REPORT ON

1999

DRILLING
AND GEOLOGICAL STUDY OF

LUSTDUST PROPERTY

OMINECA MINING DIVISION
BRITISH COLUMBIA
CANADA

FOR

ALPHA GOLD CORPORATION

BY

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SUMMARY AND CONCLUSIONS

The Lustdust property covers a large, strongly zoned Cu-Zn-Pb-Ag-Au Skarn-Carbonate Replacement Deposit (CRD)-Vein System developed in a steeply-west-dipping northwest-trending section of limestone interbedded with argillite. Numerous intrusive bodies, ranging in composition from monzonite to rhyolite, are intruded along bedding and bedding-parallel structures. Mineralization consists of skarn and massive sulfide replacement bodies developed along stock (?), dike and limestone/argillite contacts. Mineralization also occurs within limestone. The bulk of the areas explored to date are tabular sulfide bodies 1-30 m thick and 20-350 m long. However, 1997 and 1999 drilling in the Canyon Creek area has begun to identify a semi-cylindrical skarn/sulfide chimney at least 100m in diameter. Alteration and mineralization patterns indicate that hydrothermal effects increase towards this skarn center, and to depth within it. It is probable that the dikes encountered in the skarn zone are genetically related to the source intrusion, but that the phase(s) most closely related to mineralization remain hidden at some depth under the Canyon Creek Skarn Zone.

Previous work at Lustdust traced 4 parallel, en echelon, mineralized zones laterally over 1500m from distal high-grade Ag-Pb (Au, As, Sb, Mn, Cu) replacement veins through high-grade Zn (Cu, Au, Pb) manto replacement ores to proximal Cu (Au, Ag, Zn) skarn. These zones were explored over a width of 500m. The bulk of previous work was shallow (<150m) drilling of the replacement veins and mantos. Teck Resources put three holes into the previously unexplored Cu-bearing Canyon Creek Skarn Zone towards the end of their 1996-1997-work program, and this skarn became a starting point for 1999 drilling.

Alpha Gold's 1999 work program consisted of a 5545 meter NQ diamond-drilling, road building and trenching campaign designed to determine the magnitude and large-scale zoning of the Lustdust system; focussing on following the Cu-skarn along strike, and seeking high-grade Zn-sulfide replacements around the Cu-skarn zone. The latter effort focused on the untested 400m long zone between the southern limit of the Canyon Creek Skarn Zone and 4b-Zone replacement mineralization outcrops drilled in previous years. All holes but one (LD99-13, see below) were angle holes (minus 45-75°) drilled west to east, nearly perpendicular to the NW grain of the system. Of the 18 holes drilled, 16 cut mineralization (See Table 1). One of the two that did not (LD99-09), ended in hornfels after cutting 200m of monzonite intrusion, and the other (LD99-16) was drilled off-trend to explore a possible parallel mineralized zone lying to the east.

The 1999 program added nearly 500m of strike length to the north end of the Canyon Creek Skarn Zone. This skarn is composed of coarse-grained garnet-diopside replacements of limestone and previously hornfelsed argillite. Mineralization occurs as Ag and Au-bearing Cu-sulfides emplaced along and surrounding structures that cut the skarn. Of the 10 holes drilled in the skarn zone (LD99-03 through 12), eight hit copper mineralization, as did the main access road (Trench 99-05: 7.7m of 5% Cu) (Table 1). LD99-09 hit hornfels after a thick intrusion intercept and LD99-10 hit gold (1m of 2 g/T Au) with low copper. Hole LD-12 was drilled 300m (360m down hole) below the Teck skarn holes to test the skarn at depth. This hole hit six copper-bearing structures (0.2-2.22% Cu); several more than were cut in the higher drill holes. LD99-12 demonstrated persistence and down-hole increases of copper mineralization, transition of skarn mineralogy towards more iron-rich garnets, locally pervasive retrograde skarn hydration, and magnetite...especially as pseudomorphs after specular hematite. Copper sulfides increase significantly in the deep magnetite-rich zones.

Seven holes were drilled in Zn-replacement zones (LD99-1, 2, 13, 14, 15, 17, and 18). LD99-01 and 02 were drilled to test conceptual targets deep under the two principal known Zn-zones (3 and 4b-Zones), and were largely unsuccessful. Four of the remaining 5 holes were drilled in the previously untested 400m-long zone lying between the northern end of outcropping high-grade Zn-sulfide mantos (4b-Zone) and the southernmost of Teck's skarn holes. Of these, LD99-14, 17, and 18 hit Zn-rich massive sulfide replacements with associated skarn. The best hole (LD99-17) was drilled under a weakly mineralized skarn outcrop and cut 5.7m of massive sphalerite averaging 18.8% Zn. LD99-18 was drilled between LD99-17 and the surface and hit 1.2m of sulfide-rich skarn carrying 3% Zn with significant Au, Ag, and Cu values. Because LD99-18 was the last hole drilled, the LD99-17 intercept remains open at depth. LD99-15, drilled 150m south of LD99-17 cut nearly 6m of massive cupriferous magnetic pyrrhotite replacement mineralization, which may be a peripheral style of replacement mineralization. LD99-13 was drilled to the south under, and parallel to, the known 4b sphalerite manto zone to determine if there are east-west-trending feeders to the system. The hole hit sulfides that may have a distinct origin from the 4b replacement manto (see below).

Combining the 1999 and prior work (Rotzein, 1992; Johnson, 1993; Evans, 1996, 1997, 1999) shows that the Lustdust skarn-replacement system is at least 2500m long and 500m wide, with longitudinally continuous mineralization over 300-1500m lengths. Lustdust is systematically zoned from Cu-skarn to Zn-replacement mantos to Ag-Pb-Zn replacement veins over this length and the entire system is auriferous (>.5 g/T Au values are common throughout). The skarn is zoned over at least 400m vertically and shows the polyphase intrusive and mineralization characteristics typical of major Cu-Zn skarn-replacement systems throughout the American Cordillera, such as San Martin, Zacatecas, Mexico and Antamina, Peru. The Lustdust skarn is open to the north, the Ag-rich replacement vein zone is open to the south, and Alpha have not yet looked widely for parallel, or symmetrical parts of the system. The overall size and characteristics of the system are similar enough to large known systems that considerable effort is justified to locate additional mineralized centers in the area.

TABLE 1:

ASSAY RESULTS and WEIGHTED AVERAGES FOR 1999 DRILLING AND TRENCHING AT ALPHA GOLD LUSTDUST PROPERTY, BRITISH COLUMBIA

WITH EARLIER DRILL RESULTS FOR COMPARISON

Zone	DDH/TR #	Meters From	Meters To	Interval Meters	Au (ppb)	Ag (ppm)	Cu %	Zn %	Pb %
1	97-13	157.7	159.1	1.4	310	390		0.3	
1	97-15	31.4	36	4.6	1090	152		1.3	11.8
1	98-14	58.3	61.2	2.9	2800	148		2.5	1.4
1	98-14	80.7	83	2.3	2000	838		0.6	1.7
3	91-01	36.42	61.57	25.15		7		9.9	
3	91-05	86.05	89.76	3.71	400	17		9.0	
3	91-08	39.62	46.58	6.96	60	21		6.0	
3	91-08	61.26	65.38	4.12	1090	13		8.7	
3	91-10	22.25	26.06	3.81		5		10.9	
3	91-10	38.05	39.47	1.42		10		17.3	
4B	92-15	24.4	38	13.6				8.1	
4B	92-20	6.8	27.9	21.1				7.8	
4B	93-08	19.8	21.95	2.15	340	12		17.1	
4B	93-14	14.63	17	2.37	3640	30		12.8	
4B	97-09	131	137.8	6.8	560	12	0.8	4.3	
4B	97-10	117.3	131.3	14	500	15	0.6		
4B	**LD99-02**	**184.7**	**185.0**	**0.3**	**1480**	**9**			
4B	**LD99-02**	**225.7**	**225.9**	**0.2**	**1170**	**22**		**5.0%**	
CCSZ	**LD99-03**	**28.2**	**32.7**	**4.5**	**533**	**55**	**2.3%**		
CCSZ	**LD99-04**	**41**	**42.0**	**1.0**	**700**	**69**	**2.5%**		
CCSZ	**LD99-05**	**7.4**	**14.7**	**7.3**	64	7	**0.2%**		
CCSZ	**LD99-06**	**11.2**	**12.9**	**1.7**	**724**	**25**	**1.0%**		
CCSZ	**LD99-06**	49	**54.2**	**5.2**	86	8	**0.3%**		

Zone	DDH/TR #	Meters From	Meters To	Interval Meters	Au (ppb)	Ag (ppm)	Cu %	Zn %	Pb %
CCSZ	LD99-07	35.1	36.2	1.1	1400	1			
CCSZ	LD99-07	117.6	118.8	1.2	960	45	2.0%		
CCSZ	LD99-08	177.9	179.1	1.2	135	9	0.3%		
CCSZ	LD99-10	85.8	86.7	0.9	2085	8			
CCSZ	LD99-11	95.75	97.6	1.8	742	5	0.3%		
CCSZ	LD99-11	111.66	113.6	2.0	1840	47	2.1%		
CCSZ	LD99-12	262.1	263.9	1.8	425	16	1.8%		
CCSZ	LD99-12	294.5	297.8	3.3	733	14	0.8%		
CCSZ	LD99-12	310.9	313.3	2.4	313	6	0.2%		
CCSZ	LD99-12	318.5	324.7	6.2	697	18	0.8%		
	OR								
CCSZ	LD99-12	323.0	324.7	1.7	2006	44	2.2%		
CCSZ	LD99-12	339.4	339.7	0.3	590	53	2.2%		
4B	LD99-13	84.5	84.8	0.3	1550	9		4.4%	
4B-CCSZ	LD99-14	36.4	36.7	0.3	680	134	0.6%	7.0%	2.3
4B-CCSZ	LD99-15	160.3	161.5	1.2	90	2	0.3%	1.9%	
4B-CCSZ	LD99-15	162.1	168.0	5.9	101	6	0.4%		
4B-CCSZ	LD99-17	34.4	34.8	0.4	545	12	0.4%	1.6%	
4B-CCSZ	LD99-17	57.6	58.9	1.4	1650	60	1.5%	0.2%	
4B-CCSZ	LD99-17	77.7	83.5	5.8	772	11	0.9%	18.9%	
4B-CCSZ	LD99-17	112.1	115.1	3.0	417	11	0.7%	2.6%	
4B-CCSZ	LD99-18	29.1	30.3	1.2	3030	183	1.1%	3.1%	
	TRENCH								
CCSZ	TR99-05	17.2	20.0	2.8	400	76	2.4%		
CCSZ	TR99-05	45.1	59.1	5.9	38	11	0.4%		
CCSZ	TR99-05	51.4	59.1	7.7	2464	169	5.1%	0.1%	

RECOMMENDATIONS FOR FUTURE WORK

Prospects for a future exploration work are very encouraging. The system shows many of the hallmarks of a large, complex skarn Zn-Cu system including: multiple intrusive phases of differing composition; lateral persistence and large-scale zoning of skarn silicates and mineralization; a strong retrograde overprint; pyrite pseudomorphing pyrrhotite; and a broad metals suite. It appears that only the top of the copper-skarn zone has been touched, and several of the high-grade Cu-skarn intercepts such as those in LD99-3, and LD99-12 should be followed. Deep drilling under LD99-07 is warranted because the skarn zone is very wide here, and principally developed as an overprint on hornfels. This suggests very strong hydrothermal activity in this zone and that limestone along a north-plunging fold nose at depth may be very well mineralized. Good widths of high-grade Zn-replacement mineralization were encountered in the skarn-replacement transition zone and should be followed. Immediate drilling targets are led by down-dip offsetting of the 5.7m massive sphalerite intercept cut in LD99-17 and similar targets should be sought around the periphery of the Canyon Creek Skarn Zone. Although the deep sulfide intercept in LD99-13 lines up with previous shallower intercepts under the 4b-Zone, it may have a distinct origin from the 4b manto and should be studied further before attempting to trace it to depth.

The presence of magnetic pyrrhotite and magnetite in the best mineralized skarn and replacement zones strongly suggests detailed ground mag-EM and/or CSAMT/AMT surveys should be undertaken over the skarn and skarn-replacement transition zone(s) to help focus drilling and establish a geophysical "fingerprint" for broader exploration of the property. Published government Air-Mag data (see below) show a strong anomaly located near the Canyon Creek Skarn Zone that deserves careful field checking and evaluation. Detailed airborne Mag-EM may be useful to define the overall limits of this anomaly, the Canyon Creek Skarn Zone, locate the center(s) of the system, and find altogether new skarn zones on the property.

The following are recommended:

1. Obtain new GSBC and GSC data from regional mapping program in the Lustdust area, including age dates, lithological maps, and geochemical data.

2. Incorporate the above with prior years' data into a GIS (Geographic Information System) compilation based on 1999 differential GPS (Global Positioning System) survey. This will eliminate the problems inherent in using several different surveys and baselines.

3. Have a geophysical consultant review the existing magnetic and other data to determine depth to anomalies, and possible interferences in the system.

4. Fly a detailed airborne Mag-EM survey to define the overall limits of the known magnetic anomaly, the Canyon Creek Skarn Zone, locate the center(s) of the system, and seek altogether new skarn zones/intrusive centers on the property.

5. Map (and/or remap), in detail, portions of the property in and around the major geophysical anomalies and the Canyon Creek Skarn Zone. Carry reconnaissance mapping into remainder of property to determine if additional areas exist with significant amounts of limestone.

6. Test EM, and/or CSAMT/AMT over Canyon Creek Skarn Zone, DDH LD99-17, 4b, 3, and 1-Zones to determine signature of known mineralization and determine if deep targets exist.

7. Regional government geochemistry (Soregaroli, 1999) shows that the entire Lustdust area is anomalous in Hg, not just along the Pinchi fault. This suggests that an orientation Hg soil gas survey should be run over Canyon Creek Skarn Zone, DDH LD99-17, 4b, 3, and 1-Zones to determine signature of known mineralization and determine if technique works as district-scale geochemical prospecting tool. Low-temperature and pressure desorption technique of Shea Clark Smith should be considered for this.

8. Drill existing indicated targets, and continue drill definition of the Canyon Creek Skarn Zone. These targets should include:

a. Down-dip offsetting of the 5.7m massive sphalerite intercept cut in LD99-17. This should include tracking mineralization to the south and back towards the skarn zone along the crest of the 4b Anticline nose.

b. Offsetting of high-grade Cu-skarn intercepts, including several deep holes around the flanks of the Canyon Creek Skarn Zone. This should include drilling holes to test if the 4b fold nose plunges north to the north of Canyon Creek and determine if this nose is mineralized.

c. If the nose is present and mineralized, it should be drilled under LD99-07 because of the strength of skarn overprint on hornfels in this area.

d. Deep holes in the 1-Zone, as well as holes to the west to test parallel felsite dikes recognized during 1999 field reconnaissance.

9. Consult a VMS expert to examine the core, opine on the likelihood of finding a significant VMS deposit on the property, and suggest fieldwork to pursue the target concept if viable.

INTRODUCTION

The Lustdust property covers a large, strongly zoned Skarn-Carbonate Replacement Deposit (CRD)-Vein System that has excellent potential to contain an economic deposit(s). The property is wholly-owned by Alpha Gold Corporation (VSE listed) and is located in the Omineca Mining Division in north-central B.C., approximately 210 km NW of Prince George. Numerous operators have been attracted to the property for the high metals values and extensive zones of mineralization, but limited outcrop, complex geology, and poor understanding of the deposit type has hampered prior efforts.

Previous work at Lustdust traced 4 parallel, en echelon, mineralized zones laterally over 1500m from distal high-grade Ag-Pb (Au, Cu) replacement veins through high-grade Zn (Au) manto replacement ores to proximal Cu (Au, Ag) skarn. These zones were explored over a width of 500m. The bulk of previous work was shallow (<150m) drilling of the replacement veins and mantos. Teck Resources put three holes into the previously unexplored Canyon Creek Cu-Skarn Zone towards the end of their 1996-1997-work program, and this skarn became a starting point for 1999 drilling.

The 1999 program was designed to determine the magnitude and large-scale zoning of the Lustdust system; focusing on following the Cu-skarn along strike, and seeking high-grade Zn-sulfide replacements in the untested 400m wide zone between the southern limit of the Canyon Creek Skarn Zone and 4b-Zone replacement mineralization outcrops drilled in previous years. The 1999 program added nearly 1000m of strike length to the north end of the Canyon Creek Skarn and found significant indications that only the top of the copper-skarn zone has been touched. In addition, good widths of high-grade Zn-replacement mineralization were encountered in the skarn-replacement transition zone, suggesting that the system may strongly resemble certain Mexican CRD-skarn deposits such as Velardeña, Durango, and San Martin-Sabinas, Zacatecas. Immediate drilling targets for 2000 abound in these zones, led by down-dip offsetting of the 5.7m massive sphalerite intercept cut in LD99-17 and several of the high-grade Cu-skarn intercepts. The presence of magnetic pyrrhotite and magnetite in the best mineralized zones strongly suggests detailed ground mag-EM and/or AMT/CSAMT surveys should be undertaken over the skarn and skarn-replacement transition zone(s) to help focus drilling and establish a geophysical "fingerprint" for broader exploration of the property. Airborne Mag-EM may be useful to define the overall limits of the skarn zone, locate the center(s) of the system, and find altogether new skarn zones on the property.

Location and Access

The Lustdust Property is located in the Omineca Mining Division of north-central British Columbia, NTS 93N/11W at latitude 55 34' North {Northing 6160175} and 125 25' West {Easting 347850: UTM Zone 10 [NAD 27]} (Fig. 1). The property is located approximately 210 kilometers northwest of Prince George, B.C. and 36 km east of Takla Landing (where there is a B.C. rail-line). The property is located immediately west of the old Takla Mercury Mine (Minfile 093N 008) and encompasses the Takla Silver Mine (Minfile 093N 009).

Access to the property is gained by traveling approximately 45 kilometers of paved road from Fort St. James towards Tachie Lake and thence 68 kilometers along the Leo Creek road, 56 kilometers along the Driftwood, approximately 20 kilometers along the Fall-Tsayta and 3 kilometers along the Silver Creek road. This comprises a total of 147 kilometers along forest service roads.

Property Status

The Lustdust Property is 100% owned by Alpha Gold with some underlying royalties on some of the small central 2-post claims. The property comprises 130 units (see Table 2, Fig. 2) for a total of 2730 hectares (5980 acres).

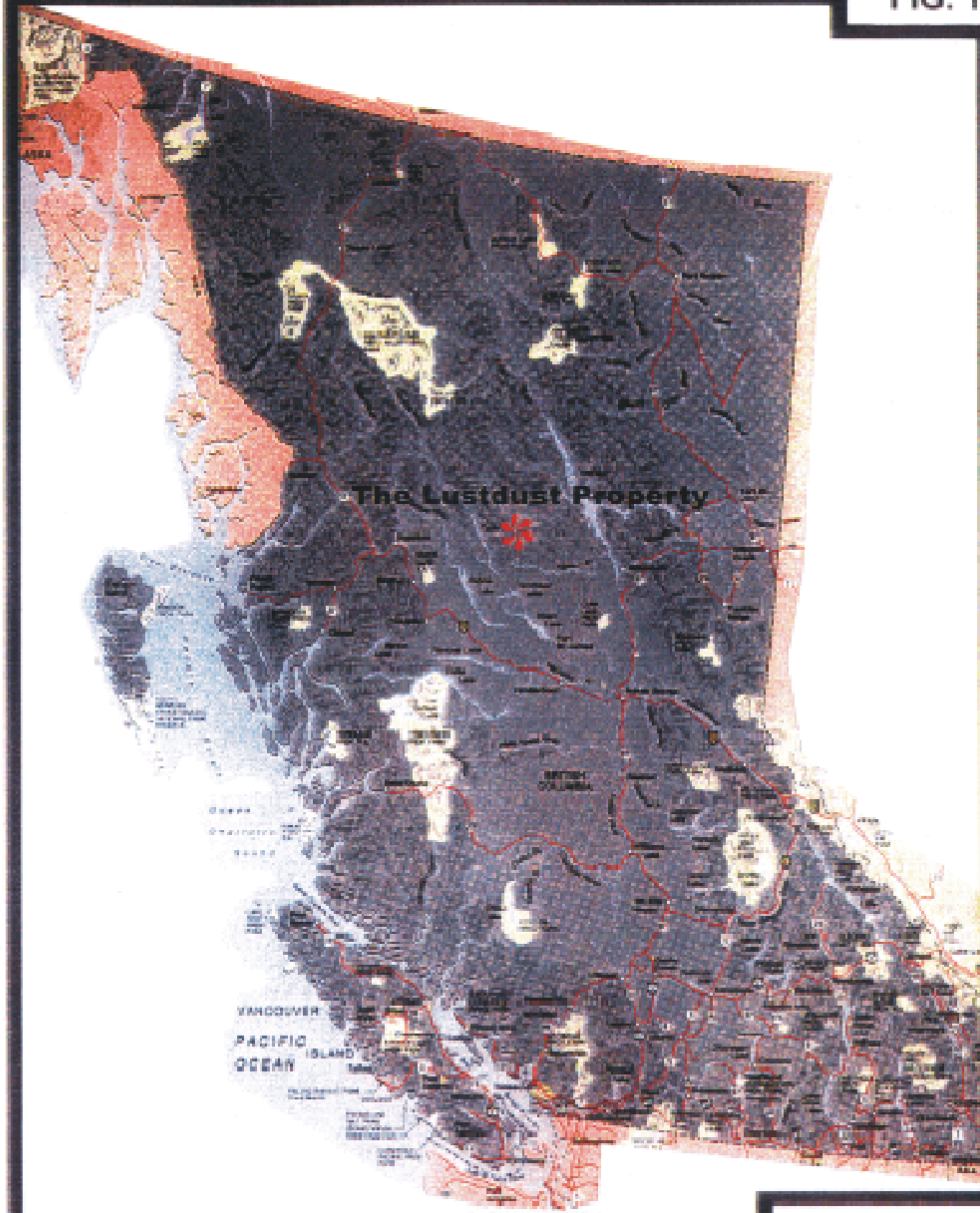
Physiography and Climate

The terrain is moderate, ranging in elevation from 1000-1525 m on the property. Lower elevations are covered by widely spaced lodgepole pine; while at elevations above 1200m, forest cover consists of overmature spruce and balsam. Summers are short and rainy while moderate snowfall winters persist from late September through April/May at the higher elevations.

Project History

The property has seen a number of operators since the original discovery of the 1-Zone in 1944. They are listed with their activity in Table 3 below. Despite the fact that exposure is limited and that previous efforts have been hampered by poor understanding of the deposit type, new occurrences have been found on a regular basis working along strike. Approximately 75% of the previous work has focussed in small areas comprising less than 10% of Alpha's property position.

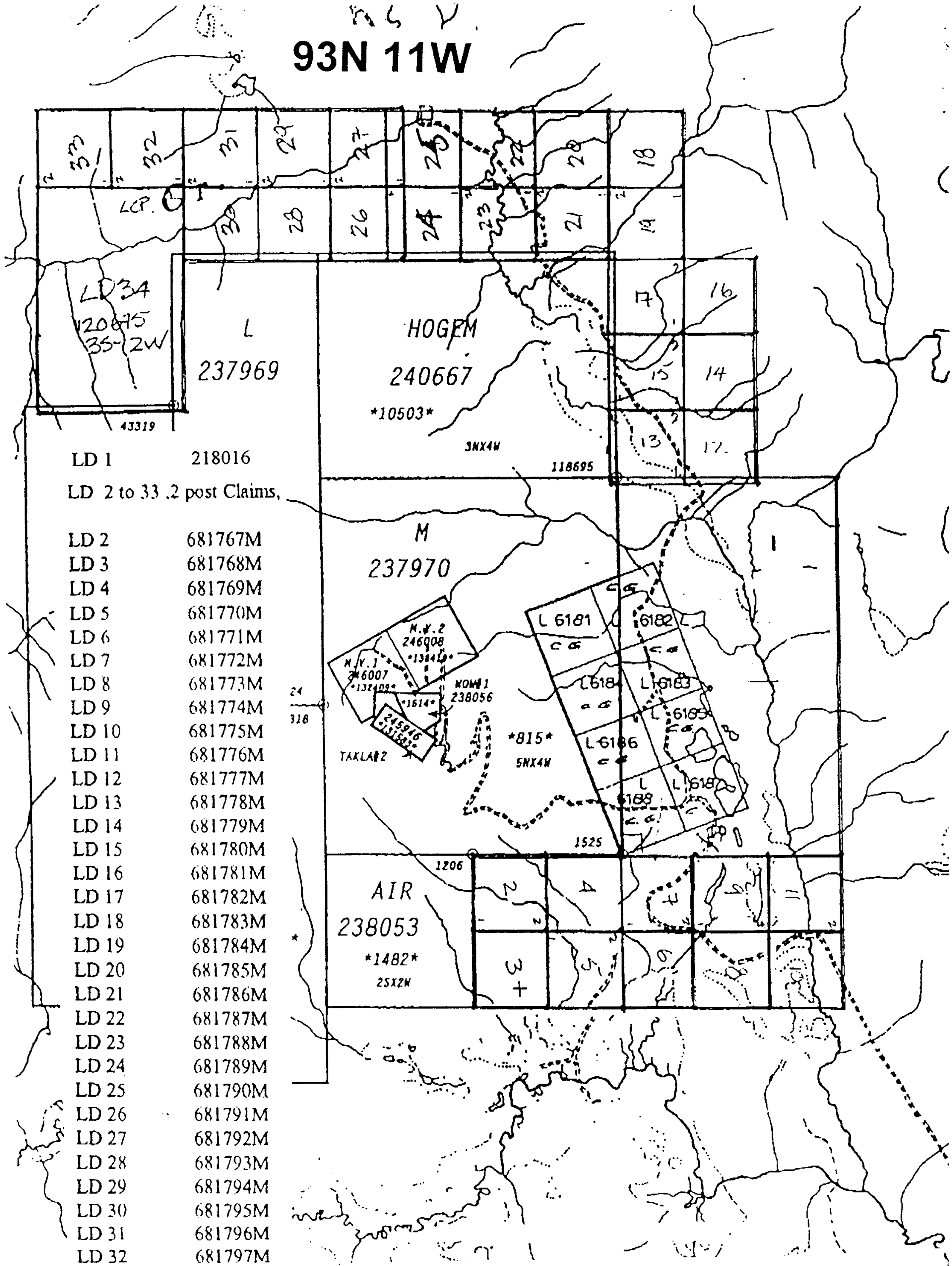
FIG. 1



ALPHA GOLD CORPORATION

LUSTDUST PROJECT

Property Location



LD 1	218016

LD 2 to 33 .2 post Claims,

LD 2	681767M
LD 3	681768M
LD 4	681769M
LD 5	681770M
LD 6	681771M
LD 7	681772M
LD 8	681773M
LD 9	681774M
LD 10	681775M
LD 11	681776M
LD 12	681777M
LD 13	681778M
LD 14	681779M
LD 15	681780M
LD 16	681781M
LD 17	681782M
LD 18	681783M
LD 19	681784M
LD 20	681785M
LD 21	681786M
LD 22	681787M
LD 23	681788M
LD 24	681789M
LD 25	681790M
LD 26	681791M
LD 27	681792M
LD 28	681793M
LD 29	681794M
LD 30	681795M
LD 31	681796M
LD 32	681797M
LD 33	681798M
LD 34	120675

Figure 2: Claim map for Lustdust Property

	TABLE 2				
	ALPHA GOLD: LUSTDUST CLAIMS				
	Claim Name	Record Number	Number of Units	Type of Claim	Expiry Date
	M.V. 1	246007	1	2 post	15/10/2009
	M.V. 2	246008	1	2 post	15/10/2009
	Wow 1	238056	1	2 post	15/10/2009
	L	237969	12	4 post	15/10/2009
	M	237970	20	4 post	15/10/2009
	Air	238053	4	4 post	15/10/2009
	P	238186	10	4 post	15/10/2009
	Ink	238187	16	4 post	15/10/2009
	Hogem	240667	12	4 post	15/10/2009
	LD-1	218016	15	4 post	15/10/2009
	LD-2	681767M	1	2 post	15/10/2009
	LD-3	681768M	1	2 post	15/10/2009
	LD-4	681769M	1	2 post	15/10/2009
	LD-5	681770M	1	2 post	15/10/2009
	LD-6	681771M	1	2 post	15/10/2009
	LD-7	681772M	1	2 post	15/10/2009
	LD-8	681773M	1	2 post	15/10/2009
	LD-9	681774M	1	2 post	15/10/2009
	LD-10	681775M	1	2 post	15/10/2009
	LD-11	681776M	1	2 post	15/10/2009
	LD-12	681777M	1	2 post	15/10/2009
	LD-13	681778M	1	2 post	15/10/2009
	LD-14	681779M	1	2 post	15/10/2009
	LD-15	681780M	1	2 post	15/10/2009
	LD-16	681781M	1	2 post	15/10/2009
	LD-17	681782M	1	2 post	15/10/2009
	LD-18	681783M	1	2 post	15/10/2009
	LD-19	681784M	1	2 post	15/10/2009
	LD-20	681785M	1	2 post	15/10/2009
	LD-21	681786M	1	2 post	15/10/2009
	LD-22	681787M	1	2 post	15/10/2009
	LD-23	681788M	1	2 post	15/10/2009
	LD-24	681789M	1	2 post	15/10/2009
	LD-25	681790M	1	2 post	15/10/2009
	LD-26	681791M	1	2 post	15/10/2009
	LD-27	681792M	1	2 post	15/10/2009
	LD-28	681793M	1	2 post	15/10/2009
	LD-29	681794M	1	2 post	15/10/2009
	LD-30	681795M	1	2 post	15/10/2009
	LD-31	681796M	1	2 post	15/10/2009
	LD-32	681797M	1	2 post	15/10/2009
	LD-33	681798M	1	2 post	15/10/2009
	LD-34	120675	6	4 post	15/10/2009
		TOTAL	130		

TABLE 3
EXPLORATION HISTORY SYNOPSIS

Year	Operator	Claims	Zone	Work Performed
1944		Wow #1	1	1-Zone discovered and staked
1945	**McKee Gp. Leta Expl. Ltd.**	**Wow #1**	**1**	**Trenching, 106.7 m of drilling**
1952-1954	Bralorne Mines Ltd.	Wow 1, MV1 MV2, M	1,2,3 4b	5306 m of trenching, 1429 m of drilling
1960	**" with Noranda Canex**	**"**	**"**	**7 rock cuts, 34 test pits, 200m hand and 1508m cat trenching**
1963	Bralorne	Wow #1	1	Sampling
1964	**Takla Silver Mines Ltd.**	**"**	**"**	**229 m of drifting**
1966	"	"	"	229 m of underground ddh
1968	**" with Anchor Mines Ltd.**	**"**	**"**	**1337 m of surface and 573 m of underground ddh, 90 kg bulk sample**
1978	Granby Mining Corp	MV1,2 K,L,M	1, 2, 3, 4b,	Pulse EM, surface ddh
1980	**"**	**LM**	**"**	**Airborne mag, VLF, ground mag, VLF soil survey, 2 ddhs**
1981	Noranda Expln. Co.	LM	4b	8 ddhs (7 wildcat) Soil sampling and property mapping
1986	**Welcome North Mines Ltd.**	**Wow 1, MV L M**	**1, 3**	**Sampling 4b**
1986	Pioneer Metals	Wow 1 MV1, M	1,2, 3, 4b	Geological survey
1991	**Alpha Gold**	**MV1**	**3**	**906.6m of ddh (10 holes)**
1992	"	L, M	4b	Trenching, 1520m ddh (30 holes)
1993	**"**	**L, M**	**4b**	**24 ddhs**
1996	Teck Expln.	Lustdust	2,3, 4b, 4	Geology, soils, trenching
1997	**"**	**"**	**"**	**Soil sampling, 3062.8 m drilling in 16 ddhs**
1998	Alpha Gold	"	1, 2, 3	1,103m of drilling in 14 ddhs
1999	**"**	**"**	**3, 4b, CCSZ**	**see below**

The 1999 program included the cutting of 2 km of new roads, 5 trenches totaling 500 m, 18 DDHs holes totaling 3050 m, and a differential GPS mapping of all existing roads and drill pads to allow accurate compilation of previously acquired data. 1999 work included a synthesis and re-interpretation of previous results from the Canyon Creek Skarn Zone and transitional skarn-replacement zones. Drilling included testing a deep syncline-keel target concept developed by Graeme Evans of Teck Resources, which, although largely unsuccessful, did demonstrate continuation of host rocks to depth (290 m) and tested such a small volume that deep target concepts remain viable. The 1999 work resulted in important new discoveries of mineralization that indicate excellent targets for future drilling. The 1999 work also significantly improved understanding of the system, showing that it is a large, well-zoned, polyphase skarn-replacement system similar to major deposits elsewhere in the Cordillera (Titley and Megaw, 1985; Megaw and others, 1988; Barton and others, 1995, Titley, 1993 and 1995).

CRD INTRODUCTION, EXPLORATION CONCEPTS AND RATIONALE

There is much confusion associated with CRD terminology, so it seems worthwhile to familiarize the reader with the terminology as used throughout this report. At the outset it is important to emphasize that: **1) "massive sulfides"** is used here as a descriptive term with no genetic connotation (Do not confuse this with Volcanogenic Massive Sulfide [VMS] which is a genetic term); **2) "manto and chimney"** are descriptive terms referring to the geometry of the mineralized body with no compositional implications; **3) "replacement"** is used in reference to an interpreted depositional mechanism of mineralization, regardless of the composition of the resulting mineralization...either sulfides or calc-silicates.

The following is excerpted from Megaw (1998).

Carbonate Replacement Deposits (CRDs), are epigenetic, intrusion-related, high-temperature sulfide-dominant Pb-Zn-Ag-Cu-Au-rich deposits that typically grade from lenticular or podiform bodies developed along stock, dike, or sill contacts to elongate-tubular to elongate-tabular bodies referred to as chimneys and/or mantos depending on their orientation. Limestone, dolomite and dolomitized limestones are the major host rocks. Ores grade outward from sulfide-rich skarns associated with unmineralized or porphyry-type intrusive bodies to essentially 100% polymetallic massive sulfide bodies. Both sulfide and skarn contacts with carbonate host rocks are razor sharp and evidence for replacement greatly outweighs evidence for open-space filling or syngenetic deposition (Titley & Megaw 1985). In reduced, high to low-temperature systems, proximal to distal metal zoning generally follows: Cu (Au, W, Mo), Cu-Zn (Ag), Zn-Pb-Ag, Pb-Ag, Mn-Ag, Mn, and Hg. This zoning may be very subtle and large scale (Prescott 1916; Morris 1968; Megaw 1990) or tightly telescoped and smaller scale (Graf 1997).

CRD mineralization is associated with polyphase intrusions that evolve from early intermediate phases towards late, highly evolved felsic intrusions and related extrusive phases. The intrusions most closely related to mineralization are usually the most evolved phases and these are not exposed in many districts. However, they are often encountered when the system is explored to depth.

CRD exploration is difficult enough that considerable care should be taken in selecting a target district/deposit prior to high-cost detailed exploration. However, several features make CRDs highly desirable mining targets including, **1) Size**-CRDs average 10-13 million tons of ore and the largest range up to >50 million tons, 2**) Grade**-ores are typically polymetallic with metal contents ranging from 2-12% Pb; 2-18% Zn, 60-600 g/T Ag, Tr-2% Cu and Tr-6 g/T Au. Many have by-product credits for Cd, W, In, Ga, Ge, Bi, and S, 3**) Deposit morphology**-orebodies are continuous and average 0.5 to 2 million tons in size, with some up to 20 million tons, **4) Extraction and Beneficiation-** CRDs are typically metallurgically docile, amenable to low-cost mining methods and the environmental footprint is minimal.

