Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada

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

SHEET 1 OF 6
OPEN FILE 1988-10

BLUE DOME MAP AREA
104P/12 NW 1/4

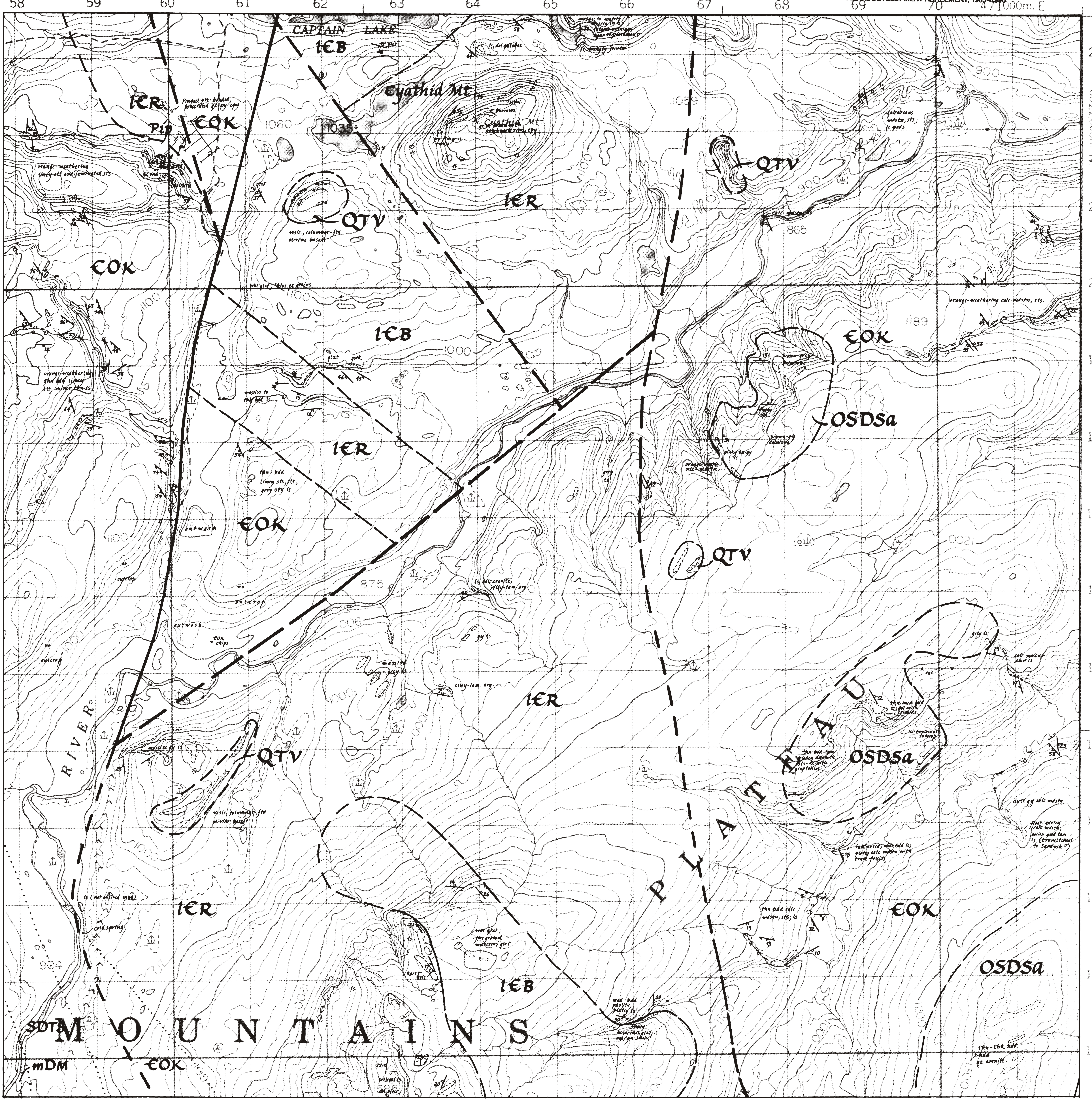
kilometers 0 1 2 3

Scale 1:25,000

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

Energy, Mines and Resources Canada — Énergie, Mines et Ressources Canada

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



SHEET 2 OF 6

