Division of Geological & Geophysical Surveys

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LAND SELECTION UNIT 2 (NABESNA QUADRANGLE): REFERENCES, DGGS SAMPLE LOCATION, TRACE ELEMENT AND MAJOR OXIDE DATA

by

M.A. Wiltse and D.N. Solie

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LAND SELECTION UNIT 2 (NABESNA QUADRANGLE):
REFERENCES, DGGS SAMPLE LOCATIONS, TRACE ELEMENTS AND MAJOR OXIDE DATA

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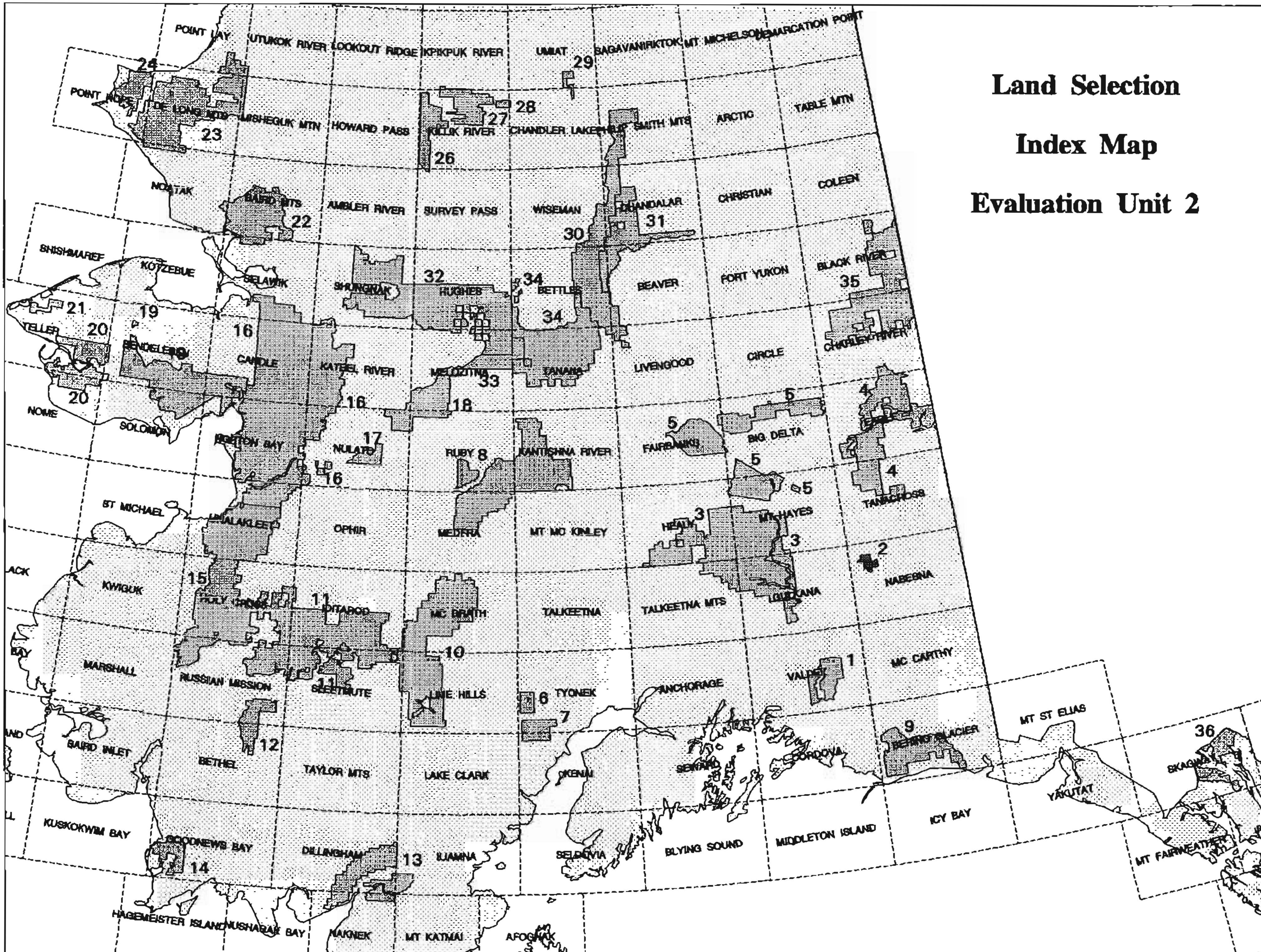
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EVALUATION UNIT 2

