

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GEOCHEMICAL DATA FROM THE NABESNA A-2 QUADRANGLE, ALASKA

By

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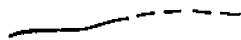
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This report is preliminary
and has not been edited or
reviewed for conformity with
Geological Survey standards
or nomenclature.

MAP EXPLANATION

Nabesna A-2 quadrangle,
Alaska



Approximate contact of Klein Creek
batholith; dashed where covered.



Stream sediment sample
and number

Solid circle indicates presence of
anomalous elements. Anomalous ele-
ments and their concentration (in
ppm) shown. See Table 1 for addi-
tional analytical data.



Rock sample and number
See Table 2 for sample description
and analytical data.



Altered areas

Conspicuous limonite-staining due
principally to weathering of dis-
seminated sulfides in bedrock. May
also include area of hydrothermal
alteration.



Localities described in "Economic
geology notes" section in this report.

TABLE 1

Analyses of stream sediments
Nabesna (A-2) quadrangle, Alaska

L, detected, but below limit of determination. N, not detected.
Limit of determination shown in parenthesis under element.

Sample No.	Concentration (ppm)										
	Au (0.02)	Ag (0.5)	B (10)	Cr (5)	Cu (2)	Mo (2)	Ni (2)	Pb (10)	Sc (5)	V (5)	Zn (200)
AGG 174	L	N	30	150	50	N	50	10	20	150	L
AGG 175	L	N	30	150	150	5	70	20	20	150	L
AGG 176	L	L	30	150	100	L	50	15	20	150	L
AGG 177	L	L	50	150	100	L	70	20	20	150	L
AGG 178	L	N	30	150	70	N	50	15	20	150	L
AGG 179	L	N	70	150	100	N	50	20	15	150	L
AGG 180	L	L	70	100	100	N	70	15	15	150	200
AGG 181	L	L	50	300	150	N	70	15	20	150	L
AGG 182	L	L	30	150	70	N	50	10	20	200	200
AGG 183	L	L	20	150	100	N	50	15	15	150	L
AGG 184	L	L	20	100	70	N	50	15	15	200	L
AGG 185	L	L	50	150	150	N	50	15	20	200	L
AGG 186	L	L	30	70	30	N	30	10	15	150	L
AGG 187	L	L	30	150	100	L	50	15	20	200	L
AGG 188	L	N	20	150	50	N	70	30	20	200	L
AGG 189	L	L	30	500	100	L	150	30	30	200	L
AGG 190	L	N	15	150	70	N	50	30	20	150	L
AGG 191	L	L	15	150	70	L	50	20	20	150	L
AGG 192	L	N	L	150	30	N	50	15	20	150	L
AGG 193	L	N	30	70	150	L	50	20	20	150	L
AGG 194	L	L	50	30	100	L	30	30	15	150	L
AGG 195	L	N	50	70	100	L	50	L	20	200	L
AGG 196	L	L	30	150	100	L	50	L	20	200	L
AGG 197	L	L	30	200	150	L	70	L	30	300	L
AGG 198	L	N	70	150	100	L	70	10	20	150	L
AGG 199	L	N	30	500	150	L	100	L	30	200	L
ACK 244	L	N	20	70	100	L	50	L	30	300	N
ACK 245	L	N	30	700	100	L	150	15	50	300	N
ACK 246	L	N	30	150	100	L	100	30	20	300	L
ACK 247	L	N	50	700	70	L	150	500	50	300	L
ACK 248	L	N	100	100	70	L	70	10	20	300	N
ACK 249	L	N	70	70	70	L	70	15	30	300	L
ACK 250	L	N	100	70	70	L	70	15	15	300	L
ACK 251	L	N	50	100	50	L	50	L	15	200	L
ACK 252	L	N	70	100	100	L	70	10	30	300	N

TABLE 1, cont.

