0	0	20	100	900	100	0	0	0	40	36	110
33702	0	0	0	0	0	1	10	82	740	69	0	0	0	39	36	140
33704	6	0	5	0	0	1	0	74	520	16	0	0	0	26	38	100
33706	10	0	0	0	0	0	10	64	1120	20	0	0	0	7	7	320
33707	0	0	0	0	0	0	0	76	1190	4	0	0	0	6	0	360
33708	2	0	0	0	2	0	0	50	1060	2	4	0	0	0	1	480
33709	0	0	0	0	0	0	0	60	1100	0	0	0	0	0	1	340
33711	4	0	5	0	0	6	10	66	1270	0	0	0	0	1	0	530
33716	8	0	5	0	0	0	10	62	300	32	0	0	0	35	39	100
33717	0	0	0	0	0	1	10	94	1340	4	0	2	0	14	1	120
33718	0	0	0	0	0	1	20	84	660	87	0	6	0	30	12	100
33719	0	0	0	0	2	1	10	88	1040	0	0	0	0	12	1	270
33721	0	0	0	0	2	0	10	60	1100	37	0	0	0	4	1	180

Table 1a. 1989 Rock Analyses (cont.)

Sample #	Fe%	Mn	Cr	Mg%	V	Al%	Be	Ca%	Ti%	Sr	Na%	K%
33677	5.62	1050	37	2.61	225	7.68	0	3.71	0.62	955	1.86	1.01
33678	6.26	1230	101	3.43	239	7.98	0	5.65	0.61	296	1.92	0.55
33679	4.71	1225	13	1.41	105	7.73	0	2.37	0.62	150	3.03	0.99
33680	5.86	1095	57	3.09	190	7.99	0	4.91	0.56	718	1.65	0.43
33682	6.27	1145	28	1.92	218	8.29	0	5.17	0.91	417	2.23	1.06
33683	7.06	925	21	1.75	240	6.26	0	4.25	0.78	399	2.11	0.61
33684	3.87	800	9	1.07	65	8.31	0	2.21	0.56	353	3.18	0.67
33688	2.82	855	14	0.43	29	7.55	0	1.62	0.38	195	2.75	1.86
33701	7.93	1405	74	3.22	321	7.86	0	5.61	0.87	229	1.69	0.53
33702	6.56	1170	94	3.61	237	8.36	0	5.89	0.61	236	1.84	0.25
33704	5.61	1410	183	2.09	248	8.12	0	3.49	0.55	252	0.68	0.28
33706	4.87	365	23	0.68	167	7.44	0	1.71	0.66	134	2.59	1.49
33707	4.07	885	13	1.31	86	8.01	0	1.92	0.59	222	3.51	1.43
33708	3.27	465	18	0.47	40	7.11	0	1.41	0.51	154	2.76	3.16
33709	3.69	280	12	0.41	35	7.37	0	1.85	0.52	113	3.23	1.31
33711	3.88	490	17	1.04	40	7.18	0	1.35	0.56	203	3.24	1.51
33716	6.75	640	114	1.48	223	7.74	0	3.21	0.55	267	1.04	0.31
33717	4.82	1375	7	1.61	93	8.44	0	4.12	0.61	279	3.08	0.21
33718	6.31	1500	32	2.05	279	9.72	0	7.13	0.67	275	2.21	0.21
33719	4.63	1190	1	1.66	47	8.27	0.5	2.59	0.59	172	3.25	1.41
33721	6.32	480	17	1.06	167	7.46	0.5	1.62	0.81	82	2.95	0.76

Table 1b. 1989 Rock Sample Locations and Descriptions

Sample	Latitude(N)	Longitude(W)	Twp(N)	Rge(E)	Sec	Brief description
32851	62 18 18	147 56 47	26	8	34	FeO-stained zone (3 ft wide) with trace dissem. pyrrhotite and chalcopyrite(?) in welded tuff
32852	62 19 23	147 52 40	26	8	24	Dark gray, fine-grained tonalite finely dissem. pyrite
32853	62 18 16	147 54 51	26	8	35	Pyritic pod (2 ft wide) in 70 x 200 ft long rusty zone in flows and tuff
32854	62 22 45	147 38 13	26	10	5	Layer (70-100 ft wide) of FeO-stained light gray-green pyritic tuff in mafic flows
32855	62 22 45	147 38 13	26	10	5	Pyritic version of sample 32854
32856	62 18 16	147 54 51	26	8	35	High-grade grab of sample 32853
32857	62 16 6	147 41 11	25	10	7	Dark tan feldspar porphyry dike intruding basalt
32858	62 18 11	147 57 1	26	8	34	FeO-stained, light gray, silicious, aphanitic, pyritic tuff
33255	62 13 12	147 40 58	25	10	31	Brick red volcanic breccia
33256	62 13 34	147 42 9	25	9	25	Dark gray, magnetic, fine-grained mafic volcanic
33257	62 13 31	147 42 16	25	9	25	Light tan weathered, dark green aphanitic volcanic with finely dissem pyrite
33258	62 13 33	147 42 27	25	9	25	Dark gray basalt/andesite, trace pyrite
33259	62 14 11	147 42 45	25	9	24	Maroon-colored volcanic breccia
33260	62 14 22	147 43 6	25	9	24	Columnar-jointed basalt/andesite
33261	62 14 25	147 43 16	25	9	23	Tan weathered aphanitic mafic volcanic
33262	62 14 45	147 43 17	25	9	23	Orange-tan weathered, gray-green andesite porphyry with calcite-, epidote-altered feldspars
33263	62 14 48	147 43 23	25	9	23	FeO-stained horizon (100 ft thick), arsenopyrite stain on siliceous, gray-green dacite(?)
33264	62 15 9	147 38 34	25	10	17	Brick-red oxidized zone, 3 ft thick, between flows 20-70 ft thick
33265	62 15 13	147 38 40	25	10	17	Dark olive-green basalt/andesite
33266	62 15 57	147 39 52	25	10	7	Dark red-brown, magnetic, aphanitic basalt/andesite
33669	62 14 46	147 43 21	25	9	23	Red-orange gossan, yellow-green alteration, flecks of 2 metallic minerals in qtz
33670	62 15 30	147 40 32	25	10	18	Maroon-colored top of flow, some malachite
33671	62 14 51	147 41 56	25	9	24	Vesicular, maroon-colored top of flow, vesicles filled with qtz(?)
33672	62 15 30	147 42 10	25	9	13	Porphyritic black volcanic, malachite(?)
33676	62 17 14	147 41 37	25	9	1	Pink-colored, altered tuff with pyrite