MENTASTA MOUNTAINS GEOLOGIC SUMMARY

Evaluation Unit 2 (the Mentasta Mountains unit) encompasses 87,833 acres in the northwestern corner of Nabesna Quadrangle. The most abundant bedrock has been identified as the Pennsylvanian to Permian (ca. 300 Ma) Tetlena volcanic rocks consisting of interbedded mafic to intermediate volcanic flows, debris avalanches, tuffs, and other volcanoclastic rocks (Richter, 1976). These are structurally and stratigraphically juxtaposed with more limited exposures of overlying Permian (ca. 280-245 Ma) volcanoclastic siltstones, tuffs, breccias, and bioclastic limestones. A small wedge of Triassic limestone is the youngest of the sedimentary rocks exposed. The stratified rocks are extensively faulted and intruded by two distinct plutonic igneous suites. The oldest of these, biotite-hornblende syenite-monzonite gneiss, has little indication of associated metallic mineralization. A younger (105-117 Ma) intrusive series of heterogeneous plutons varying in composition from mafic diorites to hornblende granodiorite and biotite quartz monzonite is spatially associated with gold and base-metal geochemical anomalies (Richter et al., 1968). Rock samples collected during the land selection survey confirm the presence of low grade bedrock gold mineralization. A small mafic biotite-hornblende pyroxene diorite (Suslota pluton) in intrusive contact with the Triassic limestone has formed a weak skarn zone in the adjacent limestone . The entire region encompassing Evaluation Unit 2 was subjected to alpine glaciation during Wisconsin time (ca. 9.6-25 Ka). Such glaciation usually degrades placer deposits, however, creeks in the evaluation unit have a limited gold placer potential.

Richter (1966) and Richter and Matson (1968) published accounts of gold and copper anomalies associated with the diorite and quartz-diorite rocks that extend into Evaluation Unit 2. Their work indicated that copper is widely dispersed in the diorites as chalcopyrite associated with pyrite, an association also observed during the present land selection survey. Extensive alteration and polymetallic stream sediment anomalies are present in the east-west canyon north of sample location 2230 (Sheet 1). Visible gold was not reported for any Richter and Matson (1968) rock samples and none was seen during the present survey. We observed no concentrations of secondary quartz veining, though our reconnaissance traverses were very limited. Richter and Matson (1968) hypothesize the presence of such veining prior to erosion.

While Richter and Matson (1968) suggest that gold anomalies are spatially associated with anomalous copper in the diorite complex, we note that lithologic gold anomalies in the Suslota pluton are closely correlated with a positive magnetic anomaly arising from magnetite concentrated along the northern margin of the pluton. This association suggests that gold in the Suslota skarn may be dispersed in magnetite as ultrafine grains and thus not in a form readily amenable to extraction by modern mining and milling technology.

Samples collected in Evaluation Unit 2 are described in Table 1. Table 2 reports resulkts of trace element analyses from rocks. Table 3 reports results of trace element analyses found in Richter and Matson (1968) for stream sediments collected within Evaluation Unit 2. Table 4 reports the major oxide analyses of rock samples collected in Evaluation Unit 2 and their gold-discriminant scores.

The gold discriminant scores presented in this report (Table- 4) are a reflection of how similar the samples rocks are to other systems which formed gold deposits around the world. The score is based on the discriminant functions developed by Newberry and Burns (1989) and discussed in detail by Burns and others (1991). The discriminant functions statistically determine the extent to which the composition of an unaltered sampled plutonic rock resembles major-oxide compositions of unaltered plutonic rocks associated with gold deposits worldwide.