Sample No.	Concentration (ppm)											
	Au (0.02)	Ag (0.5)	B (10)	Cr (5)	Cu (2)	Mo (2)	Ni (2)	Pb (10)	Sc (5)	V (5)	Zn (200)	
ACK 253	L	N	100	150	70	L	70	15	20	300	N	
ACK 254	L	N	70	150	70	L	70	20	15	150	N	
ACK 255	L	N	50	150	70	L	70	15	20	200	N	
ACK 256	L	N	100	150	70	L	100	15	30	300	L	
ACK 257	L	N	70	70	70	L	70	20	20	200	L	
ACK 258	L	N	150	150	70	L	70	20	30	300	L	
ACK 259	L	N	70	70	70	L	70	15	20	200	N	
ACK 260	L	N	70	70	70	L	70	15	15	200	L	
ACK 261	L	N	500	70	100	L	70	15	30	300	L	
ACK 262	L	N	30	300	100	L	70	L	30	300	L	
ACK 263	L	N	70	150	100	L	70	L	30	500	L	
ACK 264	L	N	20	200	70	L	100	L	30	500	L	
ACK 265	L	N	50	300	100	L	150	L	30	500	L	
ACK 266	L	N	30	500	70	L	150	L	30	500	L	
ACK 267	L	N	50	500	100	L	150	N	30	300	L	
ACK 268	L	N	30	700	150	L	150	10	50	500	200	
ACK 269	L	N	20	700	150	L	200	L	50	300	L	
ACK 270	L	N	20	1000	150	L	200	L	50	300	L	
ACK 271	L	N	70	300	150	L	150	N	70	500	L	
ACK 272	L	N	30	150	150	L	100	15	50	500	L	
ACK 273	L	N	100	200	150	L	100	N	30	500	L	
ACK 274	L	L	150	200	150	5	150	N	30	500	L	
ACK 275	L	N	100	150	100	L	100	30	30	300	L	
ACK 276	L	L	30	150	70	5	100	20	30	300	L	
ACK 277	.04	N	150	300	150	L	150	50	50	500	200	
ACK 278	L	N	70	150	150	L	100	N	30	300	L	
ACK 279	L	N	30	200	100	L	150	N	30	300	L	
ACK 280	L	L	70	70	70	L	50	10	20	200	L	
ACK 281	L	N	150	150	70	L	100	10	30	200	L	
ACK 282	L	L	100	70	70	L	70	15	30	200	L	
ACK 283	L	N	150	70	70	L	70	15	30	200	L	
ACK 284	L	N	150	70	70	L	30	L	20	150	L	
ACK 285	L	N	70	150	70	L	70	30	30	200	200	
ACK 286	L	L	50	100	70	L	50	10	20	200	L	
ACK 287	L	L	70	70	70	L	70	30	30	200	L	
ACK 288	L	L	15	150	300	L	150	50	30	200	300	
ACK 289	L	N	100	70	100	L	100	30	30	300	L	
ACK 290	L	N	150	300	200	5	150	L	30	700	L	
ACK 291	L	N	200	300	150	7	150	N	30	700	L	
ACK 292	L	N	20	300	150	L	150	N	30	500	N	

TABLE 1, cont.

Sample No.	Concentration (ppm)										
	Au (0.02)	Ag (0.5)	B (10)	Cr (5)	Cu (2)	Mo (2)	Ni (2)	Pb (10)	Sc (5)	V (5)	Zn (200)
ACK 299	L	L	200	150	150	L	100	20	30	300	L
ACK 300	L	L	200	300	150	L	150	15	30	500	L
ACK 302	L	N	70	100	70	5	70	20	30	300	L
ACK 303	L	N	70	100	100	L	70	20	20	300	L
ACK 304	L	N	70	150	70	L	70	15	20	200	N
ACK 305	L	.7	50	150	150	5	150	30	30	300	300
ACK 306	L	L	150	300	70	L	70	15	30	300	L
ACK 307	L	N	50	70	50	N	50	10	20	300	L
ACK 308	L	L	70	100	50	L	50	10	20	300	N
ACK 309	L	L	150	100	150	L	100	30	30	300	L
ACK 310	L	N	150	50	70	L	30	20	15	200	L
ACK 311	L	L	150	150	200	L	150	70	30	500	300
ACK 312	L	L	70	300	150	5	150	10	30	300	200
ACK 313	L	N	70	150	70	L	70	15	20	300	L
ACK 314	L	N	50	150	70	L	70	10	20	300	L
ACK 319	L	N	70	100	70	L	70	15	30	300	L
ACK 320	L	L	70	70	100	L	70	30	30	300	L
ACK 321	L	N	50	70	70	L	50	15	20	200	L
ACK 322	L	L	70	70	70	L	50	20	20	300	L
ACK 323	L	N	70	100	70	L	50	20	20	300	L
ACK 324	L	N	70	150	70	L	100	20	30	300	L
ACK 325	L	N	30	70	50	L	50	L	15	200	L
ACK 326	L	N	150	70	70	L	70	10	30	300	L
ACK 327	L	N	50	100	70	7	70	L	20	300	N
ACK 356	L	L	N	100	100	L	30	20	15	200	200
ACK 357	L	L	30	300	100	L	100	30	20	300	500
ACK 358	L	L	20	50	150	L	30	150	20	300	1500
ACK 359	L	L	30	15	100	5	15	100	20	300	300
ACK 360	L	L	20	30	200	5	30	100	20	300	500
ACK 361	L	L	15	20	100	L	15	150	15	200	300
ACK 362	L	L	70	200	100	L	70	20	30	300	L
ACK 363	L	.7	20	30	150	7	30	150	20	200	500
ACK 364	L	.7	30	150	200	L	70	70	30	300	500
ACK 365	L	L	30	300	200	L	100	100	30	300	300
ACK 366	L	L	30	50	70	L	30	500	15	150	1000
ACK 367	L	1	30	70	300	15	30	200	20	200	700
ACK 368	L	L	20	150	100	5	100	200	20	200	300
ACK 369	L	N	20	300	70	L	100	10	30	300	L
ACK 370	L	L	20	300	100	L	150	30	30	300	L
ACK 371	L	N	50	300	70	N	100	L	20	200	L

