

BC  
Province of British Columbia  
Ministry of Energy, Mines and Petroleum Resources

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**GEOLOGY OF THE NANIKA LAKE  
MAP AREA**

NTS 093E/13

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SCALE 1:50 000

Energy, Mines and Resources Canada

THIS PROJECT IS A CONTRIBUTION TO THE CANADA/BRITISH COLUMBIA MINERAL DEVELOPMENT AGREEMENT, 1985-1990

- LEGEND**
- VOLCANIC AND SEDIMENTARY ROCKS**
- QUATERNARY**
- Qal Glacial till and alluvium
- LOWER CRETACEOUS**
- SKEENA GROUP**
- 1Ks Dark green and grey siltstone and sandstone with detrital muscovite; (KCs) conglomerates
- EARLY AND MIDDLE JURASSIC**
- HAZELTON GROUP**
- m7a Rhyolite flows, cream white to red, massive with flow-laminar, spherulitic and lesser fibrophytic, minor weakly and non-welded ash-fall tuff transitional with rhyolite flows, minor breccia
  - m7b Lapilli tuff and litho-crystal tuff with diagnostic aphyric and laminated rhyolitic fragments, rare volcanic siltstone and impure limestone
  - e7a Varigated maroon and green air-fall tuffs; well-layered beds with graded lapilli to ash-size fragments, accessory lapilli widespread within finer tuff layers, discontinuous interbeds of e7b and e7c
  - e7b Anygdalitic, aphyric basalt and porphyritic andesite flows
  - e7c Sparingly porphyritic dacite flows, minor ash-fall tuff and associated air-fall tuff containing felsic fragments
  - e7a Anvally extensive fresh flows of aphyric basalt with sparse pyroxene phenocrysts, porphyritic andesite; (a7a) monolithic basalt breccia interbedded with cognate flows of e7a
  - e7b Rhyolite flows, massive with spherulitic and laminated structure, minor monolithic breccia and related lapilli tuffs similar to e7b
  - e7c Well-layered, varigated maroon and green tuff successions composed of lapilli or smaller pyroclasts and accessory tuff; they occur between thick flows of e7a and e7b and in these absence they are indistinguishable from e7a
  - e7d Same as e7c except aphyric and flow-laminated rhyolitic fragments are widespread
  - e7e Green volcanic sandstones, siltstone and lesser mudstone derived in part from e7a, minor interbeds of thinly laminated impure limestone
  - e7f Well-layered, internally graded beds of green lapilli tuff to coarse ash; minor flows of aphyric basalt, porphyritic andesite and dacite; transitional contact with e7a established where thick flows dominate; impure limestone and minor tuffaceous chert between 1 and 10 metres thick occur near the top of e7f
- INTRUSIVE AND METAMORPHIC ROCKS**
- TERTIARY**
- Tg Pink micritic granite
- LATE CRETACEOUS OR TERTIARY**
- KTg Granodiorite with diagnostic potassium feldspar megacrysts and up to 5 per cent fresh biotite
- LATE CRETACEOUS**
- 1Kg Monite Lake phase (1Kg) Quartz monzonite, inequigranular, characterized by up to 45 per cent very coarse quartz and less than 7 per cent biotite, transitional contact with 1Kt; (1Kt) Granodiorite, equigranular and distinguished by chloritized biotite > hornblende in amounts between 3 and 20 per cent; fine-grained, grey quartz diorite and gabbro and andesite are diagnostic; pervasive fabric in 1Kg increases in intensity from the south and of Monite Lake towards the south-southwest
  - 1Kd Fine to medium grained diorite and quartz diorite
  - 1Kq Porphyritic quartz-feldspar dacite plug
- MIDDLE JURASSIC**
- m7m Pink, porphyritic monzonite with 3 to 7 per cent biotite, hornblende-quartz diorite may be a local border phase
- GAMSBY COMPLEX**
- m7d Hornblende diorite and hornblende-quartz diorite, dark green, medium to coarse grained, unfoliated to weakly foliated, rare xenoliths of biotite schist; local intrusive contact with m7c; includes abundant mafic dykes and dykes of 1Kt
  - m7g Greenish-grey flows of mafic and intermediate composition, lapilli tuff; amphibole grade schists and orthogneiss are intruded by and occur as reefs in 1Kt