The discriminant score is a number between 0 and 100; a score of 100 indicates that the composition of the sample is indistinguishable from those of gold-associated plutons; a score of 0 indicates the opposite. The score is <u>not</u> directly proportional to the amount of gold present and does <u>not</u>

indicate that there is gold at the sample site, but it is a good estimate of whether the sample belongs to a plutonic system that had the capability of depositing some gold.

Some important limitations which must be considered in the interpretation of the scores are:

1) Only analyses from relatively unaltered rocks can be used.

2) Rocks from porphyry Cu-Mo deposits (because of alteration) and aplites will both typically have a low discriminant score, even though they may be from systems that are related to gold.

3) Discriminant scores are not given for alkalic (nepheline-normative) rocks, but these rocks may be related to gold.

4) A small percentage of plutonic rocks may appear to be related to gold systems when they are not.

5) Since gold deposits appear to be concentrated in the country rock just above a pluton or in the uppermost part of a pluton, and the areal extent of plutonic exposure generally increases with depth of a given pluton, a large, deeply eroded pluton would be less likely to host gold even if the pluton had a highly favorable score.

GEOLOGIC RESOURCES

The following mineral deposit models have been chosen to estimate the mineral endowment of Evaluation Unit 2.

- **Polymetallic Veins:** There is a low potential for gold-bearing polymetallic vein deposits associated with the igneous diorite rocks within Evaluation Unit 2.
- **Gold-Copper Skarns (high carbonate):** There is a low to moderate potential for gold skarn mineralization associated with the Suslota Lake diorite pluton.
- **Placer Gold:** There is a moderate potential for small placer gold deposits in Evaluation Unit 2

Table-1. LAND SELECTION UNIT 2, SAMPLE DESCRIPTIONS

Sample	Description
606	Limonite-stained hornfels
607	Limonite-stained hornblende diorite
608	Limonite-stained diorite
609	Limonite-stained pyritic diorite
611	Fractured pyritic marble
612	Limonite-stained pyritic diorite
613	White silicicified marble
614	Brown and white banded silicified pyritic marble
615	Dark green pyritic amphibolite (metabasalt)
616	Dense limonite-stained pyrrhotite-, pyrite-bearing calcareous silicic hornfels
618	Black calcareous marble in tan hornfels
619	Black calcareous carbonate
620	Banded siliceous hornfels
622	Pyrite-, pyrrhotite-bearing hornfels
623	Duplicate of 612
624	Brown's Quarry standard
625	Random grab-sample of various pyrite-rich diorite phases
626	Hornblende diorite, fine-grained equigranular
627	Hornblende diorite
2210	Limonite-stained hornfels
2211	Hornblende diorite with epidote alteration and minor quartz veining
2212	Hornblende diorite, fine-grained, mafic variant
2213	Hornblende diorite, medium-grained
2214	Hornblende diorite with pyrrhotite and chalcopyrite along fractures
2215	Gabbro, contact zone
2216	Hornfels at contact with gabbro
2217	Gabbro with black drusy mineral along fractures
2218	Gossanous hornfels with abundant sulfides <5%
2219	Limestone with calcsilicate minerals
2220	Massive sulfide minerals in layered limestone, 1x2 cm
2221	Hornfels with sulfides
2222	Dark gray hornfels with epidote
2223	Medium-gray limestone with orange-brown fracture fillings
2224	Clasts of limestone in dark green matrix
2225	Hornfels, gossanous with abundant pyrrhotite and pyrite
2226	Hornfels, light-gray, largely silicified but still calcareous
2227	Sulfide-bearing biotite rock, possible igneous texture
2228	Duplicate of 2222
2229	Brown's Quarry standard
2230	Metavolcanic, medium to dark green, locally wil volcanic clasts, <1% pyrite
2231	Hornblende diorite, fine grained equigranular
2232	Diorite with abundant epidote veining
2233	Hornblende diorite with 5% scattered clots of pyrrhotite

Table-2. LAND SELECTION UNIT 2 - TRACE ELEMENT ANALYSES (Analyses by Bondar-Clegg)