Many different features of CRDs tend to be well zoned at district, deposit and hand-sample scales. The most important zonations are: 1)- Ore and gangue mineralogy and metal contents, 2)-Orebody geometry, 3)- Intrusive geometry and composition, 4)- Structural controls on mineralization, 5)- Alteration and, 6)- Isotopic characteristics of wallrocks. In general, the largest systems show the best-developed zoning and repetition of zoning and paragenesis. Zoning tends to be most extensive in the elongate manto and chimney systems where individual zones may extend over kilometers vertically and laterally (Megaw 1990, 1998). Zoning in large stock contact skarn systems is typically more compressed because of telescoping and repeated overprinting (Graf 1997). In all cases, multi-phase mineralization is a reliable indicator of large systems.

The evolution of CRD-skarn systems in time and space, and the gradations seen in single orebodies or districts (Figs. 3, 4, 5) suggests that the various manifestations of the deposit type can be considered part of a spectrum (Einaudi et al. 1982; Megaw et al. 1988; Titley 1993; Megaw et al. 1998) (Figs. 3 and 4) ranging from:

A. Stock contact skarns: formed against either barren or productive stocks
B. Dike and sill contact skarns
C. Dike and sill contact massive sulfide deposits
D. Massive sulfide chimneys
E. Massive sulfide mantos
F. Epithermal veins (in some cases)

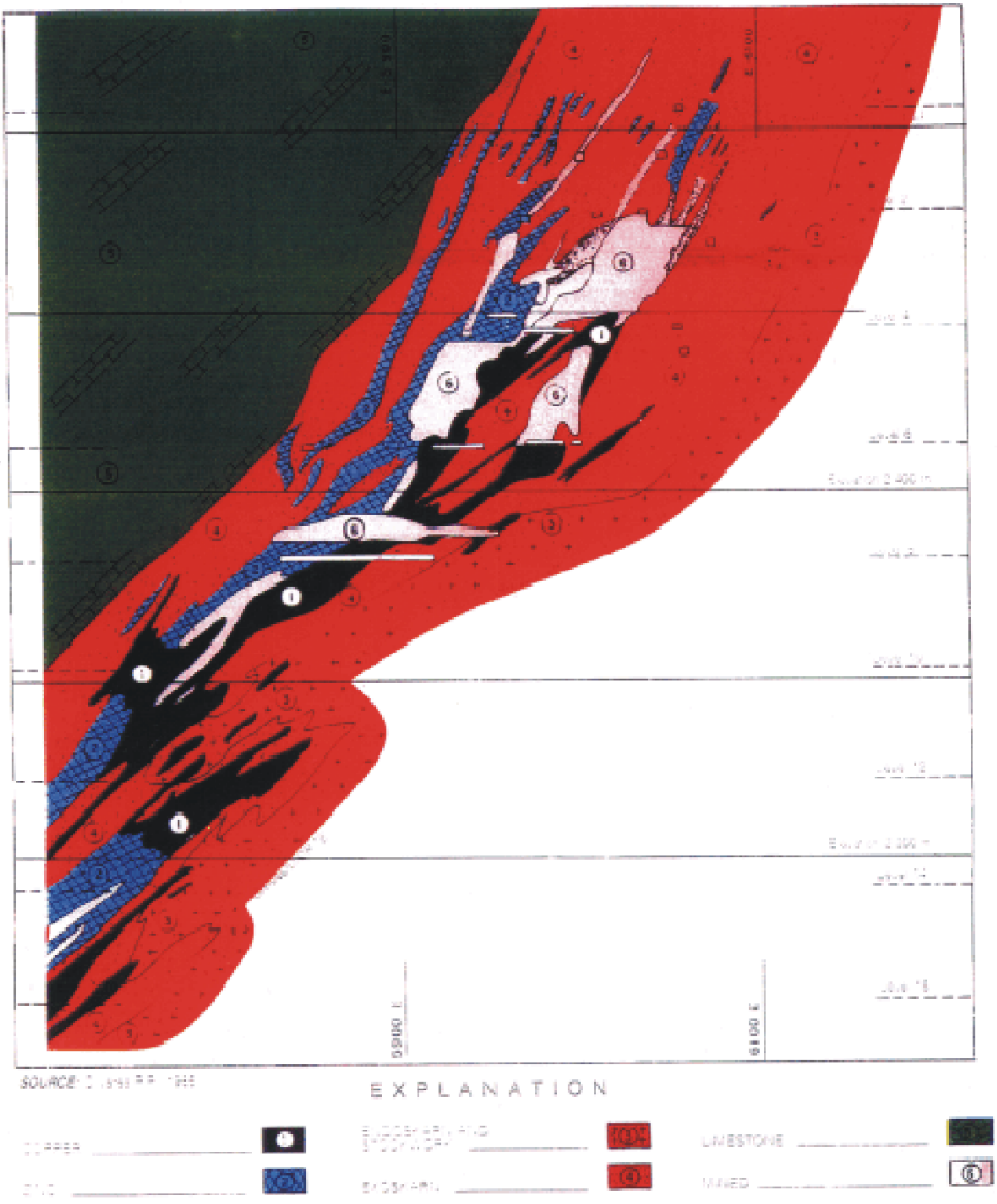


Figure 3: Cross section through San Martin, Zacatecas, Mexico skarn deposit, showing mineralization along structures cutting skarn, Cu to Zn zoning, and magnitude of system. (From CRM Zacatecas Monograph)

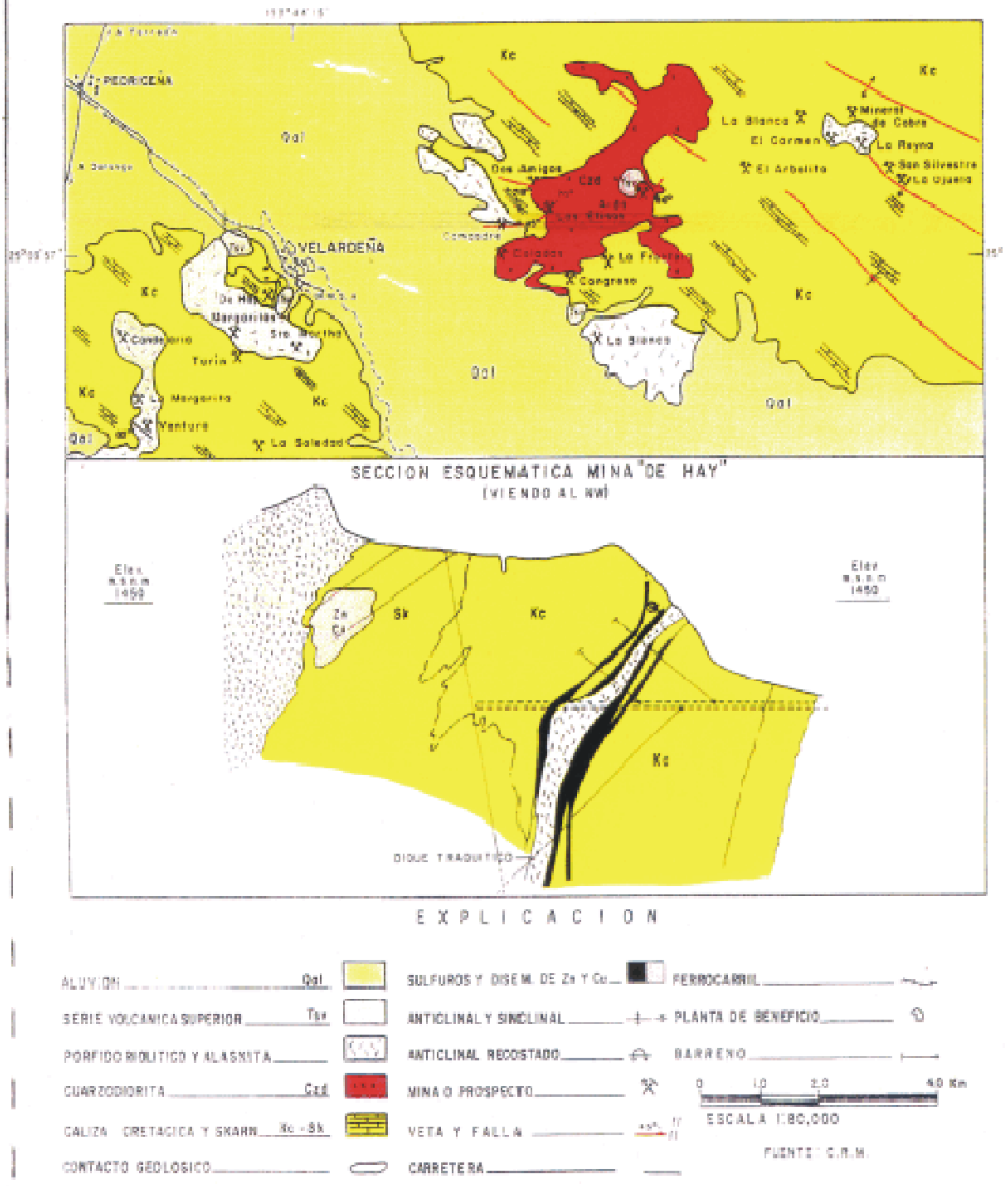


Figure 4: Cross section through Velardeña District, Durango, Mexico skarn-CRD deposit, showing broad scale Cu to Zn and skarn to CRD zoning, and magnitude of system. (From CRM Durango Monograph)

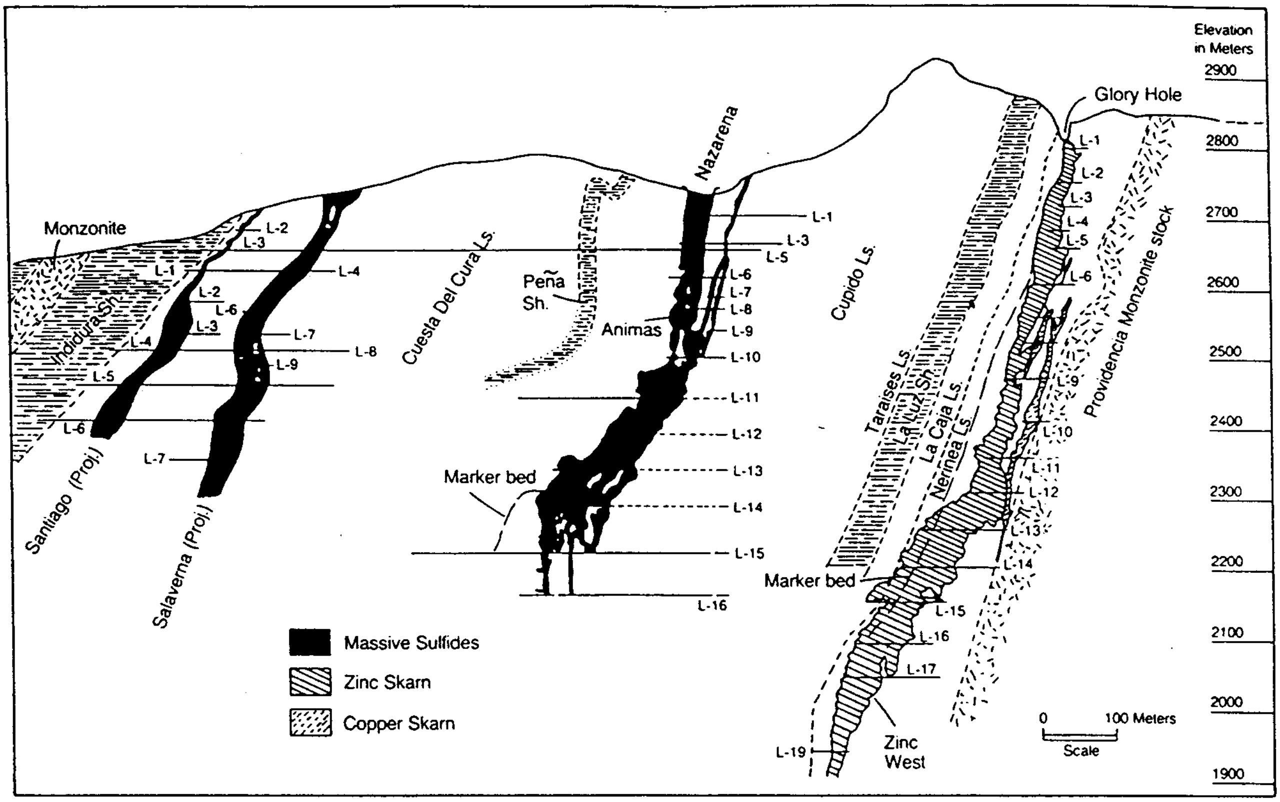
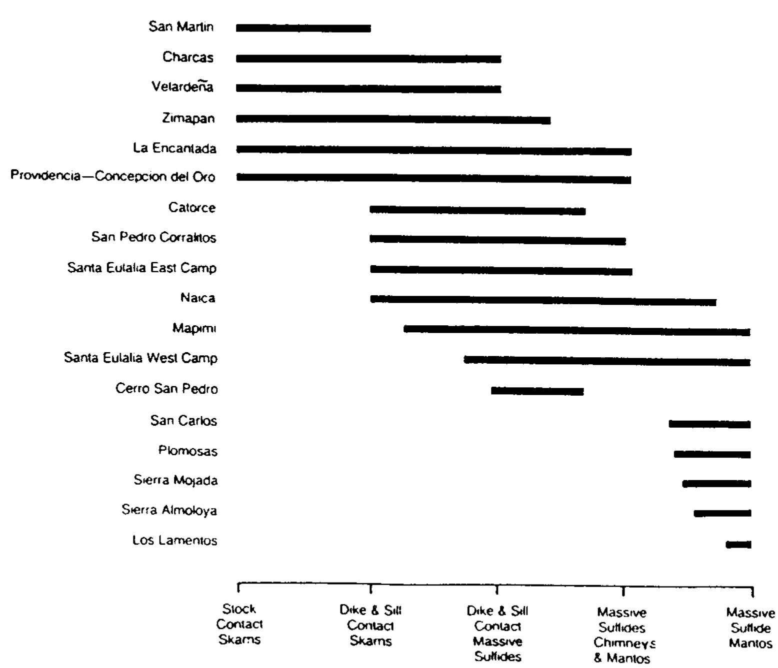


Figure 5: Composite cross-section (looking N60W) through the major orebodies of the Providencia-Concepcion del Oro District, Zacatecas, Mexico, showing successive concordant skarn and massive sulfide bodies that parallel the Providencia Stock contact (From Megaw and others, 1988)

Figure 6: Schematic representation of the spectrum of CRD deposit types and the portion of the spectrum displayed within individual districts.



This conceptual framework (Figs. 6,7) allows examination of the mineralization, alteration, intrusion types, host rock and other characteristics of a given deposit and determining where it lies within the spectrum. Examination of the composition, geometry and controls on intrusion emplacement, if possible, is essential to determining district zoning and level of exposure. Perhaps most importantly, understanding of the host rock tectono-stratigraphy can allow rapid determination of the potential for more mineralization in the host section at depth or laterally in the known favorable beds, or in previously unconsidered host units.

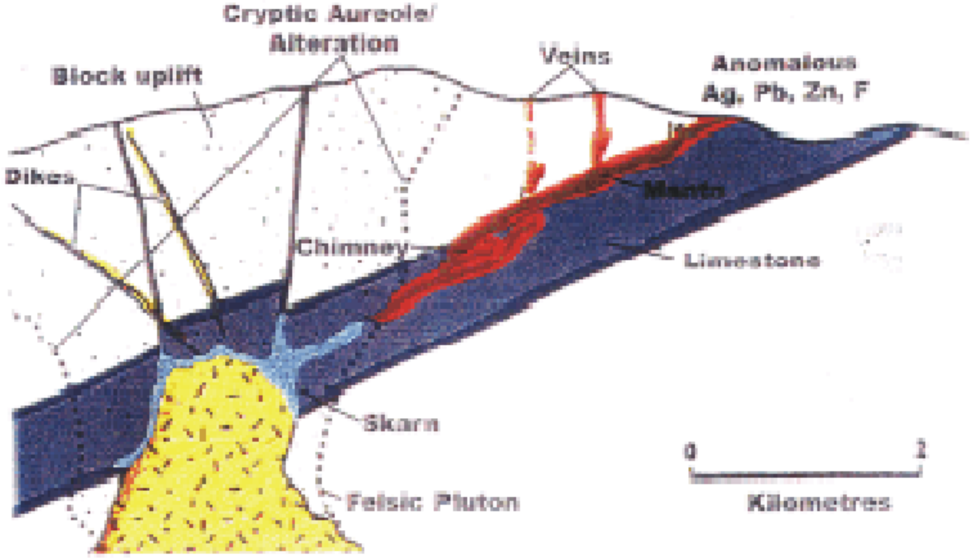
Structural fabrics are the dominant control variable on mineralization in CRDs, as they control intrusion emplacement and channel ore fluids into favorable host strata. Most CRDs lie in fold-thrust belts on major structural domes, arches, anticlines, synclines or homoclines, and most districts have structural grains controlled by faulting and fracturing related to regional deformation (Megaw et al. 1988). Orebodies are often elongate and parallel district-wide structural trends, but may not be restricted to a given structure over great lengths.

Intrusive stocks commonly occur beneath or adjacent to the most proximal portions of CRD systems, although in many cases they do not crop out. Where intrusions are exposed, they are generally less than 5 km^2 in areal extent. These stocks are generally polyphase with compositions grading from early diorite to late granite. Texturally, these intrusions range from equigranular to porphyritic and massive to highly fractured with time and proximity to paleosurface. The central stocks may be barren, contain porphyry copper or molybdenum systems, or have marginal zones with porphyry copper or molybdenum affinities (Megaw, 1998). In many systems, the early phases of the intrusion have associated skarnoid or barren skarn, whereas skarn and ore mineralization are related to later, more highly differentiated phases (Meinert, 1995 and 1999; Graf, 1997).

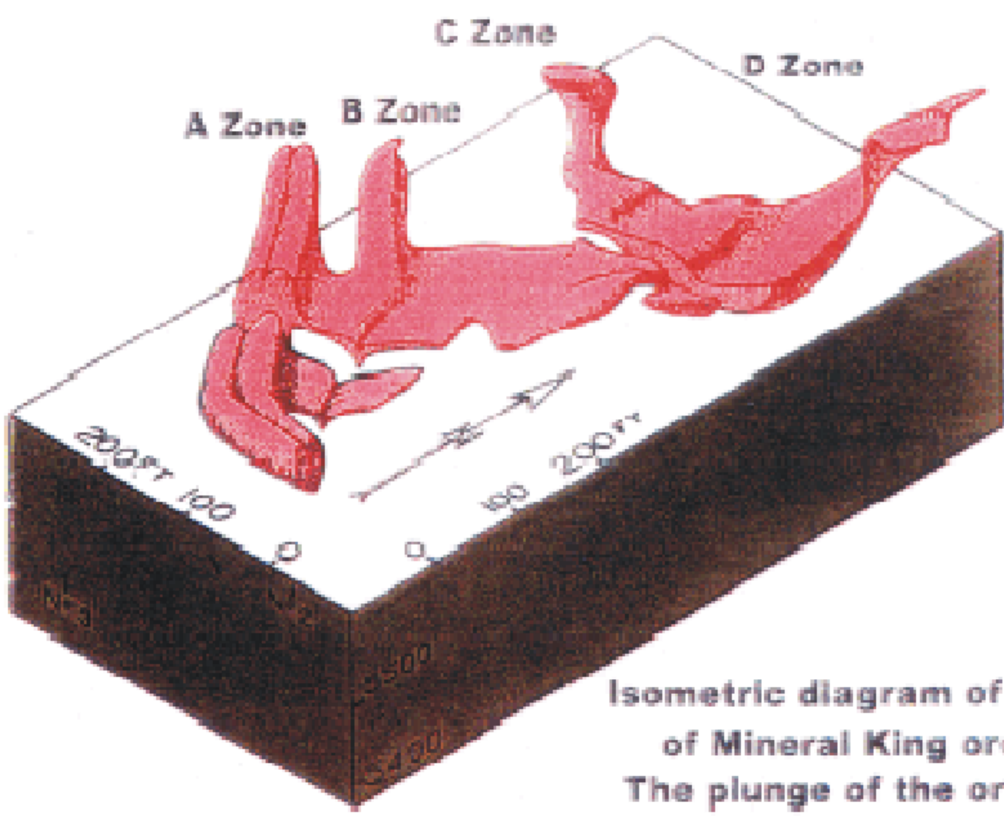
Dikes and sills characterize the intermediate reaches of CRDs and there is often evidence for multiple dike/sill emplacement events (Megaw 1990). These intrusions may be compositionally homogeneous (Megaw 1990) or there may be compositional evolution between dike/sill phases (Graf 1997). Textures range from porphyritic to aphanitic, locally with narrow gradations between textural domains (Megaw 1990). Chimney and replacement veins are the most common orebody types associated with these intrusions, although mantos locally occur along sill contacts.

The distal zones of CRDs are characterized by massive sulfide bodies lacking an associated intrusion. These commonly have the form of high angle to vertical slab-like replacement veins or elongate pipe-like chimneys or low angle to horizontal tabular or elongate tongue-shaped mantos, generally crudely stratabound. Mantos may be developed entirely within selected beds or groups of carbonate beds, or may occur with one or more non-reactive, relatively impermeable sedimentary or intrusive rock contacts.

FIG. 7



Generalized manto model



Isometric diagram of upper part of Mineral King orebodies. The plunge of the orebodies is to the northwest, away from the observer.

Development of carbonate rock alteration in CRDs, like mineralization, is highly variable in type and in scale. The major alteration types are:

1. **Skarnoid or hornfels:** These are typically very fine-grained, mineralogically simple, calc-silicate and silicate assemblages formed through thermal metamorphism without significant addition of outside components. Skarnoid typically forms from a limestone or shaly limestone precursor, whereas hornfels forms from shale or limy shale precursors. Hornfels and skarnoid commonly develop in the thermal aureole around the largest volume (often early) intrusive phase and may aid in ground preparation for later metasomatic events. Skarnoid and hornfels often contain abundant fine-grained pyrite or pyrrhotite, but seldom significant amounts of ore-metal sulfides unless it has been overprinted by subsequent hydrothermal events.

2. **Skarn:** Skarns are fine to very coarse-grained, often mineralogically complex, calc-silicate or calcic-iron silicate assemblages formed through metasomatism with significant addition of outside components. **Endoskarn** is skarn formed at the expense of intrusive rock, **exoskarn** is skarn formed at the expense of wallrocks to the intrusion...most commonly carbonates. Skarn commonly develops around lesser volume, more fluid-rich intrusive phases and may overprint hornfels or skarnoid to varying degrees. Anhydrous calc-silicate minerals (dominantly pyroxenes and garnets) characterize the early **"prograde"** skarn phase generated during rising temperatures related to magma emplacement. Hydrous calc-silicate minerals (dominantly amphiboles, chlorites, and clays) formed at the expense of predecessor prograde minerals characterize the later **"retrograde"** skarn assemblage. Retrograding occurs as temperatures drop and variable amounts of magmatic fluids and groundwater invade the skarn zone. Skarns are said to be mineralized when they contain sulfide minerals of economic interest. Said sulfides may be co-deposited with the calc-silicates, but more commonly are introduced along structures that cut the skarn, replacing skarn minerals and unskarned wallrocks. Complex mineralized skarn systems typically show multiple intrusive phases and a repetition of sulfides replacing calc-silicates silicates...presumably reflecting successive intrusive and hydrothermal events. In some systems, different compositions of skarn and sulfides characterize each phase (Megaw and others, 1998).

3. **Marbelization and Recrystallization:** These are present in virtually all CRD systems and range from narrow zones around mineralization to zones 100s of meters wide (Titley & Megaw 1985; Megaw et al. 1988).

4. **Argentiferous Manganese Oxide Mineralization (AMOM):** AMOM is a fracture-controlled interstitial impregnation of carbonate host rock by fine-grained manganese oxides accompanied by sulfides, sulfosalts and native silver (Megaw 1990). AMOM is very well developed in the peripheries of many CRD systems and has locally been mined as smelter flux (Megaw et al. 1988; Megaw 1990). Low-silver AMOM also exists, so AMOM can best be considered

transitional between mineralization and alteration (Megaw 1990). AMOM tends to follow the same stratigraphic and structural controls that control mineralization in the distal parts of systems, so it can be a valuable tool for determining probable controls on nearby sulfide mineralization.

5. Silicification or Jasperoid development: These consist of fine-grained silica replacements of carbonate rocks, with or without appreciable amounts of metals, and are very common in the peripheries of some CRD systems (Titley & Megaw 1985; Megaw et al. 1988; Megaw 1990)

LUSTDUST GEOLOGY AND MINERALIZATION

Regional Geology

The Lustdust property is located within the Cache Creek Terrane directly west of the Pinchi Fault (Gabrielse and Yorath, 1992) (Fig. 8). The Pinchi Fault can be traced for 600 km through north-central B.C. and is believed to have been a major thrust fault which was later reactivated as a large right-lateral strike-slip fault (Paterson, 1977). In the project area, the Pinchi Fault separates Cache Creek rocks from the Jurassic Hogem Batholith and Triassic-Jurassic Takla rocks to the west (Fig. 8). The Cache Creek Group is of Pennsylvanian-Permian age and consists of a >500 kilometer-long, >3000 meter thick, complexly deformed sequence of interbedded argillites, cherts, carbonates, and mafic to ultramafic volcanic and plutonic igneous rocks. Alpine peridotites and ophiolite fragments are locally present, especially to the north of Lustdust (Soregaroli, 1999, Schiarizza and MacIntyre, 1999). Although these units are locally metamorphosed to blueschist facies, the overall metamorphic grade throughout the area is low. The argillites and cherts are typical fine-grained thinly bedded deep-marine sediments (Monger, 1977). The volcanic rocks are tholeiitic and include andesitic to basaltic tuffs, flow-breccias, and local pillow basalts...all of oceanic affinity. The carbonates are dominated by bioclastic to micritic and algal-bound shallow-water facies limestones interpreted to have been deposited in a carbonate bank or reef environment (Monger, et al, 1991). Regional studies have emphasized the observation that contacts between most of the different lithologies are abrupt and probably are faults. However, detailed studies, executed close to Lustdust (Sano and Struick, 1997), have found limestone conglomerate and sandstones with volcanic fragments and limestone fragments within the argillite-chert section. Similar relationships are seen in core at Lustdust and locally show uninterrupted gradation from massive clastic limestone into mixed limestone-volcanic conglomerates with mafic tuff matrix. Some of these show graded bedding of limestone into the tuffs in what appears to be a classic Bouma sequence (See below, Figs. 10-12).

The entire package is folded with a well-developed axial planar foliation along a north-northwest strike trend typical of the entire Intermontane Belt in which the Cache Creek Terrane lies (Gabrielse and Yorath, 1992). A wide range of Jurassic-Tertiary intrusions cut the Cache Creek throughout the region and are one focus of on-going joint GSC-GSBC research focused in the region (Soregaroli, 1999). Many of these are emplaced along the prominent NW-trending structures and stratigraphic breaks that characterize the region. Numerous Hg occurrences are present along much of the length of the Pinchi (Albino, 1987) and a few Au and base metal occurrences are present within Cache Creek rocks near the Pinchi fault including; the Lustdust, Indata and Axelgold properties.

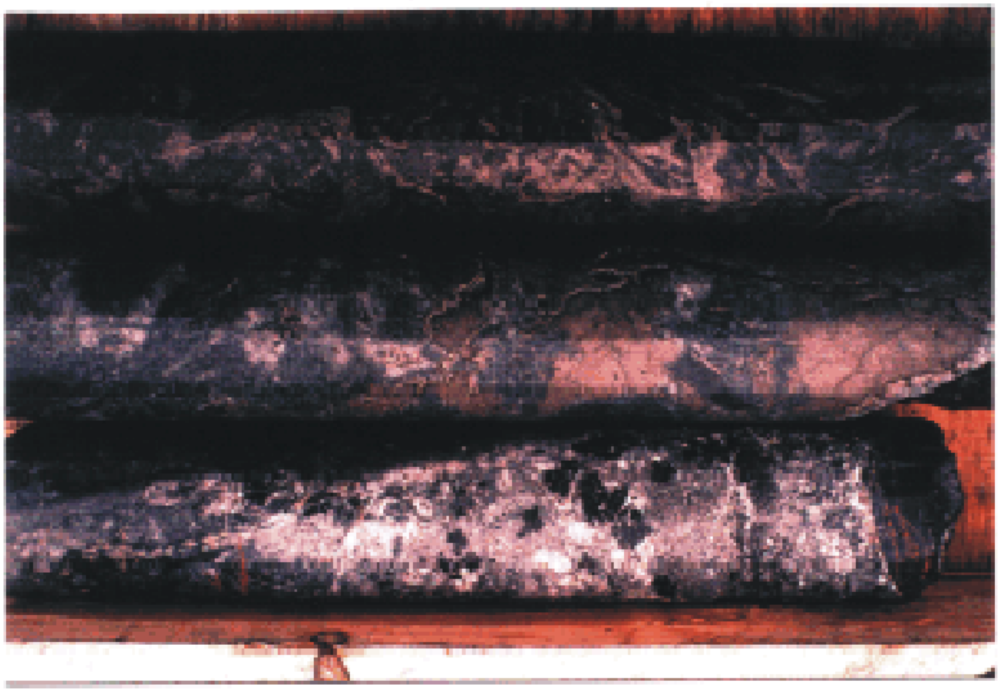


Figure 9: Close-up of core from LD99-02 (175m) showing highly contorted pyrrhotite-chlorite rock (top), limestone breccia with distorted pyrrhotite matrix (cut by tectonic stylolite?) (center), and mixed fine-grained breccia composed of limestone, volcanic and pyrrhotite fragments (bottom). Note sharp contact between breccia and adjoining argillite (bottom right).

Figure 10: Core from LD99-16 [161 (top)-252 (bottom) meters depth, samples separated by about 10m each] showing transition from massive (grainflow?) limestone (1) to diminishing diameter limestone clasts in deformed argillite matrix (2-4) through a range of finely laminated argillite (5) with elongate and locally deformed limestone fragments (6-11).

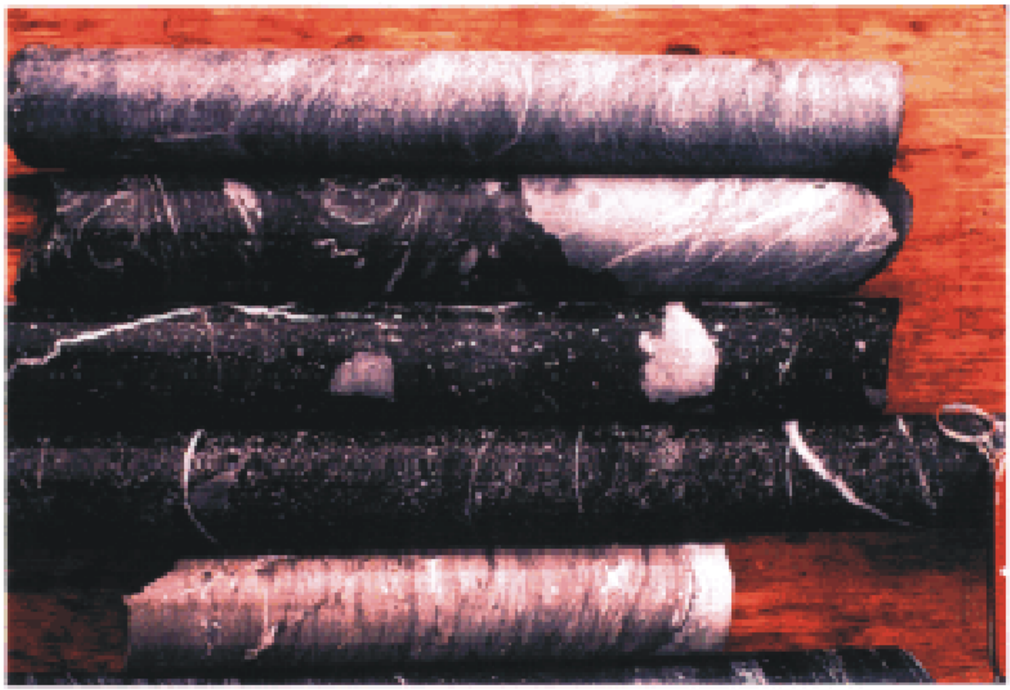


Figure 11: Close-up of core sections 1-5 from Fig. 10 [samples separated by about 10m each] showing transition from massive (grainflow?) limestone (1) to diminishing diameter limestone clasts in deformed argillite matrix (2-4) to finely laminated argillite (5). This sequence appears to be a typical turbidite Bouma sequence; this indicates that the section is overturned.

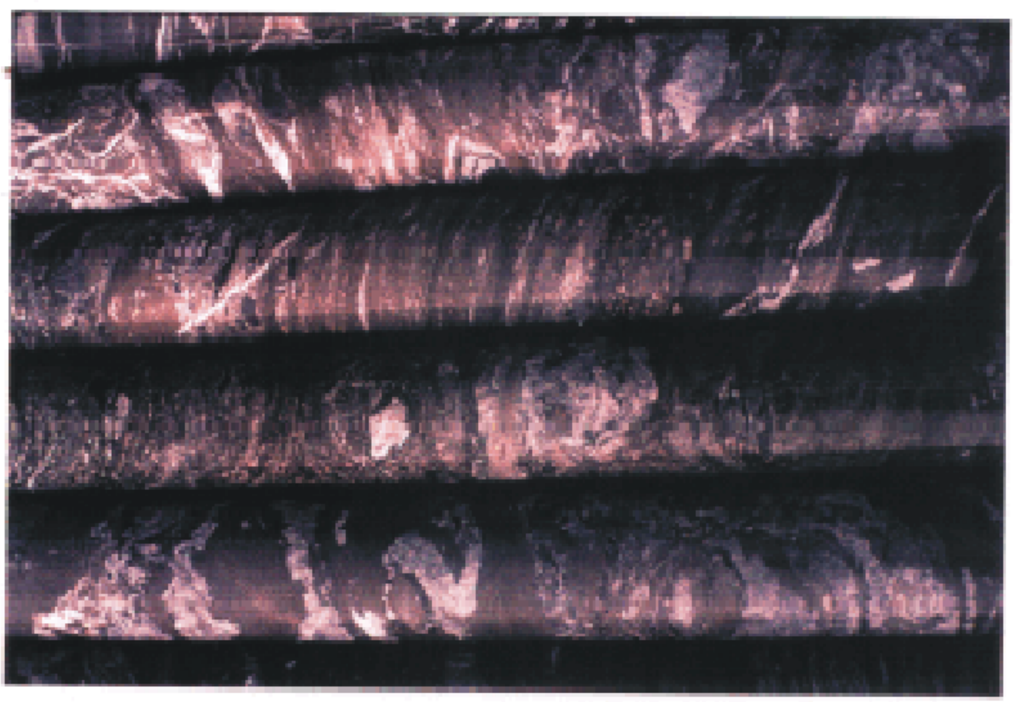


Figure 12: Close-up of core sections 7-10 (left-right) from Fig. 10, showing thinly bedded clastic materials with abundant pyrrhotite (9), contorted conglomerate (10), and tightly folded and contorted pyrrhotite and clastics (7).