OPEN FILE 1988-10

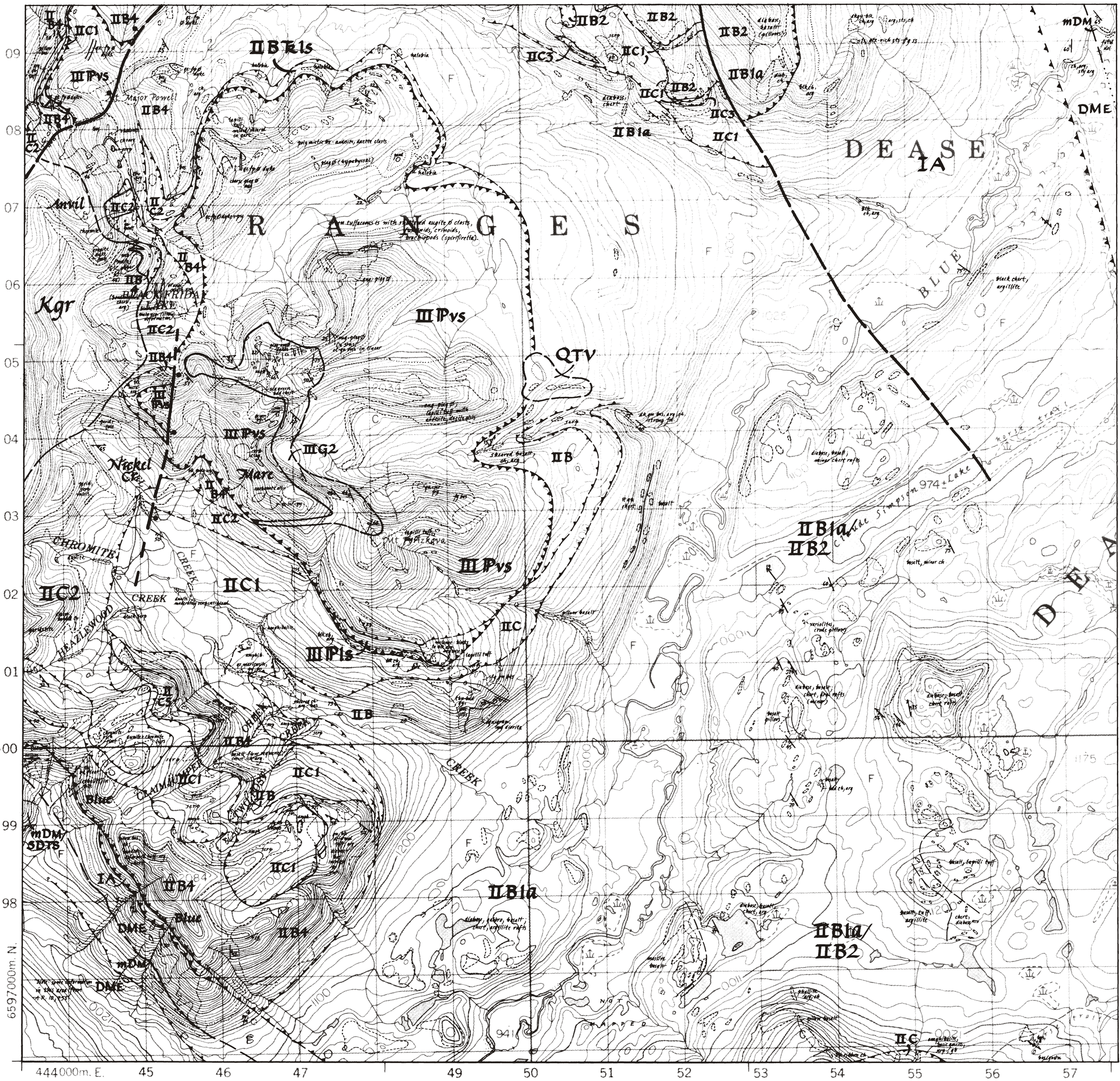
BLUE DOME MAP AREA
104P/12 NE 1/4

kilometers 0 1 2 3

Scale 1:25,000

Petroleum Resources

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



SHEET 3 OF 6

OPEN FILE 1988-10

BLUE DOME MAP AREA

104P/12 SW 1/4

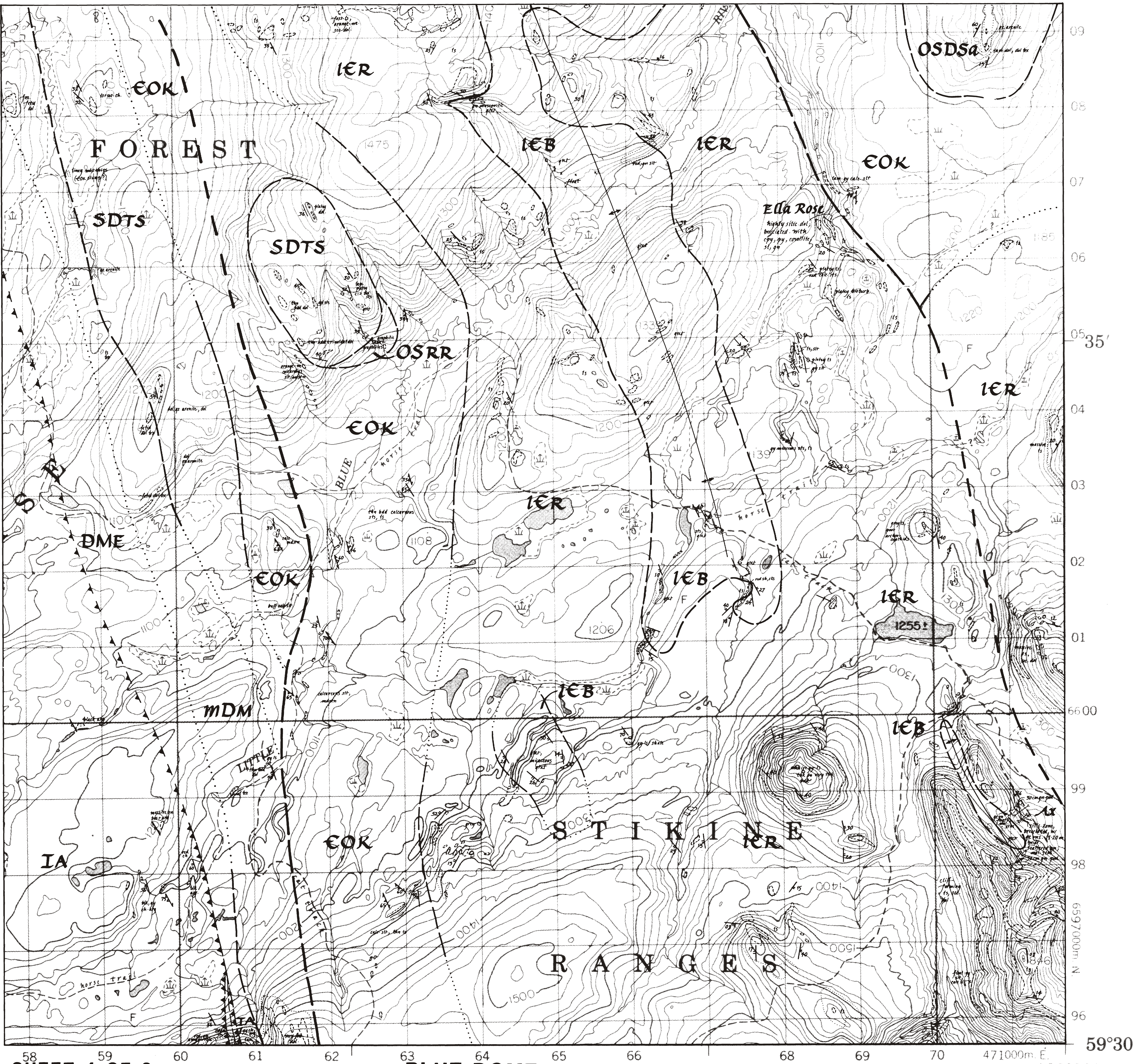
kilometers 0 1 2 3

Scale 1:25,000

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

Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada

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



SHEET 4 OF 6

OPEN FILE 1988-10

BLUE DOME MAP AREA
104P/12 SE 1/4

kilometers
0 1 2 3

Scale 1:25,000

METALLOGENY
104 P/12

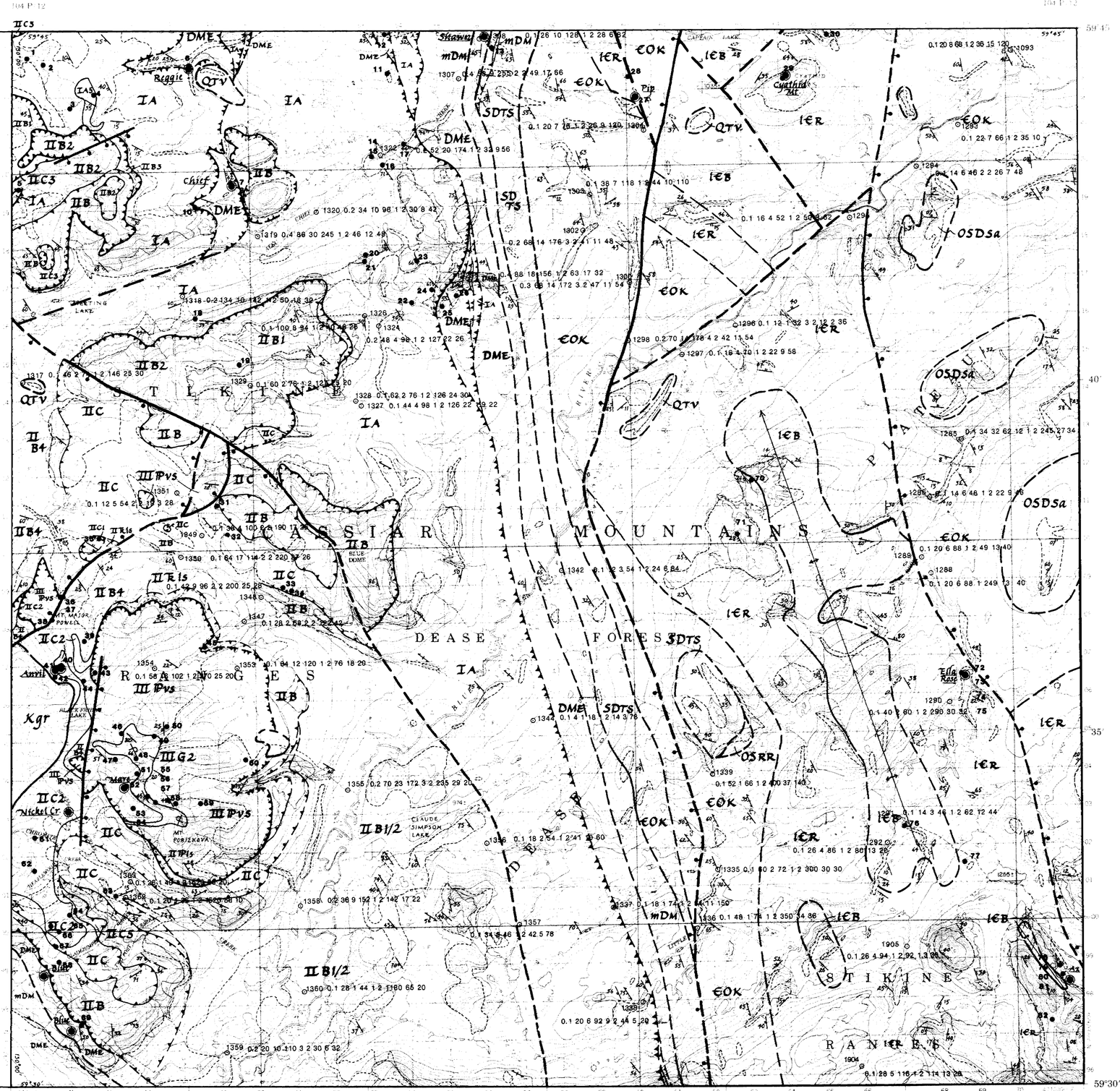
LEGEND

- ● 22 **Rock sample location**
- ○ 1360 **Silt sample location,RGS sample number**
- ○ 1360 0.4 58 9 255 2 2 49 17 66 **Sample data** Ag Cu Pb Zn Mo W Ni Co F
- ◉ **Mineral deposit,see table below**