Element	Method	Units	D.L.	Upper Limit	606	607	608	609	611	612	613	614	615	616	618	619	620	622	623	624	626	2210	2211
Ag	INAA	PPM	5	100	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Ag*	ICP	PPM	0.5	50	0.8	0.5	-0.5	-0.5	-0.5	-0.5	0.6	-0.5	-0.5	-0.5	2.5	2.2	-0.5	0.9	-0.5	0.5	1.3	-0.5	-0.5
Al	ICP	PCT	0.01	10	3.66	4.26	4	3.62	2.98	3.64	2.46	2.76	4.43	4.48	1.6	2.53	4.16	4.47	3.4	6.04	6.58	3.61	4.61
As*	INAA	PPM	1	10000	2	-1	-1	-1	6	13	3	6	5	2	15	7	4	2	11	1	1	2	-1
As	ICP	PPM	5	2000	42	75	54	-5	-5	-5	67	41	63	15	73	70	14	61	10	37	79	46	72
Au	INAA	PPB	5	10000	9	7	9	23	8	28	-5	7	-5	6	9	8	-5	8	17	-5	17	36	9
B	DCP	PPM	10	10000	24	16	13	33	17	19	39	31	31	20	31	65	39	16	11	13	10	19	26
Ba*	INAA	PPM	100	20000	880	450	240	350	880	280	1100	1300	460	1400	1100	2000	420	520	630	770	250	820	190
Ba	ICP	PPM	5	2000	463	327	145	205	178	170	879	268	352	103	794	887	343	138	206	629	214	642	174
Bi	AA	PPM	1	2000	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Br	INAA	PPM	1	1000	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1
Ca	ICP	PCT	0.01	10	3.76	6.02	8.21	7.15	7.08	7.48	9.96	4.3	8.81	6.15	6.09	8.59	7.28	5.51	6.18	5.11	5.53	3.97	6.33
Cd	INAA	PPM	10	2000	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	15	-10	-10	-10	-10	-10	-10	-10	-10
Cd*	ICP	PPM	2	2000	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	10	2.4	-2	-2	-2	-2	-2	-2	-2
Ce	INAA	PPM	10	10000	44	31	23	15	27	19	29	33	-10	-10	31	40	30	-10	23	57	18	38	18
Co	INAA	PPM	10	20000	19	33	33	29	17	25	-10	10	55	42	-10	13	48	62	30	44	27	-10	45
Co*	ICP	PPM	1	20000	13	22	24	21	16	20	8	8	35	32	9	12	31	36	24	28	19	9	41
Cr	INAA	PPM	50	20000	87	130	360	290	100	130	68	60	450	260	360	260	220	240	100	270	-50	-50	400
Cr	ICP	PPM	2	20000	37	62	138	98	49	79	28	45	169	97	209	176	109	117	66	123	29	11	124
Cs	INAA	PPM	1	10000	3	1	-1	-1	-1	-1	-1	-1	2	2	-1	-1	3	2	-1	1	-1	2	-1
Cu	ICP	PPM	1	20000	139	160	139	225	98	326	22	60	149	131	74	71	104	270	263	31	169	191	34
Eu	INAA	PPM	2	2000	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Fe*	INAA	PCT	0.5	10	7.3	7.6	10	8.2	10	10	2	3	7.9	8.1	3.2	2.6	9.4	10	10	8.4	9.1	5.8	8.9
Fe	ICP	PCT	0.01	10	4.09	4.64	5.84	6.12	6.45	8.61	1.65	2.27	6.18	5.68	2.2	2.28	6.43	6.55	7.37	6.03	6.17	4.15	6.28
Ga	ICP	PPM	10	2000	22	30	30	-10	10	-10	14	13	30	19	12	16	16	35	-10	25	35	17	27
Hf	INAA	PPM	2	2000	4	3	-2	-2	2	-2	-2	4	-2	-2	3	2	3	3	3	5	-2	2	-2