Table 1b. 1989 Rock Sample Locations and Descriptions (cont.)

Sample	Latitude(N)			Longitude(W)			Twp(N)	Rge(E)	Sec	Brief description
33677	62	17	13	147	41	37	25	9	1	Green-colored, altered tuff, pyrite
33678	62	17	6	147	42	4	25	9	1	Salmon-colored volcanic, olive-green weathered rind, finely dissem. pyrite and aspy(?)
33679	62	17	25	147	42	52	25	9	1	Chlorite-altered crystal-lithic tuff, feldspars to 1 cm
33680	62	14	19	147	44	31	25	9	23	Bright red weathered vesicular lahar, gypsum(?) filling vesicles
33682	62	14	40	147	44	25	25	9	23	Mafic, fine-grained dike rock
33683	62	14	36	147	44	32	25	9	23	Basalt/andesite float in creek with Cu stain
33684	62	15	2	147	42	40	25	9	13	Limonite-stained mafic volcanic with 2 metallic minerals
33688	62	16	33	147	43	39	25	9	11	Limonite stained volcanic, 2 metallic minerals
33701	62	14	14	147	43	49	25	9	23	Black, magnetic, aphanitic dike
33702	62	14	14	147	43	49	25	9	23	Vesicular basalt; silica, gypsum(?), trace magnetite in vesicles
33704	62	14	12	147	44	25	25	9	23	Blue-green, pyritic, aphanitic volcanic float in tundra
33706	62	17	47	147	40	24	26	10	31	FeO-stained tuffaceous breccia
33707	62	17	53	147	40	42	26	10	31	FeO-stained lt. green crystal-lithic tuff; hornblende, plag. phenocrysts, trace pyrite
33708	62	17	52	147	40	60	26	10	31	FeO-stained tuffaceous breccia
33709	62	18	26	147	40	39	26	10	31	Blue-green, pyritic tuff
33711	62	18	53	147	41	39	26	9	25	Limonite stained zone, 20 ft wide, between agglomerate and overlying lt green tuff
33716	62	14	12	147	44	25	25	9	23	Blue-green, pyritic, aphanitic volcanic float in tundra
33717	62	14	17	147	44	21	25	9	23	Fine-grained, magnetic, mafic dike (15 ft wide) cutting lahar
33718	62	14	35	147	44	23	25	9	23	Mafic, aphanitic dike (3 ft wide)
33719	62	14	55	147	44	12	25	9	23	Brick red, siliceous, vein material up to several feet wide intruding basalt
33721	62	15	4	147	42	36	25	9	13	Rock chip sample across 10 ft thick pyritic zone in layered mafic volcanics

Table 2a. 1989 Stream Sediment Analyses

Sample #	Au(ppb)	Pd(ppb)	Pt(ppb)	Ag	Sn	Mo	W	Zn	P	Cu	Pb	Bi	Cd	Co	Ni	Ba
33267	8	0	0	0	0	0	0	72	1370	47	8	0	0	15	16	250
33268	6	0	0	0	0	1	0	104	1280	24	8	0	0	13	12	360
33269	4	0	0	0	0	0	10	108	1020	45	6	0	0	19	14	340
33270	0	0	0	0	0	0	0	94	1310	19	6	0	0	12	14	410
33271	0	0	0	0	0	0	10	98	910	40	4	0	0	18	9	290
33272	16	0	0	0	0	0	10	84	940	70	2	0	0	26	24	210
33673	0	0	0	0	0	1	10	112	970	34	2	0	0	16	7	330
33674	0	0	0	0	0	0	20	102	1090	62	0	0	0	21	8	230
33675	0	0	0	0	0	0	10	98	990	7	4	0	0.5	11	4	370
33681	2	0	0	0	0	0	20	96	900	72	0	0	0	25	18	230
33685	2	0	0	0	0	0	10	86	660	82	0	0	0	32	30	210
33686	0	0	0	0	0	0	10	78	670	91	0	0	0	29	30	160
33687	0	0	5	0	0	0	10	92	680	23	0	0	0	14	12	290
33689	0	0	0	0	0	0	10	94	890	17	2	0	0.5	14	7	290
33690	6	0	0	0	0	0	10	104	890	33	0	0	0	20	16	280
33700	0	0	0	0	0	0	10	104	400	12	0	4	0	10	4	220
33703	4	0	10	0	0	0	10	378	470	75	6	0	1.5	49	50	140
33705	0	0	0	0	0	0	10	86	630	60	0	0	0	32	30	190
33710	4	0	0	0	0	0	10	92	960	30	2	0	0	17	13	360
33712	6	0	0	0	0	0	10	112	1130	54	6	0	0	23	17	270
33713	0	0	0	0	0	0	0	72	1260	36	4	6	0	16	11	350
33714	2	0	0	0	0	0	10	88	980	33	6	2	0	14	6	250
33715	0	0	0	0	0	0	0	90	640	61	0	0	0	33	32	180
33720	6100	0	0	0	0	0	0	82	720	45	4	8	0	19	23	470
33733	na	na	na	0	0	0	0	94	1620	28	6	2	0	11	14	220
33734	56	0	0	na	0	na	na	na	na	na	na	na	na	na	na	na
33735	6	0	0	0	0	0	0	92	650	28	2	0	0	23	18	300