LUSTDUST

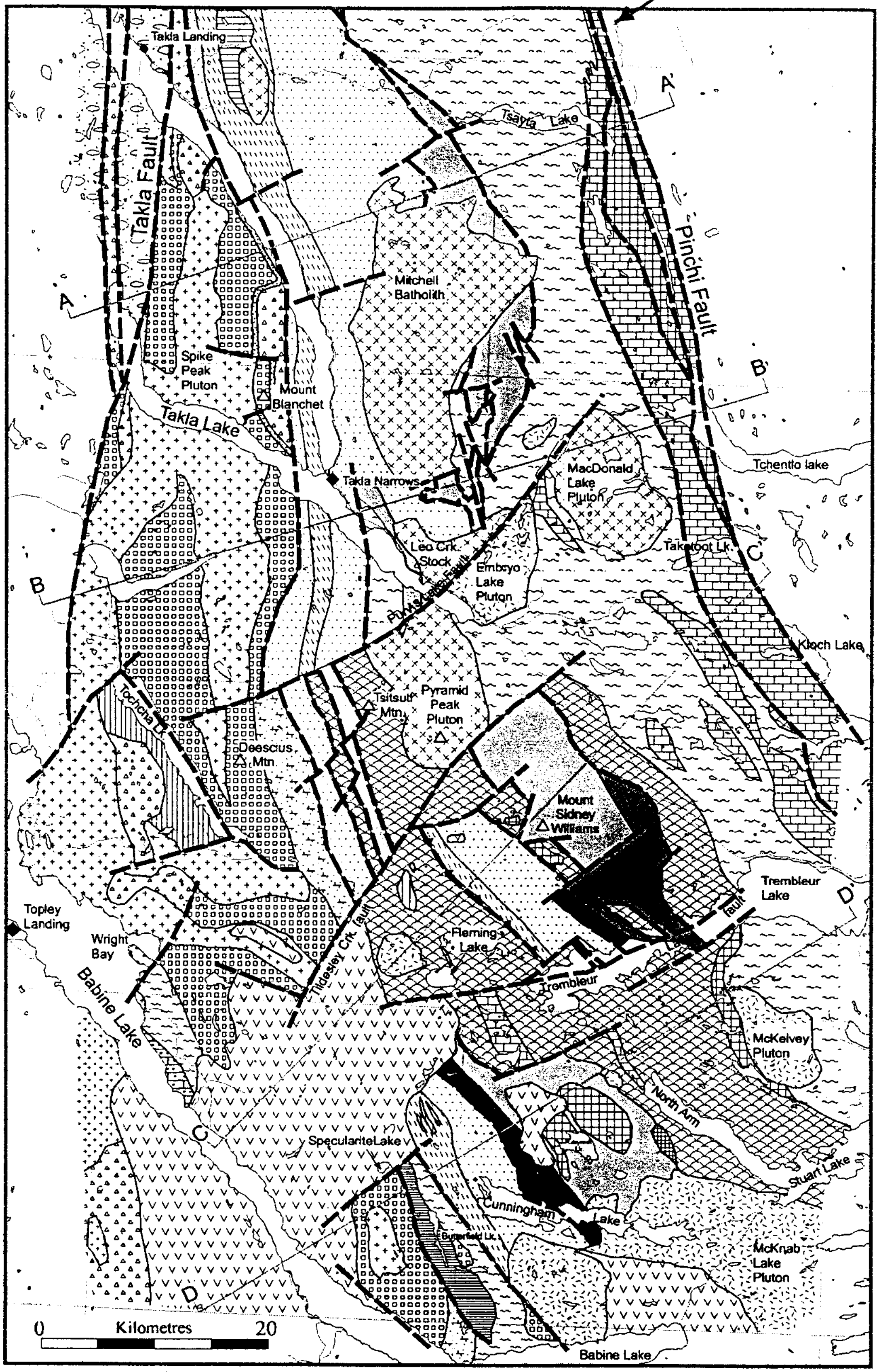


Figure 8: Regional geologic map showing position of Lustdust in cache Creek Terrane. (From Schiarizza and MacIntyre, 1999)

OVERLAP ASSEMBLAGES

Eocene

basalt, andesite, ash flow, minor debris flow, conglomerate, mudstone

K-feldspar-biotite porphyry, biotite-hornblende-feldspar porphyry

Upper Cretaceous

Sustut Group

chert pebble conglomerate, minor sandstone, shale

Early Cretaceous

Mitchell Range intrusions: medium to coarse-grained granite and granodiorite; locally includes diorite and quartz diorite.

Late Jurassic to Early Cretaceous

Francois Lake suite: granite, quartz monzonite, biotite granodiorite, quartz porphyry

Middle Jurassic

McKnab Lake intrusive suite: quartz diorite, tonalite, diorite

STIKINE TERRANE

Middle Jurassic

Spike Peak intrusive suite: red to pink monzonite, quartz monzonite, hornblende diorite; locally porphyritic (176-167 Ma.)

Late Triassic to Early Jurassic

Topley intrusive suite: pink to grey, K-feldspar megacrystic granite, quartz monzonite; monzonite; varies from fine-grained equigranular to porphyritic (230-195 Ma.)

Lower to Middle Jurassic

Hazelton Group

subaerial andesite to dacite flows and associated pyroclastic rocks, feldspathic fossiliferous siltstone and sandstone; volcanic conglomerate; typically feldspar or feldspar-pyroxene phyric; locally foliated.

Upper Triassic to Lower Jurassic

quartzose-feldspathic turbidites; wacke, argillite, chert and limestone clast polymictic conglomerate

Upper Triassic

Takla Group

submarine to subaerial basalt and basaltic andesite flows and associated pyroclastic and epiclastic rocks; minor mudstone and siltstone interbeds; typically pyroxene to pyroxene-feldspar phyric; some coarse-grained bladed feldspar phyric andesite; locally deformed to chlorite schist; may be equivalent to the Savage Mountain and/or Moosevale formations.

marine siltstone, mudstone, cherty argillite; minor limestone, chert and chert-limestone clast conglomerate; locally strongly deformed; may be equivalent to the Dewar Peak formation.

Late Triassic

Tochcha Lake stock: foliated hornblende diorite (219 Ma.)

Paleozoic and/or Triassic

Butterfield Lake intrusive complex: pyroxenite, hornblende gabbro, diorite, chlorite schist

Taltapin metamorphic complex: chlorite-feldspar-amphibole schist, amphibolite, greenstone

Upper Pennsylvanian to Lower Permian

Asitka Group

massive grey limestone; argillaceous limestone, chlorite schist; minor felsic tuff or flows, metasiltstone, metachert.

CACHE CREEK TERRANE

SITLIKA ASSEMBLAGE

Upper Triassic to Lower Jurassic

Clastic unit: medium to dark grey slate, phyllite; banded siltstone, sandstone and conglomerate; minor limestone and green chloritic phyllite; locally contains felsic volcanic and plutonic clasts; distal to proximal turbidite succession.

Early Triassic

Light grey, medium to coarse-grained tonalite

Late Permian or Early Triassic

Medium grained epidote-chlorite-feldspar schist to semischist; sericite-chlorite-feldspar schist; weakly foliated chloritized hornblende diorite

Permian to Lower Triassic

Volcanic unit: medium to dark green chlorite schist, fragmental chlorite schist and pillowed metabasalt; chlorite-sericite schist containing felsic metavolcanic fragments; lesser amounts of quartz-sericite schist, quartz-feldspar porphyry, flow banded metadacite, metasandstone and metachert.

CACHE CREEK COMPLEX

Permian to Triassic?

North Arm succession

massive to pillowed basalt flows with interbeds of pillow breccia, chlorite schist, chert, limestone and graphitic phyllite; includes greenstone dikes and sills; minor metagabbro, amphibolite, serpentinite and listwanite.

sheeted diabase dike complex.

gabbro, diorite, diabase; locally includes clinopyroxenite, amphibolite, tonalite.

Trembleur Ultramafic Unit

variably serpentinized harzburgite and dunite; serpentinite, serpentine-magnesite-talc schist; locally includes clinopyroxenite, gabbro, greenstone, diabase, amphibolite, chert, limestone, listwanite, nephrite

mainly carbonate-talc altered ultramafic rocks; minor listwanite.

foliated serpentinite, commonly with lozenges of massive serpentinized ultramafite.

Permian to Jurassic

Phyllite-chert unit: light to medium grey quartz phyllite, platy quartzite and metachert; lesser amounts of recrystallized limestone, dark grey phyllite, massive to pillowed greenstone, fragmental greenstone and chlorite schist; minor amounts of meta sandstone.

Pennsylvanian to Permian

massive limestone, minor basalt

Lustdust Property Geology

The Lustdust property is underlain entirely by Permian Cache Creek units that form overturned west-dipping, north-plunging, folds parallel to the north-northwest trending Pinchi fault that lies along the eastern property boundary. The stratigraphy strikes N-NW with generally vertical to moderate westerly dips. Very little bedding is preserved and structural information is generally rare on the property except in road cuts. The explored part of the property is dominated by a carbonate sequence interbedded with graphitic and calcareous phyllites, cherts, cherty argillites, and mafic tuffs (Plate 1). To date, little evidence for previously mapped NE trending faults has been recognized but a number of thrust faults have been recognized.

A 1^2 kilometer monzonite stock occurs in the NW corner of the property (Plate 1) and appears to be (at least one of) the source(s) for a swarm of NW-trending dikes, ranging from monzonite to rhyolite, that cut the property. Pervasiveness of hornfels and skarn reportedly increase towards this stock from the explored area (Evans, 1999) but insufficient fieldwork has been done to determine if this stock is truly the center of the Lustdust hydrothermal system or not (see below).

Several styles of mineralization are present on the property that appear zonally related to each other, and an as-yet poorly defined center. From most proximal to distal these are: **1) Disseminated py, po, aspy** in the monzonite stock and sills with low Au values; **2) Garnet-diopside skarn** cut by Cu-Au-Ag bearing structures (Canyon Creek Skarn Zone); **3)** Structurally and stratigraphically controlled **massive sulfide replacement bodies** [CRD] (4b, deep 3, and deep 2) and their oxidized equivalents (shallow 3 and 3 extension and shallow 2); and **4) Sulfosalt-rich veins** (zone 1) which follow faults and bedding plane structures and contain high values of Au, Ag, Pb, Zn, Sb and Mn.

Stratigraphy

Argillite

The "Argillite" (Units 1 and 2 of Teck Map: Plate 1) is a composite unit that includes a wide range of fine-grained, essentially non-calcareous, carbonaceous, thinly bedded sedimentary rocks. It includes argillites, cherty argillites, thinly bedded cherts, carbonaceous argillites, and phyllites interpreted as metamorphosed equivalents of the above. Graphitic layers are common throughout. Locally, the thinly bedded units contain fine-grained, continuous pyrite or pyrrhotite layers that appear to be part of the original sediments (See below). These units also include local limestone beds and coarser grained units composed of sand to cobble sized fragments of the fine-grained rocks plus extraneous rock types. Most of the variations show intergradations somewhere over the width of the property and certain units, especially the coarser clastic units, are transitional to mafic tuff or limestone layers. The unit is pervasively distorted and locally tightly isoclinally folded.

The polymictic sandstones and conglomerates include fragments of limestone, mafic and intermediate volcanic fragments and tuff, as well as rarer fragments of pyrrhotite and/or pyrite (Fig. 9). These fragments range from a few mm to at least 30cm across (best encountered at 268 and 273 feet in LD99-02)(Appendix A, Figs. 10, 11, 12) and show very fine laminations that are often as highly contorted as the surrounding argillite matrix (Fig. 9). The degree of distortion between the fragments and matrix is comparable, and in one place, (Fig. 9) both limestone and pyrrhotite are cut by tectonic stylolites. This strongly indicates that the sulfides originated as fragments and syngenetic layers deposited in the conglomerate, and have suffered the same deformation history (Figs 9, 10, 11, 12).

Mafic Tuffs

The "Mafic Tuffs" (Unit 3 of Teck map) are well-foliated dark green, to green and white mottled, shales, sandstones, and conglomerates with highly chloritic and locally calcitic matrices. The chlorite is interpreted to result from alteration of mafic-intermediate tuffaceous materials, hence the name (Evans, 1996). 1-30 cm limestone fragments are the dominant clasts (Figs. 13, 14), but fragments of intermediate and mafic volcanic rocks are also present. These rocks contain up to 2% finely disseminated pyrite and/or pyrrhotite and are geochemically anomalous for Pb, Zn, and Cu (Evans, 1996 and 1999). Grading of limestone fragments is common. LD99-16 shows a complete gradation over 15 m from massive limestone, through coarsely clastic limestone (10-30 cm fragments) in a chlorite matrix, through increasingly smaller limestone fragments in increasingly abundant chlorite matrix, to chloritic argillite with sulfide layers (Figs. 10, 11, 12). Evans (1997 and 1999) believed that there was only one mafic tuff unit and that it was a good marker bed. 1999 fieldwork and core logging show that there are multiple mafic tuff units in the section and they show enough lateral variation that their utility as marker beds is significantly reduced.

Limestone

The limestone (Unit 4 of Teck map: Plate 1) consists of a series of massive gray to white limestone units ranging from a few centimeters to over 100m thick interbedded with the argillites and mafic tuffs. The unit generally is strongly recrystallized to a sugary texture and bedding features are uncommon, even in core (Fig. 15). Evans (1977) recognized three subunits, but noted that the "calcite knot limestone" was the most abundant. This unit is very distinctive and shows knots (Fig. 15) or boudins of white calcite in a gray limestone matrix. He speculated that the textures reflect deposition as a debris flow breccia, which fits very well with the gradation of limestone fragments into overlying mafic tuff

Figure 13: Core from LD99-02 at 235-238m, showing two pyrrhotite intercepts. The section is overturned so the lettering is at the stratigraphic bottom of the intercept. The lower contact shows banded chlorite-rich pyrrhotite overlying limestone-fragment rich mafic tuff bed. Note finely interbedded chlorite and pyrite giving way gradually to massive pyrrhotite. The upper intercept shows a brecciated (or clastic?) contact between limestone and overlying pyrrhotite. Pyrrhotite here is brecciated with coarse calcite filling of breccia voids.

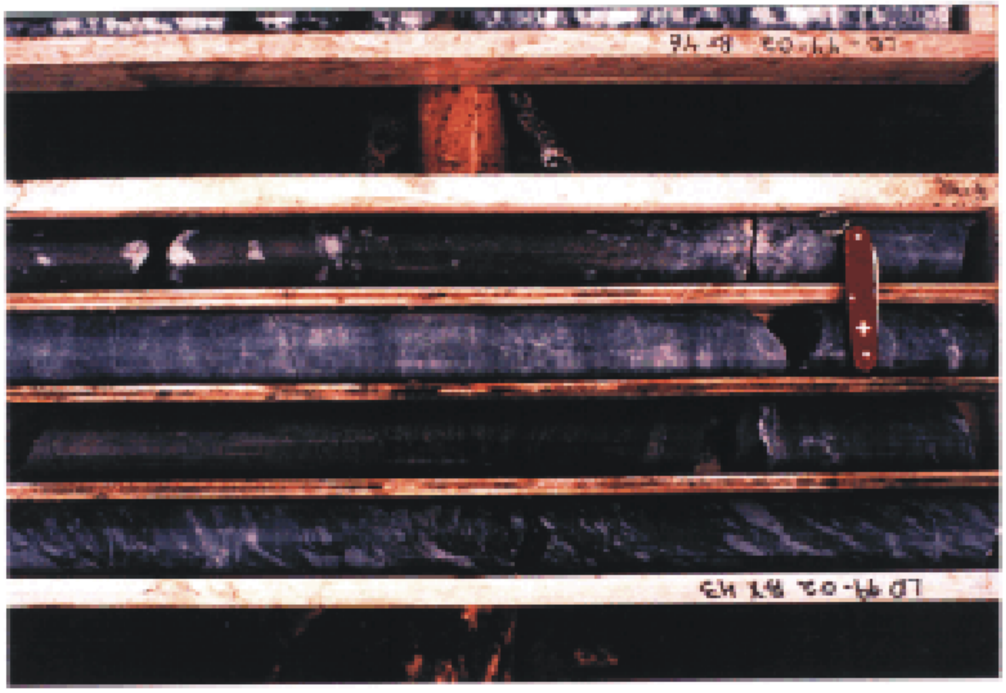


Figure 14: Close-up of upper contact from Fig. 13, showing brecciated, or clastic, nature of limestone/pyrrhotite contact. This is in contrast to razor sharp contacts seen between limestone and pyrrhotite in other holes (See Figs. 20, 21, 24, 25, 26).

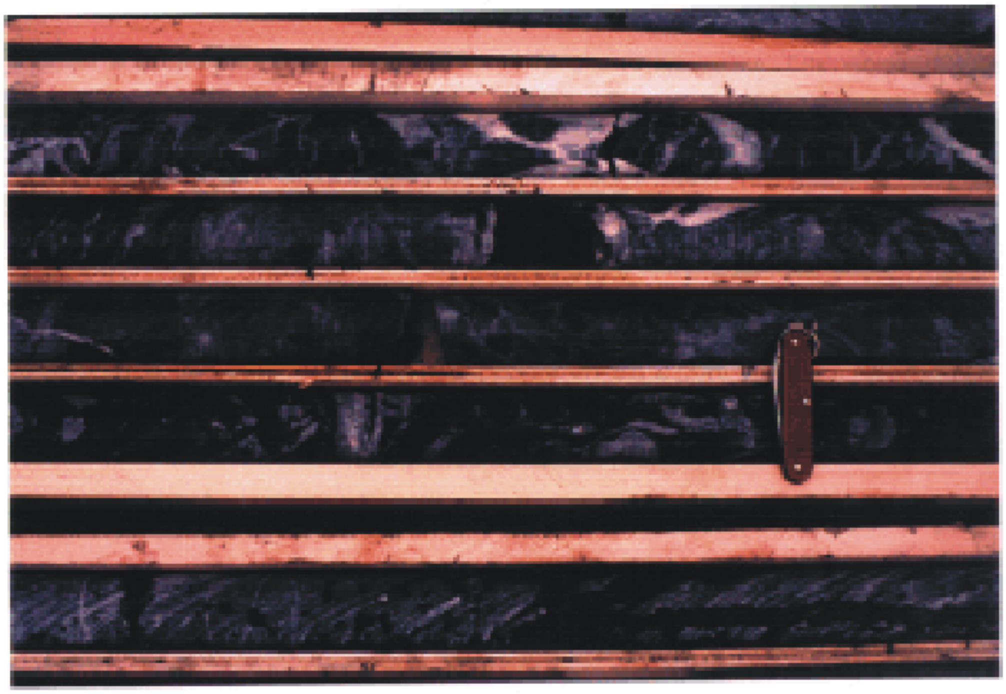


Figure 15: Limestone run from LD99-16 (150m), showing thinly bedded calc-arenite overlain by chaotic limestone breccia cemented by coarse calcite.

units. Figure 15 shows that the calcite knots originated as coarse calcite infillings of breccia voids. Acetate peel studies of this limestone might reveal cryptic textures otherwise obliterated by recrystallization.

Origin of the Cache Creek Group

Regionally, and at Lustdust, the Cache Creek Group is lithologically very diverse and presents features indicative of a complex origin. These include: juxtaposed shallow and deep water sedimentary rocks, a wide range of oceanic volcanic rocks mixed with slices of lower crustal rocks, and relatively low metamorphic grade given the degree of deformation. From the perspective of exploration at Lustdust, this question is not just of academic interest as understanding the intricacies of the Cache Creek is directly related to tracing potential host rocks for skarn-CRD mineralization, distinguishing epigenetic mineralization from syngenetic mineralization, and minimizing confusion in interpretation of geophysical results.

The variety of volcanic, deep crustal, and deep marine sedimentary rocks in the Cache Creek indicate that the sequence is a volcanic-arc related sedimentary wedge scraped off the top of a descending oceanic slab and accreted onto North America during the Triassic. The blueschist metamorphism noted locally is consistent with this interpretation. Fossil fauna are similar to assemblages found in Asia and are so different from those of rocks of similar age in adjoining terranes, that the Cache Creek has been interpreted as a far-traveled allocthonous terrane, (Monger, 1977, Monger and Nokelberg, 1996, Monger, 1998).

The juxtaposition of shallow and deep-water sedimentary rocks has aroused interpretive disagreement. Prior interpretations (Monger et al, 1977) suggested that the Cache Creek carbonates were deposited in-situ as a carbonate reef build-up fringing an off-ridge seamount. However, he noted difficulty in explaining local gradational contacts between the limestones and the underlying deep marine cherts and argillites. Subsequent workers (Sano and Struik, 1997) have noted the mixing of limestone with both the chert-argillite and mafic volcanic sequence and have suggested a deep marine depositional environment at the foot of an oceanic volcanic arc. They interpret that the limestone was transported from its shallow depositional depths as a series of debris flows, or submarine slides, possibly initiated by tremors related to volcanic eruptions.

The interpretation of the overall pattern of sedimentary rocks at Lustdust is similar to that of the region. However, there are additional features to explain at Lustdust that are important to exploration. The most important of these are: **1)** the fine-grained, conformably-deformed pyrrhotite layers interbedded in the argillites (Figs. 9 and 12); **2)** the fragments of finely banded pyrrhotite surrounded by deformed argillite matrix...and themselves deformed (Appendix A, log for LD99-02, Fig. 9); and **3)** the pervasive metals anomalies reported for the mafic tuffs throughout the Lustdust property (Evans, 1997). These features are strongly suggestive that materials from a Beshi-type (?) Volcanogenic Massive Sulfide (VMS) were incorporated into the Cache Creek rocks at Lustdust.

The above features indicate the following depositional scenario for the Cache Creek at Lustdust. The fine-grained siliceous sediments accumulated under relatively quiescent conditions in deep water adjoining a volcanic seamount arc. There were probably volcanogenic massive sulfide accumulations surrounding hydrothermal vents on the deep flanks of the seamounts. Near the surface, these volcanic seamounts were surrounded by carbonate reefs and shoals, which built up over time and shed carbonate grain flows into adjacent deeper water. Periodic volcanic eruptions and related tectonic movement caused large chunks of the carbonates to cascade down the sides of the seamount incorporating volcanic and VMS fragments into the debris flows. As the debris flows diminished, intermediate to mafic-tuff dominated materials accumulated until the eruption cycle waned and quiescent depositional conditions resumed. This model explains the repetitions seen in the depositional cycle, the Bouma sequence graded bedding, and the intergradations between the various rock types. Because the VMS materials were transported an unknown distance to their final depositional site, it is not at all certain that their source lies in the Lustdust area. However, Figure 13 shows mafic tuff-limestone debris breccia overlain by finely banded interbedded chlorite and pyrrhotite in apparent depositional contact. This is in turn overlain by limestone and pyrrhotite breccia. If the contacts are depositional, this indicates the pyrrhotite-chlorite was deposited in-situ in an area repeatedly buried by debris flows that incorporated sulfide fragments. If true, these data suggest that these materials are very close to their source vents. Regardless of proximity to source, the presence of an older VMS mineralization must be taken into consideration when interpreting geochemical and geophysical results at Lustdust.

Intrusive Rocks

Mineralization throughout Lustdust shows a close association to intrusive stocks and dikes ranging from monzonite to rhyolite. Mineralization is preferentially developed along the margins of intrusive bodies (principally dikes) and shows apparent zonation relative to a major exposed intrusive center. Few of the intrusive phases were separated in earlier mapping, and confusion exists between altered and truly different phases. Further, both rhyolite and monzonite dikes occur in contact with, and near, mineralization in both the Cu-Zn and Ag-Pb-Sb-As zones, suggesting that neither intrusive type can be tied directly to mineralization.

Monzonites

There are at least recognizable 5 phases of the monzonite dikes that can be differentiated based on grain size, relative feldspar and mafic phenocryst content and presence or absence of quartz and/or magnetite. The phases identified to date are:

1. **Medium-grained monzonite**: The most voluminous monzonite phase is a medium-grained equigranular to weakly porphyritic rock composed of plagioclase>K-feldspar, abundant elongate hornblende and euhedral biotite (Fig. 31). Quartz is present, but minor. This unit crops out extensively throughout the area, but seems in increase in dominance from the 4b north.

2. **Fine-grained monzonite:** The next most voluminous monzonite phase is a fine-grained sparse porphyry consisting of widely scattered plagioclase and hornblende phenocrysts in a nearly porcelaneous matrix. This rock crops-out poorly and where cut in core usually occurs as thin dikes or as a strongly altered border zone to the medium-grained phase.

3. **Megacrystic monzonite:** The next most common phase is a very coarsely porphyritic phase characterized by twinned K-spar megacrysts to nearly 1cm with coarse euhedral blocky hornblende and biotite. Quartz phenocrysts are common, but not abundant. The matrix is a fine to medium-grained mixture of plagioclase and K-spar with mafics and quartz. This unit forms large dikes to the west of the 4b and 4-Zones, and locally occurs as core zones to the medium-grained phase.

4. **Salt and Pepper monzonite:** The rarest monzonite phase is a medium-grained, salt and pepper colored, mafic-rich phase with abundant biotite in a plagioclase-K-spar matrix. No quartz was noted in this rock.

5. **Green Dikes** (Evans, 1997): The green dikes are very similar in appearance to the medium-grained phase, except they contain several percent magnetite... enough to be strongly attractive to a pocket magnet. These have previously been held to be separate from the monzonite, but this author can see little reason for separating them.

Felsite(s)

Felsite dikes also occur throughout the property. These are sparsely porphyritic felsic rocks with sparse to prominent 1-3 mm quartz and feldspar phenocrysts set in a sugary fine-grained matrix of quartz and feldspar. These dikes are often pervasively argillically altered or silicified making them difficult to distinguish from altered fine-grained monzonite. It is also probable that there are several generations of felsite that are texturally too similar to distinguish. The felsite dikes are most common in the 1-Zone where they commonly (but not universally) have vein mineralization along one or both contacts. Altered felsites are present in the 4-Zone, surrounded by skarn and an altered felsite dike, with no associated mineralization was cut nearby in DDHLD99-17 (See drill logs, Appendix A).

Intrusive Relationships

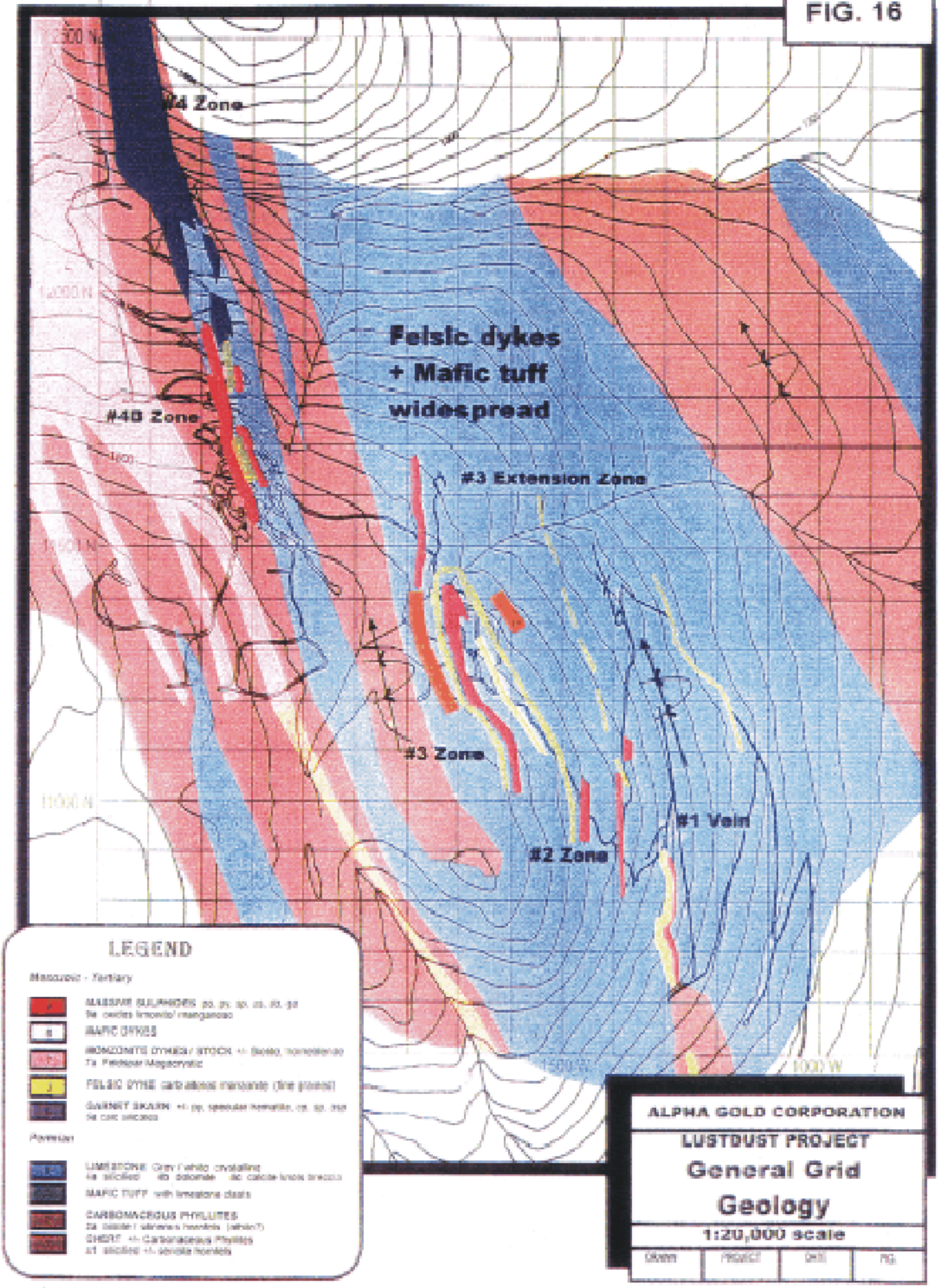
An association between specific intrusive phases and specific metals assemblages at Lustdust has been propounded by prior workers (Evans, 1999). However, examination during the 1999 field season shows that both felsite and monzonite dikes occur throughout the property: unaltered; cut by mineralization, in contact with mineralization; or altered without adjoining mineralization. This suggests that these intrusives were emplaced before and during mineralization, probably sequentially, in a complex pattern. This sounds very similar to patterns determined through detailed mapping and geochemical studies in major skarn-CRD deposits in Mexico and elsewhere (Megaw and others, 1988, Graf, 1997, Megaw and others, 1998, Megaw, 1998, Meinert, 1998). In these systems, the center of the ***intrusive*** system (usually the most voluminous phase) is not the center of the ***productive hydrothermal*** system. These studies further show that the hydrothermal system is commonly centered to one side of the intrusive center, in areas where younger intrusive phases were emplaced. This is very similar to the situation at Lustdust and strongly suggests that detailed mapping and intrusive geochemistry are justified to sort out the intrusive history and relationships in the district.

Structure

The entire property has a strong NW-trending grain reflecting bedding, tight folding, axial plane faulting, and bedding plane faults generated during assemblage, docking and accretion of the Cache Creek rocks Plates 1 and 2, Figs. 5, 16). This structural fabric closely controlled intrusive emplacement, mineralization, and post-mineral movements related to Tertiary dextral strike-slip faulting along the Pinchi Fault zone. Many structures show evidence for repeated movement and reactivation. All rock types show brecciation at least locally.

Regionally, folds in the Cache Creek are typically open (Schiarizza and McIntyre, 1999) but on the Lustdust property folds, are generally overturned with moderate west-dipping western limbs and steep west-dipping narrow eastern limbs. Locally they are isoclinal. The tight folding is likely due to buttressing against the Pinchi Fault, which is believed to have originally been a major thrust fault (Paterson, 1977). Where observed, these folds have a 10-60 degree N-NW plunge and local axial plane thrusts are present. The latter include the west side of the 4b-Zone, which is moderately west dipping (Evans 1999). The noses of antiforms are structurally thickened and these enhanced thicknesses, or structurally fractured zones appear favorable for manto mineralization.

FIG. 16


#4 Zone
Felsic dykes
+ Mafic tuff
widespread
#4B Zone
#3 Extension Zone
#3 Zone
#1 Vein
#2 Zone
LEGEND
MAFIC DYKES
MONZONITE DYKES / STOCK
FELSIC DYKE
GARNET SKARN
LIMESTONE Grey / white crystalline
MAFIC TUFF with limestone clasts
CARBONACEOUS PHYLLITES
CHERT +/- Carbonaceous Phyllites
1000 W
ALPHA GOLD CORPORATION
LUSTDUST PROJECT
General Grid
Geology
1:20,000 scale

Mapping of carbonates on a district-wide scale (Evans 1997, 1999) shows a wide outcrop band on the southern portion of the property that decreases steadily to the north. This may reflect a gradual pinch-down of the carbonate section as shown on a regional scale (Fig. 5) or, as suggested by Evans (1999); it may reflect a shallow-moderate northerly plunge of the folded carbonate sequence. If it is the latter, it suggests that the 4b sulfide zone lies along the axis of a major N-plunging fold (the "4b Anticline") that dives towards the Canyon Creek Skarn Zone. This has significant implications regarding loci of skarn and replacement mineralization at depth in this area as will be discussed below.

Examination of core shows numerous slip surfaces developed within and between Cache Creek units. These are commonly marked by slickensided graphite and/or chlorite shears. Some of these may mark reactivated boundaries between individual slices of Cache Creek lithologies. Many are surrounded by mineralization or alteration envelopes indicating they acted as hydrothermal fluid conduits.

Post-mineral dextral movement along the Pinchi Fault has been well documented regionally (Paterson, 1977; Schiariazza and MacIntyre, 1999), and foliation-parallel slips marked by smeared and polished sulfides indicate at least some post-mineral movement in the mineralized zone. It is possible that Pinchi-related movement has exaggerated the elongation and zoning of the mineralized zones (Fig. 17), but reconstruction of this possible offset would not eliminate the strong zoning seen across Lustdust. Despite the possibility of strike-slip offset, the fact that the 4b-Zone can be traced for over 1200m without a major dip-slip offset demonstrates that there is little concern for significant post-mineral displacements within the individual mineralized zones.