Ir	INAA	PPB	100	1000	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100
K	ICP	PCT	0.01	10	1.14	0.76	0.3	0.6	0.79	0.39	0.68	0.9	0.37	0.75	0.61	1.12	1.18	0.64	0.47	0.84	0.41	1.64	0.63
La*	INAA	PPM	5	10000	18	13	9	9	15	13	21	19	-5	8	22	23	11	6	16	28	8	17	7
La	ICP	PPM	5	2000	-5	7	-5	-5	7	8	16	10	-5	-5	19	24	8	-5	10	15	-5	5	-5
Li	ICP	PPM	2	2000	28	9	6	11	8	7	6	14	20	38	8	12	23	20	8	14	4	19	12
Lu	INAA	PPM	0.5	2000	-0.5	0.6	0.6	-0.5	0.6	-0.5	0.7	0.7	-0.5	0.6	-0.5	-0.5	-0.5	0.6	0.6	0.8	-0.5	-0.5	-0.5
Mg	ICP	PCT	0.01	10	1.52	2.4	3.57	3.02	1.97	1.97	1.17	1.11	3.58	3.92	0.23	0.61	2.66	3.48	1.49	2.85	2.68	1.37	4.47
Mn	ICP	PPM	5	20000	629	941	1091	988	1904	1446	1066	391	1004	1144	190	268	1006	1319	1283	1119	1164	570	1354
Mo	INAA	PPM	2	20000	-2	5	-2	4	7	6	3	18	-2	-2	12	9	-2	-2	6	-2	2	-2	-2
Mo*	ICP	PPM	1	20000	4	7	5	1	6	3	5	16	5	2	61	44	13	12	6	7	7	4	4
Na	INAA	PCT	0.05	10	2.5	2.3	2.1	1.9	1.5	1.1	0.77	1.6	2.3	2.5	1.3	0.79	2.3	2.6	0.86	2.3	2.4	2.6	2
Na	ICP	PCT	0.01	10	1.9	1.82	1.57	1.42	1.16	1.04	0.67	1.26	1.94	1.99	0.98	0.83	2.04	2.21	0.76	2.06	2.2	2.34	1.9
Nb	ICP	PPM	5	2000	14	16	16	10	8	8	17	7	16	9	7	10	10	14	7	22	13	9	12
Ni	INAA	PPM	20	20000	-20	41	-20	60	-20	-20	30	47	67	67	89	86	56	78	-20	86	-20	-20	47
Ni*	ICP	PPM	1	20000	13	21	27	46	8	16	21	30	68	70	87	94	56	64	19	73	13	2	76
Pb	AA	PPM	2	10000	13	4	13	19	3	-2	8	14	13	10	30	6	8	7	-2	8	3	-2	-2
Rb	INAA	PPM	10	10000	74	28	-10	33	37	11	34	49	-10	66	61	77	78	16	-10	51	27	78	22
Sb*	INAA	PPM	0.2	5000	1.9	0.6	0.9	1	1	6	1.2	2.9	1.5	1.2	6.7	3	1.5	0.6	5.6	0.4	0.6	0.6	-0.2
Sb	ICP	PPM	5	2000	-5	-5	-5	-5	-5	-5	22	11	30	30	19	30	20	37	11	21	39	24	33
Sc	INAA	PPM	0.5	2000	20	32	47	29	19	21	11	16	40	36	11	10	37	42	17	28	41	14	46
Se	INAA	PPM	10	2000	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	25	20	-10	-10	-10	-10	-10	-10	-10
Sm	INAA	PPM	0.2	2000	4.7	4.3	4.4	3.5	5.1	3.4	5.1	4.6	1.4	2.8	3.9	4.3	4.4	4	4.3	7.9	4.3	4.6	3.3
Sn	INAA	PPM	200	20000	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200
Sn*	ICP	PPM	20	2000	-20	26	36	-20	-20	-20	-20	-20	-20	21	-20	-20	-20	-20	-20	-20	-20	-20	-20
Sr	ICP	PPM	1	2000	546	434	529	304	322	267	243	189	307	260	154	225	397	304	343	388	601	706	330
Ta*	INAA	PPM	1	2000	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1
Ta	ICP	PPM	5	2000	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Tb	INAA	PPM	1	2000	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1