ROCK GEOCHEMISTRY, 104 P/12 Au in ppb, rest in ppm unless indicated as per cent

Nº	Showing Name	Host Lithology	Au	Ag	Cu	Pb	Zn	As	Sb	Ba	Mo	Ni	Co	Description
1		Sylvester IA	<20	<0.5	9	9	30	3	<0.5	–	–	–	–	Quartz vein swarm
2		Sylvester IA	<20	<0.5	6	10	13	1	<0.5	–	–	–	–	Quartz vein swarm
3		Sylvester IA	<20	<0.5	6	5	6	<10	<0.5	–	–	–	–	Quartz vein with graphite-limonite
4		Sylvester IA	–	<0.5	–	5	35	–	–	–	–	–	–	Exhalite
5		Sylvester IA	–	<0.5	–	8	38	–	–	–	–	–	–	Exhalite
6		Earn	61	7	160	?	2.3%	40	<10	–	–	26	48	Tension gashes with galena
7	Chief SW	Earn	<20	1.0	0.19	6	25	<40	<10	–	–	185	230	Massive Fe-Cu sulfieds in boulder
8	Chief SW	Earn	<20	1.0	0.11	13	30	<40	<10	–	–	81	240	Stockwork quartz-sulfides in boulder
9	Chief SW	Earn	<20	<0.5	62	5	72	<40	<10	–	–	93	44	Exhalative quartz, pyrrite, barite?
10		Earn	<20	<0.5	9	10	26	<40	<10	–	–	20	155	Quartz-graphite vein
11		Sylvester IA	<20	<0.5	54	112	0.10	<40	<10	–	–	195	74	Fe-oxides in siliceous breccia
12		Sylvester IA	<20	0.5	18	4	25	<40	<10	2867	–	20	–	Siliceous, pyritic exhalite?
13	Shawn Ba	McDame	<20	0.5	0.1%	<3	27	<40	<10	59.8%	–	17	–	Bedded barite with malachite
14	Chief East	Sylvester IA	<20	<0.5	7	5	10	<40	<10	–	–	12	135	Quartz-pyrite vein
15	Chief East	Sylvester IA	<20	<0.5	33	19	33	<40	<10	–	–	15	98	Quartz-pyrite alteration
16	Chief East	Sylvester IA	<20	<0.5	28	19	22	<40	<10	–	–	8	105	Quartz vein
17	Chief East	Sylvester IA	<20	<0.5	21	19	72	<40	<10	–	–	25	99	Quartz-pyrite veins
18		Sylvester IA	–	–	43	19	35	–	–	–	–	37	28	Exhalite?
19		Sylvester IIB	<20	0.7	5	18	24	–	–	–	–	5	52	Quartz veins in basalt
20		Sylvester IA	<20	<0.5	104	4	49	<40	<10	–	–	12	87	Altered zone
21		Sylvester IA	<20	<0.5	36	<3	42	<40	<10	–	–	23	88	Quartz vein
22		Sylvester IA	<20	–	10	<3	9	<40	<10	–	–	5	102	Quartz vein
23		Sylvester IA	–	–	57	4	112	<40	<10	–	–	33	42	Pyrite nodules in chert
24		Sylvester IA	–	–	75	99	416	<40	<10	–	–	8	20	Fe-stained chert
25		Earn	–	–	189	18	266	<40	<10	–	–	41	28	Pyritic exhalite?
26		Earn	<20	–	67	12	38	<40	<10	–	–	11	65	Quartz vein in Earn
27	Pip	Atan	<20	0.5	3.14%	<3	12	<40	56	–	–	3	84	Cu-sulfides in quartz breccia
28	Pip	Atan	<20	0.5	3.14%	<3	12	<40	56	–	–	3	84	Quartz-carbonate breccia with copper
29	Cyathid Mtn.	Atan	<20	0.5	3.07%	<3	308	48	160	–	–	7	48	Quartz-carbonate breccia with copper
30		Atan	<20	0.8	17	19	18	0.10	35	–	–	5	<3	Quartz-carbonate-limonite breccia
31		Sylvester IIB	<20	–	35	<5	61	–	–	–	–	28	61	Pyrrhotite bearing basalt
32		Sylvester IIB	<20	–	33	<5	75	–	–	–	–	92	70	Brecciated gabbro
33		Sylvester IIC	<20	–	–	–	–	<1.0	–	–	–	–	–	Silicified zone in breccia
34		Sylvester IIC	<20	–	–	–	–	<1.0	–	–	–	–	–	Silicified zone in breccia
35		Sylvester IIC	–	1.3	300	<10	0.12%	–	–	–	–	0.38%	106	Gossan
36		Sylvester III	<20	<0.5	345	4	900	1.8	<0.5	–	–	–	–	Quartz-chlorite-sulfide alteration
37		Sylvester III	<20	1.2	0.14%	7	316	2.7	<0.7	–	–	–	–	Quartz-calcite-malachite vein
38		Sylvester III	<20	0.5	31	310	–	52.5	–	–	–	–	–	Siliceous gossan
39		Sylvester IIB	<20	0.5	15	3	35	49.5	<0.5	–	–	–	–	Oxidized quartz veins