MINERALIZATION AND ALTERATION

General

The Lustdust skarn-replacement system is at least 2500m long and 500m wide, with longitudinally continuous mineralization over 300-1500m lengths (Fig. 16). The property is systematically zoned from Cu-skarn to Zn-replacement mantos to Ag-Pb-Zn replacement veins developed along parallel, en echelon, mineralized zones extending away from what appears to be a central Cu-Zn skarn center. The entire system is auriferous (>.5 g/T Au values are common throughout: Appendix B). The skarn is zoned over at least 400m vertically and shows the polyphase intrusive and mineralization characteristics typical of major Cu-Zn skarn-replacement systems throughout the American Cordillera, such as San Martin, Zacatecas, Mexico and Antamina, Peru. The Lustdust skarn is open to the north and the Ag-rich replacement vein zone is open to the south. The overall size and characteristics of the system are similar enough to large known

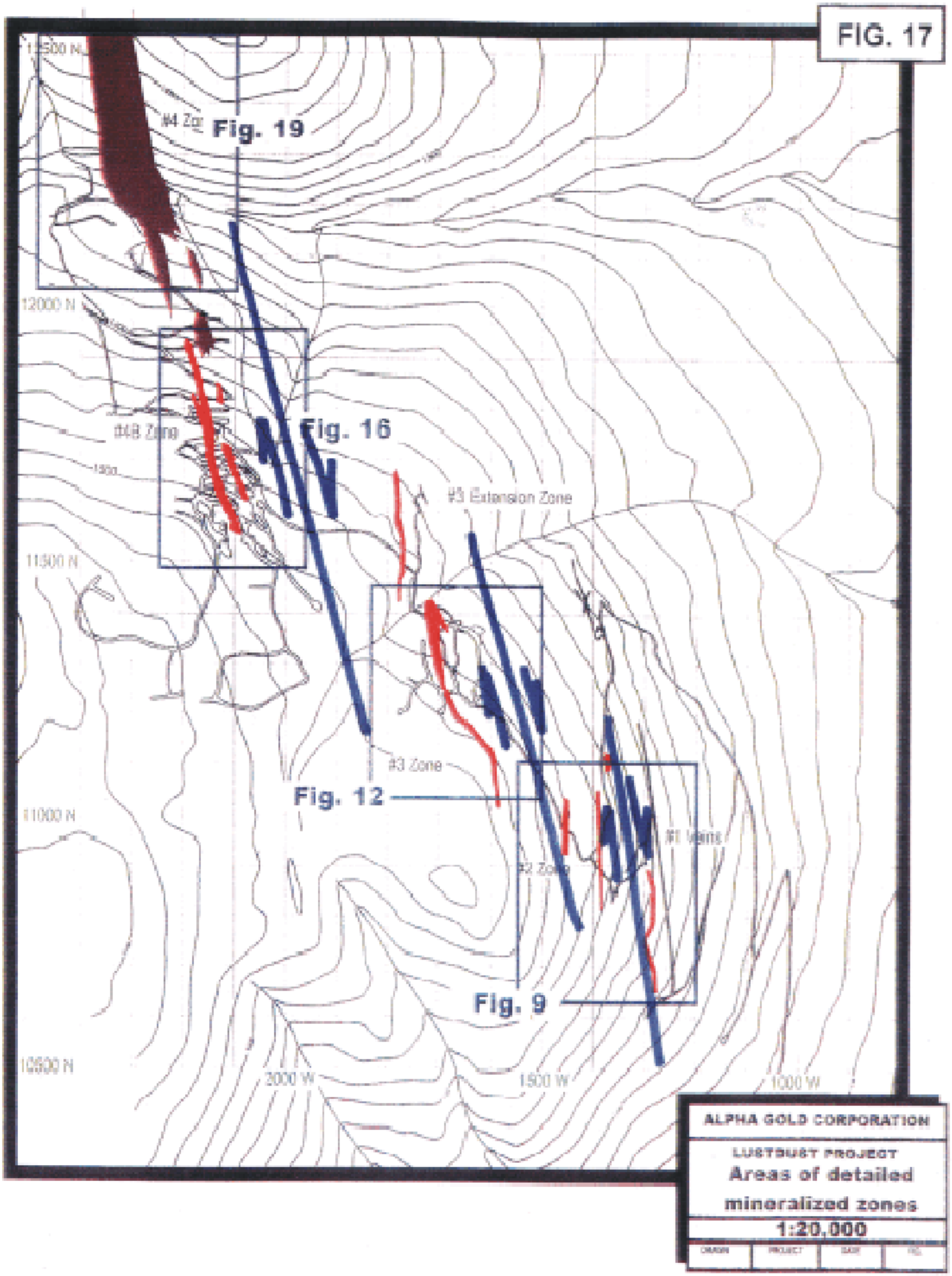


FIG. 17
12500 N
#4 Zone
Fig. 19
12000 N
#4B Zone
Fig. 16
#3 Extension Zone
11500 N
#3 Zone
Fig. 12
11000 N
#1 Veins
#2 Zone
Fig. 9
10500 N
2000 W
1500 W
1000 W
ALPHA GOLD CORPORATION
LUSTDUST PROJECT
Areas of detailed mineralized zones
1:20,000

systems that considerable effort is justified to locate additional mineralized centers in the area, but Alpha have not yet pursued this possibility.

The following discussion of individual ore types and zones is intended to place the separate (?) mineralized zones in a CRD-skarn framework that highlights the interrelationships between the ore types and presents an impression of the overall size and strength of the Lustdust hydrothermal system. The discussion will follow the discovery and 1999 exploration history of the deposit: from distal to proximal. With the exception of LD99-01, all 1999 work was done in the 4b, 4, and Canyon Creek Skarn Zones, so much of the descriptions of the 1, 2, 3, and pre-1999 4b-Zone work are taken from Evans (1999)

Zn-Pb-As-Sb Vein Zone: 1-Zone

The 1-Zone at the southern end of the property is the location of the 1944 discovery of mineralization on the property. Here, the limestone and graphitic phyllites are cut by numerous monzonite and felsic dikes. Sulfosalt veins composed of nearly massive pyrite, sphalerite, galena, jamesonite, stibnite, arsenopyrite and freibergite with lesser open-space filling quartz and calcite occur both within the sedimentary rocks and along dike contacts. Three separate veins have been recognized, all of which appear to dip steeply west. Felsic dikes are closely related to all three veins, but the veins do extend beyond the dikes in many places. Reconnaissance traversing in 1999 identified at least two additional felsite dikes emplaced in very pronounced structures to the west of the drilled area, but these targets were not tested. The 1999 reconnaissance recognized moderately developed Argentiferous Manganese Oxide Mineralization (AMOM) throughout the 1-Zone. AMOM (see above) is a typical distal alteration product in certain major CRD systems and the 1-Zone is strongly anomalous in Mn (Evans, 1997).

The principal vein was explored by underground drifting and drilling in the 1945 and 1964-65 seasons. The three ore-shoots (minimum 2 m true widths) above the adit level contain a probable ore reserve of 60,000 Tonnes grading 3.6 g/t Au, 780 g/t Ag, and 5% combined Pb and Zn with 5% Sb. Historic drilling had notoriously bad recovery problems, so in many cases grade was not reported for potentially significant intersections. Evans (1999) estimated that a possible resource of 700,800 to a depth of 1250 meters can be inferred at the abovestated grade. There is excellent potential for these veins to continue a minimum of an additional 300 meters to the north along a very strong soil geochemical anomaly (Evans, 1997) and may grade into CRD mineralization as the Canyon Creek Skarn Zone is approached. Evans (1999) concluded that a 1.5-3.0 Million Tonne Geological resource can be realistically expected in this area. If the parallel zones recognized in 1999 are mineralized, this resource could be substantially increased.

Zn-Au-Ag-Pb CRD Mineralization: 2, 3, 3 Extension, and 4b-Zones

Mineralization in these zones consists of roughly stratigraphically concordant massive sulfide bodies, called "mantos", and their oxidized equivalents. The mantos are best developed along permeable and karsted (?) carbonate beds in close proximity to chlorite altered mafic tuff beds. The mantos occur through the 2-4b-Zones and appear to merge into the Canyon Creek Skarn Zone. Drilling results have failed to find substantial discordant chimney feeders to these mantos, although narrow feeders may have been hit locally (see LD99-13 discussion below). The mantos occur dominantly in structurally thickened and deformed zones along the crests of antiforms. There is some evidence for nesting, or repetition, of mantos in successive limestone beds, giving an overall morphology reminiscent of the stacked "saddle-reef" mantos of the Tombstone District, Arizona (Fig. 18).

2-Zone

The 2-Zone is a minor oxidized replacement zone similar to the 3-Zone (see below). It appears to occupy a small synform east of the 3-Zone antiform. Surface sampling indicates an average of 2.3 g/t Au, 109 g/t Ag, 2.16 % Zn and 2.09 % Pb across an average of 5.3 meters true width. This zone has a strike length of 200 meters and could host up to 200-300,000 T of ore. This zone is too small (as known) to be an exploration priority.

3 and 3 Extension Zones

The 3-Zone contains the largest identified CRD resource identified to date at Lustdust. It is thoroughly oxidized to depths of 50 meters, where primary sulfides with elevated grades appear in the drilling. The thickest portions of this manto zone occur in carbonates surrounding a mafic tuff bed along the crest of a small-scale antiform. Drilling has failed to find a feeder vertically beneath it, suggesting that it was probably fed from one end with fluid migration concentrated along the non-reactive tuff bed. The geometry is very similar to the "saddle-reef" mantos of the Tombstone District, Arizona (Fig. 18). The 3-Zone was effectively closed off to the north by the 1996 drilling. This showed that the 3-Zone antiform persists but is not mineralized. Evans (1999) felt that the conduit for this system was down dip along the west limb of the antiform (possibly with a NW rake), but LD99-01 penetrated to 275m in this area without encountering sulfides.

Drilling from the 1950's to 1991, outlines a probable oxide resource (to 60 meters down dip) of 650,000 Tonnes grading approx. 3 g/t Au, 20 g/t Ag, 5 % Zn with Pb, Cu, Sb, In (?), Ga (?) and Ge (?) credits in the main part of the 3-Zone. Grades are understated as core recovery in the oxides has been very poor and loss of grade has been noted by all operators. For comparison, local surface sections carry up to 17.9 g/t Au and 69.4 g/t Ag over 4.0 meters.

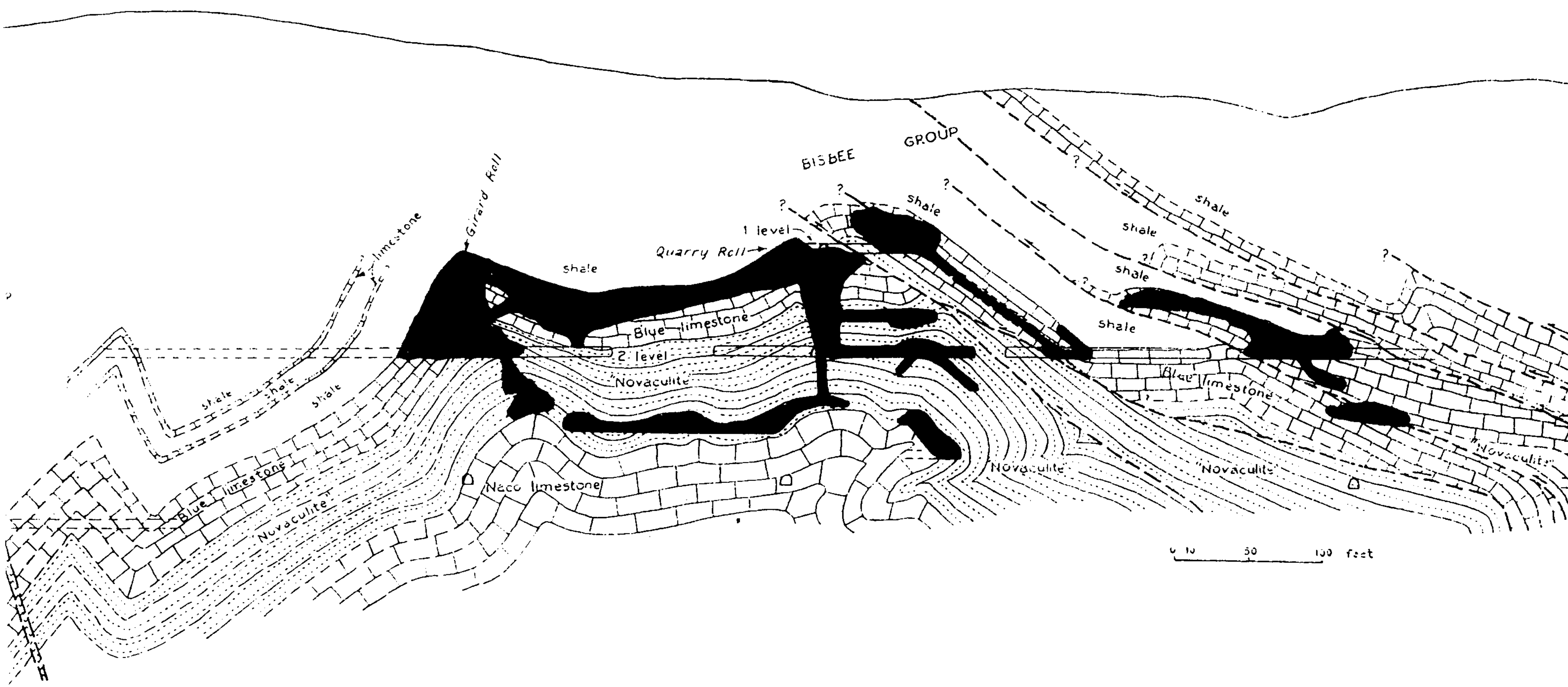


Figure 18: Section along West Side Fissure, Tombstone, Arizona showing multiple stacked "saddle-reef" mantos developed along anticlinal crests. (From Butler. Wilson and Rasor, 1938)

The western limb of the 3-Zone continues for an additional 240 meters on strike to the south and averages 2.7 g/t Au, 168.2 g/t Ag, 6.31% Zn and 1. 8.6 % Pb over an average width of 4.1 meters. This adds several l00,000 Tonnes of potential to the resource, as does the possibility of unexplored mineralized zones following felsic dikes, which cut the axial plane of the antiform.

The 3 Extension Zone lies stratigraphically above the 3-Zone along a graphitic phyllite horizon and appears to mimic the shape of the 3-Zone. Surface trenching of this oxide zone has traced it for over 150 meters with average grades of 2.0 g/t Au, 42 g/t Ag, 1.6% Zn and 0.4% Pb over an average width of 4.0 meters. This zone is not considered a priority target due to weak drill results but is important for showing the possibility for stacked "saddle-reef" mantos.

4b-Zone

The 4b-Zone CRD manto is developed along the crest of the 4b Antiform, a tight fold, with 60-degree west dips and a 10-15 degree plunge to the NW. Mineralization follows the crest of the fold and is developed along the thrust contact between limestone on the east and hornfelsed graphitic phyllites to the west. A mafic tuff horizon within the limestone appears to be a major conduit for fluid movement as is seen in the 3-Zone. However, the 4b-Zone is essentially unoxidized: sphalerite, arsenopyrite and coarse-grained well-zoned pyrrhotite and pyrite are prominently displayed in surface trenches along the zone. Coarse-grained pyrite replacements of pyrrhotite are common in this zone (Figs. 19, 20, 21).

Overall, 4b mineralization has a strong NW trend, defined by a series of aligned, discontinuous (?) sulfide pods (Plate 1). Examination of the pods shows both NW and nearly E-W structural controls on mineralization. Hole LD99-13 was drilled to test the possibility that these sulfide pods were fed along E-W oriented structures. No series of sulfide intercepts providing evidence for E-W feeders was found. However, massive pyrrhotite was intercepted under Trench 96-5 along the projection of sulfide intercepts hit in several holes drilled higher within the 4b trend. This pyrrhotite is finely banded and shows near-conformity with the bedding of the surrounding limestone (Fig. 20), indicating a probable syngenetic origin. However, the pyrrhotite is pseudomorphed by pyrite and cut by weak late chalcopyrite, indicating a possible later epigenetic overprint. If true, it suggests that a deep-penetrating feeder may have been hit (nicked?) here, which might be a viable chimney target zone. Core samples of this material have been taken for petrographic study prior to further pursuit of this intercept.

Detailed drilling by Alpha in 1992 (27 holes) in an area 150m long and 50m deep indicates a probable resource of 250,000 Tonnes grading 1.3 g/t Au, 12 g/t Ag and 5.5 % Zn with Pb, Cu, In, Ge (?) and Ga (?) credits. Mineralization

Figure 19: Close-up of very large euhedral pyrite replacing pyrrhotite in LD99-15.

Figure 20: Finely banded pyrrhotite from LD99-13 at 82m, showing near-conformity between limestone bedding and pyrrhotite banding. Note coarse pyrite replacement of pyrrhotite to left of knife.

Figure 21: Close-up of narrow chlorite-pyrrhotite layer from LD99-02. Note pyrite replacing pyrrhotite and cutting across chlorite matrix. Also note pyrite replacing margins of calcite knot in lower center.

Figure 22: Close-up of 30 cm thick sphalerite-rich vein intersected in LD99-14 at 36m. Intercept (Sample 10388) ran .7 g/T Au, 134 g/T Ag, 0.6% Cu, 2.3% Pb, and 7% Zn.

persists to the south of this interval and Evans (1999) concluded that a 3-4 million T resource is possible for the 4b overall.

Six holes were drilled in the 4b Zn-replacement zone in 1999 (LD99-02, 13, 14, 15, 17, and 18) (Plate 1). LD99-02 was drilled to test a conceptual deep feeder or synform keel mineralization target proposed by Evans (1999). Several narrow (<.5 m) mineralized sections were cut at 185 to 240 m., but these appear synsedimentary (Figs. 9, 10, 11, 12). There is evidence for an epigenetic overprint however (Fig. 21). The results of LD99-13 were described above. The remaining four holes were drilled in the previously untested 400m-long zone lying between the northern end of 4b high-grade Zn-sulfide manto outcrops and the southernmost of Teck's holes in the Canyon Creek Skarn Zone (97-09). LD99-14 was collared at 1810N, 50m north of the northernmost 4b outcrop pod. This hole hit 30 cm of sphalerite-rich vein mineralization at the 4b horizon (Fig. 22), and both monzonite and felsite dikes, but no skarn. LD99-15, drilled 100m north of LD99-14, cut several monzonite dikes and nearly 14m of massive cupriferous magnetic pyrrhotite (Figs. 23, 24). This pyrrhotite is much coarser-grained (Fig. 24) than the inferred syngenetic pyrrhotite described above, which in combination with higher sphalerite and chalcopyrite content argues for a replacement origin. The best hole (LD99-17) was drilled 100m north of LD99-15 under a weakly mineralized skarn outcrop and cut several mineralized intervals. The best of these was 5.7m of massive sphalerite averaging 18.8% Zn on the hangingwall of several meters of Cu-Zn-bearing garnet skarn (Figs. 25, 26, 27, 28). LD99-18 was drilled between LD99-17 and the surface and hit 1.2m of sulfide-rich skarn carrying 3% Zn with significant Au, Ag, and Cu values at the 4b horizon, but nothing at the projection of the Zn-rich intercept in 17. Because LD99-18 was the last hole drilled, the LD99-17 intercept remains open at depth.

Canyon Creek Skarn Zone (Formerly "4-Zone")

The Canyon Creek Skarn Zone [CCSZ] (a new name suggested in this report for what Evans, 1999 called the "4-Zone") is the skarn replacement zone lying north of the 4b-Zone. The discovery of this skarn is so recent that it was not included in Ray and Dawson's (1998) compilation on B.C. skarns. Prior to the 1999 season, this zone had been cut by 3 drill holes (97-9, 10, and 11) and a few hand trenches (Evans, 1996, 1997, 1999). The 1999 Program focused intensely on this zone with 10 holes, 5 trenches and 2 km of drill access roads cut across it. Of the 10 holes drilled in the skarn zone (LD99-03 through 12), eight hit copper mineralization, as did the main access road (Trench 99-05: 7.7m of 5% Cu).

The skarn has two main bulges, separated by, and ending in, narrow necks (Plate 2). The skarn begins erratically as narrow selvages along dike contacts at 1950N, 200m north of the 4b (Plate 1). From here, it rapidly enlarges northward until it affects the entire 120 m true width of the 4b limestone panel under Canyon Creek (2250N). North of Canyon Creek, the skarn narrows abruptly to 25 m wide (at 2350N) and then flares out again to 80 m wide at 2500N (Note that the full breadth is exposed in LD99-07 and is not apparent in

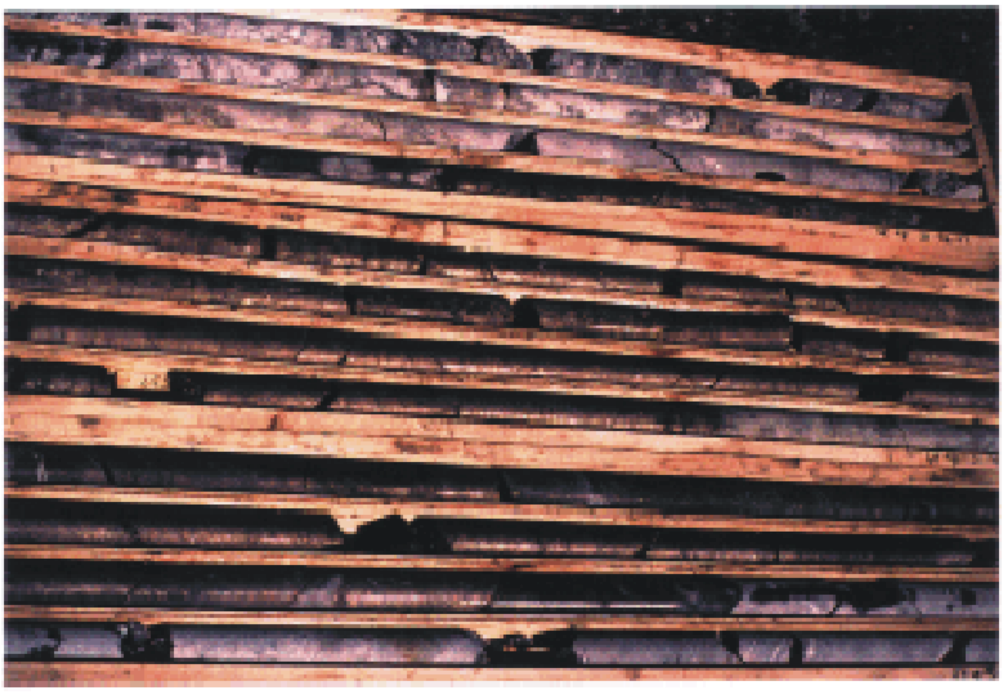


Figure 23: 14m long massive pyrrhotite intercept in LD99-15 (157-171m). Pyrrhotite carries small percentage of sphalerite and chalcopyrite throughout. Note unmineralized limestone horses in section.

Figure 24: Close-up of contact between pyrrhotite and limestone. Note contrast between this coarse pyrrhotite and that seen in LD99-02 or LD99-16 (Figs. 9, 10, 13). Further note contrast between "invasion" of limestone by pyrrhotite and "clastic" contact in Fig. 14.

Figure 25: High-grade sphalerite-chalcopyrite-rich skarn from LD99-17 (77.5-83.5m, top to right), showing sharp contacts with limestone, sphalerite replacing skarn (greenish) and late chalcopyrite interstitial to sphalerite. Also note moderate retrograde hydration of skarn (cream-colored areas in sections 2 and 3 from the left). This section assayed 18.9% Zn, and 0.9% Cu.

Figure 26: Close-up of upper contact of section in Fig. 25, showing concentration of sphalerite at marble contact. This is hand-sample scale version of zoning demonstrated overall by skarn-replacement transition zone.

Figure 27: Close-up of core from 58m in LD99-17, showing massive pyrrhotite replaced by coarse-grained pyrite with interstitial chalcopyrite.

Figure 28: Close-up of chalcopyrite-sphalerite-rich garnet skarn from 83m depth in LD99-17. Section ran (Sample 10413) 1.74 g/T Au, 42.8 g/T Ag, 1.8% Cu, and 7% Zn over 1.2m.

the surface trench shown on Plate 2). Although it should occur along this trend, no skarn was seen in Trench 99-03b (2550N), but 5 m of skarn was cut in Trench 99-03a at 2650N. Drilling at 2735N (LD99-08, 9) failed to cut anything but a wide monzonite dike flanked by hornfels, but older Noranda drilling (81-6) at 2900N again cut skarn. It is notable that despite the width variations, once passing 2250N, the skarn affects the entire limestone panel, and as the limestone panel thins, instead overprints 10-30m widths of hornfels that lie along the trend.

At shallow levels around Canyon Creek, the skarn is composed of early coarse-grained green-tan grossular-andradite garnet (Figs. 33, 34, 35, 36), with minor fine-grained greenish-yellow diopside. Specularite is locally very common as euhedral plates and sprays in the skarn. At depth, and north of 2450, a brown garnet stage crosscuts and overprints the green stage, and at the greatest depths in LD99-12, a red-brown garnet stage appears (Figs. 31, 32). These minerals replace massive limestone and locally intrusives (endoskarn) and hornfelsed argillite (Figs. 29, 30). The conversion of flinty hornfels to coarse-grained garnet-diopside skarn is extensive, and especially pervasive in LD99-07 in the bulge at 2500N. Mafic tuff units are altered to distinctive green, banded chlorite-garnet units with 5-15% disseminated pyrite and trace chalcopyrite and sphalerite.

Retrograde hydration of the garnet-diopside skarn is rare, except in the deepest parts of LD99-12. Here the brown-red, brown and green garnet stages are hydrated to a cream-colored mass of very fine-grained amphibole, chlorite, quartz, and clays. This is accompanied by a dramatic increase in magnetite, both as fine-grained masses, and as pseudomorphs after bladed specularite (Figs. 31, 32).

Mineralization in the skarn occurs as Ag and Au-bearing chalcopyrite and bornite with abundant pyrite, minor sphalerite and rare arsenopyrite and stibnite (?) emplaced along and surrounding structures that cut the skarn (Figs. 33, 34, 35, 36). Locally, chalcopyrite is widely dispersed in the skarn. The skarn silicates tend to end abruptly and massive sphalerite-chalcopyrite-pyrite-pyrrhotite mineralization is locally well developed along the contact of skarn with recrystallized limestone (marble front) (Fig. 26).

The amount of mineralization is variable. Drillholes LD99-3-7 and 10-11 cut 1 to 3 Cu-mineralized structures with grades ranging from 0.X% to 3%. Teck holes, drilled directly under Canyon Creek, cut 2-4 Cu-mineralized structures, but showed significantly lower grades (<1%) (Evans, 1997). In contrast, LD99-12 was drilled 300m below the Teck holes and cut six copper-bearing structures (0.2-2.22% Cu). The number and grade of Cu-mineralized structures in these holes, coupled with the changes in skarn mineralogy described above, are strongly indicative that only the top of this skarn has been drilled (see below).

Figure 29: Core section from LD99-07, showing garnet skarn progressively replacing hornfels. Garnet is pervasive at top of section, and along narrow bands between very cherty layers. Note diagonal fractures with skarned margins that connect between skarned hornfels layers.

Figure 30: Close-up of core from LD99-07, showing skarn (left) replacing flinty hornfels (right). Note fine-grained chalcopyrite (metallic yellow) on skarn/hornfels contact

Figure 31: Contact skarn from 323m depth in LD99-12, showing medium-grained monzonite (bottom), chalcopyrite-rich skarn on contact (blackish-green) and retrograde altered (cream-colored) red-brown garnet skarn. Chalcopyrite-rich interval (Sample 10376) ran 1.25m of 7.8 g/T Au, 171.3 g/.T Ag, and 8.6% Cu.

Figure 32: Close-up of retrograde skarn section from 339m depth in LD99-12, showing coarse magnetite patches with coarse chalcopyrite cutting across red-brown garnet stage (center) and replacing specularite (left center). This section (Sample 10380) ran 52.6 g/T Ag and 2.21% Cu.

Figure 33: View of roadcut (TR99-05), showing 2m wide zone of massive garnet skarn mineralized by chalcopyrite and bornite. Zone assays 5.1% Cu across 7m with 2.5m zone which assayed 5.7 g/T Au, 351 g/T Ag, 12% Cu, and 0.3% Zn (Sample 10338).

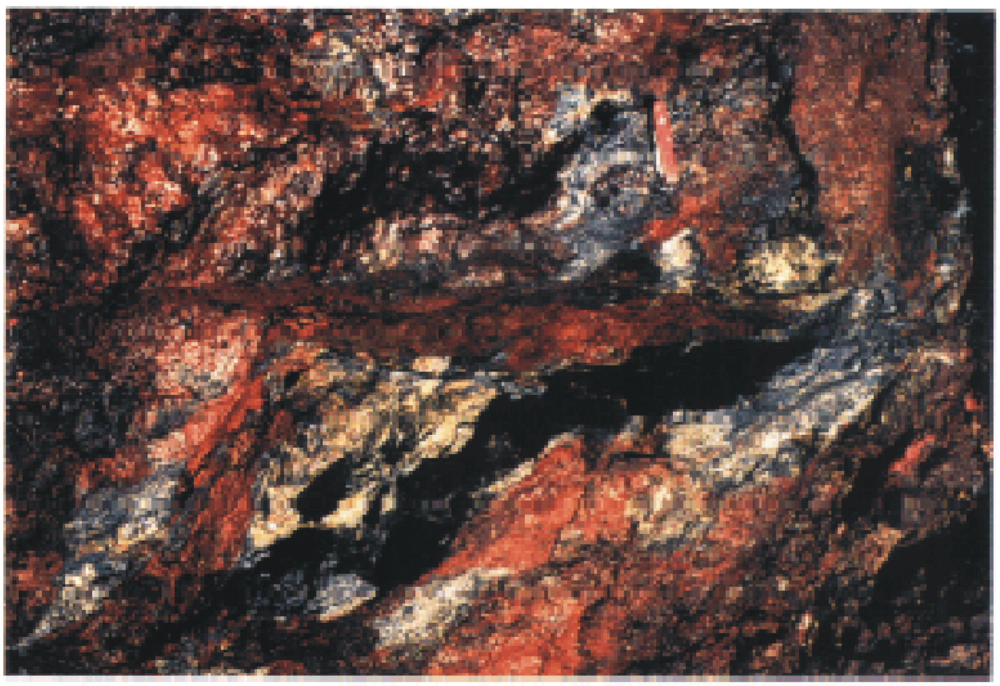


Figure 34: Close-up of roadcut in Fig. 33, Showing fracture-controlled oxidation cutting fresh sulfides.

Figure 35: Close-up of face in Fig. 33, Showing early green garnet skarn (light colored material), broken and cut by massive bornite-chalcopyrite mineralization. A 2.5m sample across this face ran 5.7 g/T Au, 351 g/T Ag, 12% Cu, and 0.3% Zn (Sample 10338).

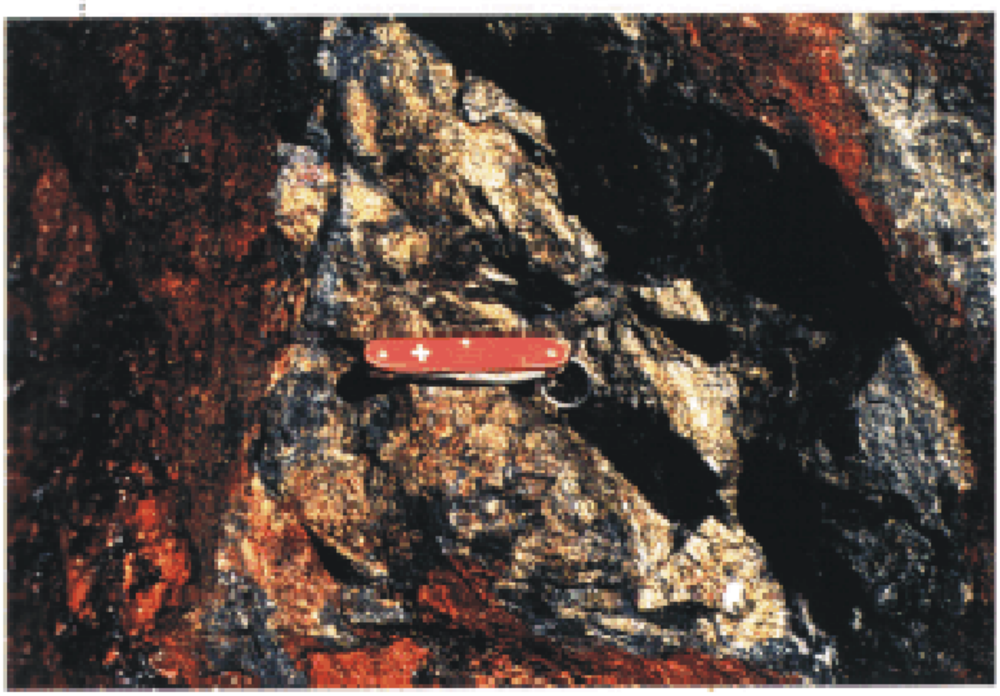


Figure 36: Close-up of several rock samples taken from face in Fig. 33, Showing fracture controlled sulfide mineralization of garnet skarn (center) and extremely high-grade massive bornite (left).

1999 WORK PROGRAM

1999 TRENCHING

(Most of the 1999 trenches are oriented roughly 090 and are described from west to east. See Plate 2 for trench locations)

Trench # N grid meters samples assoc drill hole(s)

TR99-01: 2500N 100 10305-308 LD99-07

Cut flinty hornfels, megacrystic monzonite, flinty hornfels, 10m of garnet skarn with coarse pyrite replacing garnet, and flinty hornfels footwall. Skarn samples ran 200-445 g/T Au, 3.5-8 g/T Ag, 0.04-0.1% Cu, and 300-1000 ppm As

TR99-02: 2570N 45 none none

45m of flinty hornfels with iron-oxides. No skarn despite being on trend between TR99-01 and TR99-02

TR99-03: 2650N 50 10301-304 LD99-08, 09 125m to NW

20m of variably developed pyritic skarn overprinting hornfels and 30m of flinty hornfels. Trench cut by very strong NNE fault. 8.5m of skarn zone sampled and ran 150-200 ppb Au, 0.6-6.5 g/T Ag, 111-4890 ppm Cu

TR99-04: 2300N 20 10345-348 LD99-10 directly beneath

Crumbly oxidized hornfels, 5m of garnet skarn with sulfides. Skarn samples ran 80 ppb- 1.5 g/T Au, 1.2-9.4 g/T Ag, and 360-700 ppm Cu

TR99-05: 2325-2425 100+ 10309-10344 LD99-03, 04, 05, 06, 11

Oriented N30W, along cut bank of principal drill road (Plates 2 and 4). From S to north cut 60m complex alternating mineralized skarn, monzonite, and hornfels section between very flinty pyritic hornfels zones. Several very high-grade zones with chalcopyrite and bornite cut (Figs. 33, 34, 35, 36). Assays ran from very low to one 2.5m sample that ran 5.7 g/T Au, 351 g/T Ag, 12% Cu, and 0.3% Zn (Sample 10338).

1999 DRILLING

A total of 3050m, distributed among 18 holes, were drilled in the 1999 Lustdust Program. Drilling was done by Leo D. Shaw Drilling, with excellent advance (average 120m/24 hour day with 2 shifts) and recovery (essentially 100%). Core was logged on site by Dr. Peter K.M. Megaw, selected intervals were photographed, and core was split and bagged for assay on site. Doubled plastic bags were used with sample numbers marked on bags and on tags included with the core samples. Samples were placed in cardboard boxes in rice bags for shipment via CanRail to the assay lab. Assaying was performed by Eco-Tech labs of Kamloops, B.C. Drill logs are presented as Appendix A and full assay results are presented as Appendices B and C. The remaining core is stored on site, at the old Takla Silver Mine. Assayed core is piled in one area, and bulk, unsplit core runs piled in a separate area.

SUMMARY OF DRILLING RESULTS BY HOLE:

Hole #: Ore Zone: Coordinates: Azimuth: Inclination: Depth down hole

LD99-01: 3: 1310N/1830W: 068: -80: 289m td: Hole designed to test Evans's (1999) deep synclinal axis target concept under the 3-Zone. Spotted based on thickest shallow level sulfide intercepts, and structural interpretation by Evans (1999). Upper part of hole cut argillite, limestone, and mafic tuff layers, often with strong shears separating units. Several monzonite dikes were cut, some pervasively argillically altered. Lower 2/3rds was in limestone cut by minor Fe-oxide stained fractures and one thin monzonite dike. Hole bottomed in argillite footwall of 3-Zone without encountering any mineralization.

LD99-02: 4b: 1630N/2220W: 063: -80: 266m td: Hole designed to test deep synclinal axis target concept under the 4b-Zone. Spotted based on thickest shallow level sulfide intercepts, and structural interpretation by G. Evans (1999) and Peter Megaw. Upper 3/4th of hole cut mostly argillite cut by a few graphitic shears and 1-30 cm sphalerite-pyrite-arsenopyrite-chalcopyrite veinlets at 125, 185, and 226m. These carry appreciable Au and Zn values (Appendix A). At 85 m, the argillite contains a number of fragments of pyrrhotite and pyrite incorporated into deformed argillite. Larger similar clasts occur at 175m. 5 Thin limestone beds hit between 214m and 260m, interbedded with mafic tuff layers. Limestone bed at 236m is sandwiched between mafic tuffs and has .5-1m of massive fine-grained magnetic pyrrhotite with trace chalcopyrite and chlorite gangue along the contacts (Figs. 9, 13, 14, 21). Upper contact shows sulfides and chlorite grading into mafic tuff unit. These sulfides carry Au, Cu, and Zn. Hole bottomed in argillite with thin pyrrhotite bands tightly distorted conformably to the surrounding argillite.