Table-2. LAND SELECTION UNIT 2 - TRACE ELEMENT ANALYSES (Analyses by Bondar-Clegg)

Element	Method	Units	D.L.	Upper Limit	606	607	608	609	611	612	613	614	615	616	618	619	620	622	623	624	625	2210	2211
Te	INAA	PPM	20	2000	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
Ta	ICP	PPM	25	2000	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25
Te*	AA	PPM	0.2	100	-0.2	0.7	0.3	-0.2	-0.2	0.7	-0.2	-0.2	0.2	-0.2	-0.2	-0.2	-0.2	-0.2	0.2	-0.2	-0.2	-0.2	-0.2
Th	INAA	PPM	0.5	2000	3.1	2.3	0.6	1.1	1.3	1.7	1.4	3	-0.5	0.6	4.8	4.4	1.9	0.7	1.7	3.7	-0.5	2.7	0.7
Ti	ICP	PCT	0.01	10	0.28	0.36	0.34	0.28	0.17	0.3	0.13	0.2	0.23	0.39	0.18	0.14	0.56	0.73	0.21	0.84	0.48	0.31	0.37
U	INAA	PPM	0.5	2000	1.8	1.1	-0.5	1.2	2.1	1.7	3	4.2	-0.5	-0.5	6.5	4.5	1.1	0.7	2	1.2	-0.5	1.8	-0.5
V	ICP	PPM	2	2000	140	227	252	190	127	183	121	217	239	218	444	292	360	309	142	132	286	140	298
W*	INAA	PPM	2	2000	-2	-2	-2	-2	3	2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
W	ICP	PPM	20	2000	27	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
Y	ICP	PPM	5	2000	8	11	10	12	13	20	27	16	7	12	18	24	13	18	23	22	12	9	12
Yb	INAA	PPM	5	2000	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Zn	INAA	PPM	200	20000	270	-200	-200	-200	-200	-200	-200	230	220	380	750	530	-200	290	-200	280	200	-200	-200
Zn*	ICP	PPM	2	20000	131	58	49	44	73	75	81	108	76	188	446	400	80	82	81	98	62	44	81
Zr*	INAA	PPM	500	10000	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	500	-500	-500	-500	-500	-500	-500	-500	-500
Zr	ICP	PPM	5	2000	41	22	17	24	20	39	33	55	22	22	32	28	28	18	30	128	8	43	28

Table-2. LAND SELECTION UNIT 2 - TRACE ELEMENT ANALYSES (Analyses by Bondar-Clegg)