TABLE 1, cont.

Sample No.	Concentration (ppm)										
	Au (0.02)	Ag (0.5)	B (10)	Cr (5)	Cu (2)	Mo (2)	Ni (2)	Pb (10)	Sc (5)	V (5)	Zn (200)
ACK 372	L	L	50	150	70	L	70	20	30	300	500
ACK 373	L	N	15	300	70	L	100	L	30	300	L
ACK 374	L	N	70	200	70	L	100	L	30	300	L
ACK 375	L	N	70	300	70	L	100	10	30	300	200
ACK 376	L	N	50	300	70	L	150	10	30	300	L
ACK 377	L	N	70	200	100	L	100	10	50	500	L
ACK 378	L	N	15	300	70	L	100	L	30	300	L
ACK 379	L	N	30	300	70	L	100	10	30	300	L
ACK 380	L	N	50	300	70	L	70	30	30	500	L
ACK 381	L	L	30	700	70	L	100	10	30	300	200
ACK 382	L	N	20	150	70	L	70	30	30	300	L
ACK 383	L	L	10	15	70	N	30	200	15	150	500
ACK 384	L	.7	15	30	100	L	30	200	15	300	700
ACK 386	L	1.5	10	30	70	L	30	50	15	150	300
ACK 387	L	N	15	30	70	L	30	70	20	300	500
ACK 388	L	N	15	150	70	L	70	150	20	200	L
ACK 389	L	.7	30	100	150	L	70	200	20	300	300
ACK 390	L	N	20	500	100	L	100	N	30	300	L
ACK 391	L	N	30	500	100	L	150	10	30	500	L
ACK 392	L	N	20	150	70	L	100	L	30	300	L
ACK 393	L	N	50	150	70	L	70	10	30	300	N
ACK 394	L	N	20	500	100	L	150	15	30	300	N
ACK 395	L	N	15	700	50	L	150	N	30	300	L
ACK 396	L	N	15	300	50	L	150	10	30	300	L
ACK 397	L	N	15	300	30	N	100	N	30	200	L
ACK 398	L	N	30	150	70	L	50	L	30	300	L
ACK 399	L	N	50	150	70	L	70	L	30	300	L
ACK 400	L	N	30	300	100	L	70	L	30	300	N
ACK 401	L	N	20	300	70	L	100	L	30	300	L
ACK 402	L	N	15	700	70	L	150	L	30	300	L
ACK 403	L	N	30	300	70	L	150	L	30	500	L
ACK 404	L	L	30	300	70	L	150	L	30	300	N
ACK 405	L	N	20	200	70	L	150	L	30	300	N
ACK 406	L	N	30	200	70	L	70	N	20	300	L
ACK 407	L	N	50	300	70	L	150	L	30	300	L
ACK 457	L	L	70	100	70	5	70	30	20	200	L
ACK 458	L	L	70	150	70	L	50	30	15	150	L
ACK 459	L	L	100	70	70	L	100	L	30	200	L
ACK 460	L	L	150	70	70	L	70	10	20	200	300
ACK 461	L	N	30	70	70	L	50	15	15	150	L

TABLE 1, cont.