LD99-03: CCSZ: 2369N/2222W: 110: -50: 54m td: Hole designed to test skarn zone cut in road, specifically the down-dip extent of the massive chalcopyrite-bornite mineralization exposed in TR99-05 (Figs. 33, 34, 35, 36)...as originally interpreted. Hole cut 8m of massive hornfels, 15m of medium-grained monzonite dike (cut by .7m of chalcopyrite-bearing endoskarned breccia), 11m of skarn with thin hornfelsed cherty argillite layers, and bottomed in 17m of hornfelsed cherty argillite. 11m skarn zone includes coarse-grained garnet-diopside skarn cut by .5-1.5m chalcopyrite-rich structures. Copper content increases downward through this zone. Remapping of TR99-05, following washing off its entire length suggests that the originally inferred strike and dip of the exposed massive cpy-bornite-bearing structure was incorrect, and that this hole may not have tested its intended target.

LD99-04: CCSZ: 2369N/2222W: 110: -70: 65m td: Hole designed to test skarn zone cut in road, specifically the down-dip extent of the massive chalcopyrite-bornite mineralization exposed in TR99-05...as originally interpreted, and test down dip extension of chalcopyrite-rich structures hit in LD99-03. Hole cut massive hornfels cut by several medium-grained monzonite dikes. Footwall of deepest dike cut 1m of chalcopyrite-bearing structure before bottoming in hornfels. Remapping of TR99-05, following washing off its entire length suggests that the originally inferred strike and dip of the exposed massive cpy-bornite-bearing structure was incorrect, and that this hole may not have tested this intended target.

LD99-05: CCSZ: 2387N/2230W: 080: -45: 47.6m td: Hole designed to test skarn zone cut in road with hole drilled perpendicular to stratigraphy. Hole largely in hornfels cut by several narrow medium-grained monzonite dikes with chalcopyrite-bearing skarn on or near their margins. Chalcopyrite present throughout skarn zone but is weak.

LD99-06: CCSZ: 2387N/2230W: 080: -70: 70m td: Hole designed to test skarn zone cut in road with hole drilled perpendicular to stratigraphy, but deeper than LD99-05. Hole in hornfels cut by seven narrow to wide narrow medium-grained monzonite dikes and six narrow massive pyrite veins. Garnet skarn is overprinted on hornfels throughout the middle of the hole. Narrow chalcopyrite-bearing structures cut the skarn and weak chalco is present throughout the skarn zones. Overall, hole shows dramatic increase in skarn and mineralization development compared to LD99-05.

LD99-07: CCSZ: 2478N/2304W: 080: -45: 150m: Hole designed to test continuity of Canyon Creek Skarn Zone to the north and test skarn cut in TR99-02 along upper road cut. Hole cut a thick section of hornfels and an aggregate of 42m of skarn. Several of the skarn zones show strong garnet overprinting of hornfels. Several medium-grained monzonite dikes encountered, some pervasively silicified. Skarn is strongly pyritic, but only locally carries chalcopyrite. Two narrow chalcopyrite-rich skarn bands encountered. Hole bottomed in weakly hornfelsed argillite.

LD99-08: CCSZ: 2735N/2338W: 080:-50: 223m td: Hole designed to test continuity of skarn to north and under swamp, north of TR99-03a which had several meters of exposed skarn (Plate 2). Hole cut 132m wide composite dikes with fine and medium-grained sections. Thick section of hornfels hit past dike. Hornfels cut by several thin massive pyrite veinlets and fewer pyrite-chalcopyrite veins. Pyrite visible throughout skarn increases in amount down hole. Hole terminated in flinty hornfels.

LD99-09: CCSZ: 2735N/2338W: 260:-50: 124m td: Hole designed to test continuity of skarn to north and away from big dike hit in LD99-08. Hole cut 64m more of composite dike hit in LD99-08 before entering flinty hornfels with no visible mineralization.

LD99-10: CCSZ: 2312N/2240W: 090: -50: 105m td: Hole designed to test zone between LD99-03, 4,5,6 and northern end of Teck's holes through the Canyon Creek Skarn (97-9,10,11). Goal was to locate hangingwall of skarn for positioning deeper test of hangingwall of Canyon Creek Skarn. Hole collared in skarn, but rapidly entered thick hornfels, including chloritic zone that was probably altered mafic tuff. At 84m entered brecciated and sulfide-bearing limestone, which carried 2 g/T Au. Comparison of results with surface and nearby geology suggests that this area may be structurally complex.

LD99-11: CCSZ: 2328N/2320W: 075: -50: 147m td: Hole designed to cut hangingwall of Canyon Creek Skarn Zone and continue to hit skarn zone hit in LD99-3-6 at depth. Hole collared in hornfels, cut a medium-grained monzonite dike cut by pyrite-chalcopyrite veinlets. Returned to hornfels, which is cut by several strong faults? Entered skarn at 96m and stayed in skarn for 32m. Garnet-diopside skarn here very pyritic and carries variable chalcopyrite. One 2m interval at 112m carried 2% Cu and 2 g/T Au.

LD99-12: CCSZ: 2344N/2404W: 135: -60: 360m: Hole designed to cut Canyon Creek Skarn Zone deeper than LD97-10 and 11 to determine continuity, geometry, width and mineralization. Secondary objective was to determine if a major post-mineral fault exists along Canyon Creek. Hole was collared in hornfels, which is overprinted by garnet skarn on numerous structures. Fine and medium-grained monzonite dikes were also encountered. At 216m, hornfelsed mafic tuff was cut, followed by hornfels cut by more pervasively developed skarn. At 265m, hole passed from hornfels to 80m of skarn punctuated by a medium-grained monzonite dike. (This is probably the 4b hangingwall contact) Skarn is significantly different from what is seen higher in that retrograde hydration is very well developed, specularite is replaced by magnetite, and chalcopyrite-bearing structures increase in number (Figs. 31, 32). Good Cu values were hit in several of these. Hole bottomed in limestone and a limestone breccia carrying fragments of pyrrhotite and pyrite. Hole demonstrates that Canyon Creek Skarn Zone continues to depth, becomes increasingly retrograde altered, and sulfide content, especially chalcopyrite-bearing structures, increases. These transitions are very similar to those noted at major Cu-Zn skarn systems such as San Martin, Zacatecas, Mexico and Antamina, Peru.

LD99-13: 4b: 1790N/2150W: 185: -45: 150m: Hole drilled to test possibility that sulfide pods of 4b-Zone are fed along E-W oriented structures. Also intended to test fault inferred to lie at south end of 4b-Zone. Overall, no multiple intercepts indicating E-W feeders were found and hole did not reach fault target. Hole dominantly cut limestone and argillite, but pyrrhotite-rich massive sulfides with minor sphalerite were hit between 79 and 86m, under the 4b sulfide pod in Trench 96-5 (Fig. 20). Pyrrhotite shows fine, contorted banding and is replaced by pyrite along fractures. However, massive pyrrhotite was intercepted under Trench 96-5 along the projection of sulfide intercepts hit in several holes drilled higher within the 4b trend. This pyrrhotite is finely bedded and shows near-conformity of banding with the surrounding limestone (Fig. 20), indicating a syngenetic origin. However, the pyrrhotite is pseudomorphed by pyrite and cut by weak late chalcopyrite, indicating a possible later epigenetic overprint. If true, it suggests that a deep-penetrating feeder may have been hit (nicked?) here, which might be a viable chimney target zone. Core samples of this material have been taken for petrographic study prior to further pursuit of this intercept.

LD99-14: 4b: 1820N/2202W: 090: -45: 135m: Hole designed to test continuity of 4b-Zone to the north through transition to the 4 and Canyon Creek Skarn Zones. Hole collared in argillite, cut two thin fine-grained, silicified monzonite dikes, and passed through the 4b hangingwall contact into massive limestone. 0.3 m of quartz vein with sphalerite, pyrrhotite, pyrite, chalcopyrite was hit at projection of 4b horizon (Fig. 22). Normal 4b-Zone limestone to mafic tuff sequence cut below that.

LD99-15: 4b: 1910N/2030W: 065: -55: 181m: Hole designed to test continuity of 4b-Zone to the north through transition to the 4-5 skarn zone. Hole collared in argillite and passed through the 4b hangingwall contact into massive limestone. 0.6 m of sulfide-rich skarn was hit at projection of 4b horizon. Normal 4b-Zone limestone to mafic tuff sequence cut below that to 158m where 14m of massive pyrrhotite with minor sphalerite and chalcopyrite were hit (Figs. 23, 24). Sulfides are very coarse-grained and chlorite rich. A narrow endoskarned monzonite dike lies in center of sulfide section. Pyrrhotite below the dike is largely replaced by pyrite. Limestone, garnet skarn and hornfels were hit below the sulfides, but carried no values.

LD99-16: Area east of the 4b: 2002N/2048W: 095: -50: 411m td: Hole designed to test area east of 4b-Zone, and north of the 3-Zone, under a series of Ag and Zn soil geochem anomalies and towards skarn zone mapped by Granby and old Noranda drill hole. Hole was collared in argillite, cut numerous limestone interbeds and medium-grained monzonite dikes in top 96m. At 96m hit sugary quartz-eye rhyolite dike (like those in 1-Zone)...but no mineralization. Hole continued through more argillite (Figs. 10, 11, 12), limestone, monzonite, rhyolites, and finally mafic tuff, but encountered neither significant mineralization nor alteration.

LD99-17: 4b: 2008N/2255W: 065: -55: 193m: Hole designed to test continuity of 4b-Zone 4-5 skarn transition zone below road where significant, but weakly mineralized skarn crops out. Hole collared in argillite cut by .3m of banded sphalerite, chalcopyrite and pyrite: probably the 4b horizon. Just below this a thin quartz-eye rhyolite dike was cut, with no associated mineralization. Limestone was entered at 33.5m where a strong mineralized skarn was encountered. Limestone continued to 185m, cut by massive sulfide/skarn zones at 57, 77, 112, and 182m. Best interval is between 77.7 and 83.5m where the mineralization is up to 95% sphalerite with chalcopyrite and pyrite (Figs. 25, 26, 27). This is adjacent to massive chalcopyrite-rich garnet-pyroxene skarn (Fig. 28). This was the best intercept of the program. The hole terminated in argillite.

LD99-18: 4b: 2008N/2255W: 065: -45: 75m: Hole designed to test continuity of mineralization hit in LD99-17 between 17 and the surface where significant, but weakly mineralized skarn crops out. This hole used last 100' of drilling contract, plus a little extra. Hole was collared in argillite and cut exactly the same sequence of lithology, dikes, and mineralization as LD99-17, except thick sulfide interval was missing...presumably having pinched out above LD99-17. Skarn at argillite/argillite contact (4b hangingwall zone) was thicker in LD99-18 than 17 and carried fair grade.

1999 SURVEYING

The 1999 drilling and trenching program required significant compilation and comparison with work performed in prior years. In addition, there were 2000 m of new roads and new drill pads to add to the existing map base. It became readily apparent that it was difficult to reconcile locations from different years with accuracy because prior programs had used slightly different base and cut lines... all surveyed with different techniques. It was decided to contract Bruce Hobson of Watershed Resources Ltd., based in Smithers, B.C., to run a differential GPS survey of the entire property. This program included a running survey of all accessible roads, with point readings for all recoverable drill pads, claim corners, cultural landmarks and mine workings. Critical claim boundaries were also surveyed to verify that no fractions were present. The resulting map was plotted over digital 1:20,000 topography obtained from the Canadian Government and is presented as Plate 4. It remains to digitize and "rubber-sheet" previous years mapping to create a corrected coordinated digital data GIS base.

MINERALIZATION SUMMARY AND EXPLORATION RECOMMENDATIONS

Combining the 1999 and prior work shows that the Lustdust skarn-replacement system is at least 2500m long and 500m wide, with longitudinally continuous mineralization over 300-1500m lengths. Lustdust is systematically zoned from Cu-skarn to Zn-replacement mantos to Ag-Pb-Zn replacement veins over this length and the entire system is auriferous (>.5 g/T Au values are common throughout). The Canyon Creek Skarn Zone is zoned over at least 400m vertically and shows the polyphase intrusive and mineralization characteristics typical of major Cu-Zn skarn-replacement systems throughout the American Cordillera, such as San Martin, Zacatecas, Mexico and Antamina, Peru. The most important of these are multiphase strongly differentiated intrusions, cross-cutting Cu-mineralization, down-hole increases of copper mineralization, transition of skarn mineralogy towards more iron-rich garnets, locally pervasive retrograde skarn hydration, and magnetite...especially as pseudomorphs after specular hematite.

Teck's district-wide geologic map (Plate 1, Fig. 16) shows an increase in number and size of dikes to the northwest until they coalesce into an elongate monzonite stock to the northwest of the 4b-Zone. The Lustdust hydrothermal system, from the 1-Zone to the Canyon Creek Skarn Zone, shows a gradual transition towards increasing hornfels and skarn in this direction as well as a classic CRD Mn-Pb-Ag-Zn-Cu metals zoning. This is presumably related to increasing proximity to intrusive heat and mineralizing source(s) and it is tempting to make the interpretation that the hydrothermal system is zoned with respect to the large intrusive body. However, as discussed above in the Intrusive Rocks section, intrusives in this area may be unaltered; cut by mineralization, in contact with mineralization; or altered without adjoining mineralization. This suggests that these intrusives were emplaced before, during and after mineralization, probably sequentially, and that the intrusive/mineralization relationship is complex.

The intrusive, mineralization and alteration patterns seen at Lustdust are very similar to patterns determined through detailed mapping and geochemical studies in major skarn-CRD deposits in Mexico and elsewhere (Megaw and others, 1988, Megaw and others, 1998, Megaw, 1998, Meinert, 1998, Graf, 1998). These show that the center of the ***intrusive*** system (usually the most voluminous phase) is not necessarily the center of the ***productive hydrothermal*** system, and that the hydrothermal system is commonly located to one side of the intrusive center, in areas where younger intrusive phases were emplaced. The Canyon Creek Skarn Zone is located to the east of the monzonite intrusive center, which fits this pattern closely.

In short, the very large-scale lateral and vertical zoning features that are only beginning to be unraveled at Lustdust are similar enough to major systems that significant additional exploration effort is warranted. The Lustdust skarn is open to the north, the Ag-rich replacement vein zone is open to the south, and Alpha have not yet looked widely for parallel, or symmetrical parts of the system. Exploration should follow two parallel paths: **1) Drilling-intensive exploration** focused on off-setting known mineralization and mineralization styles throughout the known part of the Lustdust system...focusing on the CCSZ, 4b, and 1-Zones, and **2) Field-based exploration** to find additional mineralized centers on the property. Major skarn systems commonly have more than one focal area, so it is worth determining if additional centers exist at Lustdust and if the Canyon Creek Skarn Zone center is actually the strongest skarn center on the property. Geological mapping and geophysical surveys should be included in this effort.

Figure 37 is an interpretive longitudinal section along the 4b zone from the 4b sulfide outcrops to the top of the hill north of Canyon Creek. This was constructed to show how the northerly plunge on the 4b Anticline may strongly affect location of CRD and skarn mineralization. The section assumes a uniform 20^{o} (Evans, 1999) plunge, and should be extended or contracted where the plunge is lower or higher respectively. The section highlights to following observations and exploration possibilities:

1. The "rootlessness" of the 4b Manto may be the result of erosion of its northern end. This could have removed any feeder connection to the Canyon Creek Skarn Zone. It is also possible that a narrow chimney feeder that has not been drilled (or recognized as such) connects it to deeper "saddle-reef" mantos.

2. South of Canyon Creek, the curvature of the skarn-hydrothermal halo is convex to the south, in opposition to the north-plunging fold axis, giving ready up-dip channels for ore-fluids to generate elongate mantos.

3. In contrast, north of Canyon Creek the curvature of the skarn-hydrothermal halo is convex to the north, parallel to the north-plunging fold axis, making it more difficult for fluids to migrate laterally and generate elongate mantos. This suggests mineralization may be more compact in this area.

4. The hornfels cap on hill north of Canyon Creek, especially zones where coarse garnet skarn overprints hornfels (LD99-07), may reflect leakage from strong skarn alteration/mineralization in underlying limestones. The hornfels cap may have also acted as a seal to cause ponding of skarn/CRD mineralization below it, again creating broad compact orebodies.

5. A very large volume of Cu-mineralized retrograde skarn with magnetite may underlie Canyon Creek. This zone should have a strong Mag signature and may be what appears on the government Magnetic maps (Fig. 38

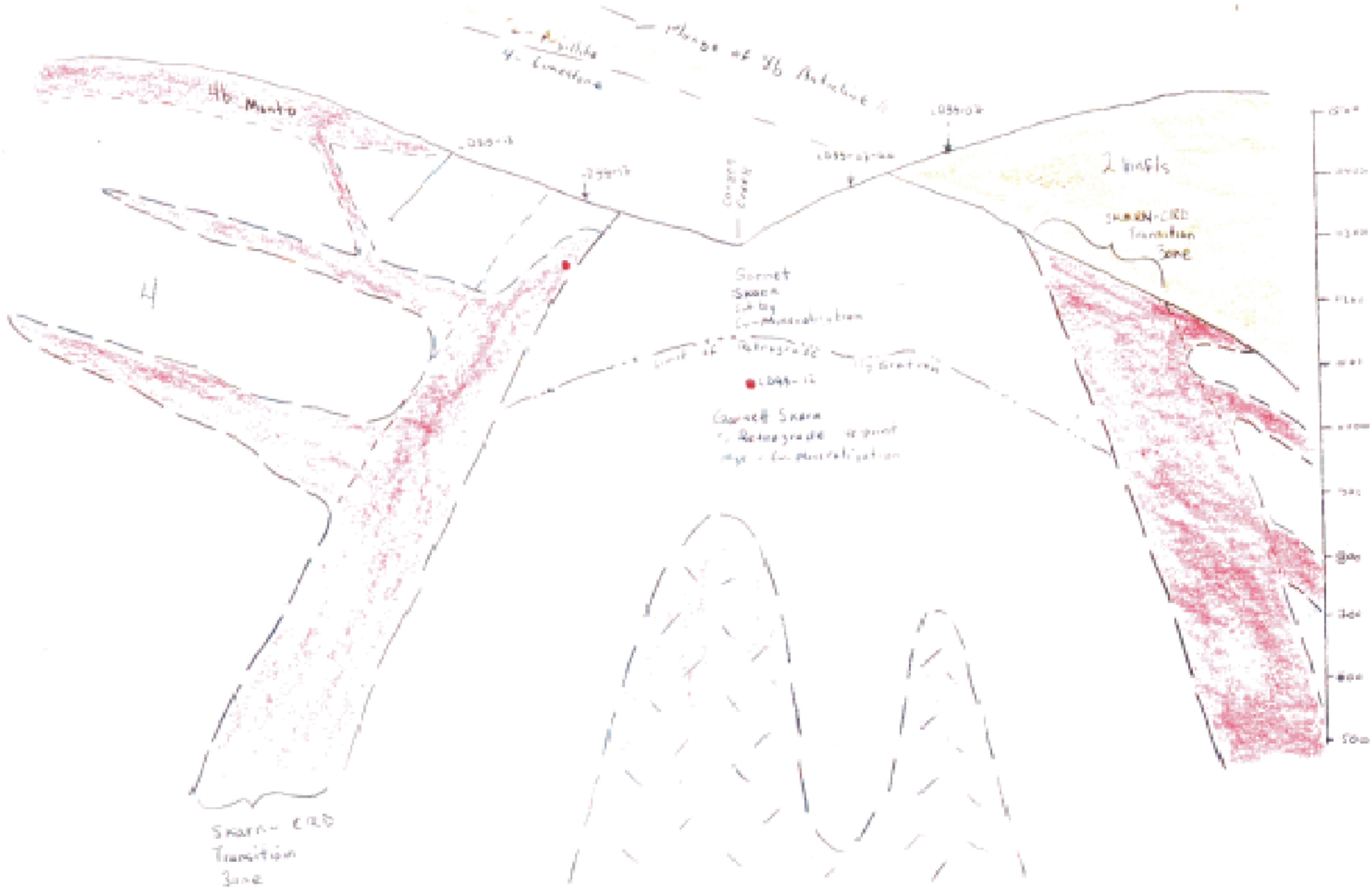


Figure 37: Interpretive longitudinal section along the 4b zone from the 4b sulfide outcrops to the top of the hill north of Canyon Creek. Shows effect of N-plunge on 4b Anticline and possible location(s) of massive sulfide replacements and skarns.

Comments on Geophysical Prospecting

Geophysical prospecting techniques have been applied to CRD exploration with varying degrees of success depending whether the goal was to locate mineralization, intrusions, structure, favorable host rock sections, or alteration. Techniques that have been widely applied include, conventional IP, gradient IP, Real-section IP, SP; Magnetics (ground and airborne), refraction seismics, gravity, EM, TEM, AMT and CSAMT. Seeking CRD mineralization directly is often difficult because the relatively small cross-section that orebodies present to surface-based techniques makes resolution a problem. Delineating major geologic mineralization controls such as stratigraphic contrasts, intrusive contacts, structural breaks, and alteration is often more feasible. Many geophysical program "failures" can be attributed to failing to appreciate the limitations of the techniques and not considering known geologic features that limit certain techniques, like deep oxidation or highly conductive capping rocks. Successes have resulted from careful selection of technique followed by integration of geologic field data with geophysical results, especially through iterative interpretive refinement as drilling results are included.

Several geophysical surveys have been conducted at Lustdust in the past including VLF, Pulse E.M., and magnetics. VLF was apparently useful for delineating the 4b sulfide manto, but E.M. responded strongly to conductive graphitic phyllites so interpretation of other conductors was difficult. Ground magnetics appears to work well over near-surface pyrrhotite-rich zones, but does not work on 3-Zone oxides or 1-Zone veins (Evans, 1999).

Regional government airborne-magnetics maps show a strong dipole anomaly centered near the Canyon Creek Skarn Zone (Fig. 38). Line spacing is wide and resolution is poor enough that it is difficult to determine if the anomaly reflects the monzonite intrusive center (as Evans, 1999 suggested), the magnetite-pyrrhotite-rich Canyon Creek Skarn Zone, or a new skarn zone between the two. It would be worthwhile to have a geophysical consultant examine this map to comment on whether the anomaly lies at a depth comparable to the magnetite-rich skarn. If it is, the Canyon Creek Skarn Zone should be flown with a helicopter-based Mag instrument, combined with VLF and/or E.M. if the latter can be included for little or no additional cost. Regardless of whether an Air-mag survey is performed, an orientation ground-mag-VLF survey should be run over the Canyon Creek Skarn Zone and adjoining LD99-17 sulfide zone to determine if this mineralization has sufficiently strong geophysical signatures to warrant a comprehensive survey over the surrounding areas. If the techniques work, the signatures obtained for the known mineralization should be used as templates for property wide surveys in search of additional mineralization centers.

The high-grade, spatially concentrated nature of CRD mineralization makes deep ore economic, so depth penetration and resolution of a geophysical technique are important. IP techniques lose resolution rapidly with depth because depth of penetration is directly proportional to dipole spacing and the minimum size object that can be distinguished is roughly 1/2 dipole spacing. In contrast, with CSAMT (**C**ontrolled **S**ource **A**udio **M**agneto **T**ellurics) and AMT (natural source **A**udio **M**agneto **T**ellurics), depth of penetration is frequency dependent and resolution is a direct function of electrode spacing, so resolution diminishes much less with depth. AMT uses natural source signals that have lower frequencies than the transmitted signals used for CSAMT. As a result, AMT "sees" better at depth (200-1200m), while CSAMT sees better near surface (0-500m). Both can be run from the same set up for minimal additional production cost. Experience with CSAMT/AMT shows that it can (depending on local geology) distinguish between intrusives, carbonates, shales and argillic alteration, highlight high-angle structures, and in certain circumstances detect mineralized skarn and CRD mineralization directly. Imperial Metals have recently had significant success locating manto CRD mineralization directly with CSAMT at their northern B.C. "Silvertip" Property.

An orientation CSAMT/AMT survey should be run over the Canyon Creek Skarn Zone and the LD99-17 sulfide zone, along the same lines used for the recommended ground-mag/VLF survey. Orientation lines should also be considered for the 4b, 3, and 1-Zones to determine if deep drill-target anomalies exist.

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STATEMENT OF QUALIFICATIONS

I, Peter Kenneth McNeill Megaw PhD, do certify that:

1. I am a geologist and have practiced my profession for the last 21 years

2. I graduated from the University of Texas at Austin with a Bachelor of Arts degree in Geology in 1976, and Master of Arts in Geology in 1979.

3. I graduated from the University of Arizona, Tucson, Arizona with Ph.D. in Economic Geology in 1990.

4. I am a Registered Professional Geologist in the State of Arizona (Registration Number 21613).

5. I am a Certified Professional Geologist with the American Institute of Professional Geologists (Certification No. CPG-10227)

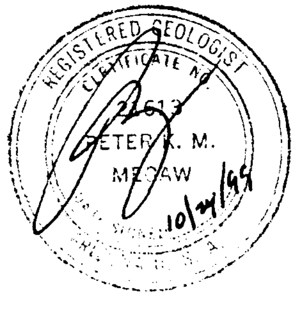
6. I am a Fellow of the Geological Society of American and the Society of Economic Geologists and a Member of the Geological Association of Canada.

7. I was actively involved in, and supervised the Lustdust program for 1999 and authored the report herein.

8. All data contained in this report and conclusions drawn from them are true ands accurate to the best of my knowledge.

9. I hold no direct or indirect personal interest in the Lustdust Property, which is the subject of this report.

Peter K.M. Megaw Ph.D.
Senior Project Geologist
October 1999



APPENDIX A: 1999 DIAMOND DRILL HOLE LOGS

APPENDIX A: 1999 DIAMOND DRILL HOLE LOGS

DRILL LOG

Date started July 24, 1999

Date completed July 26, 1999

Azimuth 068

Dip 80°

Elevation 1500m

Collar Coordinates:

N 1300+10

W ~~E~~ 1800 +30 W

Hole # LO99-01

Depth 955 Feet

Hole size NQ

Contractor LDS

Drill type LY38

Logged by Peter Megaw

DOWN HOLE SURVEYS

Instrument Acid Test

Footage	Inclination	Bearing
347'	80°	ND
787'	80°	ND
955'	80°	ND

COMMENTS Hole designed to test deep synclinal axis target concept. Spotted based on thickest sulfide intercepts in shallow holes, and structural interpretation by G. Evans. Drilling conditions excellent.

log scale = 1:500

HOLE No. LD 9901

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
3.1	12	—	—	Case	
				Argillite. Phyllite [2] Foliation very contorted at dominantly 0° and 45° to C.A.	
11.0 / 11.4	36.3 / 37.0	Black	pyrite	Shear with graphite and pyrite cubes to 3mm	
		Dark Grey		Limestone - highly broken & rehealed with calcite veinlets [4]	
17.0 / 17.3	52.0 / 53.0	Black	pyrite	Shear with graphite & pyrite to 1 mm	
20.6	59.5	Med-Dark gray		Mafic tuff(?) [3 or 2] Top 1m is transitional to limestone above	
23.0 / 23.5	70.6 / 72.0	greenish gray / Black	pyrite	Breccia with graphite and pyrite to 3mm	
		Greenish gray		Mafic tuff [3] with smeared out limestone clasts. Foliation 40° to C.A.	
31.0	92.0	Striped Black and med grey		Interlayered calcareous graphite and limestone with strong shearing on graphite layers 40° to C.A.	
36.0	109.0	Pale Greenish Grey		DIKE Fine - med grained hbd-bi-plag monzonite [7] No quartz. All femags chloritized. No alteration or mineralization on contacts	
49.4	149.0	Mottled & Striped Grey and Black		Brecciated and sheared limestone with numerous graphitic slips dom. @ 50° to C.A. [4]	
65.5	199.0	Black		Shear with massive foliated graphite. Foliation @ 45° to C.A.	
68.2	207.6	Pale green Cream		DIKE - Probably same monzonite as above but pervasively argillized. Core is very soft. Fe-ox on fractures.	
73.0	222.0	Mottled medium to light grey		Limestone [4] with bleaching on irregular fractures. Numerous styliolites at various angles to C.A. - probably tectonic. Some styliolites have graphite accumulations. Slips mottled with graphite	
98.0	295.5	Pale greenish grey		DIKE Medium grained Hbd-Bi-Plag. monzonite [7] mod. chloritized but still competent. Cut by chlorite slips @ 15° to C.A	
102.0	310.0	Mottled medium to light grey		Limestone [4] As above.	

HOLE No. LD 9901

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
105.2	345	Medium grey		Limestone [4] as above	100%
105.8	347	Greenish grey	Mod pyrite & pyrrhotite		
110.3		Medium to light grey		Limestone [4] Minor recrystallization in patches	"
					"
139.3	469			Fractures with Fe-Oxides	
		Medium grey		Limestone [4] as above	"
143.8	472	M. Grey		Limestone [4] Finely brecciated & rehealed	"
146.0		M. Grey		Limestone [4] - Solid	
147.5	484	Medium grey		Limestone [4] Mod. broken with Fe Ox on fractures	"
149.2	489.5	Medium grey		Limestone [4] - Solid	"
152.7 / 153.0	shear			Limestone [4] highly broken with Fe-Ox on fractures	
		Medium grey and Orange		Limestone [4] Moderately broken with Fe-Oox on fractures.	" 100%
160.6	527	Medium grey		Limestone [4] — Solid	"
165.2	542	Medium grey		Limestone [4] Broken with Fe Oox on fractures	"
172.2	565	Medium grey		Limestone [4] - Solid	"
179.5	589	Dark grey		Limestone [4] Dark colored with numerous graphite slips	"
184.1	604	Medium grey		Limestone - Solid	
187.1	619	Medium grey & Orange		Limestone [4] with solution enlargement of fractures @ 6°-8° to CA Cavities & Fe-Ox	
189.6	622	Medium grey		Limestone - Solid [4]	
191.1	624	Dark grey		Limestone [4] Dark colored with numerous graphite slips	"
193.8	636	Dark grey		Limestone [4] Dark colored. Broken with abundant calcite veinlets. Numerous graphite slips @ 30° to C.A	"
206.0	676	Black		Fault with massive - foliated graphite	"
		Medium grey		Limestone [4]-Solid - Beds(?) @ 36° to CA.	"
					"

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
206	676	Medium grey		Limestone [4] continued from 672'	100%
227.6	747	Medium grey & Orange		Limestone [4] with fractures @ 20°-40° to C.A with Fe oxides	〃
233.5	766	Medium grey		Limestone [4] - Solid	
239.8	787	Greenish cream		DIKE Monzonite [7] Chloritized and argillized. Top 1m very fractured Brecciated @ 798' with chlorite matrix	90%
245.	804	Medium grey		Limestone [4] Solid	100% / 100%
277.	909	Striped black and medium grey		Argillite [2] Thin bedded with alternating cherty argillite and black foliated graphite shell. Contact with overlying limestone is at 40° to C.A. and razor sharp.	〃
291.1	955.0			End of hole	

DRILL LOG

Date started July 26, 1999

Date completed July 28, 1999

Azimuth 063

Dip -80

Elevation 1500m

Collar Coordinates:

N 1630N

~~E~~ W 2220W

Hole # LD 99-02

Depth 877'

Hole size NQ

Contractor LDS Drilling

Drill type LY38

Logged by Peter Megaw

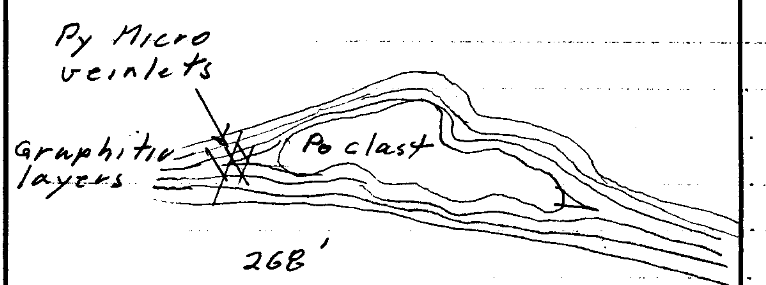
DOWN HOLE SURVEYS

Instrument Acid Test

Footage	Inclination	Bearing
267'	80°	N.D.
557'	80°	N.D
777'	78°	N.D.

COMMENTS

DEPTH m.	DEPTH ft.	COLOR	MINERAL-IZATION	DESCRIPTION	RECOVERY
				Casing	
15	46	Striped light grey and black		Carbonaceous argillite[2] Alternating argillite and graphitic layers. Foliation @ 40° to C.A. Appears to be deformed clastic rock with argillite clasts dominating over carbonaceous matrix. A79	100%
47.2 / 47.5	182			Graphite slip = fault	
		Black striped black and light grey More white than black		Carbonaceous argillite[2]. Similar to above but narrow py-po veinlets appearing in graphitic layers. 5mm pyrite veinlet @ 156.5 A>9	''
55.5	182	Striped black and light grey, Overall black	2-5% po >> py	Carbonaceous argillite[2] with graphite layers dominating over argillite. Mod py-po dissemination throughout (2.5%) g>A	''
62.5	205	Striped black and light grey	5% po >> py	Carbonaceous argillite [2] with argillite > graphite. Small (1.5cm) pyrite clasts	''
67.7	222	Striped black and light grey	5-12% po + py		''
sketch 86.9 ↓ 98.1	↓ 322'			Carbonaceous argillite [2]. Argillite ≈ carbonaceous matrix. Foliation strong @ 40° to C.A. Graphite slips @ 242' & 250' = Flts? Py-Po clasts increase in size & number downwards Best @ 268' and 277.5 Clasts surrounded by foliated graphitic matrix ∴ involved in deformation. Possible fragments of Penn-Perm VMS in Cache Creek time	



HOLE No. LD 99 - 02

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
		Striped black and light grey	5-12% Po >> Py	Same as above	
98.1	322	striped black and light grey & metallic layers	Py-Po-Sp-As Cp 15%	Cherty argillite with Po in foliation (deformed) and Po-Py-Sp-As-Cp bands cutting deformation fabric (remobilized)	
101.2	332		5-12% Po > Py throughout	Same as above	
116.4	382	striped Black and Light grey	1 cm bands are 100% S= Py-Sph-Asp Po-Cp	Carbonaceous (graphitic) cherty argillite [2] with strong foliation @ 30° to C.A. 5-8% finely dispersed Po + Py in graphitic layers - dominantly and small Po clasts locally. Chert > graphite. Sulfide veinlets ≈ 1 cm thick @ 432 & 513 feet and composed of pyrite sphalerite, arsenopyrite & pyrrhotite and tiny chalcopyrite blebs	
				Carbonaceous cherty argillite as above but with numerous coarse bodies of pyrrhotite (Po to 5 cm) Po also abundantly present in laminae with elongate lenses to 5 cm. in layers and Po and CCA is widely cut by thin transgressive pyrite micro veinlets	
174.3		Dark grey + Gold blebs	Po 25%+	CCA as above ~15% Po as lenses & dispersed grains	
175.4		St. blk & Lt grey	Po 15%	Breccia with v angular frags of sulfides & CCA Po >> Py Po As Sp Cp. Healed with coarse calcite in vugs lining. Bladed cc clots to 5 cm.	
177.4		Black			
178.1		Black & white			
179.2					

DEPTH m.	ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
178.1	584.5	Black & white		CCK contorted and gougy = Fault?	
179.2	588.0	striped Blk & Lt grey to Lt grey > Blk	5-8 % Po-Py	Carbonaceous cherty argillite with shift from carb > chert to chert > carb. downwards 5-8 % Po in tiny dispersed grains and as lenses to 8 cm.	
185.9		metallic	Py, Sp, Po, As, Ism Cpy	Massive sulfide vein with coarse vug filling bladed calcite	
		striped Dark grey and light grey		Carbonaceous cherty argillite [2] Foliation @ 40° to CA	
				Limestone [4] Brecciated and gougy Some ground up sulfides. Py Po	
215.5	707	Light grey	Py Po Aspy	Limestone [4] Broken and healed with calcite veinlets	
220.0	722	Light grey	Py Po Aspy	Carb. cherty arg. very chloritic. (Mafic tuff component?) 10% Po Py overall dominantly as tiny lenses and dispersed grains	
		greenish grey striped Blebs & light grey			
227.1	745	Metallic	Py, Po Sp Cpy 100%	Massive sulfides (4" total) Py Sp As Po Cp	
		light grey		Limestone [4] Sulfide veinlets (1 cm) @ 742 Py Sp As Po Cp	
230.4	754	greenish grey (dark)		Mafic tuff [3] with abundant limestone clasts 5-15 % Po increasing downwards grading into massive Po layer below	
236.4	775.5	Gold metallic		Massive sulfide Po 99% 1% chalcopyrite fine grained magnetic Grades into mafic tuff above.	
237.4	778.0	light grey		Limestone [4] Fractured with cc veinlets	
239.1	784.5	golden metallic		Massive sulfide. As above Pyrrhotite	
239.6	786.0	dark greenish grey Lt grey blobs		Mafic tuff [3] with abundant limestone clasts Cut by late calcite veinlets to 5 cm	
245.0	804	Light grey		Limestone [4] Highly fragmented - clastic?	
253.6	832	striped black & light grey		Carbonaceous cherty argillite with deformed chert and pyrrhotite fragments Well foliated, tightly folded locally Po bands are also folded = syngenetic?	
260.3	854	~~Lt grey~~		Limestone [4] As above.	
261.2	857	striped black & Lt grey		Carbonaceous cherty argillite with less sulfide Well foliated @ 50° to CA	
267.3	877				

END OF HOLE

DRILL LOG

Date started July 28, 1999

Date completed July 29, 1999

Azimuth 110

Dip 50°

Elevation 1370 est

Collar Coordinates:

N 2369

W~~E~~ 2222

Hole # LO99-03

Depth 177'

Hole size NQ

Contractor LDS

Drill type LY 38

Logged by Peter Megaw

DOWN HOLE SURVEYS

Instrument AcidTest

Footage	Inclination	Bearing
177'	50°	N.D.