na = not analyzed

Table 2a. 1989 Stream Sediment Analyses (cont.)

Sample #	Fe%	Mn	Cr	Mg%	V	Al%	Be	Ca%	Ti%	Sr	Na%	K%
33267	4.14	615	42	1.15	122	6.41	0	2.02	0.45	259	1.06	0.84
33268	4.05	965	31	1.08	97	6.86	0	2.18	0.51	239	1.56	0.82
33269	6.08	1180	36	1.41	179	7.67	0	2.57	0.82	336	1.87	1.04
33270	3.68	770	43	1.13	96	7.08	0	2.02	0.47	240	1.58	0.78
33271	5.87	1205	33	1.29	154	7.38	0	2.36	0.71	257	2.06	1.01
33272	5.54	995	66	2.07	194	7.56	0	3.31	0.58	332	1.45	0.61
33673	6.03	1245	23	1.19	149	7.53	0	1.89	0.78	199	2.17	1.19
33674	6.51	1355	26	1.61	232	7.58	0	3.51	0.84	234	2.39	0.69
33675	4.61	1215	11	0.95	81	7.43	0	1.93	0.61	193	2.59	1.25
33681	6.57	1200	53	1.66	205	7.85	0	3.71	0.85	322	1.71	0.59
33685	6.38	1215	121	2.61	223	7.75	0	3.54	0.66	256	1.43	0.61
33686	6.13	980	100	2.16	206	7.89	0	4.45	0.63	283	1.41	0.54
33687	4.74	1295	49	1.22	101	7.86	0	3.32	0.5	190	2.34	1.01
33689	5.26	1395	32	1.31	109	8.25	0	3.15	0.62	202	2.25	1.01
33690	6.28	1310	75	1.46	187	7.28	0	2.53	0.88	236	1.89	0.81
33700	4.68	330	21	0.52	38	11.24	0	1.35	0.45	182	1.01	0.23
33703	6.33	1535	148	3.11	220	8.04	0	3.41	0.54	263	1.11	0.45
33705	6.19	1255	89	2.62	201	7.98	0	4.23	0.69	282	1.51	0.48
33710	4.98	1110	44	1.22	125	7.53	0	2.43	0.68	208	2.13	0.97
33712	5.02	1010	49	1.53	159	7.39	0	2.46	0.53	313	1.37	0.65
33713	3.91	900	35	1.33	106	7.45	0.5	2.71	0.46	276	1.65	0.84
33714	4.99	970	34	1.14	119	7.41	0	3.13	0.67	133	2.32	0.91
33715	6.42	1300	98	2.68	217	7.82	0	4.22	0.75	260	1.51	0.44
33720	4.58	850	81	1.18	141	6.81	0	2.06	0.57	215	1.32	0.84
33733	2.15	1340	34	0.79	58	4.61	0	2.16	0.19	146	0.73	0.46
33734	na	na	na	na	na	na	na	na	na	na	na	na
33735	5.36	1390	82	1.38	148	6.79	0	2.24	0.62	236	1.28	0.73

na = not analyzed

Table 2b. 1989 Stream Sediment Sample Locations

Sample	Latitude(N)	Longitude(W)	Twp(N)	Rge(E)	Sec
33267	62 16 30	147 40 26	25	10	7
33268	62 16 35	147 40 29	25	10	7
33269	62 16 35	147 40 9	25	10	7
33270	62 16 30	147 40 34	25	10	7
33271	62 16 10	147 41 10	25	10	7
33272	62 16 5	147 41 16	25	9	12
33673	62 16 51	147 39 42	25	10	6
33674	62 16 49	147 39 40	25	10	6
33675	62 16 48	147 40 12	25	10	6
33681	62 14 38	147 44 24	25	9	23
33685	62 15 15	147 42 33	25	9	13
33686	62 15 16	147 42 37	25	9	13
33687	62 16 36	147 43 27	25	9	11
33689	62 16 30	147 44 3	25	9	11
33690	62 16 31	147 44 11	25	9	11
33700	62 14 26	147 43 22	25	9	23
33703	62 14 12	147 44 16	25	9	23
33705	62 14 7	147 44 39	25	9	26
33710	62 18 23	147 40 58	26	10	31
33712	62 18 14	147 37 38	26	10	32
33713	62 18 43	147 36 20	26	10	28
33714	62 18 57	147 38 31	26	10	29
33715	62 14 13	147 44 35	25	9	23
33720	62 14 59	147 43 43	25	9	23
33733	62 15 9	147 44 42	25	9	14
33734	62 15 18	147 45 41	25	9	15
33735	62 15 27	147 46 1	25	9	15