Element	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2232	2233
Ag	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Ag*	0.7	1.3	1	0.9	0.7	0.7	-0.5	-0.5	-0.5	0.7	0.7	1.8	0.6	-0.5	-0.5	0.5	1.3	-0.5	-0.5
Al	4.47	1.91	5.01	4.49	5.11	3.71	4.05	4.77	4.41	1.22	2.38	4.37	2.59	4.44	4.98	4.92	4.88	3.23	2.59
As*	-1	-1	-1	-1	2	1	16	6	3	8	4	3	10	4	3	2	4	2	15
As	38	62	37	65	76	45	88	48	23	31	13	80	50	90	35	34	63	14	16
Au	8	140	40	30	34	20	10	15	6	-5	8	14	6	38	-5	-5	-6	-5	46
B	28	20	10	-10	14	297	290	15	-10	-10	-10	29	-10	14	13	15	14	10	10
Ba*	190	-100	180	150	190	470	3200	120	140	-100	-100	260	940	440	120	830	200	180	180
Ba	135	35	165	147	130	378	88	128	98	12	65	220	690	85	136	834	158	173	113
Bi	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Br	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1
Ca	6.77	10	7.98	8.74	8.46	10	7.3	5.22	5.07	10	10	6.73	10	5.28	4.42	5.04	7.31	6.9	3.7
Cd	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10
Cd*	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Ce	18	-10	-10	17	20	30	36	-10	-10	14	-10	-10	12	22	-10	70	23	32	26
Co	61	59	71	58	50	30	-10	46	56	15	21	64	18	36	55	44	31	18	41
Co*	45	64	59	51	32	23	8	31	41	16	17	40	14	24	42	30	23	15	39
Cr	60	360	330	810	650	190	64	180	92	-50	95	240	100	140	170	300	75	-60	150
Cr	42	163	193	242	204	67	52	94	69	31	41	118	59	60	94	139	39	12	66
Cs	-1	-1	-1	1	-1	-1	2	1	1	-1	-1	-1	-1	-1	2	1	-1	-1	-1
Cu	763	744	1105	254	412	494	61	115	148	45	111	276	52	86	269	31	53	61	42
Eu	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	2	-2	-2	2	-2
Fe*	10	6.9	10	10	10	6.8	4.4	10	10	1.4	4.3	10	3.4	7.7	10	9.2	8.6	7.6	6.5
Fe	9.08	6.94	7.65	7.58	6.43	4.64	3.76	9.06	9.71	1.24	3.24	6.83	2.65	5.2	10	6.09	6.65	5.06	5.92
Ga	33	33	40	36	31	25	-10	30	12	-10	-10	33	17	21	23	24	28	18	-10
Hf	-2	-2	-2	-2	-2	2	4	4	4	-2	-2	-2	-2	2	4	5	-2	3	5
Ir	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100
K	0.4	0.11	0.18	0.32	0.24	0.73	1.27	0.74	1.01	0.05	0.29	0.67	0.27	0.92	1.28	0.68	0.5	0.36	0.37
La*	6	-5	8	-5	8	23	17	8	6	7	-5	-5	14	10	8	27	9	13	10
La	-5	-5	-5	-6	5	17	18	5	-5	6	-5	-5	12	8	-5	14	8	-5	-5
Li	5	6	7	7	9	10	13	19	28	-2	8	40	7	22	33	12	8	3	7
Lu	0.5	-0.5	-0.5	-0.5	0.7	1	0.8	0.8	0.9	-0.5	-0.5	-0.5	-0.5	-0.5	1.1	0.7	0.5	1.1	-0.5
Mg	3.76	7.66	4.28	6.95	4.79	3.11	1.3	3.7	4.5	0.44	1.9	3.69	1.92	2.68	4.11	2.79	2.07	0.66	1.37
Mn	1711	1479	1426	1677	1366	1440	492	1053	1403	583	781	1314	505	1149	1273	1108	1289	894	1117
Mo	-2	-2	-2	-2	-2	-2	9	-2	-2	6	-2	-2	-2	5	-2	-2	-2	-2	-2
Mo*	7	4	5	7	6	7	70	18	3	6	4	10	4	7	7	7	7	-1	-1
Na	1.7	0.32	1.5	1.1	2	0.84	1.5	1.9	2.1	1	1.1	2.4	1.5	2.3	2	2.4	1.7	2.6	2.4
Na	1.84	0.51	1.67	1.26	1.54	0.89	1.5	1.83	2.03	0.84	1.08	2.16	1.24	1.92	2.09	2.01	1.66	2.15	1.74
Nb	16	17	19	16	13	22	9	13	7	19	19	16	19	12	12	22	18	9	-5
Ni	52	150	120	140	55	45	-20	78	110	-20	26	110	30	-20	110	85	-20	-20	-20
Ni*	27	158	122	162	75	52	19	80	87	15	30	88	32	16	98	72	20	-1	25
Pb	-2	4	-2	3	-2	-2	7	13	7	7	8	11	9	15	7	4	-2	4	2
Rb	15	-10	-10	-10	-10	37	61	35	62	-10	10	26	17	40	61	59	26	-10	24
Sb*	-0.2	-0.2	0.5	0.2	-0.2	0.4	1.2	1.9	0.8	0.9	0.6	1.5	3	1.1	1.5	0.4	1.2	0.4	3.2
Sb	18	31	32	36	16	17	25	32	-5	8	13	28	22	14	22	31	31	-5	-5
Sc	56.6	67.8	45	63.7	69.8	37	16	39	38	5.3	15	42	13	34	42	28	35	32	36
Se	-10	-10	-10	-10	-10	-10	21	-10	-10	-10	-10	-10	-10	25	-10	-10	-10	-10	-10
Sm	4.8	2.4	3.8	3.6	3.8	7.6	5.4	6.2	5.4	1.2	1.8	3	3	4.6	5.9	8.3	3.8	6	5.1
Sn	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200	-200
Sn*	27	32	-20	21	-20	28	-20	22	-20	-20	-20	33	23	-20	-20	-20	-20	-20	-20
Sr	875	89	484	375	540	450	382	344	356	389	195	404	212	548	368	388	589	571	249
Ta*	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1
Ta	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5	-5
Tb	-1	-1	-1	-1	-1	1	1	1	1	-1	-1	1	-1	1	1	2	-1	-1	-1