COMMENTS George's Hole - Designed to cut skarn zone w/ Chalcopyrite and Bornite at shallow depth.

HOLE No. LD 99-03

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
4.25	14	Pale green grey	Py Cpy	Hornfelsed cherty argillite [2] Brecciated with sulfide and garnet skarn fragments 5-8% sulfids 1-1.5% js Cpy in matrix and fractures. Py cuts hornfels Sulfides coarse.	100%
8.5	28	Light grey	Py	Monzonite med. grd. itbd Bi Plag Po Ksp megacrysts 2-5% Py disseminated thruout.	
13.3	44.0	green reddish	Py Cpy	Breccia with monz > skarn > hornfels Frags 3-8% S	Py>>Cpy Endoskarn
14.0	46.5	green grey	Py	Monzonite porcelaneous matrix (Silicified) 5% py in microfractures.	
15.5	51.0	Light grey	Py	Monzonite med. grd. as above. Fe-mags replaced by Py	100%
22.0		Pale green grey	Py Cpy	Garnet skarn Fine to med grained 5-20% coarse grained Pyrite Minor Cpy	
25.0	82.0	grey & green	Py	Hornfels vitreous ≤5% Py on microfractures	
26.0	86.5	greenish + cream	Py >> Cpy	Garnet skarn as above but stronger & coarser grained (1-4cm garnets) 10-20% S Py>Cpy>Bn Cpy increases downward	
28.3	92.5	grey metallic	Cpy Py		
29.0		Light grey	Py >> Cpy	Hornfelsed cherty argillite. Tr Cpy & Py on fractures	
30.5		green & yellow metallic	Cpy >> Py > Bn	Garnet skarn yellow green to olive garnets 5-6mm, massive 10-60% Cpy with minor Py & Bn Specularite blades to 1cm (1%) Very well mineralized skarn	
33.0			Py	Hornfels see below	
35.5	112.5		Py	Fault Py (15% v coarse 2-6mm)	
36.0	113.5		Py	Faulting with graphite slips 2"	
37.0	122		Px	Hornfelsed cherty argillite with minor graphite. Flinty hornfelsing 3-5% Py on fractures. Sulfides dispersed throughout.	
54.0	177				

SKARN: Chalco cuts garnets and fills interstices between garnet crystals
Limited sulfide replacement of garnets.

DRILL LOG

Date started July 29, 1999

Date completed July 29, 1999

Azimuth 110°

Dip 70°

Elevation 1370 est

Collar Coordinates:

N 2369

W 2222

Hole # LD 99-04

Depth 2B'

Hole size NQ

Contractor LDS

Drill type LY 38

Logged by Peter Megaw

DOWN HOLE SURVEYS

Instrument Acid test

Footage	Inclination	Bearing
177'	50°	ND

COMMENTS Designed to cut George's Zone at greater depth.

HOLE No. LD99-04

DEPTH m	DEPTH ft	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
4	13		Py	Hornfelsed cherty argillite [3] with 25% massive coarse Py. Cuts hornfels	
4.4				Hornfelsed cherty argillite [2] Very hard and flinty. 2% Py on fractures & disseminated	
10.0	33.5'		Py	Monzonite matrix silicified. Plag. phenos clay altered	
11.6	38.5'			High fldsp monzonite. Contact @ 50° to C.A	
13.0	43			Monzonite as above	
15.0			Py	Hornfelsed argillite breccia	
15.5				Monzonite as below	
16.0			Py	Hornfels as above	
18.75'				Garnet skarn w. green diopside + specularite	No sulfides
21.5			Py	Hornfelsed cherty argillite as above	
22.0				Breccia w. garnet skarn & hornfels fragments	< 2% Py
				Monzonite. Highly silicified with 3% dispersed Pyrite	
			Pyrite	Very hard	
				Monzonite endoskarned w garnet & diopside well mineralized with Cpy & Py to 15% combined 133' Fracture with massive pyrite chalcopyrite & galena 134' Fracture with massive pyrite & other sulfides 135.5 = Contact	
40.5			Py Cpy Gal	Garnet skarn with 20% Chalcopyrite	
40.6				Garnet skarn with 5-15% Chalco & pyrite	
				Garnet skarn with 10-15% sulfides Py > Cpy	
				Hornfelsed cherty carbonaceous Argillite [2] Very flinty w. 3-8% Py as veinlets + dispersed	
47.0				Broken zone = Fault	
60.0	165'			Broken gougy zone = Fault	
65'	213			END OF HOLE	

DRILL LOG

Date started Jul 29

Date completed July 30

Azimuth 080

Dip -45°

Elevation 1380

Collar Coordinates:

N 2387

W/E 2230

Hole # LD 99-05

Depth 157'

Hole size NQ

Contractor LDS

Drill type LY 38

Logged by Peter Megaw

DOWN HOLE SURVEYS

Instrument Acid Test

Footage	Inclination	Bearing
117	45°	N.D

COMMENTS Designed to cut skarn zone @ 90° North of George's Zone.

HOLE No. LD 99-05

DEPTH m.	DEPTH ft.	COLOR	MINERAL-IZATION	DESCRIPTION	RECOVERY
				CASING.	
4.5	15.0	Med grey	pyrite	Hornfels flinty 5-8% pyrite	100%
6.3	22.0	green	Py } 01783	DIKE Monzonite very fine grained	
7.4	24.5	grey		Garnet skarn Mod. Py on fractures overprinted hornfels	
8.0	26.8	green		Hornfels	
		Med grey with green layers	} 01784	Garnet skarn w diopside 30% Py, TrCpy replacing hornfels	
11.0			Py } 01785	Hornfels w 5 cm skarn layers w Py & TrCpy Prob low grade	
12.7	42.0	green	} 01786	Garnet skarn w diop. Py Cpy layer br. garnet cut. green G777B	
13.3	44.0	green grey		Monzonite sillcified	
14.3	48.5	green	Py } 01787	Garnet diopside skarn. Som Brown garnet S=5-20% increase down Py > Cp in top Cp > Py in bottom Best CP near hornfels contact	
		Med. grey	Py } 01788	Py in fract. Cp replaces skarn	
18.2	60.0		↑ Sample Nos.	Hornfels Highly fractured & rehealed Minor pyrite	5-8%
		Striped Black and Grey		Hornfelsed carbonaceous cherty argillite Flinty w. slips on graphite chlorite partings 3-5% Pyrite	
29.0	97.0	Dark grey		Hornfels [1] Very carbonaceous. Cherty argillite abundant graphite	
32.0	105.0	Med grey		Hornfels [2] cherty argillite	
33.0	109.0	DK Green Mottled		Hornfelsed cherty argillite breccia	
34.5	114.0	green w. grey		DIKE Monzonite	
37.0	123.0	DK green mottled		Hornfelsed cherty argillite breccia	
37.5	124.0	Med grey		Hornfels - cherty argillite [2] 2-5% pyrite as disseminated fracture coatings and veinlets	
47.6	157			END OF HOLE	

DRILL LOG

Date started Jul 30, 1999

Date completed Jul 31 1999

Azimuth 180

Dip −70

Elevation 1260

Collar Coordinates:

N 2387

W E 2230

Hole # LD 99-06

Depth 231'

Hole size NQ

Contractor LDS Drilling

Drill type LY 38

Logged by Peter Megaw

DOWN HOLE SURVEYS

Instrument Acid Test

Footage	Inclination	Bearing
107'	70°	N.G.

COMMENTS [illegible] dikes. [illegible]

HOLE No. LD99-06

DEPTH m	DEPTH ft	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
4.2	14			Hornfels-cherty arg. Contorted bedding & beds at 30° to C.A	
7.3	24			Pyritic hornfels Diop. on fract. cut hnfls bands Skarn	
8.8	29			Monzonite F.grd. silc'd matrix. Fracl. @ 30° to C.A.	100%
9.7	32			Hornfels w mod. Py throughout on Fractures	
11.2	37			Hornfels w mod Py & Cp	
11.8	39			Hornfels w 2 stages Py 2nd stage replaces hornfels	
12.6	41.5			Cpy Py in skarn 20% S Cpy cuts Py & skarn	
13.00	42.5			DIKE Monzonite	
15.0	49.5			Pyritic hornfels w Cp & blebs sulfides (?) 10% S	
15.5	53.8			DIKE Monzonite	
17.0	56.5			Pyritic sk. w brown garnets cut green garnets Endoskarn 1% Cpy	
20.0				Hornfels Lower zone is a breccia of hfls & monzonite frags	
20.6				Pyritic hornfels 5-10% in veinlets cutting hfls.	
22.0				DIKE Monzonite	
23.0				Hornfels brecciated texture w abundant garnets replacing hfls. 8-15% Py Increasing skarn downward	
27.4	90.0			Skarned hornfels w. 5-10% Py & Tr f. grd. Cpy	
35.6	112.5			Massive Py vein Py very coarsely crystalline 1 cm. crystals	
				Monzonite DIKE	
37.0	/		Py Cpy	Hornfels-skarn 5-10% Py 1-3% CPY	
				Pyrite vein	
38.8	128.8		Py	Hornfels Abund. Py (5-8%) up to 1% Cpy	
				Pyrite vein	
39.7				Monzonite DIKE	
40.6	134			Hornfels 3% late pyrite	
				Monzonite DIKE Variably chloritiz and silicified 6" breccia on lower contact.	
46.0	152			Garnet skarn Very fine grained Cpy & Py Massive Pyrite veins @ 160' and 173'	Bn
53.3	176			Garnet skarn replacing hornfels	
54.0	179			Hornfels w. Garnet layers. Garnet cuts hfls	
55.1	182			Hornfelsed cherty argillite Bedding @ 35° to C.A.	
70.0	231			END OF HOLE	

DRILL LOG

Date started Aug 1, 1999

Date completed Aug 2, 1999

Azimuth 80

Dip 45

Elevation 1420 est.

Collar Coordinates:

N 2478

W/~~E~~ 2304

Hole # LD 99-07

Depth 496.5'

Hole size NQ

Contractor LDS Drilling

Drill type LY 38

Logged by Peter Megaw

DOWN HOLE SURVEYS

Instrument Acid Tests

Footage	Inclination	Bearing
187'	45°	N.D.
497'	45°	N.D.

COMMENTS Designed to test continuation of skarn to North + under trench cut along upper road. Found multiple intrusions + skarn

42.5m Aggregate total of skarn cut. = 140'

HOLE No. LD99-07

DEPTH m	DEPTH ft	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
13.3	44.0	greenish grey	pyrite 5-8% Py	Hornfels cut by gar-epidote-diop. on fractures abun. Pyrite 5-8% Flinty	
17.0	56.0	red-brown green metallic yellow	Py 3-6%	Garnet skarn w. red brown garnets overprinting green. Abundant specularite & pyrite	
23.6	78	Blackish green		Garnet Diop skarn abundant specularite some graphite slips. Very crumbly, retrogrounded.	
26.4		green	2% Py Tr Cpy	Magn. Garnet skarn ~30% Py Tr Cpy	
26.7		Med grey	5-10% Py Tr-Cpy	Hornfels w. 2% Py on fractures	
28.2		Green grey	5-15% Py Tr Cpy	Skarned hornfels w. 5-10% -5% pyrite.	
29.4		Green gray	5-10% Py Tr Cpy	Gar-epid-skarn w 5-15% & 10% specularite	
32.2	99	Blackish green		Gar-epid-skarn Aver. Spec. Very crumbly Retrograded	
33.8		Lt grey	1-2% Py	Hornfels cherty argillite	
35.0	116	Reddish Brown		Garnet skarn Lt brown overprinting green 3% Py Tr Cpy Diopside	
36.0	120	Striped and mottled Light + medium grey	1-2% Py	Hornfels - CA - Flinty Local garnet skarn layers 2-6 cm thick Banding contorted or 45% to C.A.	
46.6	154	Light grey		Monzonite DIKE	
		Black specks	1% Py	Hornfels w. abundant chlorite layers & slips [3]	
50.0	163	greenish grey	5% Py	Mafic tuff 5% Pyrite Very broken	
52.4	171	Med grey	1-2% Py	Hornfels - CA - Flinty Py bands to 8% total Py 5-80% Py with VFG Cpy inclusions 1% 2 stages of Py Zones of partially replaced hornfels	
58.5	191		Py Tr Cpy	Hornfels 20% + Py veins Very coarse 1% Cpy + Bn	
59.2	195		5-10% Py Tr Cpy/Bn	Garnet skarn Diopside pyrite replaces hfls.	
63.2	209.5			Hornfels	
64.0	211.5		Py	Garnet skarn w very abun. Py 20-80% Bands to 10cm wide Diffuse contacts	
66.0	214.0	Med grey	1% Py	Hornfels w. garnet & pyrite layers	
75.5	249.0	Green Brown	2% Py	Garnet skarn	
76.0	250.0	Med grey	1% Py	Hornfels	
80.0	266.5	greenish grey	1-2% Py	Monzonite - pervasively silicified	
90.0	292.0	Med grey	1% Py	Hornfels	
101.0	334.0	Green Brown	1-10% Py 1% Cpy+Bn	Garnet-diop. skarn w 1-10% Py in cubes to 1cm in bands. Blebs of Cpy & Bn in the pyrite Cu increases down section	
				5" massive sheared chlorite @ 40° to C.A. Dip slip slicks	
110.0	363.5	greenish grey	3-5% Py	Massive garnet + brown gar-diop skarn + 5-8% Py to 5cm	
113.0	370.0	green + brown	5-8% Py Tr Cpy	Hornfels	
116.0	386	Dark grey	Py 1-3%	Garnet skarn w. layers of coarse Py in cubic Py	
118.0	389	Green Brown	Py Cpy Bn 3-8%		
119.5	394	Med grey	Py 1%	Brecciated hornfels Incipient skarn	
121	397				

HOLE No. LD99-07

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
121	397	Med - Dark grey with grey patches	1-2% Py	Horn fels	
126.6	418	tan + green grey		Weakly overprinted skarn on hornfels	
128.3	421	Tan + green metallic Yellow	pyrite 3-20% Cpy 1-4%	Garnet skarn w Py & Cpy Several 6"-1' of unskarned hornfels in zone Significant retrograde	
132.0	436		2% Pyrite	Breccia Mixed hornfels & DIKE Coarse Py in Bx matrix More DIKE fragments near DIKE	
134.2	440.5	greenish grey	pyrite 1%	Monzonite DIKE Chloritized	
141.3	466	Med + Dk. Grey	2% Pyrite	Breccia As above	
142.9	468	Med - light grey	pyrite 1-2%	Argillite [2] Weakly hornfelsed. very brecciated and distorted	
150.5	496.5				

END OF HOLE

DRILL LOG

Date started Aug 2, 1999

Date completed Aug 3, 1999

Azimuth 080

Dip -50

Elevation 1432 m approx.

Collar Coordinates:

N 2735

W ~~E~~ 2338

Hole # LD 99-08

Depth 737'

Hole size NQ

Contractor LDS Drilling

Drill type LY 38

Logged by Peter Megaw

DOWN HOLE SURVEYS

Instrument Acid Test

Footage	Inclination	Bearing
217'	50°	N.D.
487'	50°	N.D.
654'	54°	N.D.

COMMENTS To test continuity of skarn to north and under swamp. Hit large monzonite body (composite fine + medium grained) and extensive hornfels w/ limited chalcopyrite mineralization. No skarn hit at all – where did slice in trench 50m S go? (to west?). Cuming weak but clearly increases down-hole.

HOLE No. LD99-08

DEPTH m	DEPTH ft	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
4.25	14	greenish grey	1% Py	Monzonite - Very fine grd phase w Py Fe-oxides on fracture surfaces from weathering	100%
8.25	27	Green-Cream		Monzonite Sheared zone of bright green chlorite Very soft = FAULT	
8.50	28	greenish grey	2-4% Py	Monzonite very fine grained w pyrite disseminated and as local veinlets 2-4% Py Pervasively chloritized	"
21.0	66	greenish grey	2-3% Py	Monzonite Med grained phase Prominent Hornblende & bio. phases partially chloritized Matrix pervasively chloritic. 2-3% Py	
25.0	83.0	greenish grey	3-5% Py	Monzonite - Fine grained phase As above 3-5% Py	
37.0	103	golden	100% Py	1cm pyrite vein @ 30° to C.A.	
33.0	109	greenish grey / greenish cream	10% Py	Argillized zone @ 20° to C.A. with Py = Fault	"
33.3	110	greenish grey	3-6% Py		
39.7	171	Greenish Cream		Broken & argillized = FAULT	
40.0	171.5	Greenish grey	3-5% Py		
		Greenish cream	5% Py	Argillized & chloritized zone Very soft = Fault w Pyrite	"
		Greenish grey	3-5% Py		"
64.5	213	Greenish grey	5% Py	Monzonite Medium grained phase Brecciated with pyrite to 5%	"
70.6	233	greenish grey	1% Py	Monzonite Fine grained phase 1% pyrite Fe-mags chloritized 50%	"
77.3 / 77.5			14% Py 1% Cpy	Breccia w. 15% sulfides: 14% Py 1% Cpy Matrix w chlorite	
		greenish grey	1% Py	F.G. Monzonite	100%
				Monzonite Medium grained phase	
86.7	286.0	Greenish grey	Py Cpy 90%	Pyrite vein 90% Py Tr Cpy	
88.0	291.0 / 291.3	Greenish grey	Tr-2% Py	Monzonite Medium grained phase. Trace to 2% pyrite as disseminations & microveinlets	
95.0	314	greenish grey	2-3% Py	Monzonite Fine grained phase as above	
97.6	322	greenish grey	1-2% Py	Monzonite Medium grained phase as above	
109.7	362.0				

HOLE No. LD99-08

DEPTH m	DEPTH ft	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
109.7	362	green grey	5% Py	Monzonite M.G. phase sheared w heavy chlorite	100% 5% Coarse Py
111.5	368	green grey	3% Py	Monzonite M.G. phase Very broken + mod. argillised Sheared	
114	377	greenish grey	1-2% Py	Monzonite M.G phase as above	100%
120.0 120.7	396 397	cream		Broken w chlorite slips = Fault	
		greenish grey	1-2% Py 2-4% Py	Monzonite M.G phase 126/417' Pyrite contents increase to 2-4%. systematic, incremental increase downward to contact	
132.0 132.3	436.5 437			Contact Bx Mixed Hfls & Monz. 5% K-spar	
		Medium grey Brown Stripes	2-4%	Hornfels cherty argillite (almost no graphite) 2-4% Py as disseminations & micro fractures veinlets Very flinty	
144 146	475.5 479	Green & Grey		Brecciated hornfels w chlorite = Fault @ 30° to C.A.	
		Medium grey with Brown Stripes.	2-4% Py	Hornfels as above	
160	529	greenish cream	5% Py	Broken + w carb. / argillised ~5% Py	
161	532	metallic	5-50% Py	Multiple 1-3 cm pyrite veins	
162	534	Medium grey with brown stripes	2-4% Py	Hornfels as above	
167	552			Broken & argillized = Fault zone	
		"	1-3% Py	Hornfels as above Flintier	
	567.5 568	Metallic		1-4cm Py veinlets striated cones to 6cm	
		Medium grey with brown stripes	1-3% Py	Hornfels as above	
178	587	Metallic	5-90% S 1% Cpy Bn	Hfls cut by multiple Py-Cpy veins to 4cm Minor Bn	
179	591	Med grey & Brown stripes	1-3% Py	Hornfels as above	
182.5 182.5	600 602	Metallic		Pyrite vein @ 5° to C.A. 15% S overall 14% Py 1% Cpy minor Bn	
		Medium grey with brown stripes	1-4% Py	Hornfels as above	
190	627	Med. grey w metallic stripes	Hfls 2-5% Py Vein 25% Cpy 75% Py	Hornfels cut by sulfide veins @ low angle to C.A. Veins isolated by clean Hfls. 25% Cpy 75% Py	
193	634	green-med grey	1-4% Py 5% Py	Hornfels w strong chlorite alteration 5% Py = Fault	
196	643 644	greenish grey	2-3% Py	Monzonite Medium grained phase sparse 1cm K-spar mega crysts. Chloritized & argillized zone	= Flt
197.6	652.0	Green grey	2-3% Py	Monzonite as above. Overall this dike is more pervasively chloritized than above Fe-mags & plag ⟶ chl. 2-3% Py on fractures & disseminated	
210.6 211.5	695 698	Green		Crushed & chloritized argillized zone. Very soft. Monz 6" contact zone formed by dike & hornfels	
		Medium grey with Brown Stripes	1-3% Py	Hornfels Cherty argillite(?) originally Very flinty 1-3% Py on fractures & disseminated	
223	737	END OF HOLE			

DRILL LOG

Date started: Aug 3, 1999

Date completed: Aug 4, 1999

Azimuth: 260

Dip: 50°

Elevation: 1432 m approx.

Collar Coordinates:

N: 2735

W/~~E~~: 2338

Hole #: L099-09

Depth: 409'

Hole size: NQ

Contractor: LDS Drilling

Drill type: LY 38

Logged by: Peter Meyer

DOWN HOLE SURVEYS

Instrument: Acid Test

Footage	Inclination	Bearing
311	52°	N.D.

COMMENTS: Designed to continue tracing skarn zone to north, following lack of continuation into L099-08. Intrusion + very flinty hornfels were all that were hit — hole terminated.

HOLE No. LD 99-09

DEPTH m	DEPTH ft	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
5.0	16	greenish grey	1-3% Py	Monzonite medium grained phase Fe oxides on fractures 1-3% Py	100%
7.6	25	greenish grey	1-3% Py	Monzonite medium grained phase	100%
13.3 / 14.0	44 / 46	Green	10% Py	Monzonite Broken + chlorite - Fault 10% Py	100%
		Greenish grey	1-3% Py	Monzonite Medium grained phase	100%
35.6 / 36.0	117.5 / 118.5	Green		Broken & chloritized = Fault	
		greenish grey	1-3% py	Monzonite Fine grained phase	100%
40.0 / 41.2	133 / 136	Green		Monzonite F.Gr. phase Chloritized & argillized 4" massive Pyrite	
		greenish Cream	1-3% Py	Very soft & altered	100%
45	148.5	Greenish grey		Monzonite fine grained phase chloritic	100%
53	176			Chl + argillized = Fault	
58.5	193			Chloritized + broken = Fault	
61.0	201			Chloritized + broken = Fault	
63.6	210	Green Grey & cream	2-5% Py	Breccia + broken transition zone between monzonite & hornfels Dominantly monzonite above grading to dominantly hornfels at depth.	100%
68	224	striped light and Medium grey	1-2% Py	Hornfels cherty argillite(?) 1-3% Py Contorted and parallel banding @ 30° to C.A	100%
100	330				

continued next sheet

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
-100	-330	Light Grey and medium grey Striped & marbled		As above Locally pyrite on fractures to 3 mm thick.	
124	409				

END OF HOLE

DRILL LOG

Date started: Aug 4, 1999
Date completed: Aug 5, 1999
Azimuth: 90
Dip: -50
Elevation: 1330 est.
Collar Coordinates:
N: 2312 — 61-618-90
W E: 2240 — 10 3471-92

Hole #: LD-99-10
Depth: 347
Hole size: NQ
Contractor: LDS Drilling
Drill type: LY 38
Logged by: Peter Megaw

DOWN HOLE SURVEYS

Instrument: Acid Test

Footage	Inclination	Bearing
227	50°	N.D.

COMMENTS: Short hole to test skarn between George's Zone + Tech Zone. Need to drill hanging wall of skarn zone or site deep vertical hole to test hanging wall skarn mins at depth. Snippet of skarn in top few feet then massive hornfels w/ no intrusions. Nothing hit @ projection of skarn seen in road directly above hole... why — Faulting?

HOLE No. LD 99-10

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
15.75	52.0			Caret-diopside skarn cut by Py Cpy veins	
16.7	55.0	green Yellow	Py Cpy		
17.6	58	Dark grey	1-3% Py	Hornfels carbonaceous & graphitic	
		Dark + Medium grey	1-3% Py	Hornfels - dark colored - carbonaceos cherty argillite. Very flinty 1-3% Py	
43.0 / 43.5	142 / 143	Dark green		Chlorite = Fault	
		zoned, Dark & medium grey	1-3% Py	Hornfels carbonaceous cherty argillite & cherty argillite, alternating zones Very flinty [2] 1-3% Py	
61.2	202	Dark greenish grey	1-3% Py	Hornfels - very chloritic = Mafic tuff [3]? 1-3% Py	
69.7	230	Striped, Light & Medium grey	1-3% Py	Hornfels - cherty argillite [2] Very flinty 1-3% Py	
				Limestone [4]	
79.7	263		Py Cpy 3%	Hornfels brecciated skarned & broken w pyrite fragments & F.G. Py in matrix Intramineral mort.	
81	267		5% Py	Hornfels as above	
84 / 84.4	278 / 278.5			Limestone	
85	280.8		50% Py	Limestone breccia heavily pyritic 50% w Tr Cpy / Sph	
86.7	286			Very cloritic matrix	
88	291			Limestone recrystallized.	
			2-4% Py	Hornfels - chloritic - Mafic tuff? 2-4% Py	
93	307		1-3% Py	Hornfels - Cherty argillite	
99	327			Limestone incipient garnet diopside skarn on upper contact	
100.6	332		2-4% Py	Hornfels Carbonaceous w abun. graphite slips	2-4% Py = Fau.
101.2	333		1-3% Py	Hornfels Cherty argillite as above	
105.2	347	END OF	HOLE		

DRILL LOG

170

Date started Aug 5, 1999

Date completed Aug 6, 1999

Azimuth 075

Dip 50

Elevation 1320 est.

Collar Coordinates:

N 2328

W/E 2320

Hole # LD 99-11

Depth 487'

Hole size NQ

Contractor LDS Drilling

Drill type LY 38

Logged by Peter Megaw

DOWN HOLE SURVEYS

Instrument Acid Test

Footage	Inclination	Bearing
227	55°	N.D.
337	55°	N.D.

COMMENTS Designed to cut hanging wall to main skarn zone at hit "George's Zone" skarn @ depth

HOLE No. LD99-11

DEPTH m	DEPTH ft	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
15.0	50			Overburden & boulders	
17.3	57.0	Light + medium grey	2-4% Py	Hornfels - cherty argillite Top 20' w Fe oxides on fractures from weathering 2-4% pyrite throughout	100%
				Fault	
28 28.5	92 94	"		Monzonite fine grained border phase	"
		greenish grey	2-4% Py	Monzonite medium grained phase cut by fractures 2-4% sulfides 80% py	
				Fault	
		"	80:20 Py Cpy	Fault 20% Cpy	
		"	"	Fault	
		"	2-4% Py		"
39 39.5	128 130			Monzonite fine grained border phase	
41	136	Light+Med grey	2-4% Py	Hornfels cherty argillite - foliation 30° to C.A.	
42.6	140.5	"	"	Brecciated sheared & argillized hornfels = Fault	"
		"	2-4% Py	Hornfels as above	"
					"
58	192		2-4% Py	Brecciated broken & argillised hornfels = Fault	
60	198	"		Hornfels as above	"
63	207	"	"	Broken & argillized hornfels = Fault @ 10° to C.A.	
64.2	212	"	"		
		"	2-4% Py	Hornfels as above	"
73 73.5	242 243	"	"	Broken & altered = Fault	"
		"	"	Hornfels as above	
77	254		2-4% Py	Broken & sheared = Fault	"
78.8	260	"		Hornfels as above	
84 84.5	277 278			Broken & sheared = Fault	"
		"	2-4% Py	Hornfels as above	
90.9 91.2	300 301	"	15% Py	Sheared w pyrite (15% S) = Fault	
			2-4% Py	Hornfels as above	
91.7 92	306 307			Broken & sheared = Fault	"
			2-4% Py	Hornfels as above	
95.7 96.4	316 318	Green & brown	15-20% Py Tr Cpy	Garnet skarn 15-20% Py Tr Cpy	
		Green & brown	15% Py Tr Cpy	Garnet skarn Very pyritic 25-50% Py w specularite Tr Cpy; Garnet skarn 15-20% pyrite	
101	334	greenish grey	5-8% Py Tr cpy	Monzonite DIKE Med grd. epidote on fract. Py chl & Tr Cpy on fractures	
103	341	Golden Brown	3-7% Py Tr. Cpy	Garnet Diopside skarn with 3-7% Py + Tr Cpy	
		"		Broken 5 cm thick	
109	360	"	3-6% Py Tr Cpy	Garnet Diopside skarn 25% partially connected hornfels domains 3-6% Py w Tr Cpy	
110.6	365	"			

HOLE No. LD99-11

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
110.6	365	green & brown		Garnet diopside Skarn Massive-Very coarse grained and coarse specularite on fractures	100%
111.2	368.5	green & brown	10-35% S 50:50 Py:Cpy	Garnet diopside skarn coarse grained w 10-20% total sulfides @ 50:50 Py:Cpy Sulfide interstitial to garnet 8% specularite	
114.2	377	green & brown	5-10% Py	Garnet skarn V. coarse grained 5-10% Py Abun. specularite No Cp.	
117	387	greenish grey chalky	Pyrite 2%	Monzonite Cut by calcite veins w vugs lined w euhedral quartz & Pyrite crystals	100%
118.7	392	greenish grey	2-5% Py Tr Cpy	Monzonite Medium grained phase. 1-3% disseminated plus additional 1-2% Py on fractures with Tr Cpy.	
125	412	green & brown	5-20% Py Tr Cpy	Garnet diopside skarn Very pyritic 5-20% Py Tr Cpy	100%
126.6	418	greenish grey	5-20% Py	Monzonite Medium grained phase	
128	422.5	green & brown	5-20% Py	Garnet diopside skarn Very coarse grained 5-20% Py Coarsens downward	
132.3	436.5	green & brown + grey	3-5% Py	Garnet diopside overprinting hornfels. Transition zone mostly skarn at top mostly hornfels at bottom 3-5% Py	
136	449	striped dark & medium grey	1-3% Py	Hornfels-Carbonaceous cherty argillite Dark color. Abun. graphite slips @ 40° to C.A. 1-5% Py	
141	465	Medium & Light grey	1-2% Py	Hornfels cherty argillite - Bedding @ 40° to C.A 1-2% Py	
147.6	484	END OF	HOLE		

DRILL LOG

Date started: August 6, 1999	Hole #: LD 99-12
Date completed: August 10, 1999	Depth: 1187'
Azimuth: 135	Hole size: NQ
Dip: -60°	Contractor: LDS Drilling
Elevation: 1310 est.	
Collar Coordinates:	Drill type: LY 38
N 2344	Logged by: Peter Megaw
W ~~E~~ 2404	

DOWN HOLE SURVEYS

Instrument: ACID TEST

Footage	Inclination	Bearing
307	60°	N.D.
667	60°	N.D.
1187'	60°	N.D.

COMMENTS: DESIGNED to test depth extent, geometry & width of Tech skarn Body. Secondarily to determine if a fault exists along Canyon Creek. Latter may not be determinable if overburden is too deep.