**Table 3a. 1990 Rock Analyses
(ppm unless otherwise noted)**

SAMPLE	Au ppb	As	Ag	Bi	Co	Cu	FeX	Mn	Mo	Ni	Pb	W	Zn
90BT160	0	2	0	0.3	7	28	5.82	575	1	2	0	0	72
90BT163	0	2	0	0.4	9	19	4.16	855	0	0	0	0	80
90BT168	0	1	0	0.4	0	1	0.36	240	0	0	0	0	14
90BT188A	0	3	0	0.3	0	4	0.41	85	0	0	0	0	8
90BT188B	0	3	0	0.4	1	5	0.75	250	0	0	0	0	26
90BT188C	0	2	0	0.5	1	49	1.06	355	0	0	0	0	72
90BT190A	20	84	0	2.8	0	45	1.78	10	2	0	0	19	10
90BT190B	30	72	0	3.1	0	98	1.42	5	1	0	0	18	6
90BT197	0	1	0	0.4	0	1	0.25	80	0	0	0	0	10
90BT200A	0	1	0	0.4	2	0	1.31	245	0	0	0	0	36
90BT200B	0	1	0	0.3	0	1	0.23	70	0	0	0	0	10
90BT210	0	2	0	0.4	6	5	4.43	965	2	0	0	0	66
90BT211	0	2	0	0.3	10	8	2.86	580	0	0	0	0	50
90BT221	0	4	0	0.4	8	12	3.54	745	0	0	0	0	78
90HA78	0	42	0	0.4	9	91	2.57	310	2	10	0	0	44
90HA97	0	13	0	0.5	11	57	3.32	155	1	7	0	0	42
90HA100	0	10	0	0.7	4	7	3.88	595	0	0	6	0	78
90JK87	0	2	0	0.4	9	81	3.09	315	1	6	0	0	46
90JK88	0	24	0	1.7	13	46	6.13	595	4	5	2	3	88
90JK114	0	6	0	0.4	13	110	5.33	1090	1	7	0	0	92
90KC2	0	2	0	0.5	12	29	4.9	3785	7	2	0	0	106
90KC4	0	90	0	0.6	37	1161	6.02	550	21	31	0	0	54
90KC6	0	2	0	0.5	4	61	3.77	160	2	0	0	0	26
90KC11	0	2	0	0.4	1	13	0.79	370	0	0	0	0	24
90KC12	0	4	0	0.4	0	5	0.68	345	1	0	2	0	20
90KC16	0	8	0	1.3	3	2	2.86	385	1	6	0	0	30
90KC17	0	6	0	0.8	2	3	2.75	935	0	6	14	2	116
90KC18	0	3	0	0.6	1	16	1.19	450	2	0	22	0	74
90KC19	235	28	34.5	5	35	>10000	11.48	755	6	1	116	0	>10000

Table 3a. 1990 Rock Analyses (cont.)

SAMPLE	Au ppb	As	Ag	Bi	Co	Cu	Fe%	Mn	Mo	Ni	Pb	W	Zn
90KC26	0	1	0	0.4	1	24	1.04	305	0	0	0	0	75
90KC34	0	13	0	0.3	14	312	2.22	115	2	1	0	0	38
90KC40	0	260	0	0.2	28	48	3.43	15	13	23	10	3	90
90KC46	0	28	0	0.5	7	30	4.53	570	2	10	0	2	96
90KC47	0	9	0	0.9	0	6	0.63	15	17	8	0	2	8
90KC48	0	3	0	0.4	13	68	3.56	640	0	16	0	0	80
90KC50	0	2	0	0.3	2	3	1.32	315	0	1	0	0	26
90KC55	0	8	0	0.4	7	15	2.59	990	0	15	0	0	44
90KK1	20	2	0	1.3	10	697	2.25	225	1	25	0	0	42
90KK2	0	3	31	0.5	10	>10000	5.77	3835	7	18	0	5	452
90WG24	0	6	0	0.4	2	71	1.17	155	1	0	2	3	14
90WG31	10	14	2.5	0.2	7	1412	2.55	405	0	0	0	0	86
90WG38	0	7	0	0.4	7	53	6.37	355	0	3	0	2	48
90WG58	0	10	0	0.4	6	31	7.15	325	0	3	0	2	48
90WG64	0	2	0	0.3	19	166	3.11	785	0	16	2	0	54
90WG66	0	2	0	0.3	7	36	3.31	825	0	3	2	0	68
90WG68	0	4	0	0.4	3	14	1.66	270	0	1	0	0	42
90WG70	0	2	0	0.3	3	3	1.66	465	0	1	0	0	40
90WG77	0	2	0	0.4	4	19	2.15	515	2	2	4	0	60
90WG78	0	4	0	0.5	10	4	3.95	295	1	28	0	2	24
90WG79	0	3	0	1	2	6	4.12	150	2	1	0	0	14
90WGB1	0	10	0	0.7	8	11	5.18	240	2	1	0	0	30