Sample No.	Concentration (ppm)										
	Au (0.02)	Ag (0.5)	B (10)	Cr (5)	Cu (2)	Mo (2)	Ni (2)	Pb (10)	Sc (5)	V (5)	Zn (200)
ACK 462	L	N	150	70	70	L	50	15	20	200	L
ACK 463	L	N	70	100	30	L	50	10	15	200	L
ACK 464	L	N	30	70	30	N	30	L	15	150	N
ACK 465	L	N	300	70	20	L	30	L	15	150	L
ACK 466	L	N	10	150	30	N	30	L	10	150	N
ACK 467	L	L	70	150	70	L	70	30	20	300	L
ACK 468	L	N	100	150	70	L	70	15	20	300	L
ACK 469	L	N	70	150	100	L	50	20	15	200	300
ACK 470	L	N	70	100	70	L	50	20	20	200	200
ACK 472	L	L	70	150	100	5	70	20	20	200	200
ACK 473	L	.7	70	100	100	5	70	30	20	200	200
ACK 474	L	L	300	150	70	L	70	30	30	200	L
ACK 475	L	L	70	100	70	L	50	30	15	200	L
ACK 476	L	N	50	100	30	L	50	10	20	200	L
ACK 477	L	L	50	150	50	L	50	10	20	300	L
ACK 478	L	L	50	100	70	L	50	15	15	200	L
ACK 479	L	L	30	150	70	L	50	15	15	200	L
ACK 480	L	N	70	100	50	L	30	10	20	150	L
ACK 481	L	L	50	70	70	L	30	20	15	200	L
ACK 482	L	L	70	100	70	L	50	30	20	200	L
ACK 483	L	L	30	100	50	L	30	15	15	150	L
ACK 484	L	N	50	100	30	L	30	15	15	150	L
ACK 485	L	N	70	70	70	L	50	20	20	200	L
ACK 486	L	N	50	100	70	L	50	30	15	150	L
ACK 487	L	L	50	100	70	L	50	20	15	200	L
ACK 488	L	L	70	150	100	L	70	30	15	200	L
ACK 489	L	L	70	70	70	L	50	20	15	200	L

Gold by atomic absorption. Analysts: King, H.D.; Miller, R.L.; Vaughn, W.

Other elements by semi-quantitative spectrographic. Analyst: Curry, K.J.

TABLE 2

Analyses of rocks, alteration zones and veins
Nabesna (A-2) quadrangle, Alaska

L, detected, but below limit of determination. N, not detected. G, greater than value shown. Limit of determination shown in parentheses under element.

Sample No.	Concentration (ppm)										
	Au (0.02)	Ag (0.5)	B (10)	Cr (5)	Cu (2)	Mo (2)	Ni (2)	Pb (10)	Sc (5)	V (5)	Zn (200)
AGG 200	L	N	10	700	150	L	150	L	30	200	L
AGG 201	L	L	70	20	200	L	30	15	15	200	L
AGG 202	L	3	30	30	1500	7	30	70	15	150	500
AGG 203	L	N	30	20	15	N	7	10	15	150	L
AGG 204	L	L	30	150	150	10	70	10	15	300	300
AGG 205	L	1.5	15	1500	500	L	100	30	20	300	500
AGG 207	L	N	10	50	150	L	30	L	30	300	N
AGG 208	L	N	30	15	300	L	5	10	20	200	L
AGG 209	L	L	70	100	70	L	50	L	20	300	N
AGG 210	L	N	15	150	15	L	30	10	15	150	N
AGG 211	L	L	70	100	70	L	30	15	15	200	L
AGG 212	L	N	50	100	30	L	30	10	15	150	L
AGG 213	L	L	30	30	150	50	15	L	15	150	L
AGG 214	L	L	70	70	100	L	50	30	15	150	L
AGG 215	L	N	200	15	70	L	30	10	20	150	500
AGG 390	.02	1	20	30	500	N	20	L	50	500	700
ACK 408	L	L	70	500	100	15	100	10	30	300	L
ACK 409	L	N	70	15	100	L	20	10	30	300	L
ACK 410	.1	N	15	70	200	15	30	10	15	100	L
ACK 411	L	L	15	150	70	L	70	L	20	300	200
ACK 412	L	N	15	15	150	N	15	N	10	300	N
ACK 413	L	2	15	15	1500	7	200	10	10	100	L
ACK 414	L	.7	15	100	300	L	50	30	20	300	L
ACK 415	.1	L	L	150	300	L	70	N	20	300	N
AGG 416	L	N	10	20	L	N	10	L	20	200	N
AGG 417	L	N	10	10	L	N	7	20	10	150	N
AGG 418	L	L	15	150	150	L	100	15	30	300	L
ACK 419	L	3	10	100	700	L	50	15	20	300	L
ACK 420	L	.7	15	150	70	L	100	2000	30	300	L
ACK 421	L	.5	15	15	50	7	10	15	10	150	N
ACK 422	L	L	L	10	70	N	10	10	15	150	L
ACK 423	L	1.5	15	10	15000	15	70	50	7	100	300
ACK 424	L	L	15	10	1500	15	10	20	10	150	300
ACK 425	L	L	10	10	300	15	10	15	5	150	N
ACK 426	L	L	10	10	70	7	10	50	10	150	200

