Great Western Star Project

Diamond Drilling

Winter 1989-1990

Drill Logs

GWS-89-01 to GWS-90-16

Nelson Mining Division

British Columbia

NTS 82 F 6/W

Latitude 49 deg 27 min N

Longitude 117 deg 22 min W

for

Pacific Sentinel Gold Corp.
1020 - 800 West Pender Street
Vancouver, B.C.
V6C 2V6
(owner and operator)

by

P. A. Ronning, P.Eng.
New Caledonian Geological Consulting
912-510 West Hastings Street
Vancouver, B.C.
(consultant)

April 1990

DIAMOND DRILL LOG

Claim _____ Baseline _____

Township _____ Section _____

Elevation _____ Latitude _____

Total Depth _____ Longitude _____

Azimuth _____

Contractor _____

TESTS

Depth	Dip	Azimuth

HOLE # 89-01

PROJECT Great Western Star

PAGE 1 of 12

NTS _____

Logged by R. Romanig

Date 13/11/89 - 20/11/89

Scale 1 cm = 1 m - approx

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
0	15.24	Cased in overburden									
15.24	35.78	Monzo - Dionite Most of interval altered. Descr. based on freshest-looking section at 35.4 m. CI ≈ 15%; hb, ½-2 mm, sub-hedral. hb partly corroded by groundmass. Groundmass hard, waxy grey, aphanitic. A few "ghost" outlines remnant plag. Dominant characteristics are altn. effects.	Mafics - hb corroded by felsic groundmass. Dusted with fine mt. Chloritized. Groundmass - pervasive altn. to aphanitic grey mass; K-spar or ab. Late Ca in hairline fractures. 15.24-29 Brown Fe oxides on open fractures. 15.24-18.39 variably bleached, CI 0-10. 18.39-26.72 intensely chloritized. Mt irreg. distr. in patches 1-3 cm. CI 40 irreg. veinlets kspar or ab. 23.47 late kspar-hm vein, 1 cm, 30°	15.24-18.39 py dissem variable avg. 1%, sp. tr 16.8 2 blebs cp., 5mm dia, in late ca. 18.39-26.72 py dissem, variable avg 3%.	30 hm, kspar	15.24m					
						4541 17.00m	0.003				
						4542 18.30m	.0023				
						4543 20.00m	.019				
						4544 22.00m	.025				
						4545 24.00m	.016				
						4546 26.72m	.059				

Scale _____ Logged by R. Ronning Project _____ Hole # GWS-89-01 page 2 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			26.72 - 29.05 variably bleached, CI ± 10 ca 10% in 2mm-4mm tension gashes sub-⊥ core axis.	26.72 - 29.05 py ± 2%, dissem; partly replaces mafics.							
			29.05 - 29.78 Mafic, CI ≈ 20 Mafics corroded. Non-magn. weak foliation, defined mainly by color variations, 20° c.a.	— py 1% dissem; partly replacing mafics.	20	4547 29.05m	.012				
			29.78 - 33.71 Bleached; CI variable 2-5.; aphanitic; hard	— py 2% dissem; partly replacing mafic.		4548 29.78m	.022				
			33.71 - 35.78 Relatively fresh; see initial descr.	— py 0.1%, dissem. Note decr. of py as mafics less altered.		4549 32.00m	.102				
						4550 33.71m	.074				
35.78	36.92	VFG mafic dyke. CI ≈ 25. Pyx. in calcic groundmass. Fizzes readily. Upper contact 60° c.a., lower 45°. Moderately - strongly magnetic.	35.78 - 36.92 Very calcic; calcite in groundmass could be altn. 1% 1mm spots ep.	— py tr.		4551 35.78m	.031				
						4552 36.92m	.004				
36.92	58.09	Monzo-diorite. 20-30% hb.; anhedral-sub-hedral; ½ mm - 3mm; no preferred orientation. Groundmass hard, grey, aphanitic with "ghosts" of mm plag. Mod - strongly magnetic; mafics must cont. "dusting" of mt. hb chloritized.	— characteristic altn. is bleaching which, at strongest, completely destroys mafics. Leaves mottled grey-pink-cream rock; very hard. ~~Silicification~~ ± k-spar. Dusted with ½% mt. locally late white veinlets (kspar?) Latest altn is calcite on hairline fractures.	— py variable; up to 2% in most altered sections. 38.45 - speck cp with mm after splitting.		4553 37.21m	1.295				
						4554 38.35m	.186				
						4555	.411				

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-01 page 3 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			36.02-37.21 Strong chl-mt altn. of mafics.	- ½ % py.							
			37.21-38.70 K-spar altn. highly variable; CI 5-20.	— py variable, ± 1 %							
			37.80 - Kspar - cc veins, 1 cm; 60° c.a. Cont. clot chl., ½ cm x 3 cm.								
			38.70-39.05 less altered; CI 20.	- py trace							
			39.05-41.35 strong altn.; CI ≤ 5	- py ± 2 %, dissem.							
			41.35-43.83 less altered; CI ± 20. Rare green chl. seams, Mt. in mafics + locally in seams	- py trace.							
			43.83-44.4 more altered; CI ± 5. Vuggy calcite locally.	- py ± 2 %							
			44.4-46.13 less altered, CI ± 20	- py tr.							
			46.13-46.51 strongly alt. CI ± 5	-py tr.; cp. tr.							
			46.51 - graphitic shear, 3.5 cm wide, 30° c.a.		30° graphite						
			46.51-47.95 less altered; CI ≥ 15	- py tr							
			47.95-51.13 Moderately alt.; CI variable avg. 10 Strongly magnetic; 1% visible mt.	- py ½ %							
		51.13-58.09 Brittle, fractured; healed by ca. Gouge locally.	51.13-58.09 Strongly altered. CI 0-5. ca on hairline fractures.	- py ± 2 % seam + spots hm, ± %							

SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
41.35m	.411				
4556 43.83m	.028				
4557 44.40m	.048				
4558 46.13m	.011				
4559 46.51m	.027				
4560 47.95m	.006				
4561 49.50m	.004				
4562 51.13m	.005				
4563 52.44m	.065				
4564 54.00m	.035				

Scale _____ Logged by R. Renning Project Great Western Star Hole # GWS-89-01 page 4 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
58.09	96.0	Monzo-Diorite As 36.02-58.09. Descr. separately because much less alt'n. CI avg. 20 os 1-2 mm subhedral hb. Mottled milky grey groundmass; can't clearly ID min'ls, est 50% plg., 50% kspar.	58.09-78.80 kspar-rich bleaching variable on small scale; overall much less than previous intervals. Leuco. intvls. a few mm to a few cm around opaque white units. 59.9-60.0 5% green felty chl. in tension gashes. 61.63 ½ cm kspar vein, 60° c.a.; late chl. in core of vein.	58.09-78.80 py variable; avg ½ %; locally to 5% conc. on hairline fractures.		4565 56.00m	.025				
						4566 58.09m	.022				
						4567 60.00m	.017				
						4568 62.00m	.012				
						4569 64.00m	.007				
						4570 66.00m	.004				
						4571 68.00m	.006				

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-01 page 5 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
68											
69						4572 76.00m	.003				
70											
71						4573 72.00m	.003				
72											
73						4574 74.00m	.012				
74											
75						4575 76.00m	.012				
76											
77						4576 77.50m	.007				
78			78.80 - 79.63 k-spar altn. incr; intvls up to 10 cm leucocratic, bleached. Overall avg. CI 10.	78.80 - 79.63 py dissem. + in hairline fractures, 1%. 78.8 bleb cp. on splitting.		4577 78.80m	.006				
79			79.63 - 85.69 as 58.09 - 78.80			4578 79.63m	.150				
80			81.44 - 81.85 Series of hairline fract @ 65° ca. 1-2 mm white kspar in fract; ST envelope ± 2 cm.	81.44 - 81.85 py ± % in altn. envelopes.	~~65 ST~~ ~~65 ST~~	4579 81.00m	.011				
81											
82						4580	.004				

Scale _____ Logged by P. Ranning Project Great Western Star Hole # GWS-89-01 page 6 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
82											
83						83.00 m					
84						4581	.005				
						84.06m					
85			85.69-87.45 25% of interval shows intense kspar bleaching. CI locally 5, avg. 15			4582	.002				
						85.69m					
86			86.72 qt vein, 5cm, 20° c.a. 3mm selvage hm-chl along vein wall. vein cont. fgmts wall rock + blebs chl.	86.72 - no sphds in vein; tr cp w. ca in wall rock w/in 5 cm of vein.	20 qz, chl, hm	4583	.006				
87						87.45m					
88			87.45 - 90.45 sporadic kspar altn as 58.09 78.80	87.45 - 90.45 py variable ± 1%.		4584	.003				
						88.95m					
89						4585	.012				
90						90.45m					
			90.45-90.90 intense kspar altn. CI approx 5. Mottled brownish grey groundmass veins opaque white sp (ab or kspar?); 1cm, sharp bndries; very irreg shapes. Veins cont. tr cp.	90.45 - 90.90 py 3% dissem. in wall rock + veins. cp tr in veins.		4586	.177					1
						90.90m					
91		90.45-90.90 Hint weak fabric in rock, 45° c.a. Atn. zone may be healed shear.				4587	.035				
						91.65m					
92			90.90-91.65 as 58.09-78.80	90.90-91.65 py ½%, dissem.		4588	.082				
			91.65-92.37 as 90.45-90.90	91.65-92.37 py 3%		92.37m					
93			92.37-96.0 relatively fresh; sporadic zones kspar altn. CI avg. 20; locally 5.	92.37 - 96.0 py avg ¼%		4589	.023				
94						94.00m					
95						4590	.035				
96						96.00m					

Scale _____ Logged by P Ronning Project Great Western Star Hole # GWS-89-01 page 7 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
96.0	169.47	Diorite - Contact with previous lithology entirely arbitrary; change gradual over several meters. 25% hb., ½-3 mm, subhedral. Plag dominant felsic mint, 1-4 mm. Strongly magnetic. This interval more mafic than previous; this may be due more to change in altn style, than actual lithologic change.	96.0 - see below 97.42 Qt vein, 55° c.a., 1 cm. Milky white, banded. St. envelope 2 cm 96.0 - 116.49 characteristic altn now pale green, moderately hard, probably sericitic. Restricted to vein envelopes. A few patches ep. up to 3 cm dia; ep minor overall. ca perv. in groundmass. 102.26 ab(?) vein, 5 mm, 75° c.a. St. envelope. 108.2 patch ep. 108.5 patch ep. 110.87 - 111.03 series of 3 c.a. veins, 30° c.a., envelopes black chl.	97.42 no incr in sulph. assoc. w. vein. 96.0 - 122.73 py tr; very rare specks ep.	55 Qt	4591 98.00m	.005				
						4592 100.00m	.003				
						4593 102.00m	.002				
						4594 104.00m	.001				
						4595 106.00m	.001				
						4596 108.00m	.001				
						4597 110.00m	.005				

Scale _____ Logged by P. Ranning Project Great Western Star Hole # GWS-89-01 page 8 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
110											
111			112.50 Kspar vein, 2cm, 45° c.a.			4598 112.00m	.007				
112											
113						4599 114.00m	.003				
114											
115						4600 116.49m	.006				
116			116.49-118.37 Intense altn. to very hard grey vfx groundmass. Silicification? Patches ep+ca. chl, hem in seams.	py ½%, assoc. with ep.							
117						4601 118.37m	.002				
118											
119			118.37-120.50 relatively fresh unaltered diorite. Tr ep. in fp.	— py trace.		4602 120.50m	.006				
120						4603 121.00m	.006				
121			120.50-121 intense Ca-chl. altn.	— cp. trace, assoc. with ca.							
122			121-122.85 fresh	- py tr.		4604 122.85m	.005				
123			122.85-123.25 mafics → biotite, intense ca in groundmass. biotite aligned sub-11 c.a.	- py trace.	N 20 W 20 E	4605 123.85m	.006				
124			123.25-123.85 ± fresh	- py trace.							
			123.85-124.73 Intense ca altn;	- py 5%							