HOLE No. LD99-12

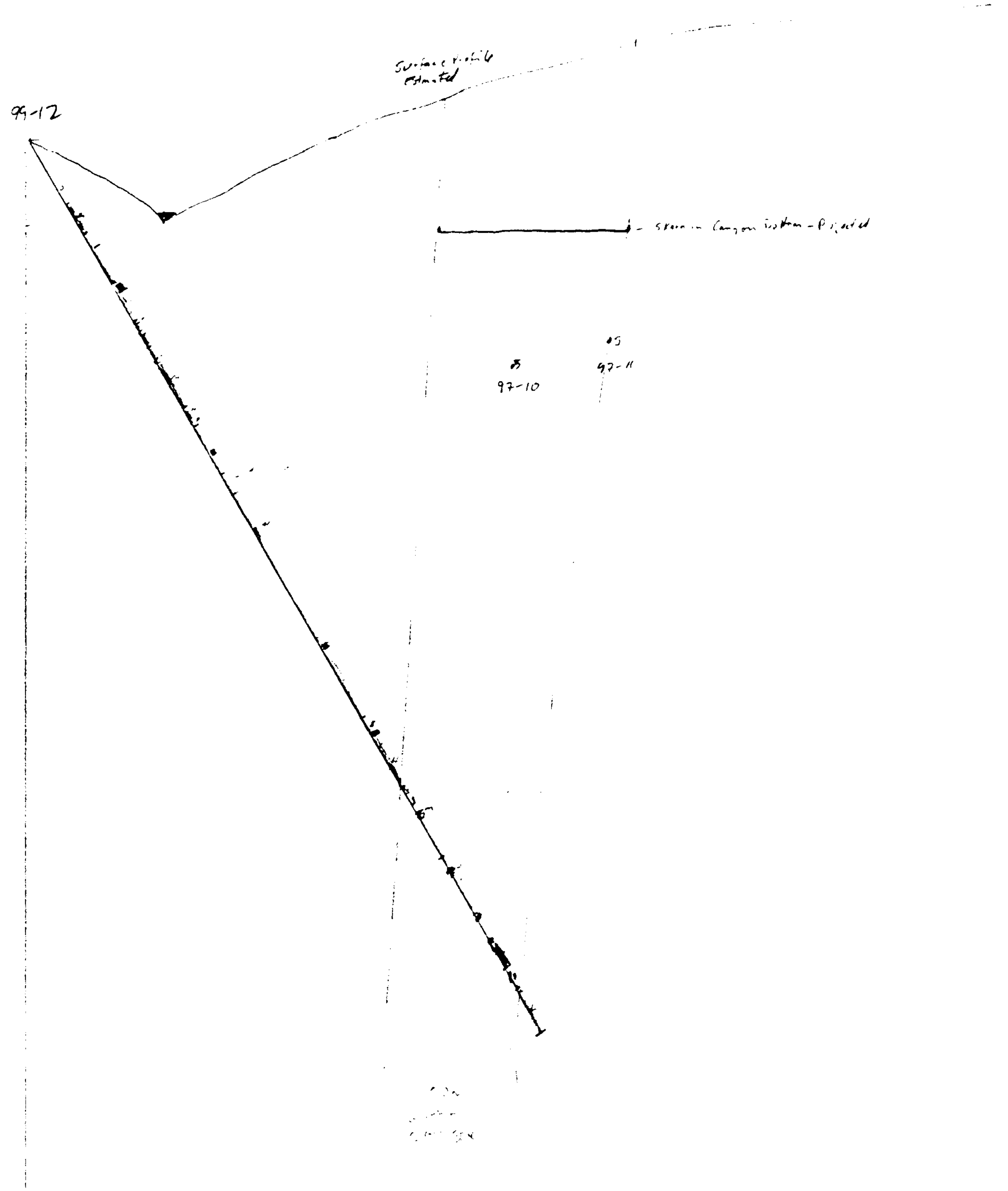
	DEPTH m.	DEPTH ft.	COLOR	MINERAL-IZATION	DESCRIPTION	RECOVERY
					CASING	
7	25	83	greenish grey	2-5% Py Tr. Cpy	Monzonite Medium grained phase, 2-5% Py with Tr Cpy on fractures	
	30.6	101			Hornfels	
	31.0	101.5			Crushed & sheared zone = Fault	
2	31.2	102	Lt & Med grey striped	1-2% Py	Hornfels cherty argillite Banding @ 40° to C.A.	
7	33.8	111.5	greenish grey	1-2% Py	Monzonite fine grained phase Pyrite veinlets cut hornfels — monzonite contact	
	37.3	123	Lt & Med grey	1-2% Py	Hornfels cherty argillite - Very cherty	
	39.4	130			Sheared & broken = Fault	
2			"	1-2% Py	Hornfels as above	
	44.5	147	Green		Broken & sheared = Fault chloritic	
	44.8	148	Lt & Med grey	1-2% Py	Hornfels as above	
	48.3	159.5				
2			"	1-2% Py	Hornfels as above	
	56	185			Fault	
			"	1-2% Py	Hornfels as above	
	59.3	196	Green & grey	3-4% Py	Broken sheared & brecciated zone = Fault	
2	61.0	201	Lt & Medium grey Banded	1-2% Py	Hornfels as above	
5	71.5	236	green & brown	10-15% Py	Garnet diopside skarn over hornfels	
	73.3	242	grey + Lt. green	1-2% Py	Hornfels as above incipient skarn overprint	
	76	250.5	green + brown	10-15% Py	Garnet diopside skarn over hornfels pyritic	
2	77.7	256.5	Lt + Medium grey	1-2% Py	Hornfels cherty argillite	
	81.8	270	Green + brown	5-12% Py	Garnet diopside skarn 5-12% pyrite	
	82.7	273	Lt + Medium grey	1-2% Py	Hornfels as above	
5	85.2	281	green + brown	5-8% Py	Garnet diopside skarn as above 5-8% Py	
	86.8	286.5		10-15% Py	Pervasive retrograde chl-qts + 10-15% Py	
	87	287.5	green + brown	5-20% Py	Gar-diop. skarn w 35% pervasively retrograde 5-20% py	
	88.5	292	greenish grey	2-4% Py	Monzonite Fine grained phase	
7	90.6	299	Greenish grey	1-3% Py	Monzonite Medium grained phase	
	100.5	331.5			Fault	
7			"	1-3% Py	Monzonite Medium grained phase	
	105.1	347	"	"	Monzonite fine grained Fault Broken	
	106.4	351	"	"	Monzonite fine grained	
	107.6	355		30% Py	Hornfels pervasively pyritized w 30% Py	
2	108.0	356.5	Light grey & white	1-2% Py	Hornfels Very cherty	
	111.5	368				

HOLE No. ______

	DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION.	DESCRIPTION	RECOVERY
	111.5	368	green & brown over grey	5%	Garnet diopside skarn over hornfels incipient 5% Py	100%
5	114.5 / 115.0	378 / 379	Green	5%	Fault zone chloritic sheared	"
			Light & medium grey	5-8% Py	Hornfels cherty argillite w. 1-5mm pyrite veinlets 5-8% Py overall	"
	118.5 / 120.3	341 / 347	Dark green-grey	5-10% Py	Hornfels Very chloritic = Mafic tuff? slips @ 395 suggest old fault	
2			Light and Medium grey	2-4% Py	Hornfels cherty argillite Banding @ 40° to C.A.	"
	126.7	418	green & grey	2-4% Py	Broken argillized chloritic shear zone=Fault	"
	128.2	423	Lt & Med. grey	2-4% Py	Fault	"
2	131	432	"	"	Hornfels as above	"
	135.5	447	"	"	Hornfels as above	"
2	140.9	462	"	"	Hornfels as above	"
	156.4 / 157	516 / 518.5	Greenish grey	1-2% Py	Monzonite - M.G. - Chloritic	"
			Lt & Med. grey	2-4% Py	Hornfels as above	"
	160.5 / 161	525.5	Greenish-grey	1-3% Py	Monzonite - M.G - Chloritic	"
2			Light plus Medium grey	2-4% Py	Hornfels as above Banding @ 40° to C.A.	"
3	178.5	589	Green & medium grey	3-6% Py	Hornfels - Very chloritic = Mafic tuff 3-6% Py	"
2	185.5	612	Light + Medium grey	2-4% Py	Hornfels cherty argillite	"
					2 cm Pyrite vein 95% Py 5% Cpy	
2	214.5	708			Very chloritic shear zone. chlorite & Pyrite smeared out Post mineral	"
	216.4	714				

20	DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
					* From below: Zone is 2 m thick. Top is 15 cm of breccia composed of recrystallized limestone and very fine grained pyrite fragments. Matrix is mineralized coarse grained pyrite. Below top is 18 cm of finely sheared chloritic material in slickensides = Fault. Below this is broken sheared and fractured hornfels. Overall this is a prominent intra(?) mineral Fault	
	216.4	714				
3			greenish & medium grey	3-5% Py	Hornfels Moderately chloritic = Mafic tuff 3-5% Py	100%
2	229.5	757.5	Lt + Med. grey	2-4% Py	Hornfels cherty argillite Banding @ 40° to C.A.	
	231.4 / 232	765.5 / 766	W. + met. Yellow	10-55% Py	Very pyritic recrystallized limestone	"
	233.3	770		5-7% Py	Gar-diop. skarn Fine grained 5-7% Py	
2			green + brown	5-15% Py Tr Cpy	Gar-diop. skarn Very coarse grained with abundant specularite & late calcite	"
	236.7	781	Dk. Green	5-15% Py	See above *	"
	238.5	787	pale green + Lt grey	3-5% Py	Hornfels Very broken & chloritic Pale green chlorite (or fine grained amphibole) is prominent. Footwall to fault above	
	242.7					"
2			Light and Medium grey	2-5% Py Tr Cpy	Hornfels cherty argillite Banding @ 40° to C.A.	"
2	258.8	854	Greenish grey	Py 15-25%, Cpy 1-3%	Hornfels w. 15-25% Py	
2	260.0	857.5	Green w. metallic	5-10%	Hornfels Numerous Py veinlets. Tr. Cpy.	high grade
2	262.0 / 263	865 / 867	"	1-3% Tr Total	Skarn, Amph, chl. retrograde w Py Cpy veins to 12 cm	50:50 Py:Cpy
2	264 / 265	871 / 874	Dk Green	15-40 Total Tr Bn; 2-3% Py	Chloritic retrograde skarn Py (75%) Cpy (25%) Bn. Tr. Veins to 30 cm @ 40° to C.A. 10% Mgt. Hornfels Very chloritic = Mafic tuff	
5	267.5 / 268	883 / 885	green grey; Cream	1-3% Py; 1-2% Py	Garnet diop. Skarn w. significant magnetite Coarse grained. Garnet diop. Skarn Fine grained Retrograde to chl. + Mgt.	
5	271	894	cream + greenish	5-10% Py	Garnet diop. Skarn → Fine grained amph. chl. Mgt. retrograde assemblage. Mgt & Py late & co-mingled strongest Mgt Py in 10 cm adjoining contact	
7	274.5	906.5	greenish grey	1-4% Py Tr Bn	Monzonite Med. grd. phase Upper contact @ 30° to C.A (w minor Bn) Lower contact @ 70° to C.A.	
5			green-brown + cream	5-7% Py Tr Cpy	Garnet diop. → amph.-chl-Magnetite retrograde Medium grained 5-7% S dom. Pyrite	100%
	284	938				
5			green + brown	2-5% Py	Garnet-diop. skarn Coarse grained w. abundant late magnetite Coarse red-brown garnets as overgrowths on green calcite & specularite with these in vugs 2-5% Py	100
	290.3	968				
5			green + brown cream overprint	1-5% ↓ 5-10%	Garnet-diop → amph-chl-mgt. retrograde Fine grained 1-5% Py increase downward to 5-10%	5-10%
	295.6	975.5	"	1-3% Cpy 5-10% Py	Garnet diop. skarn → amph.-chl-Mgt = Strong F.C. retrograde 1-3% F.G. Cpy throughout w 5% Py S coarsens downward.	
5	298	982	"	2-4% Py	Garnet-diop. skarn w. amph-chl-Mgt. overprint ≈ 50%	100
	302	992				
5			"	1-2% Py	As above 75% retrograde overprint Minor Mgt.	100%
			"	0.5% to Tr Cpy	As above but pervasive (80%) retrograde w. Mgt & Tr Cpy Chloritic slips & Cpy slickensides @ 60° to C.A. Slicks @ 70° to fault dip.	abundant
	311	1026	"	2-4% Py		
	313.3 / 314	1034 / 1036.5	+ Dk green	1-2% Py	As above Moderately decreasing	
	314.3	1038	Dk. green	20% Cpy	Massive chl-Mgt + coarse Cpy in retrograde zone	20% Cpy
	315.8	1042	"	5-8% S 75:25 Py:Cpy	Chl Mgt w Cpy overprint on Gn-Px 5-8% S 75% Py	25% Cpy
	318	1056	pink & green	2-3% Py Tr Cpy	Chl-Mgt amph. retrograde zone 2-3% Py Tr Cpy	
5			Green + brown with Cream overprint.	1-5% Cpy	Mixed garnet-diop. w Chl-Mgt-Amph retrograde patches 60-40 1-5% Cpy 8% Mgt	"
	324.3 / 324.7	1070.25 / 1071.5	Blebby metallic	70% Cpy 30% Py	Garnet-Diop. — amph chl Mgt w massive 30% Cpy 20% Py. High grade Cpy fills in between specularite & pyrite	Cpy & Py
7			greenish grey		Monzonite (see below)	

	DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
7	324.7	1071.5	greenish grey		Monzonite. medium grained phase Lower contact brecciated; sheared @ 70° to C.A.	100%
5	335.8	1106	green+brown cream.	5% PY 1% Cpy	Garnet diop. → amph-chl Mgt retrograde 5-15% Mgt 5% Py Magnetite is finely bladed in shears. Replaces specularite.	"
	339.4	1120	overprint metallic blk	10% Cpy 30% Py	Garnet diop. Sk. repl. by spec → Mgt. Py(30%) Cpy (10%)	
5	339.7	1121	greenish brown cream overpr.	5% Py Try Cpy	Garnet diop. skarn. Fine grained 5% Py Tr. Cpy	"
	342.7	1131	Black & met.	30% Py Tr Cpy		
4	343.5	1135			Limestone Broken and locally carbonaceous	"
4	346.4	1153		10-15% Py + Po	Limestone Broken carbonaceous. Brecciated w fragments of pyrrhotite and pyrite Bx deformed. VMS fragments?	"
4	338.2	1182			Limestone Recrxstallized	"
	360	1187	END OF HOLE			


99-12
Surface Profile
Estimated
Stream Canyon bottom - Projected
#5
97-10
97-11

DRILL LOG

Date started: August 10, 1999

Date completed: August 11, 1999

Azimuth: 185

Dip: -45

Elevation: 1450

Collar Coordinates:

N: 1790

W: 2150

Hole #: LD 99-13

Depth: 497'

Hole size: NQ

Contractor: LOS Drilling

Drill type: L4 38

Logged by: Peter Megaw

DOWN HOLE SURVEYS

Instrument: Acid Test

Footage	Inclination	Bearing
216'	45°	N.D.
487'	45°	N.D.

COMMENTS: Hole drilled to test possibility that sulfide portion of 4B zone are fed by E-W structures versus N-S as long assumed. Also intended to test fault inferred on south end of colum[illegible] part of 4-B zone. No evidence of E-W feeders encountered - except under Trench 96-5 where several holes have hit sulfides to depth. Did not reach Fault to S.

HOLE No. LD 99-13

	DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
	4.8	16.0				
	5.6 / 6	18.5 / 19	Dk. Grey ← Red brown		Limestone — Gossan Fe oxides.	
4					Limestone	
	11.4	37.5	Dk Grey metallic	100% Py + Po	Massive pyrrhotite (90%) & Py (10%) Very irregular with LS = H/p	
	13	43	Brown	Tr Cpy?	Embayed ? ?	
			dk grey		Limestone	
	15.5 / 16.0	51 / 52		Py + Po 100%	Py >> Po (80% - 20%) manto	
4					Limestone	
	32.6	107.5				
3				1-3% Py	Argillite Carbonaceous & cherty	
	45	148.5			Bx & broken = Fault with graphite slips	
3						
	66.4	219			Bx & broken graphite slips = Flt.	
	71.2	235			Bx & broken w graphite slips = Flt	
3					Argillite cut by downward increasing number of Po veins & stringers	
	79.4 / 80	262 / 266	Dk grey	15-40% Po		
			metallic brown	100% Po	Pyrrhotite contorted banding Py replacing margins soft Sed Def VMS	
	81.5 / 82.7	270 / 273	Dk grey	5-20% Po	Argillite as immediately above	
	84.5 / 84.8	275 / 276	Metallic	80-100% Py + Po Py As Py, Cpy	Massive Po w Py reaction rims Py also as veins cutting argillite.. later H.T Py?	
	86	284	Brown or	15-20% Po	Argillite w Po stringers as above.	
	87.3	288	grey	5-8% Po	Similar to above but less Po	
3			Dark grey	Tr-1% Po	Argillite, as above No to 1% Po	
					From above at 84.8 m 30 cm band of arsenopyrite (euhedral crystals) sphalerite, Pyrite & Pyrrhotite cutting across argillite foliation connected to veins above by matching walls	
	100	330				

HOLE No. LD99-13

	DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
	100	330				
3			dark grey + light grey		Argillite As above. Foliation Locally parallel to C.A.	
	123.4	408			Fault Gouge + slips	
			"			
	140	462				
	142	468			Gouge + slips = Fault	
			dark grey + shiny black		Argillite More carbonaceous section graphite slips very abundant.	
	149.5	495			Gouge + slips = Fault	
	150	497	END OF	HOLE.		

DRILL LOG

Date started August 11, 1999

Date completed August 12, 1999

Azimuth 090

Dip -45

Elevation 1442

Collar Coordinates:

N 1820

W ~~E~~ 2202

Hole # LD 99-14

Depth 447'

Hole size NQ

Contractor LDS Drilling

Drill type LY 38

Logged by Peter Meyer

DOWN HOLE SURVEYS

Instrument Acid Test

Footage	Inclination	Bearing
257'	45°	N.D.

COMMENTS To test continuity of 4B zone + transition to skarn.
4B encountered not much else.

HOLE No. LD 99 - 14

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
6.0	20.0				
		Black + Medium grey	1-2% Py	Argillite - cherty w. foliation @ 50° to C.A. (2)	
22.7 / 23.2	75.0 / 76.5	Pale green	1% Py + Blk. SFDS	Monzonite - fine grained - silicified + blk. sulfides + Py	
		Black + Medium grey	1-2% Py	Argillite weak hornfels (2)	
28.0 / 28.6	92.0 / 94.5	" + rusty	1% Py	Argillite - Very broken = Fault w. Fe oxides (2)	
		Pale green	3% Py, Tr Blk SFDS	Monzonite fine grained Pervasively silicified w. 3% fine grained pyrite + Blk sulfides on fractures	
34.2	113	Medium grey		Limestone recrystallized (4)	
36.4 / 36.7	120 / 121	Metallic		Sph. Py Cpy vein w. Calcite + quartz Contacts @ 50° to C.A.	
		Medium grey		Limestone - recrystallized (4)	
80.3 / 80.5	265 / 265.5	rusty	3-5% Ox	Fe oxides w. mafic tuff (3)	
		Medium grey		Limestone as above (4)	
93.3 / 93.5		Dk. green	3-5% Ox	Band of mafic tuff (3)	
		Medium grey		Limestone - as above (4)	
98.2 / 98.8	324 / 324.5	Dk. green	3-5% Ox	Mafic tuff band (3)	
	326	Med. grey		Limestone (4)	
		Med. + Dk. grey	1-2% Py	Argillite (3) w. foliation @ 45° to C.A.	
106.8	336	Medium grey		Limestone	
107.4	354.5				

To Next page

	DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVER
3			Dark green	1-3% Py	Mafic tuff w abundant Limestone clasts	100%
	116 / 116.3	382 / 382.5			Fe oxides in (3) = Pyrrhotite band?	"
3			"	"	Mafic tuff - as above	
	120.3 / 120.6	392.3 / 392.6			Fe oxides as above	"
3			"		Mafic tuff as above Lower contact is zone of gouge	"
	122.7					
4					Limestone	
	124.2 / 124.5	410 / 410.3	Dark gray	20%	See below*	"
	125	413			Clay gouge	"
4			"		Limestone as above	"
	135.5	447				

*10 cm - layering w pyrite + vein textures Matching walls + siliceous webs around fragments — breccia

DRILL LOG

Date started August 12, 1999

Date completed August 13, 1999

Azimuth 065

Dip -55

Elevation 1410

Collar Coordinates:

N 1910

W ~~E~~ 2030

Hole # LD 99-15

Depth 597

Hole size NQ

Contractor LDS

Drill type LY 38

Logged by Peter Megaw

DOWN HOLE SURVEYS

Instrument Acid Test

Footage	Inclination	Bearing
427'	55	N.D.

COMMENTS Test northern continuation of 4B zone approaching Tech Skarn zone. Hit minor skarn and significant massive pyrrhotite ± cpy ± SM.

HOLE No. LD 99-15

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
3.6	12				
		Dark and light grey Banded	1-3% Py	Hornfels - Cherty argillite (2)	
22	72			1.5 cm Pyrite vein	
		"	"		
28	92			1 cm Pyrite vein	
		"	"		
40	132			Broken + Sheared = Fault	
		"	"		
48.8 – 49.2	161 – 163	Metallic Medium grey	Was 100% Py-Po?	Massive sulfide skarn Pyrite-sphalerite (5%) + garnet	
				Limeston (4)	
54 – 54.5	179 – 180	"rusty" lines cutting medium grey		Gossan Fe-oxides @ 40° to C.A	
				Limestone w abundant Fe-oxide on breaks. Were Po-Py?	
61	202				
		Medium grey		Limestone (4)	
73.6 – 74	243 – 244			Broken + sheared = Fault	
		Medium grey		Limestone (4)	
90.5 – 90.8	298.5 – 299.5	Metallic Medium grey	100%	Broken zones w. + .7 cm Po-Sph w Py replacing Po = VMS?	
95.8 – 96.0	316 – 316.5			Gossan w slips @ 30° to C.A. = Flt - Minzd	
		"		Limestone	
107	352			Broken w. Fe-Oxides = Fault	
				Limestone	
111.2	367				

HOLE No. LD 99-15

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVER
111.2	367				
114	377	Dk. grey		Limestone—Dolomitic—Limited fizz	
		Medium grey		Limestone	
127	419			Mafic tuff (?) w. abundant limestone fragments	
133	438			Limestone - clastic breccias healed + recrystallized	
135	443.5			Limestone - broken & healed w. Fe-oxide - Fault? vein?	
136	448			Limestone	
158	521.5'	Metallic brown	90% Po 1-3% Cpy 3% Sph.	Massive sulfide Pyrrhotite 40% Chalco 3% Sph. 3% chlorite 4%. Upper contact irregular w skarn Lower contact @ 40° to C. A. Finely banded	
161.5	533	Pale green	5-10% Po	Monzonite-Endoskarned - 5-10% Po	
162	535	Metallic brown	90% Po, 1-3% Cpy 1-3% Sph.	Massive sulfide Po 90% Cpy 1-3%. Sph. 1-3%. Felted fibrous chlorite on amphibole Cpy dom in late cross-cutting structures in Po.	
165	544.5'	Met. brown + Yellow	1% Cpy 50% Py 48% Po	Massive sulfide as above but 50% of Po is replaced by by late coarse subhedral Pyrite. Calcite matrix ≈ 2%	
167.3	552	Met. brown		Massive sulfide Po Cpy Sph as above w. garnet Skarn matrix. (overprint of Dk chlorite)	
168.3	554.5'				
169.4	559.5		Tr Py/Cpy	Limestone Bedding @ 50° to C.A	
171	564.5		5-7% as veinlets + blebs.	Hornfelsed cherty argillite - Banding at 40° to C. A. Weakens downward	
182	592	END OF	HOLE		

Contact between massive sulfides + limestone is planar @ 50° to C.A. Limestone bedding is also @ 50° to C.A. BUT the two are not conformable; There's a 20° offset (rotational) between them.

DRILL LOG

Date started: August 13, 1999

Date completed: August 16, 1999

Azimuth: 095

Dip: -50

Elevation: 1350

Collar Coordinates:

N: 2002

E: 2048

Hole #: LD99-16

Depth: 1352'

Hole size: NQ

Contractor: LDS Drilling

Drill type: LY 38

Logged by: Peter Megaw

DOWN HOLE SURVEYS

Instrument: Acid Test

Footage	Inclination	Bearing
617'	50°	N.O.

COMMENTS: Designed to test area to east of 4B zone: Ag, As, Zn anomalies; skarn mapped by Granby & drilled by Noranda — all on northern extension of 3 zone.
No significant mineralization encountered!

HOLE No. LD99-16

DEPTH m.	DEPTH ft.	COLOR	MINERAL-IZATION	DESCRIPTION	RECOVER
				CASING	
4.5	15.1			Calcareous argillite Weak hornfels	100%
6.2 / 6.8	22 / 22.6		45% Py 3% Sph 2% Cpy	5cm. S=Vein - Py-Sph.-Cpy w. dark green chlorite	
			1-3% Py	Argillite - cherty	
9.2	30.5			Graphite - sheared = Flt.	"
		Lt + med. grey	1-3% Py	Argillite	"
15.8	52			Graphite - sheared = Flt.	"
		Med + dark grey	1-3% Py	Argillite - cherty carbonaceous layers	"
21.8	72	greenish grey	2-3% Po	Dike - Mongonite - med. grained w. pyrrhotite	"
26.2	86.5	Med-dark grey	1-3% Py	Argillite as above.	"
					"
					"
34.7	131	Med. grey		Limestone	"
41	135.5	Lt - med. grey	1-3% Py	Cherty argillite	"
44	145	Med. grey		Limestone	"
47.3	156	Lt grey	1-3% Py	Cherty argillite	"
48.8	161	Med grey		Limestone	"
50	165	Lt grey	1-3% Py	Cherty argillite	"
52.1	172	Med. grey		Limestone	"
52.6	173.5	"		Argillite as above	"
55	182	"		Broken & sheared = Flt	"
56.4	186			Argillite as above	"
		greenish grey	2-4% Py	Dike Mongonite - M-grained phase with 2-4% Po	"
					"
69.4	229	Dk. grey		Breccia broken & sheared Argillite = Flt	"
71.1	234.5	Med. grey		Argillite as above	"
73 / 74	242 / 244.5	"		Limestone	"
		Lt + Med. grey	1-3% Py	Argillite - cherty - Banding @ 40° to C.A.	"
82	272			Very graphitic slips = Flt.	"
		Med. + dark grey	1-3% Py	Argillite - very carbonaceous - graphitic	"
					"
94	310	Med + Lt. grey	1-3% Py	Argillite - cherty w. weak hornfels	"
96	316.5			Dike pervasively silicified over weak chlorite Quartz eyes = Sugary Felsic dike	"
99	322			Argillite Very cherty & contorted	"
100.8 / 100.9	327 / 332.5			Graphite slips = Flt	"
101.7				Hornfels & breccia	
104.5	345			Dike - Argillized Quartz eye Porphyry = Sugary Felsic Dike	
105.3	333 / 347.3			Carbonaceous graphitic shear = Slip = Flt	"
				Argillite - cherty	"
		To next	page		

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVER
110		Lt + medium grey	1-3% Py	Argillite as above	100%
128.8	425	Med grey		Limestone	
130.0	429	Lt + med. grey	1-3% Py	Argillite-chert w. 10-30 cm limestone beds or fragments.	"
132.7	438				"
		Med. grey		Limestone	"
					"
144	476	Med-grey white "webbing"		Limestone with calcite veinlet stockwork	
149	492				"
		Med grey		Limestone - Fragmental texture = = clastic LS.	"
164	541	Black	2-3% Py	Argillite black shaly w. abundant limestone fragments All deformed	
166.4	549				"
		Dark grey and Light grey		Argillite - carbonaceous - shaly c abundant limestone fragments. Limestone frags large (20-50 cm) near top gradually diminishing in size downward to 1-5 cm. Limestone frags show calcite veinlet stockworks that are not connected to anything cutting cutting the argillite	"
200	662	Greenish tan	1-3% Py	Argillite - fine grained shaly - Laminated and deformed. Possible mafic tuff component suggested by greenish color	"
210	692	Dark grey and Light grey		Argillite - fine grained layered w coarse limestone sand and black shale	"
224.5	741				

To next page

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVER
From previous page					
224.5	741	Dk grey	1-2% Py	Argillite - w 50% sand sized limestone & shale grains 10% large limestone fragments - elongate & deformed	
231	762	Dk grey	5-8% Po	Argillite - fine grained calcareous limestone > shale 2-4	
234 / 235	772 / 776	Med. grey	15-20% Po	Argillite limestone frags. in f.g. pyrrhotite rich shale - contorted	
		Med grey	2-3% Po	Argillite - very calcareous - approaching limestone. Abundant late calcite veinlets	
243	802	Dk. grey		Argillite - laminated & bedded argillite w. layers of sand sized shale & limestone chips Possible grainflows? - Deformed layers between undisturbed layers indicates soft sediment deformation. Minor Po frags.	
255.8	844	Med. grey		Limestone - fragmental (1-5cm) frags with minor interstitial shale matrix	
261.5 / 262.3	863 / 864.5		5-10% Po	Carbonaceous argillite - thin bedded w. sulfide fragments / Breccia w. Arg. & Monz frags.	
		greenish grey	1-3% Po	Dike - Monzonite - medium grained phase 1-3% Po dispersed & as veinlets	
267	880	Med. grey		Limestone - fragmental - No shale matrix	
273.3	902.5		3-8% Po	Argillite fragmental w. LS. & Po frags	
273.0 / 273.4	902 / 902.6			Quartz vein sugary white	
				Limestone - fragmental	
277.4 / 279.5	915.5 / 915.7			Quartz vein white, sugary, barren / Limestone	
				Limestone - Fragmental w. shale matrix (3%)	
282	930			FAULT	
				Limestone - fragmental - No shale	
287	947			Dike Sugary quartz eye porphyry	
291	961			Limestone - clastic as above	
335	1105.5	continues to next page			

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVER
335	1105.5	Med.-grey		Limestone - as above - continued	
341.5		Med.-grey		Limestone w. mafic tuff mixture increasing downwards. Gradational zone to mafic tuff.	
351		dark greenish grey		Mafic tuff c limestone fragments 1 mm.-30cm. Frags. lensoid c deformed matrix.	
363.3		dark greenish grey		Dark shaly mafic tuff w. numerous ptigmatic calcite veinlets Bottom section is transition; into limestone. Overall fine grained & laminated.	
369		Med.-grey		Limestone-clastic as above. Open solution expanded fractures beginning @ 371m	
373	1232	Med.-grey		Limestone - clastic - fractured & broken	
381	1257	Med grey w. rust		Limestone - shattered w. Fe oxides on fracture surfaces	
383	1265	Lt grey c rust		Limestone - very bleached & shattered c Fe ox. Completely incompetent	
385	1270	Med.-grey cut by Lt. grey		Limestone - coherent but spider webbed by bleaching along hairline fractures	
397.5	1312	Light + Med. grey		Cherty argillite (?) w. sulfide fragments	
401	1325	"		cherty argillite (?) Very broken & sheared = Fault	
404.5	1335	Med. grey		Limestone - Broken	
405.2	1337	Med. grey		Limestone - coherent	
411.2	1357	END OF	HOLE		

DRILL LOG

Date started: August 16, 1999
Date completed: August 17, 1999
Azimuth: 065
Dip: -55
Elevation: 1375
Collar Coordinates:
N: 2008
W ~~E~~: 2255

Hole #: LD99-17
Depth: 637'
Hole size: NQ
Contractor: LDS Drilling
Drill type: L4 38
Logged by: Peter Megaw

DOWN HOLE SURVEYS

Instrument: NOT DONE

Footage	Inclination	Bearing

COMMENTS: To test skarn-replacement transition zone below road where significant skarn crops out. Hit very strong mineralization in several zones

HOLE No. LD99-17

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
4.2	14	Lt grey w rust	1-2% Py	Cherty argillite. Broken with Fe oxides on fractures	100%
12.4	41	white + light grey	1-2% Py	Cherty argillite	"
18.2, 19.0	60, 63			Cherty argillite. sheared & clay altered = FAULT	
		white & light grey	1-2% Py	Cherty argillite	"
22.8, 23.1	75.25, 76.65			Massive sulfides	
		white + light grey	1-2% Py	Cherty argillite	
25.2, 25.3	83.0, 83.5		25% Sp Cpy Py	White sugary f.gr. Quartz vein w minor Py & Po	
		white + light grey	1-2% Py		"
32.7, 33.2	108, 109.5	light grey	5-8% Py	Cherty argillite Pyritic	
33.5, 33.4	110.5, 113.5			skarn	
34.8	114.45			Limestone	"
				gar. & Px skarn	
		Medium grey		109'-110.5' Py Sp w Cpy rich skarn abun. chlorite Top is 50:50 skarn:sulfide - bottom half is 80% skarn 20% sulfides 110.5'-113.5' Limestone Recrystallized 113.5'-114.75' Skarn - Green garnets w Po-Cpy-Sp-Py clean mutual embayments between Po and garnet skarn. Sulfide concentrated on marble front	"
				Limestone	
57.6, 58.9	190, 194.5	Metallic	100% S=	sulfides Po-35%, Py-50% replaces Po, 5-10% Cpy 3-5% Sp. Coarse euhedral Py replaces Po	"
		Medium grey		Limestone. Fracturing increases dowhole	"
75.1		Medium grey		Limestone - highly fractured w. Fe oxides	
77.7		Green + black metallic	10-95% S=	& contact is razor sharp Massive sulfides: 8" of 95% Sph.: 18" of gar-skarning w. Py Sph & Cpy Remainder is 30-65% Sph. 30-40% Py 3-10% Cpy w. 25% garnet skarn	"
80.4, 81.2		Med grey		Limestone recrystallized	"
83.5	275.5	green + black metallic	50% S=	Gar-Px skarn Top 4" 1-5% Cpy: Bottom 1' is 50% gar. 46% Sph. & 3-5% Cpy	"
		Medium grey		Limestone - as above	"
108		Medium grey		Limestone Broken w Fe oxide stains	"
112		Green		Skarn w. 10% Sph & Cpy. Very chloritic in limestone remnants	"

HOLE No. LD 99-17

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
115	380	Med-grey		Limestone	100%
137	451		5-20% Py	6" calcite veining 5-20% Py	
		Med-grey		Limestone	100%
145 / 146	479 / 481	Med grey ē rust		Limestone Broken w. Fe oxides.	100%
				Limestone	100%
182.6 / 183.2	602.5 / 604.6	Green	Tr Cpy & Po	Gar-diop. Skarn w. trace Cpy & Po	100%
		Med. grey		Limestone	100%
185 / 185.3	610 / 611	Green	Tr Cpy & Po	Skarn gar-diop. epidote w. trace sulfide Cpy & Py	100%
		Lt + dark grey	1-2% Py	Cherty argillite	100%
190	626			Shear = Fault	
		Lt + dark grey	1-2% Py	Cherty argillite	100%
193	637	END OF	HOLE		

DRILL LOG

Date started: August 12, 1999

Date completed: August 18, 1999

Azimuth: 065

Dip: -45

Elevation: 1375

Collar Coordinates:

N: 2008

E: 2255

Hole #: LD 99-18

Depth: 249'

Hole size: NQ

Contractor: LDS Drilling

Drill type: LY 38

Logged by: Peter Megaw

DOWN HOLE SURVEYS

Instrument: None Performed

Footage	Inclination	Bearing

COMMENTS: Drilled to test updip extension of Mineralization hit in LD 99-17. Surface outcrop of skarn is not well mineralized so expectations were limited. Used last 100' of drilling contract. Mineralization does not continue upwards well – must drill @ -65°

HOLE No. 99-18

DEPTH m.	DEPTH ft.	COLOR	MINERALIZATION	DESCRIPTION	RECOVERY
				CASING	
5	16.5				
		dark + light grey		Argillite	100%
21.8 / 22.2	72 / 73	green + metallic	50% S=	Gar-skarn w Sp, Cpy, Py & chlorite Tr. galena	"
		dark + light grey		Argillite	
25	82			Fault	"
		"		cherty argillite	"
29	96	Green w metallic	50% Sp, Py, Cpy, Po.	Skarn w. sulfides 50% Gar-diop. 50% sph-Py and Po + Cpy sulfides in discreet bands	"
33	100				
		Medium grey		Limestone	100%
54.5 / 55		white		Quartz vein	
56 / 56.4		Med. grey + rust		Limestone	
				Limestone broken w calcite veins + Fe-oxide	"
		Med. grey		Limestone	"
60.8 / 61.2	—	Metallic	100% S=	Po replaced by Py w Cpy, Sph & chlorite Pyrite dominant	"
		Medium grey		Limestone	"
68	224			Breccia = Fault	"
		Medium grey with rust		Limestone Broken & Fe-oxide stained	
72	232	Medium grey		Limestone	"
74.8 / 75.0	247	Medium grey with rust		Limestone - broken + Fe-oxide stained	"
			END OF	HOLE	

APPENDIX B: ASSAYS FOR 1999 DRILL HOLE AND TRENCH SAMPLING

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
01751	20			0.4		777		9		<2	1610	<5
01751	20			3.0		666		<1		10	135	<5
01751	5			1.2		747		26		<2	2475	<5
01752				9.4		885		116		382		1110
01752	1480	1.48	0.043								115000	
01753				22.0		641		49500		4058		70
01753	1170	1.17	0.034						4.95		11200	
01754	40			1.8		1795		51		6	4265	<5
01755	305			3.2		1874		318		34		<5
01755											13400	
01756	30			2.0		746		28		6	195	5
01757	160			9.2		3123		33		4	190	<5
01758	20			0.8		545		<1		10	1260	<5
01759	5			<0.2		63		<1		<2	150	<5
01760	5			1.2		229		<1		38	395	<5
01760	5			2.8		1037		<1		<2	185	<5
01761	45			2.6		1008		<1		14	90	15
01762	70			4.8		2113		8		18	125	10
01763	65			14.8		4745		72		10	85	15
01764	625					23000		204		<2	450	<5
01764				65.0	1.90		2.30					
01765	485			21.4		8288		85		4	265	<5
01766	590					46000		734		<2	400	<5
01766				127.8	3.73		4.60					
01767	585					14500		170		<2	450	<5
01767				38.8	1.13		1.45					
01768	5			<0.2		196		<1		12	135	15
01769	<5			<0.2		107		<1		24	175	10
01769	<5											-
01770	10			0.6		127		830		64	125	25
01771	5			<0.2		84		69		28	215	20