40	Anvil Cr	Sylvester IIC	<20	–	–	–	–	–	–	–	–	0.12%	–	Massive chromite
41	Anvil Ni	Sylvester IIC	<20	–	–	–	–	–	–	–	–	22	–	Semi-massive pyrrhotite
42	Anvil Mo	Cassiar dike	–	–	–	–	–	–	–	–	480	–	–	Quartz vein with molybdenite
43		Sylvester III	<20	–	–	–	–	–	–	–	–	–	–	Gossan in dyke
44		Sylvester IIB	70	–	–	–	–	–	–	–	–	–	–	Gossan in volcanics
45		Sylvester III	–	0.6	32	13	178	–	–	–	–	470	42	Gossan in volcanics
46		Sylvester III	<20	–	–	–	–	<1.0	–	–	–	–	–	Quartz vein
47		Sylvester III	–	–	42	10	11	–	–	–	–	–	–	Copper stain
48		Sylvester III	<20	<0.5	112	13	12	–	–	–	–	–	–	Gossan
49		Sylvester III	<20	–	–	–	–	6	–	–	–	–	–	Gossan in limestone turbidite
50		Sylvester III	20	–	0.31%	–	–	7.1	–	–	–	–	–	Cu-stain in sheared andesite
51	Mare	Sylvester III	<20	<0.5	72	12	14	12.8	1.9	–	–	–	–	Quartz-carbonate-clay-sulfides
52	Mare	Sylvester III	<20	<0.5	23	15	34	4.7	<0.5	–	–	–	–	Quartz-carbonate-clay-sulfides
53	Mare	Sylvester III	40	2	470	23	33	15.5	<0.5	–	–	–	–	Veins in altered zone
54	Mare	Sylvester III	40	1	61	<3	30	<10	2.1	–	–	–	–	Bleached fragments in grey matrix
55	Mare	Sylvester III	45	711	1.38%	89	84	10.8	13.3	–	–	–	–	Quartz-carbonate-clay-sulfides
56	Mare	Sylvester III	<20	<0.5	72	12	14	12.8	1.9	–	–	–	–	Quartz-carbonate-clay-sulfides
57	Mare	Sylvester III	220	<0.5	35	4	32	1.8	<0.5	–	–	–	–	Quartz-carbonate-clay-sulfides
58	Mare	Sylvester III	<20	<0.5	292	5	41	5.8	<0.5	–	–	–	–	Quartz-carbonate-clay-sulfides
59	Mare	Sylvester III	320	4.2	0.22%	35	48	13.5	2.1	–	–	–	–	Quartz-carbonate-clay-sulfides
60	Mare	Sylvester III	<20	<0.5	18	14	19	186	21	–	–	–	–	Quartz-clay-pyrite with stringers
61		Sylvester IIC	70	–	7	–	–	–	–	–	–	0.25%	–	Magnetite in serpentinized dunite
62		Sylvester IIC	<20	–	12	–	–	–	–	–	–	0.25%	–	Chromite-plagioclase
63		Sylvester IIC	40	5	1.38%	8	53	<1.0	<0.5	–	–	–	–	Quartz-sulfide veinlets in listwanite
64		Sylvester IIC ○	–	–	–	–	–	–	–	–	–	–	–	Chromite in dunite
65		Sylvester IIC ○	–	–	–	–	–	–	–	–	–	–	–	Chromite in dunite
66		Sylvester IIC ○	–	–	–	–	–	–	–	–	–	–	–	Chromite in dunite
67		Sylvester IIC ○	–	–	–	–	–	–	–	–	–	–	–	Quartz vein
68		Sylvester IIB ○	–	–	–	–	–	–	–	–	–	–	–	Gossan
69		Earn		<0.5	8	67	–	–	–	–	–	–	–	Exhalite
70		Atan		<20	<0.5	–	22	38	–	–	–	–	–	Fanolite in carbonate
71		Atan		<20	24	415	45	90	–	–	–	–	–	Breccia dike with limonite
72	Ella Rose	Atan		<20	<1	620	56	380	–	–	–	–	–	Dolomite-quartz breccia with pyrite
73	Ella Rose	Atan		<20	<1	215	43	180	–	–	–	–	–	Quartz breccia with pyrite
74	Ella Rose	Atan		<20	<1	96	51	60	–	–	–	–	–	Quartz breccia with limonite
75	Ella Rose	Atan		<20	14	3100	1.3%	320	–	–	–	–	–	Quartz with copper, sphalerite, galena
76		Atan		110	<1	6	38	30	–	–	–	–	–	Quartz vein with ankerite/oxides
77		Atan		40	<1	10	33	100	–	–	–	–	–	Silicified zone
78	Ax	Atan		26	41	8700	8050	0.23%	–	–	–	–	–	Quartz vein with copper sulfides
79	Ax	Atan		20	248	4500	70%	160	–	–	–	–	–	Semi-massive galena
80	Ax	Atan		<20	40	430	6.2%	250	–	–	–	–	–	Quartz-breccia with Pb-oxides
81	Ax	Atan		<20	2	5220	580	960	–	–	–	–	–	Quartz-carbonate veins with copper
82	–	Atan ○	–	–	–	–	–	–	–	–	–	–	–	Gossan