Scale _____ Logged by R. Benning Project Great Western Star Hole # GWS-89-01 page 9 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
124			124.73-169.47 Relatively fresh; patches ep. locally; a few seams chlorite.	124.73-169.47 py variable; avg. ½ %. 135.18-135.80 py 2%, coarsely dissem.		4606 124.73m	.012				
125						4607 126.00m	.004				
126											
127						4608 128.00m	.005				
128											
129						4609 130.00m	.013				
130											
131						4610 132.00m	.008				
132											
133						4611 134.00m	.006				
134											
135						4612 136.00m	.012				
136											
137						4613 138.00m	.006				
138											

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-01 page 10 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
38											
39						4614 140.00m	.006				
40											
41						4615 142.00m	.005				
42						4616 144.00m					
43											
44											
45			145.38 - 146.10 cc-cp veins, pinches + swells, 2 cm - ½ cm. Patches chl.; sub-11 core axis		10-0 cc, cp	4617 146.00m	.006				
46											
47						4615 145.00m	.006				
48											
49			149.1 m patch 5cm x 3m white bull qt + ca. Probably fragment of vein.			4619 150.00m	.006				
50											
51			150.03 ca vein, 1 cm, sub-11 c.g. chl. selvages.			4620 152.00m	.006				
52											

Scale _____ Logged by P. Banning Project Great Western Star Hole # GWS-89-01 page 11 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
52											
53						4621 154.00m	.006				
54						4622 156.00m	.006				
55											
56											
57						4623 158.00m	.006				
58			158.47 cm vein, 35° c.a. hm selvage.								
59						4624 160.00m	.005				
60											
61						4625 162.00m	.005				
62			162.57–162.97 series of cm veinlets at 45° c.a.								
63						4626 164.00m	.004				
64											
65						4627 166.00m	.006				
66											

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-01 page 12 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE		SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
166												
167			167.12 - 168.67 Intense K-spar altn.; cl = 5; py trace; hem seams.				4628	.005				
168							168.00m					
169	169.47	= end of hole.					4629	.001				
							169.47m					

DIAMOND DRILL LOG

Claim _____ Baseline _____

Township _____ Section _____

Elevation _____ Latitude _____

Total Depth _____ Longitude _____

Azimuth _____

Contractor _____

TESTS

Depth	Dip	Azimuth

HOLE # GWS-89-02

PROJECT Great Western Star

PAGE 1 of 13

NTS _____

Logged by R. Kenning

Date 21/11/89 - 23/11/89

Scale _____

Stain tests: 80.6 184.35
90.33
107.90
137.8
144.9
164.28

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
0	17.01	Cased in overburden.									
17.07	24.85	Volcanic - Intermediate to Felsic Alteration masks original textures & composition. Descriptions that follow refer to composition without inferring original rock name, unless specified. Main constituents are: ST; chl; fp (K or Na-Ca?) ca; py. Vfx, waxy grey groundmass consisting of st(?) after fp; probably remnant fp; minor qt. Mafics fine chl. after bi. Calcite late, lining hairline fract and in tension-gash-like features 1 cm x 2 mm. Py dissem. in all other minerals; fresh, pale yellow, ½ mm to 3 mm. 21.55-22.00 Monzonite dike. Altn similar to surrounding rock. Contact diffuse.	17.07-18.00 CI ±10 18.00-24.85 CI ± 5 22.86 br-rid; healed by ca.	17.07-29.04 py 3%		17.07 4630 19 4631 21 4632 23 4633	.014 .030 .006 .006				
24.85	29.04	Intermediate Volcanic Mineral assemblage as previous interval, but more chlorite, calcite. mt irreg. distr.; locally massive. At 24.7, 5 cm massive mt. 26.26 Hint of foliation, 60°, defined mainly by ca stringers	24.85-29.04 CI ± 25	24.7-24.85 specks cp.	ca	24.85 4634 27 4635	.005 .005				

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-02 page 2 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
29.04	39.7	Intermediate Volcanic (Andesite) Differs from previous interval in having relict mr texture; plag laths discernible; epidotized.	CI x 30 ep after plag ± 20% mt 5%, irreg distr.	29.04 - 39.7 py ± 2%		29.04					
						4636	.006				
						31					
						4637	.006				
						33					
						4638	.005				
						35					
						4639	.006				
						37					
			38.1 3 x ca veins, 2-4 mm, 45°		45 ca x3	4640	.006				
						38.35					
				39.6 - 39.7 py 5%, cp tr.		4641	.007				
39.7	42.87	Intermediate Volcanic Less chloritic than 29.04 - 39.70. More py; py looks "fresher", more c.g. Mt. present locally but less than previous interval.	CI ± 5	39.7 - 42.87 py 3%, c.g., fresh		39.70					
						4642	.012				
						41.5					

Scale _____ Logged by P. Kanning Project Great Western Star Hole # GWS-89-02 page 3 of 13

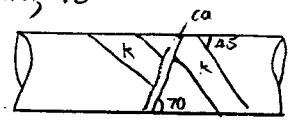
FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
						4643	.006				
42.87	43.79	42.87-43.79 Granitic dike; altn masks orig. comp.; probably monzonite.	CI 10 mt 1%, dissem.	42.87-43.79 py 1%	20 ca	42.87					
			43.2 cv [illegible] 1-10mm, 20° c.a.			4644	.002				
43.79	48.2	Intermediate Volcanic; as 39.7-42.87 Marked incr. in py; locally massive pods py to 3cm x 5cm with ca + ep. ca pervasive, 5%, dissem + on hairline fractures.	43.79-48.2 CI 7 ca ~~sericite~~ pervasive, 5%.	43.79-48.2 py 4%; locally semi-massive. Rare trace cp.		43.79					
						4645	.005				
						46					
			47.45 ca vein, 1cm.; 50°, vuggy		45 ca	4646	.004				
48.2	62.35	Andesite vfg; approx 30% bi/chl after hb. Mag sauss. Patches of py w. ep. non-magnetic. Locally phyric; 25% 1-3mm plag pheros; epidotized.	48.2-62.35 CI 30 fp sauss. + ep. ca 3%, tension gashes 49.2 qt veinlets appear; similar morphology to ca veinlets. Qt vnlts & ca veinlets occur in same vicinity but not same veinlets.	48.2-49.2 py 2%, very patchy, assoc. with ep. 49.2 patch coarse py, 5cm x 5cm, w. qt., ep., ca. 49.2-61.78 py erratically distr., locally semi-massive; avg 3%. Rare traces cp.		48					
						4647	.004				
						50					
						4648	.006				
						52					
			53.4 patch qt with py.	53.4 tr cp.	20 qt-hm.	4649	.004				
			54.18 Qt. vein with hem selvage; 1 cm; 20°; tr cp.			54					
						4650	.004				
						56					

Scale _____ Logged by R. Spurring Project Great Western Star Hole # GWS-89-02 page 4 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
						56					
						4651	.005				
						58					
						4652	.006				
						60					
		61.78-62.35 geealtn. May be more felsic dyke.	61.78-62.35 Intensely bleached, vfx grey rock, soft-hard; may be mixture qtz+ST. Ca on hairline fract.	61.78-62.35 py ± 1%		4653	.005				
						62.35					
62.35	63.36	Diorite - MX, CI ± 25; plag ± 70%, frequently euhedral.	62.35-6336 hb-bi plag saussiturized hm+ca on fractures.	62.35-63.36 py ½%, coarsely dissem.		4654	.004				
						63.36					
63.36	67.8	Andesite - as 48.2-62.35	63.36- as 48.2-62.35	63.36-67.8 py ± 3%; highly variable; fresh, pale yellow. 64.80 vuggy py-ca vein.		4655	.005				
						65					
						4656	.005				
						67					
67.8	70.9	Andesitic Plagioclase Porphyry 30% Subhedral plag. phenos in aphanitic, mafic groundmass.	67.8-70.9 Mafic groundmass mainly chlorite. Strong calcification of plag. Ca vernlets common.	67.8-70.9 py variable avg. ½%.		4657	.006				
						69					

(4)

Scale _____ Logged by P. Ramsay Project Great Western Star Hole # GWS-89-02 page 5 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
70.9	87.1	Andesite FX; altn effects mask original texture & composition. Groundmass mixture of chl ± sauss. plag. 70.9 Ca veinlet, 3mm, 20° c.a. 72.24 Ca veinlets aligned, 45° c.a 73.6-74 weak alignment mafics sub-// ca. ± ca veinlets 25°, as shown:  80.6 Kspar vein, 1cm, 45°, cut by qt-ca veinlet, 2mm, 75°  	70.9-74.9 Mafics chloritized; plag sauss.; A few qt-ca veins. Ca throughout as altn. of plag; hairline fractures; veinlets; 10% ep. minor. 74.9-87.1 As above but marked incr. in ep. to 10% Patches ± veins with ca ± qt.	70.9-74.9 py dissem; variable ½-10%; avg. 3% 73.4 speck cp. 74.9-87.1 py incr. as ep. incr.; variable 1%-15%; avg. 5%. cp rare tr.		4658 71 4659 73 4660 74.9 4661 77 4662 79 4663 81 4664 83 4665	.005 .012 .006 .004 .006 .006 .005 .006				

(7)

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-02 page 6 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
87.1	114.36	Monzonite Diorite - avg. composition masked by altn. In fresher zones, CI ± 20; sub-hedral hb; ½ mm – 2 mm. Groundmass pale waxy grey; 25% pale white indistinct outlines of plag. Magnetic throughout; mafics probably dusted with mt. Upper contact 30° c.a.	85.8 qt vein; 5 mm, 80°			85					
						4666	.006				
			87.1 – 91.52 Altered to leucocratic rock. Vfx-crypto-x, waxy grey; mixture qt + st. I kspar. CI varies with degree of altn.; 0-5.	87.1 – 90.35 py much less than above; avg. ½% with local conc. at qt.-ca. veinlets.		87.1					
						4667	.003				
						89					
			87.75 qt.-ca. vein at 20°			4668	.034				
			90.27 2 generations qt veins; milky white + grey, 45° c.a.	90.27 + 90.35 no sulph. conc. assoc. w. qt. veins.		91					
			90.35 grey qt vein, 70° c.a.	90.35 – 91.52 py incr. to 1%, finely dissem.		4669	.076				
			91.52 – 94.31 CI incr. to 15%; sub-hedral – anhedral hb. Change from above interval diffuse over 20 cm.	91.52 – 94.31 py 2%, dissem. 93.45 specks cp.		93					
						4670	.053				
			94.31 – 100.27 Intense bleaching; may be altn. in shear zone. St-qt; spots brunish kspar locally. Ca present on hairline fract.; less than most of core.	94.31 – 100.27 py 2%, dissem.		94.31					
		94.31 – 100.27 Indistinct alignment of light-dark minl's 56-11 c.a.: 				4671	.036				
						96					
			94.85 qt-ca vein, 45°; selvage acicular black tourmaline (+l)			4672	.056				
			96.55 qt-ca-+l vein, 1cm, 75° c.a.			98					
			98.82 – 99.67 silicified; 30% white qt.			4673	.059				