Table 3b. 1990 Rock Sample Locations and Descriptions

Sample	Long.(W)	Lat.(N)	Twp(N)	Rge(E)	Section	Brief field description
90BT160	147.9360	62.3215	25	8	2	Tertiary conglomerate
90BT163	147.8158	62.3577	26	9	20	Breccia zone (1-2 m wide) within metasandstone and metasiltsstones of Talkeetna Fm.
90BT168	147.7969	62.3752	26	9	9	Green/gray andesite
90BT188A	147.9478	62.3811	26	8	10	Hydrothermally altered pegmatite dike with quartz vug fillings
90BT188B	147.9478	62.3811	26	8	10	Hydrothermally altered pegmatite dike with quartz vug fillings
90BT188C	147.9478	62.3811	26	8	10	Coarse grained granodiorite
90BT190A	147.9375	62.3835	26	8	10	Pyrite-bearing quartz veins to 30 cm wide, 3 veins recognized
90BT190B	147.9375	62.3835	26	8	10	Quartz veins in pegmatite
90BT197	147.9558	62.4837	28	8	34	Pegmatite with large (4 cm) K-feldspar crystals
90BT200A	147.9882	62.4849	28	8	28	Weakly foliated coarse grained biotite granite
90BT200B	147.9883	62.4849	28	8	28	Pink pegmatite
90BT210	147.6697	62.3090	25	10	7	Porphyritic flow with masses of reddish chert and malachite(?) stain
90BT211	147.6858	62.3042	25	10	7	Quartz carbonate vein/veinlet system intruding sheared portion of Talkeetna Fm. flow
90BT221	147.7928	62.3240	25	9	4	Light gray-green to pink weathering lapilli tuff, disseminated pyrite
90HA78	147.9762	62.4110	27	8	28	Quartz biotite gneiss with iron-stained quartz and pegmatite veining
90HA97	147.8568	62.3024	25	9	7	Iron-stained, greenish gray basalt with pyrrhotite
90HA100	147.8047	62.3165	25	9	4	Black-green basalt
90JK87	147.8728	62.3404	26	9	30	Porphyritic, mafic flow with sulfides
90JK88	147.8712	62.3349	26	9	31	Pyritic andesitic to dacitic volcanic
90JK114	147.6184	62.3408	26	10	28	Dacite(?) tuff
90KC2	147.6453	62.4060	27	10	32	Iron-stained tuffaceous siltstone within Jtk.
90KC4	147.9984	62.3036	25	8	9	Chalcopyrite-, pyrrhotite-bearing mafic volcanic of Talk. Fm., high grade from moraine
90KC6	147.9962	62.3046	25	8	9	Rusty area (20 m diam.) within dark gray-green basalt/andesite
90KC11	147.9459	62.3060	26	8	10	Light tan aphanitic volcanic with chlorite blebs after feldspar(?)
90KC12	147.9678	62.2997	25	8	15	Light gray-green, tan weathering, siliceous, pyritic felsite intruding Talkeetna Fm.
90KC16	147.9454	62.3361	26	8	34	Orange-weathering, gray, siliceous, welded tuff with disseminated pyrite
90KC17	147.9472	62.3354	26	8	34	Iron stained siliceous, welded tuff with disseminated pyrite
90KC18	147.9528	62.3326	26	8	34	Gray-green siliceous tuff with white salts weathering out along joint surfaces
90KC19	147.9583	62.3326	26	8	34	Sulfide-rich clay gouge in 10 cm wide shear zone in siliceous tuff (sample 90KC18)

Table 3b. 1990 Rock Sample Locations and Descriptions (cont.)

Sample	Long.(W)	Lat.(N)	Twp(N)	Rge(E)	Section	Brief field description
90KC26	147.8546	62.4676	27	9	6	Garnet-bearing pegmatite
90KC34	147.7989	62.4828	28	9	33	Rusty zone (5 cm wide) associated with gouge-filled shear (3-8 cm wide) in gneiss
90KC40	147.8327	62.2887	25	9	17	Pyritic, light green tuff with coal clasts in landslide associated with much clay
90KC46	147.9807	62.2903	25	8	16	Pyritic basalt/andesite of Talkeetna Fm., rusty zone 30 m wide
90KC47	147.9642	62.2927	25	8	15	Felsite that intrudes Jurassic mafic volcanics
90KC48	147.9025	62.2922	25	8	13	Tertiary mafic volcanic, 1 cm long amber-colored, translucent (fs?) crystals
90KC50	147.7008	62.4079	27	9	36	Gray siliceous aphanitic dike (2 m wide) intruding mafic Talkeetna Fm.
90KC55	147.9543	62.2929	25	8	15	Iron-cemented Tertiary conglomerate
90KK1	148.0004	62.3016	25	8	9	Basalt/andesite of Talkeetna Fm., iron-stained with trace chalcopyrite
90KK2	147.9539	62.3011	25	8	10	Cpy-bearing volcanic of Talkeetna Fm., in scree below 30 x 60 m stain near felsite
90WG24	147.9801	62.3324	26	8	33	iron-stained zone 70 m thick forms south border of granite, quartz and pyrite rich
90WG31	147.9924	62.3550	26	8	21	Chalcopyrite along small fracture in granodiorite
90WG38	147.9091	62.3572	26	8	23	Limonite-, hematite-cemented Tertiary conglomerate
90WG58	147.8620	62.4202	27	9	30	Iron-stained pebbly agglomerate, 10 x 6 m zone in Talkeetna Fm.
90WG64	147.6768	62.2944	25	10	18	Brick red weathering, turquoise-stained mafic tuff breccia
90WG66	147.6032	62.3096	25	10	9	Buff weathering, dark gray to brick red lapilli tuff breccia with some turquoise stain
90WG68	147.6129	62.2896	25	10	16	Felsite
90WG70	147.5619	62.2888	25	10	14	Calcite cemented mafic flow breccia within Talkeetna Fm.
90WG77	147.8568	62.3012	25	9	7	Med-fn gr, slightly iron-stained granite, appears to intrude breccia of Talkeetna Fm.
90WG78	147.8569	62.3002	25	9	7	Iron-stained, hornfelsed Talkeetna Fm.
90WG79	147.8575	62.2995	26	10	18	Pyritic felsite in Talkeetna Fm.
90WG81	147.5780	62.3569	26	10	22	Pyritic felsite or aplite mixed with pyritic andesite