○ Analytical results to follow



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

BLUE DOME MAP AREA
104P/12

SHEET 5 OF 6

OPEN FILE 1988-10

·7.0

01-88

LEGEND

TERTIARY-RECENT

QTV — TUYA FORMATION: *basalt, olivine basalt flows*

CRETACEOUS

Kgr — CASSIAR BATHOLITH: *granite, granodiorite*

DEVONIAN TO TRIASSIC

SYLVESTER ALLOCHTHON

DIVISION I

IA — *Chert, argillite, limestone, greywacke*
- IA1 — *Grey, green, black chert and argillite*
- IA3 — *Limestone*
- IA5 — *Greywacke, argillite, chert, exhalite*
- IA6 — *Red argillite, green chert*

DIVISION II

IIB — *Basalt, diabase, chert, argillite, diorite, gabbro*
- IIB1 — *Diabase, basalt sill complex with chert, argillite rafts*
  - IIB1a — *Diabase-basalt sill complex, minor sedimentary rafts*
  - IIB1b — *Minor diabase-basalt sills in chert, argillite*
- IIB2 — *Basalt flows, breccia, local tuff, chert*
- IIB3 — *Basalt tuff, chert, tuffaceous sandstone*
- IIB4 — *Pillow basalt, diabase, gabbro, chert, argillite, black slate, tuff*