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-02 page 7 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
99					
100			100.27-114.56 relatively fresh, unaltered. Ca veins persist as 1% of rock. Local bleaching / -5 cm envelopes around mm white kspar veinlets. 102.7-103.10 bleached 103.10 0.5mm qt. vein, 65°	100.27-104.4 py low, avg ¼%; incr. locally in bleached zones. 102.7-103.10 py 2% 104.4-114.56 py variable ¼% - 3%; avg 1%.	
101					
102					
103					
104					
105					
106					
107					
108			108.75 qt-ca vein with py, 1cm, 75°.		
109				109.6 specks cp. in ca veinlet	
110				110.76 specks hm. in kspar vein.	
111					
112					
113					

SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
100.27					
4674	.017				
102					
4675	.009				
104.4					
4676	.018				
106					
4677	.012				
108					
4678	.023				
110					
4679	.006				
112					
4680	.010				

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-02 page 8 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
114.56	117.1	Andesite Dike. Finely crystalline. Upper + lower contacts chilled over 20-30 cm. Upper contact 45° c.a., lower 30° c.a.	114.56-117.1 Plag sauss., mafics chloritized.	114.56-117.1 py tr		114.56					
						4681	.006				
						117.1					
117.1	149.32	Monzo-Diorite As 87.1-114.56	117.1-137.60 Mafics chloritized; ca veinlets throughout.	117.1-137.60 py variable, avg. tr-½%. 129.85 minor cp. in ca vein.		4682	.006				
						119					
						4683	.006				
						121					
						4684	.006				
						123					
						4685	.005				
						125					
						4686	.006				
						127					

Scale _____ Logged by R. Ronning Project Great Western Star Hole # EWS-89-2 page 9 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
127					
128					
129					
130					
131					
132					
133					
134					
135				135.58 speck cp.	
136			136.27 ca vein, 1cm, 65°		
137			137.60 - 138.06 Intense ksp altn. CI + 0 Lesser qt-ST. End of interval marked by vuggy ca vein, 15° c.a.	137.60 - 138.06 py 1%, dissem	
138			138.06 - 149.32 relatively unaltered. A few 1cm envelopes green-grey st-qt-kspar altn on white (kspar?) veinlets.	138.06 - 150.93 py tr. Local conc. on fract. surfaces.	
139					
140					
141					

SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
127					
4687	.013				
129					
4688	.009				
131					
4689	.004				
133					
4690	.005				
135					
4691	.007				
136.3					
4692	.003				
137.6					
4693	.014				
138.06					
4694	.005				
140					
4695	.006				

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-02 page 10 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			141.33 chl. vein, 2 cm, 55° c.a.	141.33 10 cm envelope py dissem 1% around ct vein.							
			142 py with ct + calcite on fract surf; 15° ca.	142 py 2%, very local.		142					
						4696	.002				
						144					
						4697	.004				
			146 ca vein, 4 mm selvage, 6 cm, 20°.			146					
						4698	.005				
						148					
						4699	.005				
149.32	150.93	Andesite Dike; as 114.56-117.1				150					
						6419	.004				
150.93	185.01	Monzo-Diorite; 20% chl. after hb.; 0.5-3 mm. Pale waxy grey groundmass; hard; probably kspar + plag. Magnetic throughout.	150.93-181.15 groundmass may be partly k-spatinized ca. veinlets common; 2% ca overall. 151.8-152 intense qt-st altn.	150.93-155.8 background level of py is tr-¼% 151.8-152 py 1% 153.44-153.83 py 1%		152					
						6420	.013				
						154					
						6421	.005				

Scale _____ Logged by R. Ronning Project Great Western Star Hole # GWS-89-02 page 11 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
155											
156			155.8 - 158.41 Vein system sub-11 c.a. Veins ± 1cm; anastomosing. Kspar ± ca ± qt. Variably vuggy. Local patches black chl.	155.8 - 158.41 py in vein + dissem in wall rock; 2%. cp as specks in vein, ¼ %. hm, specular, in vein selvages.		155.8						
157						6422	.008				
158				158.41 - 160.25 py avg trace; local conc.		158.41					
159						6423	.003				
160			160.25 - 160.43 intense Kspar altn.	160.25 - 160.43 py 3%	6424	160.25	.334				
161			161 - 161.59 Vein system as 155.8 - 158.41	161 - 161.59 along vein, py 1%; cp tr.		160.43					
162			161.59 - 163.9 relatively unaltered.	161.59 - 163.9 py ½%; conc. with ca veinlets.		6425	.017				
163						6426	.012				
164			164.1 - 165 Kspar - qt - ca vein system sub-11 ca. Altn envelope Kspar-qtz-ser envelops most of core. 165 - 173. as main interval, 150.93 - 181.15, but locally in places epidotized.	164.1 - 165 py 1%; cp tr. on vein with ca. 165 - 171.3 py tr; cp rare tr.; dissem. Local concentrations. 171.3 - 171.7 py ½%, patchy with ca, chl.		161.59						
165						6427	.006				
166						163.9					
167						6428	.006				
168						165					
169						6429	.005				
						167					
						6430	.002				
						169					

Scale _____ Logged by R. Ronning Project Great Western Star Hole # GWS-89-02 page 12 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
169						169					
170						6431	.005				
171						171					
172						6432	.004				
173			173.75 -174.10 kspar altn. follows irreg. vein at low angle ca. Vein kspar + ca + chl; vuggy.	173.75 - 174.10 py ½%; cp ¼%, disseminated in altn.		173					
174				174.10 - 177.23 py tr, cp rare tr		6433 173.75	.002				
175						174.1 6434	.002				
176						6435	.003				
177			177.23 - 177.64 ca veinlet at 0-5° c.a.	[illegible] ½% cp disseminated with ca veinlet.		176					
178			177.8 - 178.56 kspar-gt-ca veins at 0-5° c.a.	177.8 - 178.56 py conc. on vein, 1% of core; cp rare trace.		6436	.003				
179				178.56 - 181.15 py tr, cp tr, except very local conc. py.		177.23 6437 177.64	.0009				
180						6438 178.56	.005				
181			181.15 - 185.01 Intense kspar ± gt ± alt altn. Starts on hairline fractures and works outward to become pervasive ca throughout. Mt. avg 2%, in local conc.	181.15 - 185.01 py 2% dissem.		6439	.012				
182						181.15					
183						6440	.023				
						183					

Scale _____ Logged by P.Ronning Project Great Western Star Hole # GWS-89-02 page 13 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
183						183					
184			184.77-185.01 mt-rich "veins" to 5 cm cont. rounded fgmls wall rock to 3 mm.			6441	.008				
185		185.01 = end of hole.				185.01					
186											

DIAMOND DRILL LOG

Claim _____ Baseline _____

Township _____ Section _____

Elevation _____ Latitude _____

Total Depth _____ Longitude _____

Azimuth _____

Contractor _____

For kspar staining
126.21

TESTS

Depth	Dip	Azimuth

HOLE # 89-C3

PROJECT Great Western Star

PAGE 1 of 11

NTS _____

Logged by R Ronning

Date 24/11/89 - 26/11/89

Scale _____

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
0	4.88	Cased in overburden.									
4.88	10.97	Coring in clay-rich glacial till.									
10.97	36.86	Regolith beneath till. From less weathered fragments, rock appears to be diorite or monzo-diorite. Note: 38.6 - 50.6 - core consists of broken rubble. 38.6-42, fragments are pebbly with rounded edges. 42-50.6, fragments are angular; largest 7cm, avg 3 cm. 50.6-70.3 largest 12cm; avg 5cm.									
36.86	60.8	Diorite; CI ±30, chl. after hbl; sub-hedral. Plag 65%; pale ep. green due to sauss. Non-magn.	36.86-50.6 hb. → chl. plag. → sauss. to ep. green. py → Fe oxide variable.	36.86-40.5 py 5%; coarsely disseim. 40.5-46.5 py 2%; conc. on fract. + diss.		36.86 6439 39 6440 41 6441 43 6445	.001 .001 .001 .001				

Scale _____ Logged by _____ Project Great Western Star Hole # GWS-89-03 page 2 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
44											
45						45					
46				46.5-50.6 py variable 3-10%, avg. 5%, disseminated		6446	.001				
47						47					
48						6447	.001				
49						49					
50			50.6-58.5 hb→chl plag→sauss.; ep. green orange-red Fe oxides on all fracture surfaces.	50.6-56.5 py variable; finely disseminated; locally conc. on fract., 2%		6448	.001				
51						51					
52						6449	.006				
53						53					
54						6450	.001				
55						55					
56						6451	.001				
57			56.3 K spar vein; 1cm; 45° c.a.; vein cont. minor int.			57					
58						6452	.001				

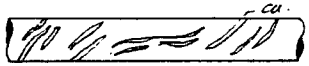
Scale _____ Logged by _____ Project Great Western Silver Hole # GWS-89-07 page 3 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			58.5-60.8 As above, but fractures coated with mixture brown Fe oxides + black Mn oxides. Mn oxides cont. some Cu.	58.5-60.8 py disseminations 1%. Mn oxides cont. Some Cu; will plate nail in 10% HCl.		59					
						6453	.001				
60.8	62.2	Monzonite? unsure if this unit represents intense altn. or a dike of different primary composition. Fx assemblage sp. + st.; only mafic consistently present is mt	60.8 entire unit may be product of bleaching; mixture of st. + kspar altn.	60.8-62.2 py trace.		60.8					
						6454	.002				
						62.2					
						6455	.001				
62.2	65.0	Andesite. probably dike; CI ± 25; mainly bi.; groundmass fx mixture plag + biotite. 10% plag phenos.; sauss; pale epidote green. Non-magn.	62.2-65.0 bi-chl. plag → saussuritized. Brown Fe oxides on broken surfaces.	62.2-65.0 py tr.		63.6					
						6456	.001				
						65					
						6457	.001				
65.0	66.6	Syenite? Dike; altered. 10% specks fine felty biotite; 5% mt. Otherwise fx kspar; ivory grey.	65.0-66.6 Probably some introduction of potassic biotite along fractures. Possible k-spar flooding.	65.0-66.6 py disseminations + coating fractures, 5%.		66.6					
						6458	.001				
66.6	71.75	Andesite. Variable fx - plag porph. 30% fx chl. after bi. Non-magn. except as local altn.	66.6-71.75 mafics chl. plag sauss. Calcite veinlets common. Spec. hm. coats many fract.	66.6-67.1 py 10%; disseminations + coating fract. Results in very friable rock.		69					
				67.1-67.9 py variable; avg 5%		6459	.001				
71.75	73.04	Diorite. Dike. CI ≈ 30; bi-chl. after hb. 60% plag, subhedral-euhedral. Probably also plag in fx groundmass. Non-magnetic.	Locally, ep. on fract. 70.68 chl-mt-ca vein, 5cm, 35° c.a.	67.9-68.3 py 10%, diss. 68.3-71.75 py variable; avg 5%.	35 mt chl ca; 45 ca ep	71.75					