REGIONAL STREAM AND LAKE SEDIMENT GEOCHEMICAL RECONNAISSANCE DATA

SAMPLE NO.	UTM EAST	UTM NORTH	As*	Ag	Al	Ba	Hg*	Sb	Pb	Cd	Zn	Cu	Mo	W	Ni	Co	Mn
86132	56459	596725	1	0.1	1	1180	20	0.1	3	0.1	36	21	1	1	13	7	480
86133	56469	5966216	1	0.1	1	600	10	0.2	1	0.1	29	29	1	1	12	7	350
86134	56508	596217	1	0.1	1	500	10	0.1	1	0.1	29	28	1	1	12	8	390
86142	56539	5961249	1	0.1	1	600	20	0.2	1	0.1	22	29	1	1	4	9	260
86146	59706	5974706	1	0.1	3	700	30	0.2	7	0.1	75	25	1	1	3	5	860
86150	59620	597181	0.1	3	300	20	0.4	3	0.1	65	30	1	1	1	10	810	597253
86154	59133	5968598	1	0.1	4	400	30	0.4	6	0.1	77	39	1	1	8	12	880
86165	58526	5964730	3	0.1	2	800	30	0.2	9	0.1	72	15	1	1	7	6	900
86166	59626	5964623	16	0.4	14	740	20	1.2	28	0.5	130	308	16	1	13	9	720
86168	59737	5962795	1	1.2	23	700	30	0.4	54	1	278	100	45	4	16	15	630
86169	59621	5962056	7	0.1	6	880	40	0.3	12	0.1	60	42	1	1	13	7	570
86170	59478	5960552	2	0.2	6	680	40	0.4	24	0.4	131	355	15	3	12	11	690
86171	59478	5960552	16	0.1	1	580	40	0.2	12	0.1	80	42	4	1	8	1130	591825
86172	59410	5957517	1	0.1	15	700	20	0.4	14	0.1	63	21	2	1	22	16	680
86173	59274	5957541	2	0.1	1	540	30	0.2	9	0.1	147	17	2	1	7	6	910
86174	591610	5966545	-1	0.1	3	600	20	0.2	9	0.1	56	28	1	1	10	6	580
86180	591878	5966273	-2	0.1	3	600	40	0.4	7	0.1	60	26	1	1	9	2	880
86183	59762	5963470	1	0.1	1	480	40	0.1	2	0.1	44	43	1	1	20	16	650
86184	59722	5962729	1	0.1	1	460	10	0.1	1	0.1	21	30	1	1	7	10	230
86185	59726	5962348	1	0.1	1	480	10	0.1	1	0.1	26	23	1	1	7	7	270
86186	59788	5963634	1	0.1	1	740	20	0.1	5	0.1	70	27	1	1	11	9	880
86187	59637	5961412	117	0.1	1	380	10	0.1	1	0.1	39	29	1	1	6	13	350
86188	59640	5957276	1	0.1	1	640	20	0.1	1	0.1	31	17	1	1	5	5	330
86189	59678	597321	1	0.1	2	500	20	0.2	6	0.1	77	36	1	1	3	8	850
86190	59274	5971785	6	0.1	1	420	20	0.2	4	0.1	82	44	1	1	3	9	880
86192	59705	5970523	1	0.1	1	440	20	0.2	2	0.1	25	31	1	1	8	11	280
86193	596180	5973254	3	0.1	1	1280	20	0.1	1	0.1	36	16	1	1	3	4	280
86194	59684	597182	16	0.1	1	1200	20	0.2	2	0.1	29	28	2	1	14	11	720
86195	59647	5976372	3	0.1	1	400	20	0.1	1	0.1	18	26	1	1	8	3	280
86196	597080	5977967	1	0.1	1	480	20	0.1	1	0.1	34	26	1	1	10	6	380
86197	597151	5977816	1	0.1	1	880	20	0.2	3	0.1	32	1	1	1	11	12	570
86198	59679	5960995	1	0.1	3	500	10	0.1	1	0.1	57	50	1	1	15	10	410
86199	59547	5977782	9	0.1	16	780	30	0.2	10	0.2	126	39	3	2	13	30	610
86200	59630	5968309	0.1	11	720	80	0.2	16	0.1	148	50	1	1	24	17	1700	
86201	597180	5961889	3	0.1	1	620	20	0.1	2	0.1	40	28	1	1	12	6	300
86202	59684	597182	16	0.1	1	1180	20	0.2	1	0.1	26	26	1	1	11	5	400
86203	59794	5981306	5	0.1	3	900	30	0.2	1	0.1	55	14	3	1	8	6	1700
86204	59732	5962820	1	0.1	3	780	30	0.2	6	0.1	88	23	2	1	12	10	1000
86205	59131	5977681	3	0.1	2	880	10	0.4	1	0.1	100	37	1	1	6	7	780
86206	59170	5960273	5	0.5	5	1240	30	0.6	69	0.6	253	29	1	1	7	9	1400
86207	58375	5977782	3	0.1	2	880	10	0.4	1	0.1	100	37	1	1	6	7	780
86208	59062	5960470	10	0.1	2	780	10	0.4	10	0.1	93	34	1	1	6	7	780
86209	58132	5962723	1	0.1	3	800	10	0.2	7	0.1	80	33	2	1	7	8	780
86210	59796	5977023	1	0.1	2	620	20	0.2	11	0.2	107	36	1	1	9	8	910