**Table 4a. 1990 Pan Concentrate Analyses
(ppm unless otherwise noted)**

SAMPLE	Au ppb (30 g smpl)	Au ppb (10 g smpl)	Au oz/T	As	Ag	Bi	Co	Cu	Fe%	Mn	Mo	Ni	Pb	Sn	W	Zn	Sampling comments
90HA85	705	-	-	2	0	0.2	9	28	>15.00	590	10	6	0	0	3	74	Good black sands, 5 colors Au (v. fine)
90HA86	>10000	-	0.302	1	0	0.2	3	10	10.45	1255	3	2	0	5	3	34	Abundant garnet and gold
90HA87	-	1360	-	1	0.5	0.3	11	20	>15.00	1070	10	11	0	3	3	92	Little black sand
90HA88	4260	-	-	5	3.0	0.2	12	25	7.62	1430	2	12	0	5	2	68	At least 3 colors Au
90HA89	-	5060	-	16	0.5	0.5	13	378	5.30	2280	1	10	8	4	2	76	2 colors Au
90HA90	4800	-	-	1	0	0.2	5	10	10.75	635	1	2	0	5	3	30	At least 5 colors Au, abundant garnet
90HA91	-	0	-	11	0.5	0.5	10	42	>15.00	1170	5	9	0	4	17	76	Below orange anomaly
90HA92	15	-	-	4	0	0.2	22	78	>15.00	760	6	14	0	2	4	68	No visible Au
90HA93	-	0	-	3	0	0.2	22	54	14.05	2520	1	18	0	2	2	338	No visible Au
90HA102	not/ss	not/ss	-	0	0	0.1	8	10	14.90	1135	1	10	0	4	3	70	At least 7 colors Au, garnet
90HA103	not/ss	not/ss	-	2	0	0.2	5	9	>15.00	1005	4	6	0	3	2	100	3 colors Au (v. fine)
90KC03	>10000	-	0.532	0	0	0.2	9	14	>15.00	975	0	16	0	2	2	58	5 colors Au, black sands with garnet
90KC04	>10000	-	0.566	0	0	0.2	8	14	13.70	1025	0	11	0	2	0	50	6 colors Au, garnet in pan

**Table 5a. 1990 Stream Sediment and Soil Analyses
(d = soil, s = sediment; ppm unless otherwise noted)**

SAMPLE	Au ppb	As	Ag	Bi	Co	Cu	Fe%	Mn	Mo	Ni	Pb	W	Zn
90BT189d	15	3	0	0.4	7	10	2.78	640	0	2	100	2	72
90KC7s	25	7	0	0.3	13	40	3.09	885	0	12	2	0	80
90KC41s	0	10	0	0.4	18	38	5.15	1040	0	9	2	0	128
90KC54s	15	5	0	0.3	18	43	4.02	875	0	19	2	0	88

not/ss = not sufficient sample

- = not analyzed

Table 4b. 1990 Pan Concentrate Sample Locations And Descriptions

Sample	Long.(W)	Lat.(N)	Twp(N)	Rge(E)	Section	Predominant lithology in stream drainage
90HA85p	147.8910	62.3691	26	8	13	Tertiary conglomerate
90HA86p	147.9110	62.3586	26	8	23	Tertiary conglomerate
90HA87p	147.8602	62.3699	26	9	18	Tertiary conglomerate and Jurassic(?) granodiorite
90HA88p	147.8440	62.3398	26	9	30	Tertiary conglomerate and Talkeetna Fm. volcanics
90HA89p	147.9517	62.2927	25	8	15	Tertiary conglomerate
90HA90p	147.9089	62.3586	26	8	23	Tertiary conglomerate
90HA91p	147.9501	62.3918	26	8	3	Jurassic(?) granodiorite
90HA92p	147.9644	62.4059	27	8	34	Jurassic(?) trondhjemite and migmatite
90HA93p	147.8225	62.3113	25	9	8	Tertiary volcanics
90HA102p	147.5909	62.4126	27	10	27	Tertiary conglomerate and Talkeetna Fm. volcanics
90HA103p	147.7890	62.4636	27	9	4	Tertiary conglomerate
90KC3p	147.6688	62.5002	28	10	19	Tertiary conglomerate
90KC4p	147.6593	62.5002	28	10	19	Tertiary conglomerate

Table 5b. 1990 Stream Sediment and Soil Sample Locations and Descriptions

Sample	Long.(W)	Lat.(N)	Twp(N)	Rge(E)	Section	Comments
90BT189d	147.9421	62.3828	26	8	10	Orange soil near pegmatite intruding granite
90KC7s	147.9651	62.3004	25	8	10	Drains felsite intrusive into Talkeetna Fm. volcanics
90KC41s	147.8327	62.2887	25	9	17	Small stream through light green tuff in Tertiary volcanics
90KC54s	147.6230	62.3998	27	10	33	Drains orange-stained ridge within Talkeetna Fm. volcanics