Scale _____ Logged by K. Cunning Project Great Western Star Hole # GWS-89-03 page 4 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
73.04	92.55	Andesite breccia. Probably intrusive breccia. Fine grey-green matrix of chl. ± plag ± ca ± minor k-spar. Frags a few mm to 5 cm; possibly larger, eg. 71.25-73.04 could be a fragment. Most frgmts are diorite; ie. comp. similar to matrix. Matrix supports frgmts. 76.81-77.46 large fragment? Plag. fp porph.; sharp contacts, no apparent chilled margin.	71.75-73.04 Plag → sauss. Mafics ⇒ chl. Irreg ca stringers locally. Red hm on fract. 71.91 ca-ep vein, 45° c.a. 73.04-92.55 mafics-chl. plag sauss. In diorite frgmts, strong ep. altn. of plag ± mafics. Ep ranges from 10% to 90% of frgmts. Late ca vnlts, variable orientations, common. 73.11 vuggy ca vnlt., ½ cm, 45° c.a. 74.84-75.23 - re-crystallized fault gouge; vft mixture ca + bi. must cont. fine mt. as magnetic. ca vein @ 45° c.a. 75.84 ca vein, ½ cm, 35° c.a. 76-76.3 vuggy ca vein, 2 cm, 35°. 76.6 vuggy chl-mt-ca vein, 1 cm, 45°. chl envelope, 20 cm. 78.5-81 Broken; healed by irregular ca veining. 84.35 qt-ca-py vein, 1 cm, 45° c.a. 84.7-85.65 series of qt-chl. veins entire interval shows bleaching and/or chloritization. minor mt.	71.75-73.04 Background level of py tr., local concentrations with cu + chl. to 5% (avg 1%). 73.04-86.17 py variable in detail; local conc. with ep. Overall avg. 1%. 74.84-75.23 py tr. 84.7-85.65 py 2% in veins + dissem.	45 ca 45 ca, mt. 75 qt, chl, py.	6460 73.04 6461 74.84 6462 75.23 6463 78.5 6464 81 6465 83 6466 84.7 6467 85.65	.001 .001 .001 .001 .001 .001 .006 .017				

Scale _____ Logged by P. Rowning Project Great Western Star Hole # GWS-99-03 page 5 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
				86.17-92.55 Style of py mineral as 73.04-86.17, but overall avg. incr to 2%							
		88.2-88.4 Plag porphyry, possible fgmt., no chilling. 15% euhedral plag, 1-7mm, weakly epidotized. Fr grdmass hb+plag. 10% ± medium grey green spots; may be earlier, more sauss. generation of plag.			50 5 50	6465	.004				
						6469	.001				
						6470	.001				
92.55	94.4	Altered Shear Groundmass vf+ ca-bi. ca stringers at low angle to c.a. define shear orientation. Orientation ca stringers varies from 50° c.a. at upper contact to 5° in center of interval to 50° near lower contact. 	92.55-94.4 Strong chl-ca altn.	92.55-94.4 py 2%, diss.		6471	.005				
						6472	.005				
94.4	96.4	Andesite Breccia; as 73.04-92.55; fragments less distinct	94.4-96.4 mafics → chl. plag → sauss. + ep.	94.4-96.4 py variable; avg. 2%		6473	.004				
96.4	108.15	Andesite; no clearly defined contact with preceding unit but no longer possible to recognize fragments. 97.7-98.5 Diffuse ca stringers + weak alignment of mafics define fabric at 35° c.a.	96.4-100.5 mafics → chl plag → sauss + ep.. ca throughout, as diffuse veinlets + stringers, and as later, more clearly defined veinlets.	96.4-104 py 2%, dissem.	35 ca	6474	.005				

Scale _____ Logged by P. Lanning Project Great Western Star Hole # GWS-89-03 page 6 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
		101.28-101.43 Coarse plag phenos, 3mm to 5mm; subhedral, 10% of rock.	100.5-108.15 mafics → chl. plag → sauss + ep. Local patches + veinlets ep; overall ep. 5% Very localized concentrations of mt. as vein-like features a few mm to a few cm. 102 vein almost solid mt; 5 cm, 45° c.a. 104.7 mt. vein x2, 1 cm, 60° c.a.	102.65-103.15 local py enrichment to 3%. 104-108.15 py ½% dissem.	45 mt 60 mt	100 6475 102 6476 104 6477 106 6478	.006 .009 .006 .001				
108.15	110.88	Contact Zone. Andesite; now mainly alter. product. CI ≈ 35, bi after hb. Magnetic.	108.15-110.88 mafics→bi; felsic minrls to kspar; mt. 1%, replacing mafics. Locally, intense conc. of mt.	108.15-110.88 py tr.		108.15 6479	.001				
110.88	123.1	Monzo-diorite. CI ≈ 20; bi (after hb?) Remainder fx mixture kspar ± plag. Magnetic; mt occurs within mafic grains. Upper contact with andesite sharp; approx 30° c.a.	110.88-112.77 kspar-rich bleached zone; mafics absent or minor. Only locally magnetic. Cu throughout, in stringers or on hairline fract. 112.77-117.89 relatively unaltered.	110.88-112.77 py tr., finely dissem; rare tr. cp. 112.77-123.1 py ½% dissem; cp rare trace.		110.88 6480 112.77 6481	.001 .001				

Scale _____ Logged by P. Rennings Project Great Western Hole # GWS-89-03 page 7 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
114											
115						115					
116						6452	.002				
117						117					
118			117.89-123.1 relatively unaltered, except for bleaching over 1-2 cm centered on ca veinlets,			6453	.001				
119						119					
120			123.1-124 as above, but specular hm common on fractures.	123.1-124 py 1%, cp. 1/4%		6454	.011				
121			124-137.55 relatively fresh. CI ± 20; bi after hb.	124-133.7 py tr.; usually as local conc. with hm+chl on fract. surfs.		121					
122			plag → ep, variable.			6455	.005				
123			magnetic. A few bleached zones 2-3cm., kspar + later ep.	133.7-137.55 py incr. slightly, but still only tr. overall; occ. as above.		123.1 6456	.006				
124						124					
125						6457	.001				
126						126					
127						6458	.002				
128						128					

Scale _____ Logged by P. Downing Project Great Western Star Hole # GWS-99-03 page 8 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
						128					
						6489	.001				
						130					
						6490	.001				
						132					
						6491	.001				
						134					
						6492	.001				
						136					
						6493	.001				
			137.55-138.2 sericite ca veinlets; 20-30° c.a.; rock bleached slightly	137.55-138.2 py 1%; cp ½%; with ca.		137.55 6494 138.2	.004				
			138.2-141.17 as 124-137.55	138.2-141.17 py tr.		6495	.002				
						140					
			141.17-141.42 sheared @ 60° c.a.; bleached by ca.; ca stringer // shear.	141.17-141.42 py tr. cp. tr. assoc. with ca.	60° ca	6496	.004				
						142					

(47)

Scale _____ Logged by L Kenning Project Great Western Star Hole # GWS-99-03 page 9 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE		SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
142			141.42 - 142.57 relatively unaltered.	141.42 - 142.57 py tr.			142					
143			142.57 - 143.2 sheared @ 30° c.a. Stringers ca + chl. Sallow shear lamellae.	142.57 - 123.2 py 1% cp tr; assoc. with ca.			6497	.002				
144			143.2 - 146.87 relatively unaltered. A few ca veinlets.	143.2 - 146.87 py tr.			143.2					
145							6498	.001				
146			146.87 - 149 intense kspar altn. Bleached + hardened. Upper and lower parts of interval pale pinkish grey; middle has greenish tinge, possibly due to st. Mt. dissem 1%	146.87 - 149 py variable 1%; cp. tr. assoc. with ca.			145					
147							6499	.002				
148							146.87					
149							6500	.011				
150			+ few grey qt. veinlets 45° c.a.	149.0 - 151.55 py 1/2 %; mainly with chl. on fract. surfaces.			149					
151			149 - 156.9 relatively unaltered. mafics → bi. ep. absent. Ca veinlets common. Chl. on fract surfs.	151.55 - 156.9 py variable; 1% avg.; dissem + assoc with ca veinlets. cp. 0.1% in local conc.			6501	.002				
152							151					
153							6502	.001				
154			156.9 - 159.64 Intensely bleached; kspar + st. Magnetic.	156.9 - 159.64 py variable; 1% avg; cp trace.			153					
155			158.4 qt. vein, 5cm, 80° c.a.	158.4 local conc. py Icp.			6503	.002				
156							155					
							6504	.002				

Scale _____ Logged by P. Ramming Project Great Western Star Hole # GWS-89-03 page 10 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
156											
157						157					
158						6505	.002				
159			159.64 - 169.36 relatively unaltered; mafics → bi; ca veinlets. Localized bleaching over 3-5 cm, 2% of rock. Mt dissem + locally conc. in veins. 162.8 ca-mt-cp vein, 25° c.a.	159.64 - 162 py tr.		159					
160				162 - 163 py 1%, cp. ¼%, with mt. in veins		6506	.006				
161				163 - 168 py tr., cp tr. with local conc. in ca veinlets.		161					
162					25 ca, mt, cp.	6507	.001				
163						6508	.002				
164				168 - 169.36 py ½%; cp 1/10% in ca-mt veinlets.		163					
165						6509	.001				
166						165					
167						6510	.001				
168						167					
169			169 ca veinlet, ½ cm, 35°	169 cp in ca veinlet	35 ca cp	6511	.002				
170						169.36					

Scale ______ Logged by P. Ronning Project Great Western Star Hole # GWS-89-03 page 11 of 11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE		SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
170			169.36 - 172.9 intense kspar-mt altn. CI variable 1-10 as mafics corroded. Hairline ca veinlets 2%	169.36 - 172.9 cp variable; locally 10% in ca veins; avg ½ %.			6512	.007				
171							170.9					
			170.9 - 171.74 mt-ca-py-cp vein, 16 cm, ± 25° c.a.	170.9 - 171.74 cp 2%.			6513	.045				
172							171.74					
							6514	.038				
173							172.9					
174			171.74 - 176.8 Only local zones kspar alt'n, 1-3 cm. mt dissem in mafics. Usual ca veinlets.	172.9 - 176.8 py tr; cp rare trace.			6515	.006				
175							175					
176			176.8 - 177.1 mt. veinlets, 1-2 mm, 10° c.a. 2% of rock.	176.8 - 177.1 cp. tr.			6516	.006				
177							177.1					
178			177.1 - 177.9 relatively unaltered. py tr.	177.1 - 177.9 py tr.			6517	.005				
179			177.9 - 178.61 intense kspar ± st altn. CI ≈ 1, as mt.	177.9 - 178.61 py ½ %; mainly coating fractures.			179					
180			178.61 - 181.40 relatively unaltered, except locally as noted.	178.61 - 184.4 py tr; a few local conc.			6518	.004				
181							181.4					
182			181.4 kspar-ca veining, 5 cm, 45° c.a.	181.4 py 10% in vein.			6519	.005				
183							182.9					
							6520	.006				
184		184.4 = end of hole.					184.4					

DIAMOND DRILL LOG

Claim _____
Township _____
Elevation _____
Total Depth _____

Samples for Staining
51.7
82.83
94.35

Baseline _____
Section _____
Latitude _____
Longitude _____
Azimuth _____
Contractor _____

TESTS

Depth	Dip	Azimuth

HOLE # GWS-89-04
PROJECT Great Western Star
PAGE 1 of 13
NTS _____
Logged by R. Lawrence
Date 26/11/89 - 29/11/89
Scale _____

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
0	13.41	Cased in over burden.									
13.41	68.85	Monzo-diorite. CI: 20, chl. after bi after hb. Groundmass mainly white to pinkish kspar; minor plag. Magnetic except in most highly oxidized zones.	13.41-34 relatively unaltered except for short intervals, ~ 5cm, of bleaching. Orange-red Fe oxides coat all fracture surfaces. Locally, minor Mn oxides. 15.2-15.36 white bull qt. at low angle c.a. cont. Fe oxides after Py. 15.36-16 small qt. veins as 15.2-15.36 23.16 mt noted in A cm kspar zone.	13.41-34 Originally cont. pyrite but now oxidized. 15 Mn oxides test +ve for Cu.		13.41 8601 15 8602 17 8603 19 8604 21 8605 23 8606	.006 .007 .001 .001 .012 .016				