TABLE 2, cont.

Sample No.	Concentration (ppm)										
	Au (0.02)	Ag (0.5)	B (10)	Cr (5)	Cu (2)	Mo (2)	Ni (2)	Pb (10)	Sc (5)	V (5)	Zn (200)
ACK 427	.2	L	L	20	700	7	15	15	15	150	L
ACK 428	.02	L	L	100	500	50	70	L	30	200	L
ACK 429	.04	1.5	15	70	200	L	30	20	30	200	200
ACK 430	.02	L	15	70	150	L	30	L	30	300	200
ACK 431	L	N	L	150	70	L	70	N	30	300	L
ACK 432	L	N	L	150	70	N	50	N	30	200	L
ACK 433	L	N	N	200	70	N	70	N	30	200	L
ACK 434	.2	.7	15	10	1500	15	10	10	5	100	N
ACK 435	.04	L	15	70	300	L	70	L	30	300	N
ACK 436	.1	N	10	10	300	10	7	L	5	100	N
ACK 437	.2	.7	20	70	200	L	30	50	20	100	L
ACK 440	L	.5	15	L	15	L	10	70	5	30	N
ACK 441	L	L	15	10	10	L	10	15	5	30	N
ACK 442	L	N	15	500	70	L	150	15	30	300	200
ACK 443	L	N	10	70	70	L	15	10	20	300	L
ACK 444	L	N	L	30	150	L	30	L	15	300	L
AMM 484	L	N	70	150	50	N	70	L	15	150	N

Gold by atomic absorption. Analysts: Friskin, J.G.; King, H.D.; Meier, A.L.;
Miller, R.L.; Vaughn, W.R.

Other elements by semi-quantitative spectrographic. Analysts: Curry, K.J.;
Siems, D.; Watts, K.C.

TABLE 2, cont.

Description of Samples

Sample No.	Description
AGG-200	Grab sample of sulfide-bearing volcanoclastics.
AGG-201	Chip sample across 3 feet of pyrite-bearing altered volcanoclastics.
AGG-202	Grab sample of pyrite-bearing massive green fragmental volcanics.
AGG-203	Chip sample across 300 feet of pyrite-bearing and limonite-stained fragmental volcanics.
AGG-204	Chip sample across 8 feet of limonite-stained zone in flow breccias.
AGG-205	Chip sample across 5 feet of limonite-stained zone in fine-grained volcanics near old prospect.

TABLE 2, cont.
Description of Samples

Sample No.	Description
AGG-207	Random chip sample of sulfide-bearing flow.
AGG-208	Random chip sample of altered zone in sheared gray plagioclase porphyry.
AGG-209	Random chip sample of altered porphyry dike.
AGG-210	Random chip sample of sheared and altered graywacke.
AGG-211	Random chip sample of altered area in graywacke-argillite beds.
AGG-212	Random chip sample of fine-grained hornblende quartz diorite.
AGG-213	Composite sample of talus from limonite-stained porphyry.
AGG-214	Composite sample of talus from limonite-stained graywacke-argillite beds.
AGG-215	Random chip sample of shear zone in red volcanic flows.
AGG-390	Random chip sample of altered porphyry.
ACK-408	Composite grab sample of gouge zone in volcanic flows.
ACK-409	Random grab sample of shear zone in hornfelsed argillite.
ACK-410	Grab sample of pyrite-bearing hornfelsed argillite.
ACK-411	Chip sample across 100 feet of pyrite-bearing hornblende diorite.
ACK-412	Random chip sample of limonite-stained pyrite-bearing diorite.
ACK-413	Grab sample of 3-foot pyrite lens in hornfelsed argillite-graywacke.
ACK-414	Random chip sample across 110 feet of altered pyrite-bearing diorite.
ACK-415	Random chip sample across 90 feet of pyrite-bearing hornfelsed graywacke-argillite.
AGG-416	Grab sample of hornblende plagioclase porphyry.
AGG-417	Grab sample of epidotized pyrite-bearing porphyry.
ACK-418	Grab sample of talus from limonite-stained pyrite-bearing hornfels.
ACK-419	Grab sample of float from limonite-stained hornfels-diorite contact.
ACK-420	Chip sample across 15 feet of shear zone in conglomerate.
ACK-421	Grab sample of altered granodiorite talus.
ACK-422	Grab sample of limonite-stained granodiorite.