APPENDIX

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

1989 ROCK SAMPLES

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
205	36	Rock Geochem: Crush, splitting
232	36	Total ICP digestion

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
973	36	Au ppb: ICP-fluorescence package	FA-ICP-AFS	2	10000
977	36	Pd ppb: ICP-fluorescence package	FA-ICP-AFS	2	10000
976	36	Pt ppb: ICP-Fluorescence package	FA-ICP-AFS	5	10000
554	36	Mu ppm: 24 element, rock & core	ICP-AES	1	10000
556	36	W ppm: 24 element, rock & core	ICP-AES	10	10000
558	36	Zn ppm: 24 element, rock & core	ICP-AES	2	10000
559	36	P ppm: 24 element, rock & core	ICP-AES	10	10000
560	36	Pb ppm: 24 element, rock & core	ICP-AES	2	10000
561	36	Bi ppm: 24 element, rock & core	ICP-AES	2	10000
562	36	Cd ppm: 24 element, rock & core	ICP-AES	0.5	10000
563	36	Co ppm: 24 element, rock & core	ICP-AES	1	10000
564	36	Ni ppm: 24 element, rock & core	ICP-AES	1	10000
565	36	Ba ppm: 24 element, rock & core	ICP-AES	10	10000
566	36	Fe %: 24 element, rock & core	ICP-AES	0.01	25.0
568	36	Mn ppm: 24 element, rock & core	ICP-AES	5	10000
569	36	Cr ppm: 24 element, rock & core	ICP-AES	1	10000
570	36	Mg %: 24 element, rock & core	ICP-AES	0.01	25.0
572	36	V ppm: 24 element, rock & core	ICP-AES	1	10000
573	36	Al %: 24 element, rock & core	ICP-AES	0.01	25.0
575	36	Be ppm: 24 element, rock & core	ICP-AES	0.5	10000
576	36	Ca %: 24 element, rock & core	ICP-AES	0.01	25.0
577	36	Cu ppm: 24 element, rock & core	ICP-AES	1	10000
578	36	Ag ppm: 24 element, rock & core	AAS	0.5	200
579	36	Ti %: 24 element, rock & core	ICP-AES	0.01	10.00
582	36	Sr ppm: 24 element, rock & core	ICP-AES	1	10000
583	36	Na %: 24 element, rock & core	ICP-AES	0.01	10.00
584	36	K %: 24 element, rock & core	ICP-AES	0.01	20.0
19	36	Sa ppm: NH4I sublimation, extrac	AAS	2	1000

1989 ROCK SAMPLES (Cont.)

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
299	24	Sample split from other certif
238	24	ICP: Aqua regia digestion

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
921	24	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
922	24	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100
923	24	As ppm: 32 element, soil & rock	ICP-AES	5	10000
924	24	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
925	24	Bc ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
926	24	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
927	24	Cd %: 32 element, soil & rock	ICP-AES	0.01	15.00
928	24	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
929	24	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
930	24	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
931	24	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
932	24	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
933	24	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
934	24	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
935	24	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
936	24	La ppm: 32 element, soil & rock	ICP-AES	10	10000
937	24	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
938	24	Mn ppm: 32 element, soil & rock	ICP-AES	1	10000
939	24	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
940	24	Na %: 32 element, soil & rock	ICP-AES	0.01	5.00
941	24	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
942	24	P ppm: 32 element, soil & rock	ICP-AES	10	10000
943	24	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
944	24	Sb ppm: 32 element, soil & rock	ICP-AES	5	10000
945	24	Sc ppm: 32 elements, soil & rock	ICP-AES	1	100000
946	24	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
947	24	Ti %: 32 element, soil & rock	ICP-AES	0.01	5.00
948	24	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
949	24	U ppm: 32 element, soil & rock	ICP-AES	10	10000
948	24	V ppm: 32 element, soil & rock	ICP-AES	1	10000
949	24	W ppm: 32 element, soil & rock	ICP-AES	10	10000
950	24	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

1989 STREAM SEDIMENT SAMPLES

SAMPLE PREPARATION

CHEMICAL CODE	NUMBER SAMPLES	DESCRIPTION
201	8	Dry, sieve -80 mesh; soil, sed.
203	17	Dry, sieve -35 mesh and ring
217	2	Geochem: Ring only, no crush/split
222	27	Total ICP digestion