Scale _____ Logged by L. Ronning Project Great Western Star Hole # 89-C9 page 2 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
24											
25											
26						S6C7	.008				
27											
28						8605	.006				
29											
30						8609	.004				
31			31.2 - 31.58 Intense kspar sheeting.	31.32 - 31.58 Fe oxides suggest py + mt were present.							
32						8610	.007				
33											
34			34-45 rock becomes less oxidized; other altn. easier to see. Groundmass primarily kspar, some of which probably secondary. Spots of cp in sp throughout but quantity minor. Most fracture surfaces still coat. Fe oxides.	34-45 py absent; may have weathered out but no relicts.		8611	.003				
35											
36						8612	.004				
37											
38						8613	.009				

Scale _____ Logged by R Benning Project Great Western Star Hole # 89-04 page 3 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
38											
39						39					
40						8614	.004				
41						41					
42						8615	.011				
43						43					
44						8616	.004				
45			44.81-45.25 Weak shear fabric in rock at 40° c.a. Strong Fe-cbt Ichl. 1 hm altn.	44.81-47.43. no significant sulphides.	40	45.25					
46			45.25-47.43 Intense Fe cbt. altn, made obvious by orange-brown oxidation of rock. Trace specular hm throughout.			8617	.006				
47						47.43					
48						47.80 8618	.005				
49			47.43-47.80 Intense kspar altn. CI ±10; mafics corroded.	47.43-47.80 py tr.		8619	.003				
50			47.80-58.85 Intensely bleached; CI variable 0-10. mt inversely proportional to CI. Bleaching probably Fe cbt. with local patches kspar.	47.80-55.23 sulphides absent.		50					
51						8620	.034				
52						52					

Scale _____ Logged by P. Ronning Project Great Western Stair Hole # 89-04 page 4 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			47.80-57.85 cont. Late ca veins common. Variable orange Fe oxide staining. Spec. hm on fract. 53.8 shearing marked by chl. banding @ 40° c.a.	54.0 speck malachite. 55.23-55.4 ca vein, 1cm, low < c.a., 1% cp. 55.4-57.05 tr cp.	40	52					
						S621	.006				
						54					
						S622	.017				
				57.05 qt vein cont. 5% cp.		56					
			57.05 qt vein, 2 cm, 65° c.a., 2% spec. hm.		65 hm	S623	.012				
			57.85-60.21 Less altered; CI ± 15, mt. dissem throughout. ca veinlets common.	57.85-59.3 py 5%, cp. tr.		58					
						S624	.006				
			60.21-63 intense kspar ± Fe cbt. Local orange Fe oxide staining.	60.21-63 py 1%, very finely dissem. cp tr. with local conc.		60.21					
			61.2-61.4 qt-ca vein, 10cm, 35°	61.2-61.4 cp 1%.	35 qt-ca	S625	.034				
						61.6					
						S626	.018				
			63-64 less altered; CI ± 15.	63-64 py tr. 63.71 malachite in ca veinlet.		63.0					
						S627	.012				
			64-67.15 relatively unaltered; CI ± 25; magnetic throughout. Mafics are biotite, partly retr. to chl. Minor ep. locally.	64-67.15 unmineralized.		64					
						S628	.020				
						66					

Scale _____ Logged by P. Kenning Project Great Western Star Hole # GWS-89-09 page 5 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			67.15-68.85 Partly bleached; CI±10; kspar altn. Ca-mal-hm veins common.	67.15-68.85 Malachite plus azurite, ½ %. cp ¼%		66						
			67.16 ca-cp vein with malachite, 4mm, 45°	67.16 cp-mal in vein.	45 ca,cp. ca,cp	9629	.007					
			67.35 vein as above, 1cm, 15° c.a.	67.35 cp-mal in vein.	15 30 qt chl cu.	67.15						
68.85	69.36	Andesite Dike 25% plag phenos; dk green groundmass; probably mixture chl. ± plag.	67.71 as 67.16	67.71 mal in vein.		9630	.067					
			68.85-69.13 qt-chl-ca vein, 30° c.a.; vuggy; 30° c.a.	68.85-69.13 cp + mal, ¼% 69.0 speck visible gold.		68.85						
69.36	159.92	Monzo-Diorite 25% bi after hb, 1-3mm; 70% grey fp.; probably kspar. Magnetic throughout.	69.13-69.36 Minor ca veining.	69.13-69.36 minor mal.		9631	0.181					
			69.36-69.78 Vuggy qt. veinlets with malachite common.	69.36-69.78 malachite ½ %		69.78						
			69.78-70.46 relatively unaltered.	69.78-70.46 cp tr.		9632	.024					
			70.46-70.90 ca veinlets at 25° c.a. Core bleached.	70.46-70.90 mal in ca veinlets,	30 qt-ca-chl mal-cp	72						
			70.90-74.89 relatively unaltered.	70.90-74.89 traces malachite.	25 qt-ca-chl	8633	.020					
			74.89-75.38 Vuggy qt-ca-chl vein, 30° c.a. Black chl. selvages on vein margins.	74.89-75.38 mal 1% cp tr.		74						
			75.38-76 1cm qt-ca-chl. veinlet at low c.a.	75.38-76 no sulphides, but Fe oxides after py in veinlet.		9634	.135					
			76.23 qt-ca-chl vein, 2cm, 25° c.a.			76						
			76-79.78 relatively unaltered; local patches	76-79.78 py trace.		9635	.006					
						78						
						9636	.011					
						80						

Scale _____ Logged by E. Ronning Project Great Western Star Hole # GWS-89-04 page 6 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
		82.15 Ca vein marks abrupt transition downward to very melanocratic rock; CI ≈ 50 for 20 cm. Hbj partly biotitized, is main mafic mineral.	kspar + epidote. Minor specular hm veins.								
			79.78-80.10- Bleached grey by pervasive ca altn.	79.78-80.10 py trace.							
			80.10-93.74 relatively unaltered; very localized ca bleaching.	80.10-98.74 py tr; cp rare tr.	35 ca,cp						
			82.15 Ca vein, 35°, 3 mm. cp trace	82.15 cp trace	ca,chl 30	80					
			83.70 ca-chl vein, 30°	83.70 cp trace.	50	8637	.001				
			83.9-84.84 Shear fabric @ 50° ca. marked by alignment of mafics. Pervasive ca altn. bleaches rock slightly.	83.9-84.84 cp rare tr.		82					
			87.56 kspar vein, 1 cm, 25° c.a.	87.56 malachite in kspar vein.		5635	.006				
			88.56 kspar vein, 1 cm, 20° c.a.	88.56 malachite in kspar vein.	20 kspar mal	84					
			90.43 ca vein, 33° c.a.		35 ca	8639	.006				
			98.74-101.1 Variable bleaching due to kspar + chl. CI 0-5. Late ca veinlets common.	98.74-101.1 py tr. cp rare tr.		86					
						8640	.006				
						88					
						8641	.006				
						90					
						8642	.008				
						92					
						8643	.012				
						94					

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-04 page 7 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
94						94					
94						8644	.009				
96						96					
96						8645	.006				
97						98					
98						8646	.006				
99			99.25 qz-ca vein, 1cm, 45°	99.25 cp with qz-ca vein.		100					
100						8647	.012				
101			101-108.2 relatively unaltered. Localized bleaching over a few cm due to kspar.	101-108.2 py tr cp tr		102					
102						8648	.006				
103						104					
104			104.45 shearing @45° c.a. marked by bleaching + mineral alignment.	104.95 local incr. in py + cp.		8649	.006				
105						106					
106						8650	.011				
107						108					
108											

Scale _____ Logged by P. Lowrey. Project Great Western Star Hole # 89-04 page 8 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
108			108.2 - 109.42 Shear fabric @ 45° c.a. marked by weak alignment of mafic minerals.	108.2 - 109.42 py 1%; cp tr.	45
110			109.42 - 114.15 Shear fabric persists; variable moderate - intense K-spar bleaching.	109.42 - 113.7 py 1% cp tr	
112				113.17 - 114.15 py 2% cp ¼%	
114			114.5 - 115.53 qtz. vein. upper contact 45° c.a., lower contact 25° c.a. hm ½%	114.5 - 115.53 py tr cp tr; over 5 cm nr. lower contact, cp ½%.	
116			115.53 - 124 Variable intensity of Kspar altn. CI 5-15. Weak fabric defined by minl alignment through most of rock; 50° c.a. also notable for sulphidization. Variably magnetic; more altered sections non-magnetic.	115.53 - 124 Sulphides dissemt on hairline fractures; in many cases repl. mafics. Locally variable; avg py + cp = 1%; py ≈ 3 x cp.	50
118					
120					
122					

SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
108					
8651	.011				
110					
8652	.016				
112					
8653	.026				
113.17					
8654	.016				
114.15					
8655	.006				
115.53					
8656	.017				
117					
8657	.018				
119					
8658	.011				
121					
8659	.019				

Scale _____ Logged by R. Konning Project Great Western Star Hole # GWS-89-04 page 9 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
123						123					
						8660	.017				
124			124 - 130.8 Less altered, CI: 20, Shear fabric present only locally. kspar still dominant fp. in groundmass. Patches cp locally. Strongly magnetic. 127.73 ca veinlet, ½ - 1cm, 45°, with micro-lithons chl. @ 10° c.a., as illus;	124 - 130.8 py variable avg. trace. 125 cp 1% over 5cm., assoc. w. local kspar enrichment. 125.16 - 125.36 cp 2%, assoc. w. local kspar. 127.73 cp in ca vein		124					
						8661	.013				
126						126					
						8662	.005				
128						128					
						8663	.005				
130.8			130.8 - 133.6 Series of chl-mt veinlets @ 5°-20° c.a.	130.8 - 133.6 chl-mt. veinlets carry cp. locally to 10% in veinlets; avg over interval 1%.	5 ca, chl, cp; 20 ca, chl, cp	130.8					
						8664	.012				
132						132					
			133.6 - 134.15 relatively unaltered.	133.6 - 134.15 py tr, cp tr		8665	.017				
133.6			134.15 - 134.36 qt-ca vein, 2cm, 20° c.a.	134.15 - 134.36 in vein, py 10%, cp 1%; overall py 5%, cp ½%	20 qt, ca, py, cp	133.6					
						8666	.012				
135			134.36 - 139 kspar altn variable on small scale; overall moderate, CI avg 15.	134.36 - 139 py variable avg 1%. cp variable avg. 0.1%.		135					
						8667	.006				

chl. 45° 10° ca

Scale _____ Logged by R. Ronning Project Great Western Star Hole # 89-04 page 10 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
136			136-136.25 qt vein, 1 cm, 15°	136-136.42 py inc to 2% near qt veins.	15 qt 45 qt						
			136.25-136.42 qt vein, 5 cm, irregular, 45°			137					
137			139-139.2 intense kspar altn.	139-139.2 py 2%, cp ½%.		8668	.006				
139			139.2-145.2 kspar altn. variable on small scale. Overall CI ≈ 15, Minor cp locally. Magnetic throughout.	139.2-145.2 py + cp highly variable on local scale. Enriched in most kspar-rich zones. Overall avg py 1%, cp 0.1%.		8669	.011				
140						141					
141						8670	.012				
142						143					
143						8671	.005				
144						145.2					
145			145.2-154.91 As above but avg intensity of kspar altn & proportion of bleached zones incr.	145.2-154.91 sulphides locally enriched in bleached zones. Overall avg py 2%, cp ¼%		8672	.018				
146			145.54-145.81 Zone kspar-st enrichment; vuggy qt-kspar vein over 3 cm at base. Vein & min' alignment 45° ca.	145.59-145.65 py 2%, cp ½%.		147					
147						8673	.006				
148			145.81-146.8 less altn, CI ± 15	145.81-146.8 py ½%, cp tr.		149					
149			146.8-147 intense kspar-st.	146.8-147 cp 1%		8674	.022				
150											