TABLE 2, cont.
Description of Samples

<u>Sample No.</u>	<u>Description</u>
ACK-423	Grab sample of copper-stained sulfide-bearing granodiorite.
ACK-424	Grab sample of copper-stained diorite.
ACK-425	Grab sample of limonite-stained granodiorite.
ACK-426	Grab sample across 500 feet of limonite-stained granodiorite.
ACK-427	Grab sample of limonite-stained granodiorite.
ACK-428	Grab sample of limonite-stained granodiorite.
ACK-429	Grab sample across 2500 feet of limonite-stained hornfelsed volcanics.
ACK-430	Grab sample across 300 feet of limonite-stained hornfelsed volcanics.
ACK-431	Grab sample across 1000 feet of hornfels-diorite contact zone.
ACK-432	Grab sample of green amygdaloidal basalt.
ACK-433	Grab sample of maroon amygdaloidal basalt.
ACK-434	Grab sample of copper-stained diorite talus.
ACK-435	Grab sample across 500 feet of pyrite-bearing argillite talus.
ACK-436	Grab sample of silicified pyrite-bearing diorite.
ACK-437	Chip sample across 300 feet of pyrite-bearing hornfels.
ACK-440	Chip sample across 100 feet of limonite-stained gray porphyry.
ACK-441	Chip sample across 50 feet of limonite-stained granodiorite.
ACK-442	Chip sample across 200 feet of limonite-stained volcanic agglomerate.
ACK-443	Chip sample across 400 feet of limonite-stained hornfelsed volcanics.
ACK-444	Chip sample across two 2-foot pyrite-bearing zones in hornblende porphyry.
AMM-484	Channel sample across 3 feet of limonitic fault gouge.

Economic Geology Notes

Nabesna A-2 quadrangle,
Alaska

1. Chisana district placer gold fields. Has produced approximately \$970,000 in gold since discovery in 1913, with principal production between 1913 and 1916. Some claims are still being worked but gold production since 1940 has been insignificant. Source of gold is speculative. Dotted lines on accompanying map delineate areas where major placer deposits were found. For details see Capps (U.S.Geol. Bull.630).
2. Strongly limonite-stained and locally sheared hornfelsed volcanic rocks occur near the junction of Bonanza and Chathenda (Johnson) Creeks. A number of these altered areas were explored by adits and prospect pits as early as 1906. During and following the Chisana rush interest was revived in these altered rocks in an attempt to locate a source of the placer gold. Capps (U.S.Geol.Bull.630) mentions that the alteration zone at the mouth of Bonanza Creek contained visible gold but neither our sample collected here (#203) nor samples elsewhere from the altered zones (Nos. 202,204 and 205) contained detectable gold.
3. A small stock of limonite-stained diorite and surrounding hornfelsed argillites on upper Chathenda (Johnson) Creek locally exhibits abundant copper-staining on fracture surfaces.
4. Limonite-stained and altered granodiorite includes area 300 x 200 feet containing disseminated chalcopyrite and exhibiting minor copper-staining.
5. Same general altered zone in granodiorite as at number 4 with another area of disseminated chalcopyrite mineralization.

Analytical notes:

1. All stream sediment analyses performed on -80 mesh fraction.
2. In all analyses, with the exception of gold, the results are reported to the nearest number in series 1, 0.7, 0.5, 0.3, 0.2, 0.15, 0.1, etc.
3. Elements are considered anomalous if they are present in concentrations greater than 3 times mean background. Mean background in quadrangle closely approximates average crustal abundance, i.e., copper, 55 ppm; lead, 12.5 ppm; zinc, 70 ppm; and molybdenum, 1.5 ppm.