ANALYTICAL PROCEDURES

DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
Au ppb: ICP-fluorescence package	FA-ICP-AES	2	10000
Pd ppb: ICP-fluorescence package	FA-ICP-AES	2	10000
Pt ppb: ICP-Fluorescence package	FA-ICP-AES	5	10000
Mo ppm: 24 element, rock & core	ICP-AES	1	10000
W ppm: 24 element, rock & core	ICP-AES	10	10000
Zn ppm: 24 element, rock & core	ICP-AES	2	10000
P ppm: 24 element, rock & core	ICP-AES	10	10000
Pb ppm: 24 element, rock & core	ICP-AES	2	10000
Bi ppm: 24 element, rock & core	ICP-AES	2	10000
Cd ppm: 24 element, rock & core	ICP-AES	0.5	10000
Co ppm: 24 element, rock & core	ICP-AES	1	10000
Ni ppm: 24 element, rock & core	ICP-AES	1	10000
Ba ppm: 24 element, rock & core	ICP-AES	10	10000
Fe %: 24 element, rock & core	ICP-AES	0.01	25.0
Mn ppm: 24 element, rock & core	ICP-AES	5	10000
Cr ppm: 24 element, rock & core	ICP-AES	1	10000
Mg %: 24 element, rock & core	ICP-AES	0.01	25.0
V ppm: 24 element, rock & core	ICP-AES	1	10000
Al %: 24 element, rock & core	ICP-AES	0.01	25.0
Be ppm: 24 element, rock & core	ICP-AES	0.5	10000
Ca %: 24 element, rock & core	ICP-AES	0.01	25.0
Cu ppm: 24 element, rock & core	ICP-AES	1	10000
Ag ppm: 24 element, rock & core	AAS	0.5	200
Ti %: 24 element, rock & core	ICP-AES	0.01	10.00
Sr ppm: 24 element, rock & core	ICP-AES	1	10000
Na %: 24 element, rock & core	ICP-AES	0.01	20.00
K %: 24 element, rock & core	ICP-AES	0.01	20.0
Sn ppm: NH4I sublimation, extrac	AAS	2	1000

1990 ROCK SAMPLES

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
248	51	Geochem Er ring approx 150 mesh
294	51	Crush and split (0-10 pounds)
238	51	NITRIC-AQUA REGIA DIGESTION
287	51	Special dig'n with organic ext'n

ANALYTICAL PROCEDURES

DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
Au ppb: Fuse 30 g sample	FA-AAS	5	10000
As ppm: HNO ₃ -aqua regia digest	AAS-HYDRIDE/EDL	1	10000
Ag ppm: 9 element, soil and rock	ICP-AES	0.5	200
Co ppm: 9 element, soil & rock	ICP-AES	1	10000
Cu ppm: 9 element, soil & rock	ICP-AES	1	10000
Fe %: 9 element, soil & rock	ICP-AES	0.01	15.00
Mn ppm: 9 element, soil & rock	ICP-AES	5	10000
Mo ppm: 9 element, soil & rock	ICP-AES	1	10000
Ni ppm: 9 element, soil & rock	ICP-AES	1	10000
Pb ppm: 9 element, soil and rock	ICP-AES	5	10000
Sn ppm: 9 element, soil & rock	ICP-AES	2	10000
W ppm: K pyrosulfate fusion	COLORIMETRIC	2	1000
Bi ppm: HCl-KClO ₃ digest, extract	AAS-BROD CORR	0.1	1000

1990 PAN CONCENTRATE SAMPLES

SAMPLE PREPARATION		
CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
248	17	Geochem Ir ring approx 150 mesh
294	17	Crush and split (0-10 pounds)
238	17	NITRIC-AQUA REGIA DIGESTION
287	17	Special dig'n with organic ext'n

ANALYTICAL PROCEDURES

DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
Au ppb: Fuse 30 g sample	FA-AAS	5	10000
Au ppb: Fuse 10 g sample	FA-AAS	5	10000
As ppm: HNO ₃ -aqua regia digest	AAS-HYDRIDE/MDL	1	10000
Ag ppm: 9 element, soil and rock	ICP-AES	0.5	200
Co ppm: 9 element, soil & rock	ICP-AES	1	10000
Cu ppm: 9 element, soil & rock	ICP-AES	1	10000
Fe %: 9 element, soil & rock	ICP-AES	0.01	15.00
Mn ppm: 9 element, soil & rock	ICP-AES	5	10000
Mo ppm: 9 element, soil & rock	ICP-AES	1	10000
Ni ppm: 9 element, soil & rock	ICP-AES	1	10000
Pb ppm: 9 element, soil and rock	ICP-AES	5	10000
En ppm: 9 element, soil & rock	ICP-AES	2	10000
W ppm: K pyrosulfate fusion	COLORIMETRIC	2	1000
Sb ppm: NH ₄ I sublimation, extrac	AAS	2	1000
Bi ppm: HCl-KClO ₃ digest, extrac	AAS-EXGD CORR	0.1	1000
Au oz/T: 1/2 assay ton	FA-GRAVIMETRIC	0.003	20.000

1990 STREAM SEDIMENT SAMPLES

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
201	2	Dry, sieve to -80 mesh
202	4	save reject
203	2	Dry, sieve to -35 mesh
205	2	Geochem ring to approx 150 mesh
238	4	NITRIC-AQUA REGIA DIGESTION
287	4	Special dig'n with organic ext'n

ANALYTICAL PROCEDURES

DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
Au ppb: Fuse 30 g sample	FA-AAS	5	10000
As ppm: HNO ₃ -aqua regia digest	AAS-HYDRIDE/MDL	1	10000
Ag ppm: 9 element, soil and rock	ICP-AES	0.5	200
Co ppm: 9 element, soil & rock	ICP-AES	1	10000
Cu ppm: 9 element, soil & rock	ICP-AES	1	10000
Fe %: 9 element, soil & rock	ICP-AES	0.01	15.00
Mn ppm: 9 element, soil & rock	ICP-AES	5	10000
Mo ppm: 9 element, soil & rock	ICP-AES	1	10000
Ni ppm: 9 element, soil & rock	ICP-AES	1	10000
Pb ppm: 9 element, soil and rock	ICP-AES	5	10000
Zn ppm: 9 element, soil & rock	ICP-AES	2	10000
N ppm: K pyrosulfate fusion	COLORIMETRIC	2	1000
Bi ppm: HCl-KClO ₃ digest, extract	AAS-BRGD CORR	0.1	1000