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-04 page 11 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			147.0-147.34 relatively unaltered	147.0-147.34 py ½%, cp tr.							
			147.34-147.75 intense kspar altn. Irregular clots chl.	147.34-147.75 py tr, cp tr.		151					
			147.75-153.36 kspar altn. variable on small scale; overall moderate. Rock looks "vuggy"; approx 5% pore space; possibly where ca has leached out. hm common on fract. Weak mineral alignment locally suggests possible relict shear fabric.	147.75-153.36 py 1%, cp ½%, disseminated/localized on hairline fractures. Common to see sulphides partly replacing mafics.		8675	.011				
						153					
						8676	.018				
154.91	156.08	Mafic like. Finely crystalline chl after bi, 50%, in groundmass now mainly calcite.				154.91					
						8677	.004				
156.08	174.95	Monzo-Diorite. As most of hole, subject to variations in alteration.				156.08					
			153.36-153.78 intense kspar altn.	153.36-153.78 py 1%, cp ½%		8678	.011				
			153.78-154.92 moderately altered; CJ's 15° At 154 pronounced mineral lineation at 35° c.a.	153.78-154.92 py + cp = ½% py ≅ cp.		158					
						8679	.005				
			154.91-156.08 mafics → chl. felsics → calcite.	154.91-156.08 py tr	45° ca, cp	160					
			156.08-162 Moderate kspar alteration, locally intense over a few cm.	156.08-162 locally variable, py ½%, cp tr. 159.6 cu-chl vnlt, ½ cm, 45°, 25% cp.		8680	.006				
			162-162.15 Shear fabric @ 45°. Intense calcite altn.	162-162.15 py ½% cp tr.		162					
			162.15-162.5 Irregular qt stringers, ½-1 cm, low c.a.	162.15-162.5 cp ½%		8681	.006				
						164					

Scale _____ Logged by P. Runnings Project Great Western Star Hole # GWS-89-04 page 12 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			162.5-164.83 Variable, moderate kspar altn. A few cm spots ep.	162.5-164.83 py tr; cp tr.		164					
			164.83-166.0 Intense kspar seams + tiny stringers hm common, non-mag.	164.83-166.0 cp 0.2%.		8682	.007				
			166.0-172.90 moderate kspar; local variations inc never intense. A few patches ep.	166.0-171.4 py+cp locally variable; avg py ½%, cp tr.		166					
						8683	.005				
				171.4-172.90 py ½%, cp ½%		168					
						8684	.006				
						170					
						8685	.006				
						172					
						8686	.006				
172.90	174.45	Lamprophyre Dike 1-2 mm biotite phenocrysts in calcic groundmass. Strongly magnetic.	172.90-174.45 lamprophyre	172.90-174.45 py tr		172.90					
						8687	.001				
174.45	183.7	Monzo-Diorite Strongly magnetic.	174.45-183.7 variable kspar altn; moderate overall.	174.45-183.7 py tr; cp trace with local conc. 178.30 over 5cm, cp 5%, finely dissem. 179.82 cp 10% over 2cm.		174.45					
						8688	.007				
						176					
						8689	.007				
						178					

Scale _____ Logged by P. Rowinsky Project Great Western Stair Hole # GWS-89-04 page 13 of 13

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
183.7	185.5	Lamprophyre Dike. bi phenocrysts in matic, calcic groundmass.	183.7-185.5 lamprophyre	183.7-185.5 no significant sulphides.	
185.5	188.06	Monzo-Diorite.	185.5-188.06 moderate kspar	185.5-188.06 py 1% cp ½ %.	
		188.06 = EOH			

SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
178					
8690	.008				
180					
8691	.005				
182					
8692	.007				
183.7					
8693	.002				
185.5					
8694	.006				
187					
8695	.011				
188.06					

DIAMOND DRILL LOG

Claim _____
Township _____
Elevation _____
Total Depth _____

For Staining
65.77
1.68

Baseline _____
Section _____
Latitude _____
Longitude _____
Azimuth _____
Contractor _____

TESTS

Depth	Dip	Azimuth

HOLE # DDH GWS-89-05
PROJECT Great Western Star
PAGE 1 of 16
NTS _____
Logged by P. Ramsing
Date 29/11/89 - 2/12/89
Scale _____

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE		SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
		Specific Gravity determinations										
		Meters Rock Type S.G.										
		130.50 Diorite 2.84										

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-05 page 2 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
0	6.46	Cased in overburden.									
6.46	35.26	Monzo-Diorite. CI ± 15, biotite after hb; mottled white groundmass of dominantly hb. Minor sauss. plag. Magnetic throughout.	6.46-18.10 Most of interval moderately kspar altn; CI ±15. Locally more intense bleaching. Fe oxides on fractures throughout. 7.59-8.00 Intensely bleached, only remaining mafic is mt, 1% dissem 15.8 kspar-chl-mt vein, 1cm, 25° c.a.	6.46-18.10 py only trace. 7.59-8.00 malachite staining on fracture surfaces. 15.8 malachite on vein. 17.07 malachite assoc. with chl. + qtz.		6.46 6521 8 6522 10 6523 12 6524 14 6525 16	.005 .027 .008 .008 .032 (.027) m				

Scale ____________ Logged by R. Ronning Project Great Western Star Hole # GWS-89-05

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
						16					
						6526	.010				
			18.10 – 19.30 Intense kspar altn. mt [illegible], dissem. + on fractures. Heavy Fe : Mn oxide staining.	18.10 – 19.30 sulphides not present. May have been oxidized. Malachite common on fract. ~~19.30 py [illegible]~~		18.10					
						6527	.006				
						19.30					
			19.30 – 30.4 kspar variable, but very intense intervals are only a few cm long.	19.30 – 30.4 py trace. Malachite locally, assoc. with ca veinlets.		6528	.008				
			21.60 over 10cm, multiple hairline fractures @ 45° c.a.			21					
			22.8 weak shear fabric in rock at 40°.			6529	.006				
						23					
						6530	.006				
						25					
			30.4 – 41 As above, but incidence of mt-rich veins increases. Avg 1 per 30cm. kspar-rich bleached zones 10% of rock.	30.4 – 41 malachite I cp assoc with mt in veins. Overall ¼%. 32.81 – 33 intense kspar with mt.		6531	.006				
						27					
						6532	.006				
						29					
						6533	.005				

Scale _____ Logged by P. Kunning Project Great Western Star Hole # GWS-89-05 page 4 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			35.8 -36 Intense kspar; vein-like at 45° ca.; 5 cm wide			30.4					
						6534	.005				
						32					
						6535	.029				
						34					
						6536	.011				
						36					
						6537	.011				
						38					
						6538	.300 (.019 oz)				
						40					
			41-44 Only minor altn.	41-44 no significant mineralization.		6539	.018				
			44-52.32 cp-qtz veinlets, avg ½ cm, 2 per m.	44-52.32 0.1% cp overall.		6540					
						44					

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-05 page 5 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
44						44					
45						6541					
46						46					
47						6542	.012				
48						48					
49						6543	.010				
50						50					
51			51.1 cp with bornite + covellite in Ca veinlet, 3 mm, 45°	51.1 cp+bn+cv locally 10%.		6544	.010				
52			52.32 - 82.7 k-spar alt'n variable in detail but overall, intense. Produces hard, mottled white, pale grey, pinkish rock. CI variable 0-10, avg 5. On splitting, found fc fracture in chl. seams; very thin, 5% of rock.	52.32 - 56.49 irregular patches + veinlets mt. common; overall mt 2%.		52.32					
53						6545	.020				
54						54					
55				56.49 - 82.7 cp disseminated + fract. controlled; variable 0 - 2%, avg ¼ %.		6546	.023				
56						56.49					
57						6547	.027				
58						58					

Scale _____ Logged by R. Ronning Project Great Western Star Hole # GWS-89-05 page 6 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
						58					
						6548	.031				
						60					
						6549	.025				
						62					
						6550	.023				
						64					
						6551	.012				
						66					
						6552	.018				
						68					
						6553	.012				
						70					
						6554	.028				
						72					

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-05 page 7 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			82.7 - 86.41 Sheared zone. kspar still intense but variable sericitic foliation present; typically 50° c.a. Darker grey than preceding interval. Magnetism variable; locally strong.	82.7 - 86.21 py, tr, cp rare tr.		72					
						6555	.039				
						74					
						6556	.053				
						76					
						6557	.025				
						78					
						6558	.025				
						80					
						6559	.016				
						82					
						6560	.005				
						84					
						6561	.005				
						86					

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-C5 page 8 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			86.41-98.20 Relatively unaltered monzo-diorite. CI 215. Magnetic throughout. Ca veinlets common; gt veinlets locally.	86.41-91.0 py tr, cp tr.		86					
			89.4 Ca veinlet, 2 mm, 75° c.a.	89.4 speck cp in vein.	75 ca	6562	.005				
				91.0-98.20 py rare tr.		88					
				93.35 speck cp.		6563	.004				
						90					
						6564	.005				
						92					
						6565	.004				
			94.70 Ca veinlet, 1cm, 75°			94					
			95.0 hairline chl veinlets @ 85° c.a.		75 ca 85 chl	6566	.005				
						96					
						6567	.004				
			98.20-102.75 Crackle Breccia. Monzo-diorite cracked; cracks filled by black mixture hm, chl, ca, py. Most fragments monzo-diorite not rotated, but some, under	98.20-102.75 in breccia filling, py 1%, cp trace. In Monzo-di, py tr; cp tr.		98.2					
						6568	.002				
						100					

Scale _____ Logged by D. Running Project Granit Western Star Hole # GWS-89-C5 page 9 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			1 cm, are rotated.			100					
						6569	.002				
		102.75 - 103.15 Mafic, Lamprophyre dike 25% phenocrysts biotite, 1-2mm, in calcite-rich groundmass. Upper + lower contacts 35° c.a. Note that dike post-dates breccia cement.	102.75 - 103.15 no significant altn of dike 103.15 - 107 below dike, crackle breccia gives way to crackle veinlets that dissipate over about 4m. 103.15 - 105.5 CI, excepting veinlets, 10. 0i I chl after Hb. 105.5 - 112.30 Intensely bleached; mainly kspar; moHlod pink-grey, Chl+ ca as hairline stringers + veinlets, 10%. 112.15 - 112.55 Incr in pinkish kspar, decr in chl, mt etc. Distinct kspar vein at 45° c.a., 10cm.	102.75 - 105.15 no significant sulphides. Nil few specks cp near upper and lower contacts, in monzo-diorite 103.15 - 105.05 py tr 105.5 - 112.15 sulphides rare; py tr. 112.15 - 112.80 py 1%; over 4cm at lower contact, py 15%.		102.75 6570 103.15	.003				
						6571	.001				
						105					
						6572	.001				
						107					
						6573	.001				
						109					
						6574	.001				
						110.5					
						6575	.001				
					45 kspar, py.	112.15					
						6576	.005				
		112.80 - 112.97 Lamprophyre dike, contacts at 55° c.a.	112.80 - 112.97 no sign. altn.	112.80 - 112.97 no sign. mins.		112.80	.001				
			112.97 - 114.70 Moderate kspar. CI I 10	112.97 - 114.70 py tr; fracture controlled.		112.97 6577 6578	.001				

(4)

Scale _____ Logged by P. Running Project Great Western Star Hole # GWS-89-05 page 10 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			114.70-120.90 Relatively unaltered; intensity of kspar alter. erratically variable. In zones of least kspar alteration, also in groundmass identified by weak epidotization. Fx play up to 10%. 115.85 ca vein, ½ cm, 30° c.a. 116.42-116.46 intense kspar, speckled with ep. 117.3-117.5 intense kspar. 117.5-117.65 Orange-red Fe oxides on fractures.	114.70-118.96 py trace.	30 ca	6578	.001				
						114.70					
						6579	.001				
						117					
					30	6580	.001				
						119					
					30 kspar 50	6581	.001				
						121					
						6582	.001				
			118.96-119.28 Intense kspar alter. A few cm of shear fabric at upper + lower bnds. interval, 30° c.a.	118.96-119.28 py 1%, cp tr 4 %		123					
						6583	.001				
			119.28-120.90 relatively unaltered.	119.28-120.90 py tr cp tr.		125					
						6584	.001				
			120.90-122.7 kspar alter variable over a few cm; intense in 60% of interval. Opaque white kspar (?) veins common. mt 1%	120.90-122.7 mt 1%, py tr.	45 ca mt cp.	127					
						6585	.001				

Scale ______ Logged by ______ Project ______ Hole # GWS-89-05 page 10a of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
			121.55 Irregular kspar veinlet, ½ cm, 30°								
			121.67 kspar veinlet, 50°								
			122.7-132.8 relatively unaltered; locally intense kspar over 2-3 cm.	122.7-132.8 py tr, cp tr, usually assoc with ca veinlets.		~~129~~					
			ca+chl veinlets common; appear late.			~~131~~					
			127.29 ca vein, 1cm, mt. selvages, 45°.	127.29 speck cp in vein.							
			128.44-128.72 Hardened, darkened to v.fg mvr kspar + bi. Brittle shears at upper & lower contacts, 45° c.a.	128.44-128.72 py dissem, ≤1%.		~~133~~					
			129.73 ca,chl, hm vein, 1 cm, 35°.								