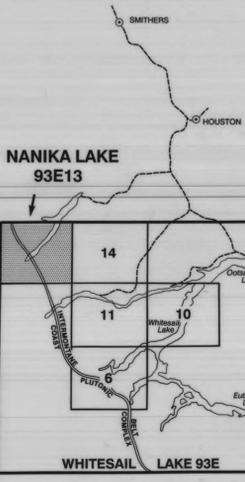
LITHOCHEMICAL ASSAY SAMPLES

SAMPLE NO.	UTM EAST	UTM NORTH	WIDTH (M)	Ag	Cu	Pb	Zn	As	Sb	LOCATION AND DESCRIPTION
86LD13.8	584424	5982184	2	361	1.80%	<3	72	3	1	Approximately 18.5 km. at 023° Azimuth from the head of Monite Lake. Chalcopyrite and pyrite occur in quartz breccia within an altered zone of pervasive siltite, 100 m. long and 30 m. wide, that is situated along a steeply dipping fault trending north-northeast.
86LD-13.4	597045	5968543	2	1.2	41	19	49	12	0.5	Approximately 3.5 km. at 010° Azimuth from the head of Monite Lake. Up to 5 per cent disseminated pyrite occurs in bleached mafic flows of the Gamsby Complex; they are partly replaced by clay minerals and siltite.
86LD-37.2	590064	5975558	1	<0.3	87	<3	107	4	0.7	Approximately 10.5 km. at 010° Azimuth from the head of Monite Lake; at the margin of a valley located. Quartz veinlets and quartz breccia containing pyrite, chalcopyrite and minor sphalerite occur in a fault zone.

MINERAL OCCURRENCES

NAME	MINIFLE OCCURRENCE NUMBER	DESCRIPTION	LOCATION AND REFERENCES
NEW MOON, NANIKA OPTIC, SILVER JOY	93E 011	Epithermal veins	13 km. at 014° Azimuth from the head of Monite Lake; at 2000 m. elevation. EMPR ASS 1971-201, 202, 7022, 9709, 11153, 11754, 15741, 15540, 15887, 16757, 16870 EMPR DCP, 1978-E139; 1978-E197, 1982-284, 1984-413 EMPR GEM 1971-146; 1973-323; 1974-244 EMPR FELLOWREP 1978 pp. 96-100
DW, CORB, CUP, NANIKA OPTIC, SILVER JOY	93E 055	Porphyry: disseminated and veinlets along faulted pluton margin	12.5 km. at 133° Azimuth from the head of Monite Lake, on the west slope of Nanika Lake. EMPR 1972-342; 1974-245 EMPR A1 1968-140 EMPR ASS 1977 427
RDS, RSM	93E 083	Porphyry: disseminated	About 24 km. at 043° Azimuth from the head of Monite Lake. North slope of Reddie Mountain at approximately 1500 m. elevation. EMPR ASS 1977 488, 595, 7715 EMPR DCP, 1978-E139; 1978-E133 EMPR GEM 1973-323; 1974-245

LOCATION



SYMBOLS

- Geological contact (defined, approximate, gradational)
- Unconformity
  - Thrust fault
  - Bedding
  - Foliation
  - Igneous layering
  - Age date site (age in ma)
  - Glacial stria
  - Limit of geologic mapping
  - MINIFLE location (MINIFLE number)
  - Assay sample site
  - Regional Geological Survey sample site
  - Gossan or altered country rock (mineral abbreviation)
  - Mineral occurrence (mineral abbreviation)
- MINERAL ABBREVIATIONS**
- clay
  - pervasive siltite
  - pyrite
  - chalcopyrite
  - malachite
  - pyroclastic
  - gabbro
  - sphalerite
  - granite
  - magnetite
- SOURCES OF GEOLOGIC INFORMATION**
- Carter, N.C. (1981): Porphyry Copper and Molybdenum Deposits, West-central British Columbia, B.C. Ministry of Energy, Mines and Petroleum Resources. Bulletin 64, 150 pages.
  - van der Heyden, P. (1981): U-Pb and K-Ar Chronometry of the Coast Plutonic Complex, 5371 to 5474, British Columbia, and Implications for the Intra-Intermontane Supersubduction Unroofing, unpublished Ph.D. thesis, The University of British Columbia, 382 pages.
  - Woodsworth, G.J. (1980): Geology of Whitesail Lake (93E) Map-area, Geological Survey of Canada, Open File Map 708.