IIC — *Serpentinite and structurally related units*
- IIC1 — *Mainly serpentinite*
- IIC2 — *Blue River ultramafite: dunite, peridotite*
- IIC3 — *Polymictic fanglomerate*
- IIC4 — *Greenschist, brecciated greenschist*
- IIC5 — *Amphibolite*

IITrls — *Triassic limestone*

DIVISION III

IIIPvs — *Permian basic, intermediate, felsic volcanic rocks; limestone*
- IIIG2 — *Calc-arenite, chert, limestone*

IIIPls — *Permian limestone*

DEVONIAN-MISSISSIPPIAN

DME — *EARN GROUP: slate, argillite, greywacke, siltstone, limestone, exhalites*

MIDDLE DEVONIAN

mDM — *MCDAME GROUP: dolomite, limestone, dolomite breccia*

LOWER DEVONIAN

SDTS — *TAPIOCA SANDSTONE: dolomitic quartz arenite, quartzite, dolomite*

ORDOVICIAN TO LOWER DEVONIAN

OSDSa — *SANDPILE GROUP: dolomite, dolomitic quartz arenite, limestone; fossiferous dolomitic siltstone and dolomite*

ORDOVICIAN-SILURIAN

OSRR — *ROAD RIVER GROUP: graphitic limy slate, black slate, argillaceous limestone, dolomite*

CAMBRIAN-ORDOVICIAN

COK — *KECHIKA GROUP: thin-bedded limy slate, siltstone, limestone*

LOWER CAMBRIAN

ATAN GROUP

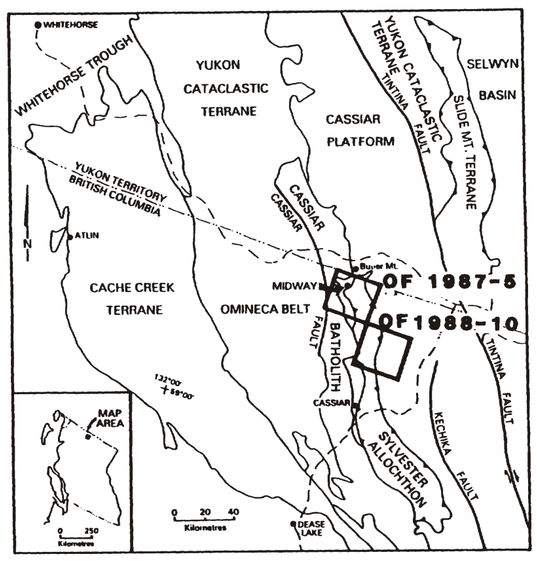
1CR — *ROSELLA FORMATION: limestone, dolomite, grey and red shale*

1CB — *BOYA FORMATION: quartzite, slate, siltstone, red shale*

SYMBOLS

- Limits of outcrop/subcrop
- Limits of talus, scree, float
- Geological boundary (defined, approximate, assumed)
- Lithologic contact within mapped unit
- Major thrust fault (defined, approximate, assumed)
- Subsidiary thrust fault (defined, approximate, assumed)
- Bedding, tops known
- Bedding, tops unknown
- Cleavage, foliation: unknown age
- Lineation
- Minor fold axis
- Axial plane of minor fold
- Limits of alteration zone
- **Fault (defined, approximate, assumed)**