Scale _____ Logged by R. Running Project Great Western Star Hole # GWS-89-C5 page 1 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			132.8-133.38 intense kspar altn.	132.8-133.38 py 2%, cp 1%		6585	.001				
			133.38-135.26 Moderate kspar altn. CI ±15	133.38-135.26 py tr, cp tr.		129					
						6586	.001				
						131					
						6587	.001				
						133					
						6588	.001				
135.26	203	Diorite; mx; CI 40, 1-2 mm hb. 50+% plag, sauss. to pale ep. green. Avg. grain size 1-2 mm. Moderately magnetic. Upper contact 45° c.a.	135.26-203 only significant altn. is epidotization of plag. Ca veinlets common at various orientations. 139.12 K spar vein speckled with ep., 10 cm, 45° c.a. Chloritic selvages along vein margins. 140-140.5 irregular ca stringers at low angle c.a. 142 75 ca veinlet, 1 cm, 20° c.a.	135.26-203. only trace py. Other minor minl. as noted. 139.12 speck malachite		135.26					
						6589	.001				
						137					
						6590	.001				
						139					
						6591	.001				
						141					
						6592	.001				

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-05 page 12 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			143.44 kspar vein, 1cm, 40°, specked with hm.			6592	.001				
			143.44 – 149.12 shear fabric, marked mainly by hairline ca veinlets, 40° c.a.			143					
			145.91 ca vein with chloritic patches, 2 cm, 30°		85° ksp ca 40	6593	.001				
			150.83 – 151.27 kspar vein, specked with 20% cp. contacts @ 30° c.a.	150.83 – 151.27 cp 1%, some bn, mal.	30 ca	145					
						6594	.001				
						147					
						6595	.001				
						149					
						6596	.001				
					30 FAULT	151					
			153.72 – 154.24 ca vein, 2cm, very low ∠ c.a.			6597	.001				
						153					
			154.39 – 155 irregular ca vein, 1cm, 5° c.a. Spots chl.	154.39 – 155 cp 1% in vein.	ca ca	6598	.001				
						155					
						6599	.001				

Scale _____ Logged by F. Kenning Project Great Western Star Hole # GWS-89-05 page 13 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
156			156.63 ca vein, 1cm, 40°ca		40 ca	6599	.001				
157			157.9 ca veinlet, 2-5mm, 25°c.a.	157.9 specks cp in vein.	25 ca	157					
158			158.55-158.61 kspar-cp vein minor py, 40°C.a.	158.55-158.61 minor py.	ksp-cp	6600	.001				
159						159					
160						6601	.001				
161						161					
162						6602	.001				
163						163					
164						6603	.001				
165			165.86 vuggy ca-chl veinlet, 1cm, 50°			165					
166			167.65 ca veinlet, 3mm, 75°	167.65 specks cp in vein.	50 ca chl	6604	.001				
167					75 ca	167					
168						6605	.001				
169						169					
170						6606	.001				

Scale _____ Logged by P. Running Project Great Western Star Hole # GWS-89-05 page 14 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
170						6606	.001				
171						171					
172			172.82 ca-ep-chl veinlet, 4cm, 30°			6607	.001				
173			173 ca-chl veinlet, 25° 2cm.			173					
174			173.53-173.68 ca-azur. veinlet, 2mm, 15° c.a.	173.53-173.68 minor azurite.		6608	.001				
175			175 ca-mal veinlet, 2mm, 20°	175 minor malachite.		175					
176						6609	.001				
177			178.61-179 minor shearing, 60° c.a. Shear chloritized.			177					
178						6610	.001				
179						179					
180						6611	.001				
181						181					
182			181.36-182.15 ca veinlets, 2-5mm, 10° c.a.			6612	.001				
183			183.43-183.80 ca-chl veinlet, 1cm, 5° c.a.			183					
184						6613	.001				

Scale _____ Logged by R. Ronning Project Great Western Star Hole # GWS-89-05 page 15 of 16

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
184						6613	.001				
185						185					
186						6614	.001				
187						187					
188						6615	.001				
189			189 chloritized/brittle-ductile shear at 15° c.a.			189					
190						6616	.001				
191						191					
192						6617	.001				
193						193					
194			194.83-196.17 intense chl-ca altn.; minor ep. on hairline fractures.			6618	.001				
195						195					
196			196.17-196.8 veinlets cal ep thm + mal taz common.	196.17-196.8 malachite tazarite, 0.1%.		6619	.002				
197						197					
198						6620	.001				

Scale ______ Logged by P. Ronning Project Great Western Star Hole # GWS-89-05

Depth	FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE		SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
198								6620	.001				
199				199.41 qt vein speckled with malachite, 45°.	199.41 malachite in qt. vein			199					
200				200.15 Kspar-ep vein with minor mal, 60°	200.15 minor mal.			6621	.001				
201								201					
202								6622	.002				
203			203 = end of hole.					203.					

DIAMOND DRILL LOG

Claim _____
Township _____
Elevation _____
Total Depth _____

Samples for Staining
82.7 120.43
112.10 121.9

Baseline _____
Section _____
Latitude _____
Longitude _____
Azimuth _____
Contractor Leber Mines Ltd.

TESTS

Depth	Dip	Azimuth

HOLE # RM Gus 89-6
PROJECT Great Western Star
PAGE 1 of 14
NTS _____
Logged by P. Kimming
Date 2/12 Feb 89 - 5/12/89
Scale _____

Specific Gravity Determinations

Meters	Rock Type	S.G.
24.1	Monzo-Di	2.69
57.45	Monzo-Di	2.65
74.4	Monzo-Di, mt, cp.	2.72
111.77	Monzo-Di, cp, sheared	

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
7.92	8.1	Diorite Finely crystalline; CI ± 30 as 1-2 mm hb crystals. Felsic minerals 50% kspar, 50% plag. Plag saus. Magnetic.	7.92-8.1 plag saus. Fe oxides on fracture surfaces.	7.92-8.1 no sign. sulph.		7.92 — 8696	.005				
8.1	9.18	Monzo-Diorite Medium crystalline, CI ± 10, biotite after hb. Felsics dominantly kspar, minor plag. Magnetic	8.1-9.18 relatively unaltered; Fe oxides on fracture surfaces.	8.1-9.18 no sign. sulph.		10 — 8697	.006				

Scale _____ Logged by P. Fanning Project Great Western Bar Hole # GWS-89-6 page 2 of 14

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
9.18	11.39	Diorite CI ± 25, hb., mx. Feldspar ±70, plag ≥ kspar., mx. Moderately magnetic.	9.18-11.39 plag - ep.	9.18-11.39 none sign.							
11.39	132.95	Monzo-diorite Mottled white-grey. Most subject to some degree of altn; freshest pieces have CI ±15, bi after hb, in white groundmass mostly kspar.	11.39-16.47 Degree of altn variable; inverse relat'n to CI. Dominantly kspar, hb → bi. 11.39-16.47 Core rubbly + broken. Fe oxides on fract. surfaces. Local specular hem. on fract. Weak malach. stain locally. 16.47-18.61 Moderately altered; CI ±5. Chl seams common; weak weak shear fabric 25° c.a. Some Fe oxide. 18.61-20.45 Moderately altered, CI ±10. Fe oxide minor. Weak shear fabric marked by alignment micas, 30° c.a. 20.45-22.68 Intrusive kspar. CI 0-5. 22.20-22.68 intense Fe oxide staining.	11.39-16.47 weak malachitic stain locally on fract surfaces. 16.47-18.61 py tr. 18.61-20.45 py tr dissem. cp variable 0-1% over a few cm. Average 0.2%. Dissem repl. mafics + assoc. w. chl. veinlets. 20.45- py 1%, dissem.	25 chl 30 65 cal 45 MT	8698	.012				
						8699	.011				
						8700	.005				
						8701	.012				
						8702	.007				
						8703	.004				
						8704	.007				

Scale _____ Logged by R. Kenning Project Great Western Star Hole # GWS-89-6 page 3 of 14

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			22.68-35.15 Grey monzo-dio; relatively fresh, intensity of kspar alt'n. variable, CI 0-10. Intense intervals 10-30 cm. 22.83 ca veinlet, ½ cm, 65° 24.55-25.25 mt seams, 1-2 mm, 45° ca. mt overall 2%. 26.21-26.67 as 24.55-25.25 26.51 vuggy ca vein, low ∠ c.a. 29.15-29.42 ca vein, 1 cm, low ∠ c.a. 30.34 ca vein, 1 cm, 35° 35.15-36.36 kspar-chl. breccia. Angular brx. frgmts kspar, 2-4 mm, in chl-ca groundmass. 36.36-51.76 mottled white-grey monzo-diorite, CI ±10, locally 0 over 2-5 cm. ca veinlets common, hb ± fresh. 50.81 ca vein, 1 cm, 60°	22.68-24.55 py tr, cp tr with local conc. 22.83 specks cp in vein. 24.55-25.25 py tr, cp ½% 25.25-26.21 py tr, cp tr. 26.21-26.67 py tr, cp ½% 26.51 cp in vuggy ca 26.67-35.14 cp tr disseminated throughout; local concentrations. 29.15-29.42 vein cont 5% cp. 35.15-36.36 cp 1%, coating fractures with chl. 36.36-51.75 py rare tr cp rare tr. 50.81- cp in ca vein.	ca ca 35 ca	26 8705 .009 28 8706 .002 30 8707 .002 32 8708 .001 34 8709 .001 35.15 8710 .001 36.36 8711 .002 38 8712 .004					

Scale _____ Logged by P. Ronning Project Great Western Spar Hole # GWS-89-06 page 4 of 14

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
						40					
						8713	.001				
						42					
						8714	.001				
						44					
						8715	.001				
			51.75-53.0 foliation formed by micro-lithons chlorite, 40° c.a.	51.75-53.0 py trace		46					
			53.0-53.81 intense kspar altn, buff, cv kspar; hint of foln as above persists.	53.0-53.81 py 5%, dissem.		8716	.001				
			53.81-58 variable intensity kspar altn; CI 5-10.	53.81-58 py dissem; locally variable, avg ¼% cp trace throughout; local conc. to 1% over 2-5 cm.	60 cu 40	48					
						8717	.001				
						50					
						8718	.002				
						51.5					
						8719	.004				
						53					