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
01790	190			5.6		1118		7		14	1255	<5
01772	20			0.4		182		50		26	45	5
01773	150					9313		132		88	25	40
01773				22.6	0.66							
01774	730					28900		675		10	590	<5
01774				83.2	2.43		2.89					
01775	675					22000		914		<2	560	<5
01775				56.8	1.66		2.20					
01776	365			19.8		6705		127		8	240	<5
01783	80			4.2		1284		11		14	750	<5
01784	175			5.0		1582		29		12	825	55
01785	160			10.4		3704		41		16	1095	<5
01786	25			4.6		1580		16		14	305	10
01787	30			2.6		691		<1		12	145	<5
01787	45											
01787	30			2.4		626		<1		12	130	<5
01788	185			16.8		4659		18		<2	770	<5

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
01777	40			0.8		201		23		24	225	15
01778	450			18.4		6131		48		16	1365	60
01779						25600		145		<2	860	<5
01779	1960	1.96	0.057	56.0	1.63		2.56					
01780	270			6.4		1770		<1		90	1415	15
01781	215			8.8		2573		8		48	1040	<5
01789	80			2.0		528		<1		20	1200	<5
01791	25			0.8		45		<1		16	375	<5
01792	200			4.8		1063		31		46	2945	45
01793	35			1.0		283		<1		14	2910	<5
01794	45			1.0		403		<1		8	325	<5
01795	30			1.2		423		<1		12	330	<5
01796	35			3.2		1028		<1		6	210	<5
01796	40											
01797	50			2.0		446		<1		18	440	<5
01798	110			10.0		3337		10		14	220	5
01799	25			2.6		394		<1		<2	160	<5
01800	55			7.6		2503		<1		12	125	<5
01801	80			2.4		400		<1		<2	495	<5
01802	75			3.6		1417		<1		8	285	<5
01803	330			7.0		2907		93		20	420	<5
01804	115			0.8		299		<1		<2	550	<5
01805	35			1.0		338		<1		<2	760	<5
01805	-			1.2		340		<1		10	770	<5
01806	140			7.2		2932		4		<2	720	<5
01807	115			7.6		2809		<1		<2	720	<5
01808	35			5.4		1433		<1		<2	240	<5
01809	90			11.4		3497		31		14	90	5

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
01810	125			2.0		726		67		<2	<5	<5
01810	130			1.8		690		70		4	5	<5
01810	165			2.4		786		74		2	5	<5
01811	265			2.2		960		37		<2	375	<5
01812	165			2.4		1404		58		4	280	<5
01813	140			1.0		514		27		2	140	<5
01814	165			1.4		521		37		8	25	<5
01815	215			1.8		642		47		<2	65	<5
01816	235			1.2		555		16		4	290	<5
01817	160			1.4		514		20		<2	95	<5
01818	180			3.8		1361		41		14	65	<5
01819	95			1.4		669		25		8	10	<5
01819	130			1.8		653		23		12	20	<5
01820	310			2.8		1919		37		10	35	<5
01821	130			2.8		838		30		<2	20	<5
01822	240			1.4		1160		30		<2	140	<5
01823	130			4.2		1182		31		4	110	<5
01824	110			2.0		545		30		6	140	<5
01825	25			1.0		354		34		6	40	<5
01826	115			3.2		1235		32		<2	170	<5
01827	150			5.8		2069		51		<2	165	<5
01828	215			5.6		1822		29		10	60	<5
01828	200			6.0		1837		30		12	65	<5
01829	135			2.8		770		46		<2	200	<5
01830	260			6.4		1887		28		12	80	<5
01831	130			2.4		851		28		14	60	<5
01832	60			1.0		229		25		10	55	<5
01833	55			1.0		171		31		8	150	<5
01834	50			0.6		198		19		10	85	<5
01835	35			0.8		123		21		20	45	<5
01836	120			3.2		856		16		<2	230	<5
01837	145			3.4		1443		13		8	175	<5
01838	70			3.4		1386		53		16	60	5

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
01839	520					19600		86		4	105	<5
01839				45.3	1.32		1.96					
01840	45			1.2		188		88		12	90	<5
01841	135			6.4		2565		25		<2	170	<5
01842	35			2.4		817		15		<2	165	<5
01843	70			3.6		1840		13		<2	175	<5
01844				1.0		267		19		6	135	<5
01844	1400	1.40	0.041									
01845	35			2.4		1334		30		6	<5	<5
01845	35			2.6		1363		31		10	5	<5
01845	45			2.6		1289		31		4	<5	<5
01846	195			1.0		49		36		28	450	<5
01847	65			1.2		66		255		80	195	10
01848	135			9.4		3391		59		4	110	60
01849	125			2.8		1112		26		10	35	5
01850	65			1.4		373		27		12	100	10
01851	155			3.4		950		44		14	55	10
01854	30			0.8		548		45		8	110	<5
01855	675			2.0		15		12		4	3785	<5
01856				7.8		145		14		26	1795	<5
01856				7.8		134		11		24	1725	<5
01856*	1570	1.57	0.046									
01856*	2600	2.60	0.076									

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
01857	225			2.2		1114		22		<2	210	<5
01858				6.0		3555		37		<2	175	<5
01858	1000	1.00	0.029									
01859	80			3.6		448		29		10	270	<5
01860	40			1.8		315		25		<2	215	<5
01861	50			1.4		218		21		2	440	<5
01862	230			0.6		135		26		<2	245	<5
01863	15			0.6		13		15		<2	600	<5
01864	15			0.6		5		23		6	615	<5
01865	15			0.4		7		21		6	310	<5
01865				0.2		10		20		6	285	10
01866	50			1.8		468		18		2	595	<5
01867						20500		89		<2	560	<5
01867	1840	1.84	0.054	47.3	1.38		2.05					
1868	160			8.6		4127		32		<2	615	<5
1868	130			8.4		4070		36		2	670	<5
1868	180			8.6		3945		40		2	615	<5
1869	5			0.4		121		19		<2	660	<5
1870	5			0.2		22		17		<2	695	<5
1871	5			0.4		21		17		<2	805	<5
1872	235			0.6		188		28		8	3545	70
1873	50			0.8		95		17		4	865	<5
1874	220			<0.2		6		25		4	880	<5
1875	10			0.4		13		23		<2	810	<5
1876	5			0.4		69		22		<2	900	<5
1877	15			<0.2		67		19		<2	465	<5
1877	10			<0.2		60		19		<2	430	<5
1878	5			0.4		22		39		<2	230	<5
1879	75			1.4		23		61		16	845	10
1880	10			0.6		5		39		8	155	<5

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
1881	35			2.8		560		116		60	170	25
1882	50			2.2		1087		38		4	125	<5
1883	5			0.6		310		20		<2	565	<5
1884	<5			0.4		122		30		<2	490	<5
1885	35			2.0		1419		72		34	20	80
1886	15			1.0		573		31		14	15	15
1886	15			1.2		572		32		14	20	15
1887						36600		176		<2	5	10
1887	780	0.78	0.023									
1887*	810	0.81	0.024	46.8	1.37		3.66					
1888	240			11.0		8561		47		<2	<5	<5
1889	20			1.2		586		34		<2	460	<5
1890	10			1.0		357		26		<2	620	<5
1891	20			0.6		621		36		<2	135	<5
1892	30			1.0		683		43		4	50	<5
1893	10			0.6		220		27		4	225	<5
1894	10			1.0		325		29		2	255	<5
1895	5			0.4		131		34		4	165	<5
1896	10			0.6		112		65		6	210	<5
1897	60			1.8		921		45		4	130	<5
1898	20			1.0		514		57		4	105	15
1899	25			1.8		951		24		<2	630	<5
1900	5			0.6		132		21		4	570	<5
10349	<5			0.4		60		19		<2	620	<5
10350	20			1.0		383		21		4	350	<5
10351	5			0.2		7		21		<2	440	<5
10351	10			<0.2		9		22		<2	465	<5
10351				<0.2		9		19		<2	405	<5
10352	5			<0.2		22		33		4	50	5
10353	10			0.4		20		22		4	95	<5
10354	10			0.4		225		23		4	55	5

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
10355	425			9.8		5175		31		4	40	20
10356				27.4		16200		287		30	85	10
10356	1500	1.50	0.044				1.62					
10357	330			7.0		4192		57		58	55	25
10358	60			1.0		458		34		16	40	25
10359	45			1.8		907		32		6	225	<5
10360	20			0.4		169		23		2	250	<5
10360	20			0.4		176		24		2	265	<5
10361	20			0.2		44		18		<2	365	<5
10362	25			0.4		38		27		4	205	<5
10363	15			0.2		20		19		<2	240	<5
10364	15			<0.2		10		22		2	215	<5
10365	25			0.2		243		24		12	190	<5
10366	10			<0.2		106		26		10	210	<5
10367	55			2.4		1157		34		12	<5	<5
10368	570			9.2		2698		64		18	20	70
10369	10			0.8		88		66		<2	190	<5
10369	15			0.6		94		62		<2	210	<5
10370	90			3.4		1775		77		<2	205	<5
10371	15			0.6		60		28		<2	200	<5
10372	590			21.4		9553		64		<2	75	5
10373	30			3.2		1347		30		<2	105	<5
10374	30			1.6		569		40		8	30	15
10375	290			6.8		3380		48		12	70	<5
10376						86200		1254		<2	130	<5
10376	7840	7.84	0.229	171.3	5.00		8.62					
10377	95			2.8		987		90		12	25	<5
10378	65			1.4		402		60		10	20	10
10379	40			1.6		368		42		8	10	<5
10380	590					22100		160		<2	<5	<5
10380				52.6	1.53		2.21					
10381	55			1.8		574		60		8	30	<5
10382	35			1.2		399		41		<2	50	<5
10383	60			5.8		2143		225		<2	580	<5
10384	25			2.2		627		79		4	2115	255

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
10403	15			3.0		1440		883		8	90	<5
10385	25			1.2		530		109		8	1370	<5
10386				9.2		163				3322		1235
10386				9.4		159				3208		1195
10386				9.2		156				3364		1215
10386	2100	2.1	0.061									
10386*	1000	1.00	0.029					44200	4.42		62700.00	
10387	90			0.4		37		151		28	320	25
10388						5673					5510	65
10388*	680	0.68	0.020	133.8	3.90			69600	6.96	22600		
10389	20			0.4		13		236		40	2160	65
10390	165			1.8		758		811		12	20	<5
10391	45			3.6		2568		3595		8	55	<5
10392	50			4.2		2789		95		4	<5	<5
10393	90			2.4		2474				36	<5	<5
10393								18800	1.88			
10394	115			3.2		655		139		8	<5	25
10395	55			5.0		3954		122		<2	160	<5
10395	40			5.0		4143		111		<2	155	<5
10396	55			4.6		4099		59		<2	15	<5
10397	100			8.2		4848		228		<2	255	<5
10398	95			5.8		4005		71		<2	240	<5
10399	330			6.2		3877		3876		<2	<5	<5
10400	195			2.6		71		140		10	110	5
10401	<5			0.4		791		107		14	10	175
10402	<5			<0.2		22		75		24	60	15

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
10404	155			3.2		401		53		4	2535	<5
10404	310			3.0		374		55		8	2585	<5
10405	400			3.8		483		200		12	500	<5
10406	545			12.0		3908				16	125	<5
10406								16100	1.61			
10407						15300		1926		28	385	<5
10407	1650	1.65	0.048	60.0	1.75		1.53					
10408	220			<0.2		3169				4	70	<5
10408								252000	25.20			
10409				<0.2		7638				8	25	<5
10409*	800	0.80	0.023					307000	30.70			
10410				<0.2		13600				2	<5	<5
10410	1210	1.21	0.035				1.36	323000	32.30			
10411	230			<0.2		1318				<2	30	<5
10411								218000	21.80			
10412	315			15.0		5786		5357		<2	80	<5
10413						17800				<2	75	<5
10413	1740	1.74	0.051	42.8	1.25		1.78	69600	6.96			
10414	510			15.4		4830				10	120	20
10414								13800	1.38			
10415	325			6.4		8841				14	70	10
10415								38000	3.80			
10416	125			2.2		813		1992		14	40	15
10417	515			9.0		2350		242		10	100	<5
10418	395			7.6		1400		188		10	395	<5
10419	30			6.8		1820		149		2	<5	<5
10420						10800				8538	3140	520
10420	3030	3.03	0.088	182.6	5.33		1.08	31000	3.10			
10421	470			13.6		2771		884		166	135	145

Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
10305	445			8.0		604		123		12	595	15
10306	335			3.4		970		<1		<2	1060	<5
10307	330			6.4		676		23		6	935	<5
10308	195			5.6		396		<1		<2	295	<5
10301	190			2.6		479		32		16	805	<5
10301	165			2.6		489		43		22	835	<5
10301	155			2.4		476		30		22	795	<5
10302	205			6.4		372		18		14	280	<5
10303	25			0.6		111		6		22	70	<5
10304	150			1.8		162		<1		20	130	<5
10345	80			1.2		700		97		26	130	15
10345				1.4		689		96		28	135	<5
10346	425			9.4		405		15		26	250	<5
10347	245			3.6		359		2		22	375	<5
10348				6.4		376		53		52	465	<5
10348	1460	1.46	0.043									
10309	260			6.2		2365		2218		26	885	<5
10310	135			2.4		701		17		24	685	<5
10310	185			2.2		714		16		22	680	<5
10311				26.0		764		1		52	675	5
10311*	1650	1.65	0.048									
10311*	2.76		0.080									
10312	40			2.0		795		27		12	145	20
10313	465			26.2		1909		55		26	760	935
10314	340			10.8		2116		52		22	1730	65
10315	35			1.6		1086		12		16	70	15
10316	195			8.6		2087		27		22	1150	20
10317	155			23.0		4965		68		12	115	5
10318	100			9.6		2754		40		14	210	<5
10319	470			16.6		992		13		10	490	<5
10319	250			16.4		973		13		12	490	<5
10320	110			7.8		743		19		12	250	<5

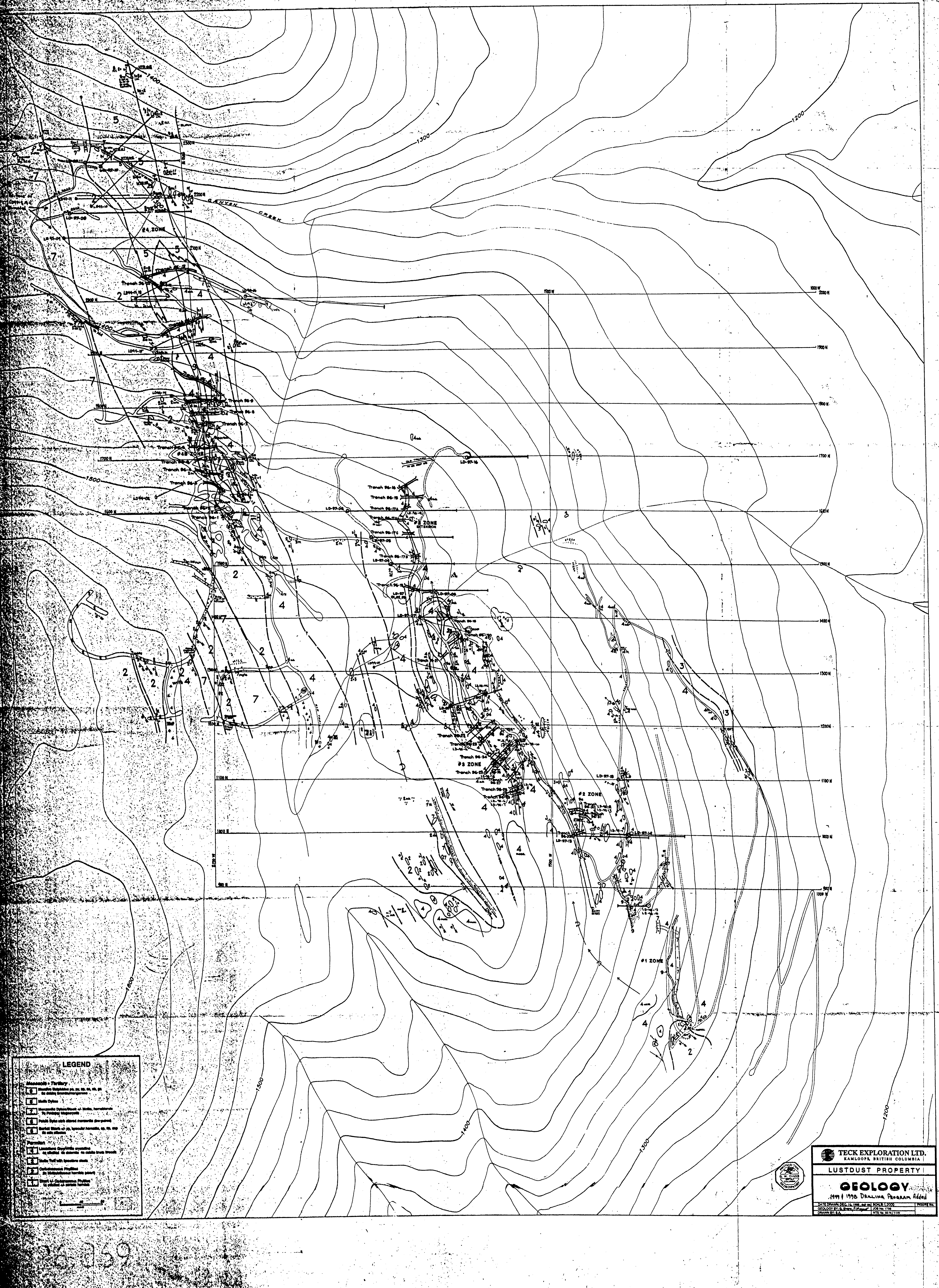
Sample #	Au (ppb)	Au (ppm)	Au oz/T	Ag (ppm)	Ag oz/T	Cu (ppm)	Cu %	Zn (ppm)	Zn %	Pb (ppm)	As (ppm)	Sb (ppm)
10321	400					24200		199		16	580	<5
10321				76.2	2.22		2.42					
10322	20			2.2		1017		27		8	590	<5
10323	35			2.2		1261		82		12	600	<5
10324	30			1.2		740		56		12	545	10
10325	20			0.8		1193		135		10	635	<5
10326	290			14.2		2734		106		14	2135	<5
10327	35			2.6		872		15		14	1040	10
10328	35			3.6		1657		134		24	180	<5
10329	35			1.2		588		15		8	340	<5
10330	20			1.2		372		21		12	925	<5
10331	10			1.6		627		<1		6	460	<5
10332	25			5.2		3676		16		12	220	<5
10333	60			21.8		4299		9		4	530	<5
10334	30			2.8		2369		6		12	40	10
10335	125			16.6		9400		83		20	505	<5
10335							0.94					
10336*	245			24.4		6104		49		8	555	<5
10336*	160			24.6		5984		55		10	570	<5
10336*	425			26.8		6782		57		16	670	<5
10337						26200		261		10	370	<5
10337	1470	1.47	0.043	142.5	4.16		2.62					
10338						120000		3142		24	680	120
10338	5670	5.67	0.165	351.0	10.24		12.00					
10339						15700		127		6	660	<5
10339	1510	1.51	0.044	55.6	1.62		1.57					
10340	545			2.6		1442		56		32	275	25
10341	160			6.4		2360		121		52	605	<5
10342	35			0.6		362		17		72	270	20
10343	10			0.2		391		38		42	230	20
10344	70			2.0		480		500		22	1290	<5

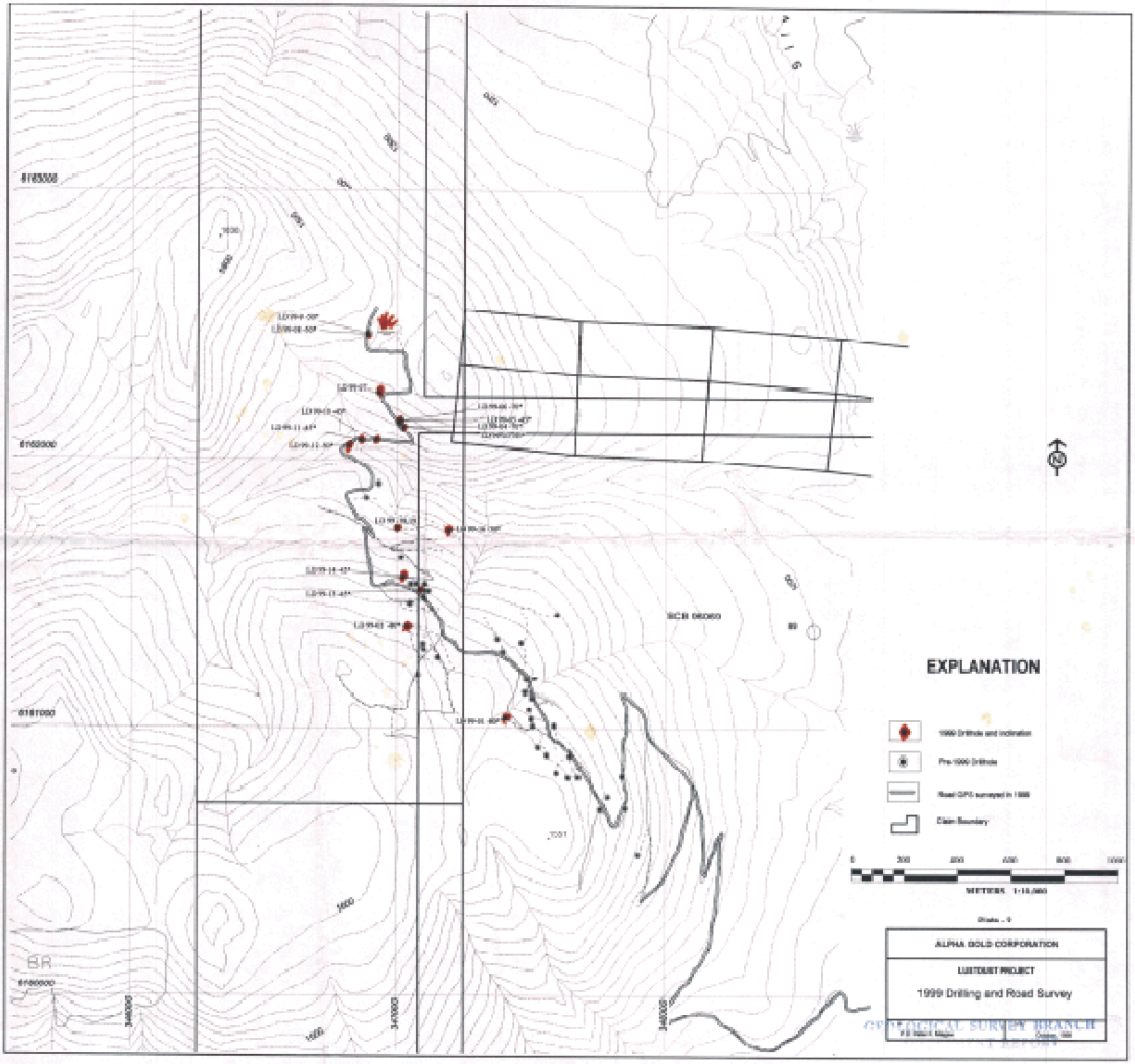
Note: overlimits replaced by ppb or ppm from follow-up re-assays

* Eco-Techs comment that coarse metallic gold is present and that a screen-assay should be done

Multiple analyses for same sample reflect reassays, resplits, etc. peformed by Eco-Tech

APPENDIX C: ASSAY CERTIFICATES FOR 1999 DRILL HOLE AND TRENCH SAMPLING


TECK EXPLORATION LTD.
KAMLOOPS, BRITISH COLUMBIA
LUSTDUST PROPERTY
GEOLOGY
1997 & 1998 Drilling Program Added
SCALE 1:2000
JOB No. 1706
NTS No. 93 N/11W
DRAWN BY: S.A.
FIGURE No.
LEGEND
#1 ZONE
#2 ZONE
#3 ZONE
24 ZONE
CANYON CREEK
1200
1300
1400
1500


EXPLANATION
1999 Drillhole and Inclination
Pre-1999 Drillhole
Claim Boundary
ALPHA GOLD CORPORATION
LUSTDUST PROJECT
1999 Drilling and Road Survey

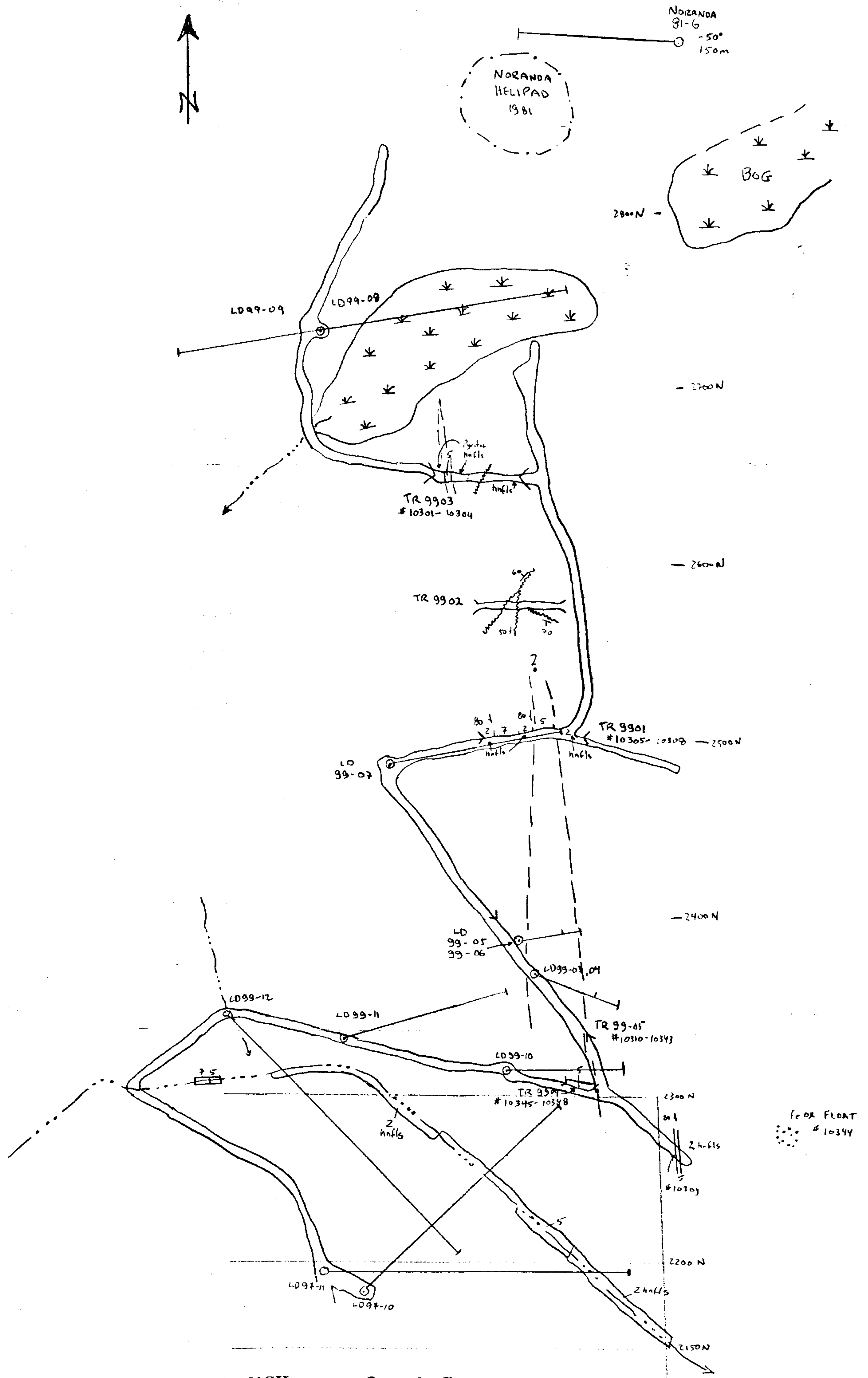
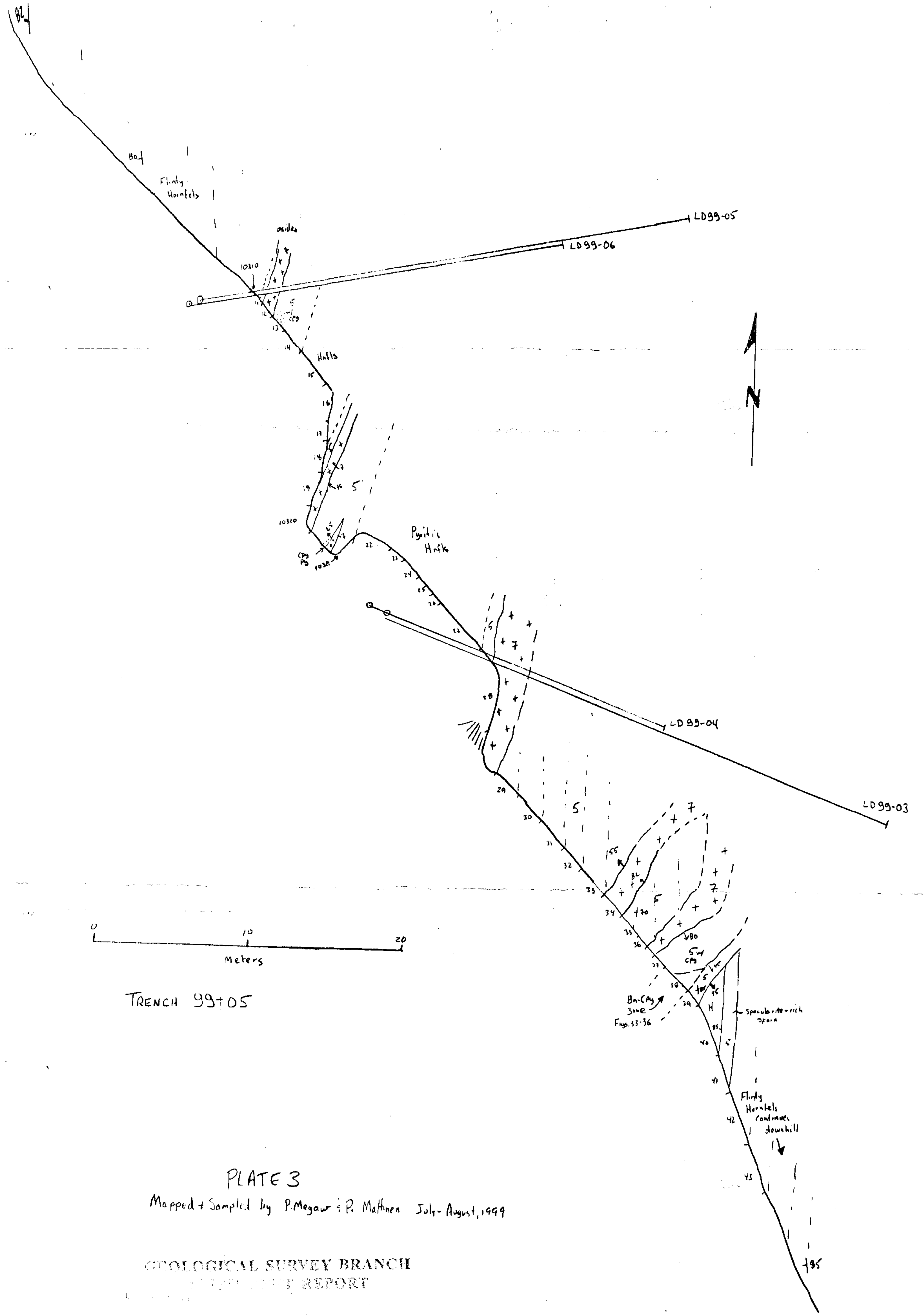


PLATE 2

CANYON CREEK SKARN ZONE

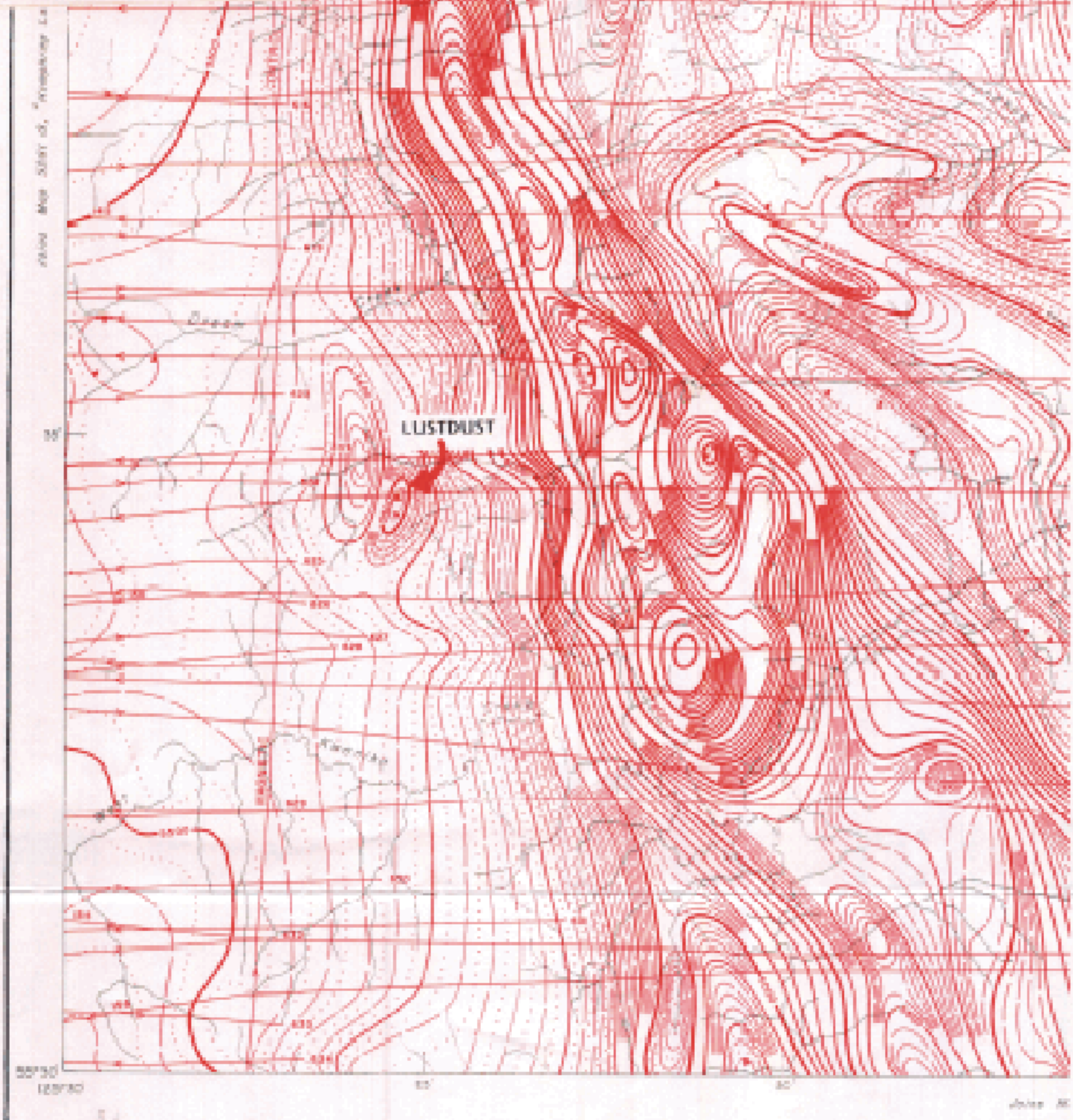
Survey & Geology
P Mattinen
+
P. Megaw
7-8, 1999



TRENCH 99+05

PLATE 3

Mapped + Sampled by P. Megaw & P. Mattinen July-August, 1999



Magnetic depression

MAP 5247G

KWANIKA

BRITISH COLUMBIA

Scale: One Inch to One Mile = 1/63,360

Miles

1 ½ 0 1 2 3

K

BRIT

Scale: On