Table-2. LAND SELECTION UNIT 2 - TRACE ELEMENT ANALYSES (Analyses by Bondar-Clegg)

Element	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2232	2233
Ta	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
Te	-25	32	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25	-25
Te*	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	1.1
Th	-0.5	-0.5	-0.5	-0.5	-0.5	1.8	2.7	0.8	-0.5	-0.5	-0.5	-0.5	1	1	0.9	3.9	1	1.3	2
Ti	0.65	0.31	0.61	0.44	0.39	0.27	0.25	1.24	1.08	0.11	0.28	0.47	0.19	0.37	1.29	0.83	0.48	0.38	0.49
U	-0.5	-0.5	-0.5	-0.5	-0.5	1.3	3.3	-0.5	-0.5	3.9	1.7	0.7	1.9	1	-0.5	1.2	-0.5	0.6	0.7
V	450	317	438	393	390	188	121	446	410	76	124	269	97	233	428	134	337	220	259
W*	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
W	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
Y	14	12	16	17	17	38	31	26	24	12	12	11	16	13	25	22	12	12	7
Yb	-5	-5	-5	-5	-5	5	-5	-5	-5	-5	-5	-5	-5	-5	-5	6	-5	5	-5
Zn	-200	-200	-200	-200	340	240	-200	240	220	-200	-200	270	-200	240	280	270	230	-200	-200
Zn*	100	49	52	62	37	90	94	121	132	20	40	147	47	67	154	100	64	55	58
Zr*	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	540	-500	-500	-500
Zr	28	6	9	16	12	32	49	-5	-5	-5	22	24	24	7	-5	128	18	10	32

Table-3. LAND SELECTION UNIT 2 - TRACE ELEMENT ANALYSES (Richter, 1966)

Element	Cu	Zn	Pb	Mo
Method	AA	AA	AA	AA
Units	PPM	PPM	PPM	PPM
Sample				
247	50	65	80	3
248	50	65	5	4
249	60	85	5	4
250	50	70	5	4
251	45	160	10	5
252	40	65	-5	3
253	80	115	5	5
254	70	60	-5	3
255	45	65	5	3
256	50	50	5	4
257	45	65	5	2
258	40	45	5	3
259	25	30	5	2
260	45	60	5	3
261	45	55	5	3
262	50	60	5	3
263	45	65	5	3
264	65	55	5	2
265	80	95	6	4
266	95	215	25	7
267	85	105	10	4
268	40	45	5	3
269	40	60	5	3
270	25	50	8	3
271	10	35	5	3
272	45	60	-5	3
273	65	75	-5	4

Table-4. LAND SELECTION UNIT 2 - MAJOR OXIDE ANALYSES (Bondar-Clegg)

SAMPLE	2212	2213	2231	626	627
AUSCORE*	59.98	22.95	58.33	99.45	97.64
FE2O3TOT	19.4	14.9	9.4	8.84	11.3
FE2O3	10.30	7.13	3.63	3.29	4.31
FEO	8.2	7	5.2	5	6.3
MGO	10.8	7.75	3.85	4.25	5.09
CAO	15.4	13.2	8.05	8.41	9.74
NA2O	1.13	2.24	3.45	3.48	2.6
K2O	0.31	0.41	1.51	1.23	1.03
TIO2	1.19	1.02	0.794	0.8	0.916
P2O5	0.09	0.35	0.22	0.2	0.26
MNO	0.23	0.23	0.24	0.18	0.22
BA	123	169	835	470	237
RB	27	22	32	33	40
ZR	19	22	41	54	91

* AUSCORE is a gold discriminant score. See text for further explanantion.

Oxide values are reported as per cent, individual elements are reported as parts per million

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