LOCATION



MINERAL OCCURRENCES

Type/Age	Name(s)	MINFILE No.	Economic Minerals	Description
1. Sediment-hosted exhalatives				
(1) McDame Group (mid-Devonian)	Shawn Barite, Captain Lake	104P-049	barite, chalcopyrite	Coarse stratiform barite beds up to 1 metre thick, associated veins, replacements within McDame dolomitic breccia and siltstone. Barite contains minor chalcopyrite. $BaSO_4$ from 52.1 to 90.1 weight per cent (W.H. Thompson, 1982, Assessment Report 10334).
(2) Earn Group (Devono-Mississippian)	(a) Chief Southwest	104P-103	barite, chalcopyrite, pyrrhotite	Bedded quartz-pyrite-barite exhalites in Earn clastics. Large boulder of quartz stockwork with chalcopyrite and locally massive pyrrhotite-pyrite.
	(b) Blue	104P-104	barite, galena, sphalerite	Bedded quartz-pyrite-barite exhalites from 0.5 to 11.0 metres thick are exposed at four locations along a 7-kilometre strike length. All localities contain minor galena with only local yellow sphalerite and low silver values (Cordilleran Engineering Ltd., 1982, Assessment Report 10751).
2. Polymetallic veins in carbonates (Upper Cretaceous)	(a) Ax	104P-106	galena, chalcopyrite, barite, chalcocite, sphalerite	Silicified zone 10 to 15 metres wide with 30-centimetre to 1-metre-wide mineralized zone exposed along 300 metres. Contains massive to disseminated galena, coarse white quartz with chalcopyrite-barite-chalcocite and late brecciated quartz with iron oxides and galena blebs. Grab samples assayed 248, 2 and 40 ppm silver, <20, <200 and <20 ppb gold, respectively. Hosted in Lower Cambrian Rosella Formation.
	(b) Ella Rose (new discovery)	104P-097	chalcopyrite, covellite	A 20-metre-wide zone of silicification in dark grey brecciated dolomite. Quartz is fine grained and vuggy with limonite and malachite. Chalcopyrite, covellite, brown sphalerite and galena occur in boulders in a sloughed creek bank 20 metres north of the outcrop. A grab sample from the showing assayed 24 ppm silver and <20 ppb gold.
	(c) Captain Lake, (Pip)	104P-060	chalcopyrite, chalcocite	Silicified zone with locally intense stockwork with chalcopyrite-chalcocite occurs along a highly brecciated fault contact between Kechika calcareous shale and Atan carbonates. The zone is up to 40 metres wide and exposed along 125 metres. Best assays reported are 1.36% copper over 25 metres (N.B. Vollo, 1976, Assessment Report 6087). An old trench exposes similar mineralization 600 metres on strike to the northwest.
	(d) Cyathid Mtn. (new discovery)	104P-098	chalcopyrite	A strong quartz stockwork with very minor chalcopyrite is exposed over 70 metres by 15 metres. Grades into a limonitic calcite breccia zone 1.5 kilometres along strike to the northeast.
3. Veins in marine sediments and volcanics (Upper Cretaceous to Eocene)	(a) Chief East	104P-102	pyrite, chalcopyrite	A northwest-trending gossanous zone (0.5 by 3.5 kilometres) of strong quartz-sericite-pyrite alteration that hosts numerous quartz veins with pyrite and chalcopyrite. Hosted in Sylvester chert-argillite.
	(b) Reggie (new discovery)	104P-099	galena, pyrite	*En échelon* tension gashes in a narrow zone up to 0.7 metre wide with disseminated galena and minor pyrite.
	(c) Lat. 59°45′, Long. 130°00′			Intense quartz veining with minor graphite in Sylvester sediments is exposed over 800 by 250 metres.
4. Alteration within Division III intermediate volcanics (age uncertain)	(a) Mare	104P-105	chalcopyrite, pyrite	Numerous small zones of quartz-carbonate-clay-pyrite-chalcopyrite alteration. Extensive sampling by Falconbridge Limited yielded only two anomalous samples: 222.13 grams per tonne silver, no gold; 4.6 grams per tonne silver, 2.38 grams per tonne gold (T. Bruland, 1983, Assessment Report 11335)
	(b) Lat. 59°34′, Long. 129°38′		chalcopyrite, pyrite	Small zone of quartz-carbonate-clay-pyrite-chalcopyrite alteration with thin quartz-carbonate veinlets.
5. Magmatic ultramafic-hosted mineralization	(a) Ice Lake	104P-055	chromite	Disseminated to semimassive chromite as pods in peridotites at two locations in the Blue River ultramafite. Largest pod is exposed over 15 centimetres by 15 metres. In 104O/09 adjacent to 104P/12.
(1) Chromite (age uncertain, probably between Upper Devonian and Late Permian)	(b) Anvil chromite (new discovery)	104P-100		Semimassive to massive chromite occurs over 3 metres by 50 centimetres in talc-altered peridotite within the Blue River ultramafite.
(2) Nickel (age uncertain)	(c) Nickel Creek, Blue River Nickel, Heazlewood	104P-001	heazlewoodite	Heazlewoodite was identified by X-ray diffraction in partially serpentinized dunite. Assays to 0.21% nickel (Wolfe, 1969).
	(d) Anvil Nickel (new discovery)	104P-100	pyrrhotite, pentlandite	Semimassive net-textured sulphides and plagioclase occur along the margin of a coarse-grained, foliated gabbro within the Blue River ultramafite.
6. Molybdenite in the Cassiar batholith (Late Cretaceous)	(a) Blue Dome	104P-054	molybdenite	A small pod less than 1 metre long with 5% MoS_2 was reported by Wolfe (1969) within the Cassiar batholith.
	(b) Anvil Molybdenum (new discovery)	104P-101	molybdenite	A 0.5-metre-wide quartz vein with <1% molybdenite is exposed along a 100-metre strike length, adjacent to a biotite granodiorite dyke cutting the Blue River ultramafite.

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

Energy, Mines and Resources Canada — Énergie, Mines et Ressources Canada

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

SHEET 6 OF 6

OPEN FILE 1988-10

GEOLOGY BY

J. NELSON, J. BRADFORD, T. HARMS, K. GREEN AND H. MARSDEN