Scale _____ Logged by R. Konning Project Great Western Star Hole # GWS-89-06 page 5 of 14

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
						8720	.007				
53.81											
						8721	.001				
56											
						8722	.001				
58											
			58-62 As 53.81-58, but weak foliation marked by alignment of mafic minerals locally, 45°.	58-62 py 1%, cp 0.1%.		8723	.004				
60											
			62-63.4 Avg intensity K spar alt'n incr.; 50% of interval CI=0.	62-63.4 py 1%, cp ¼%.		8724	.006				
62											
			63.4-66.54 Moderately K spar alt., CI ± 10, mag'n.	63.4-66.54 py tr, cp tr.		8725	.005				
63.4											
			66.54 - 75 color of rock changes from medium grey, speckled with black, to mottled pale greenish grey white, speckled with black. CI locally variable; avg. 10. Pale greenish grey due to st (?), 40% of rock. white K spar, 40% of rock. (cont.)	66.54 - 73 py tr, cp ¼%, assoc. with ca in veinlets or with mt in veinlets.		8726	.001				
65											
						8727	.005				
66.54											

Scale _____ Logged by P. Running Project Great Western Star Hole # GWS-89-06 page 6 of 14

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			66.54 - 75 (cont.) mt throughout; locally conc. in veinlets.								
			70.86 mt-cp vein, 1mm, 65°	70.86 cp in veinlet		8728	.006				
			71.5 mt-cp vein, 2mm, 60°	71.5 cp " veinlet		69					
			72.18 ca-hm vein, 30°			8729	.006				
					65 mt cp	71					
				73.1 conc. cp., 5% over 4 cm.	mt 40 cp	8730	.006				
				73.14 - 75 py tr, cp ½%, dissem + conc. on fract.		73					
			79.34 mt-py-cp vein, 3mm, 30°	74.39 py, cp in vein.		8731	.022				
			75 - 82.63 As previous interval, but lacks mt veinlets	74.5 - 74.6 cp 5%.		75					
				75 - 81.62 py tr, cp rare tr.		8732	.018				
			77.42 ca veinlet, 1 cm, bxtd, filled with chl + cu.	77.42 veinlet cont 10% py + tr cp.		77					
			78.31 kspar vein, 2cm, 55°.			8733	.030				
			79.87 ca vein, ½ cm, 25°	79.87 cp in ca vein.		79					
			81.83 kspar vein, 1cm, 50°	81.62 - 81.83 cp 1%, dissem.		8734	.007				
						81					

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-06 page 7 of 14

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
				81.83 - 82.63 py tr, cp tr.		81					
			82.63 - 89.62 Avg intensity of kspar altn incr. 50% of interval CI 5 or less. ca veinlets common. Fe oxides on most fracture surfaces. Mafic silicate minerals ± chloritized.	82.63 - 88.34 py tr, cp tr, dissem.		8735	.006				
						83					
						8736	.011				
						85					
						8737	.012				
			84.35 ca veinlet, 1 mm → 5 mm, 70°	84.35 cp in ca veinlet.		87					
			89.62 - 92.27 Altn. intensity decr., CI ± 20, hb + mt. 70% kspar, 10% plag. magnetic throughout.	87.37 - 87.92 cp 1%, with ca on hairline fractures.		8738	.006				
				88.34 - 89.62 cp diss., ¼%; py diss, ¼%.		88.34					
						8739	.012		.158		
						89.62 8740 90.09	.009		.200		
			91.1 - 91.4 foliation marked by chl. after hb., 25° c.a.	89.62 - 90.09 cp diss, ½%, py diss, ¼%.		8741	.007				
				90.09 - 92.27 py tr.		92.27					
			92 - 92.2 ca vein, 5 mm, 15°	92 - 92.2 cp + bn in ca vein.		8742	.001				
			92.27 - 98.70 As 89.62 - 92.27 but rock has greenish tinge due to cp after plag; variable, 2% on average.	92.27 - 98.70 py tr		94					
				95.23 - 95.56 cp ½%		8743	.006				
			95.23 - 95.56 intense kspar locally.								

Scale _____ Logged by P. Ronning Project Great Western Stor Hole # GWS-89-06 page 8 of 14

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			98.70-111.4 Similar to above, CI variable but avg 20; lacks green ep. fringe.	98.70-101.2 cp ½%, dissem. + on hairline fract.							
			98.74-99.10 intense kspar. CI ≅ 0. Also greenish fringe due to calcite. 45% kspar, 45% ca, 1% mt.	98.74-99.10 cp 1%, dissem.		98					
			98.95 qt-ksp. vein, 1 cm, 40° c.a.	101.2-103 cp 2%; on hairline fract., assoc. with ca veinlets, cementing grains kspar.		8744	.001				
			100.44 ca vein, cx, chlorite selvages. 1cm, 60°	101.9-102.1 cp 10%, cementing grains kspar.		97.35					
			102.78-102.9 mt 10%	103- cp rare tr py tr.		8745	.001				
			103.44 ca veinlet, ½ cm, 45° c.a. chl selvages			98.70					
			105.84-106.15 core cracked; healed by ca-chl veinlets. ca 2%, chl 1%			8746	.008		.131		
			107.16 ca vein, 1mm-1cm, cx, cp tr, hm tr	107.16 cp in ca vein.		101					
			107.67 vuggy, ca-chl veinlet, 1 cm, 35° Spack cp.	107.67 cp in ca-chl vein		8747	.012		.675		
			108.33 ca vein, 2cm, 60° c.a.			103					
						8748	.001				
						105					
						8749	.001				
						107					
						[illegible]	.001				
						109					

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-06 page 9 of 14

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
		121.68 - 125.08 color changes from mottled grey speckled with black to mottled white speckled with black. Mineralogy looks similar; more plag, 25%. Stain samples at 120.43 and 121.9 for comparison.	111.4 - 115.35 weak shear fabric marked by alignment of hairline ca veinlets. 60° c.a. CI 20, mainly bi. Some chl after bi. 115.35 - 124.45 Monzo-di; CI variable avg ≈ 15; bi, partly chloritized. Felsic minl's 10% plag; weakly epidotized. Intense ksp alteration locally. 116.35 ca vein, 3mm, 15° ca. 117.16 - 117.22 intense kspar speckled with red hematite. 119.24 chloritic shear, 1cm wide, 25°	111.4 - 115.35 cp ½%, py tr. 115.35 - 119.5 cp tr; local concentrations. 116.35 cp in bleached envelope around ca vein, 1% 119.24 5% cp in chloritic shear. 119.5 - 127.95 py + cp very rare.	

SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
109					
8751	.001				
111.4					
8752	.003				
113.4					
8753	.001				
115.35					
8754	.001				
117.5					
8755	.006				
119.5					
8756	.001				
121					
8757	.001				
123					

Scale _____ Logged by P. Ronning Project Great Western Star Hole # GWS-89-06 page 10 of 14

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			124.45 - 124.68 Shear fabric at 55° c.a., marked by micro-lithons kspar + chl. Intense kspar.	125.9 2% cp over 1cm, 126.52 - 126.59 1% cp.		123					
						8758	.001				
						125					
						8759	.001				
						126.5					
						8760	.001				
				127.95 - 129.44 cp ½%; local concentrations.		127.95					
						8761	.001				
		129.44 - 130 Diorite - see @ 132.95 below.	129.34 mt-cp-ca veinlet, 2mm, 25°	129.34 cp in veinlet		129.44					
			129.44 - 130 plag → ep.	129.44 - 130 no sign. mineral.		8762	.001				
				130 - 132.95 py, tr., cp tr, mainly fracture controlled.		131					
						8763	.003				
132.95	159.71	Diorite Medium crystalline, CI ± 35, 5% biotite. 40% plag.; 20% kspar. Magnetic throughout.	132.95 - 159 main alt'n is plag → epidote.			132.95					
			132.95 - 133.15 contact zone. Intense chl + ca. right at contact, hm-kspar vein, 50°, 2cm.	132.95 - 157 no sign. minl.		8764	.001				
				132.95 - 133.15 cp 1% on fract surfaces in contact zone.		135					
						8765	.001				
						137					

Scale ______ Logged by *R. Ronning* Project *Great Western Star* Hole # *GWS-89-06* page *11* of *14*

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
						137 —					
			137.80-138 kspar [illegible] shattered; healed by 10% ep. veinlets.			8766	.001				
						139 —					
			140.43 ca-hem vnlt, 3mm, 40°			8767	.001				
			140.80 kspar-ep-mt-ca-py veinlet; 3mm, 40°.			141 —					
						8768	.001				
						143 —					
			144.1 qz-ep vein, 45°, 3mm. Vuggy.	144.1 10% bn in vein possible tetrahedrite.		8769	.007				
						145 —					
			146.1-146.2 kspar vein, lower contact 45° c.a.	146.1-146.2 cp ½%.		8770	.001				
						147 —					
		147.2-147.9 Lamprophyre Dike. bi, mt in highly calcic groundmass.	146.8-147.2 pebbly interval; ground fragments kspar-cp. 147.2-147.9 unaltered.	147.2-147.9 no min'l.		8771	.001				
						149 —					
			147.9-147.94 kspar vein, 55° c.a.	147.9-147.94 tr cp in vein.		8772	.001				
			148.26 kspar vein, 2cm, 70°. 10% cp.	148.26 tr cp in vein.		151 —					

Scale ______ Logged by R. Ronning Project Great Western Star Hole # GWS-89-06

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE		SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
			154-184.71 Ep cont. as main altn mineral. Now occurs as partial altn of [illegible] [illegible] and as [illegible] [illegible] ½ cm to 2 cm in which [illegible] [illegible] [illegible] replaced. Ep as % of rock variable but avg 10%. ca with cp, 5%. 159.95 irregular kspar veinlet, 3mm - 2 cm.				151					
							8773	.001				
							153					
							8774	.002				
							155					
							8775	.001				
				157-184.71 trace py, dissem. 158.73 minor mal. on fracture.			157					
							8776	.001				
							159					
							8777	.001				
							161					
			161.67 ca veinlet, 2mm, 50° c.a. 162.12 - 162.20 ca stringers, 90° c.a., 70% of rock.	161.67 10% cp. in veinlet. trace cp over 5 cm to either side of veinlet. 162.12-162.20 cp 5% bn 5%			8778	.004				
							163					
				165-166 rare trace bornite, cp, assoc with ep-ca patches.			8779	.001				
							165					

151
152
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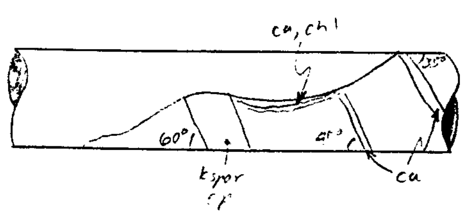
Scale ______ Logged by P. Ronning Project Great Western Star Hole # GWS-89-06

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
			168-170 Variable but pronounced shear fabric, marked by mineral alignment; mainly chlorite + calcite. Typically 55° c.a.			165 – 8780 – 167	.001				
						167 – 8781 – 169	.001				
						169 – 8782 – 171	.001				
						171 – 8783 – 173	.001				
			173.6 qt vein with patchy chlorite, attitude + thickness highly variable. Appears to cut, ie post-date, epidote patches. No min'l.			173 – 8784 – 175	.001				
			173.8-174 shear fabric in rock at 45° c.a.			175 – 8785 – 177	.001				
			175.4-175.56 Kspar vein, ca veinlet, truncated w/ fracture followed by ca-chl veinlet. See illustr.			177 – 8786 – 179	.001				

Scale ______ Logged by P. Ronning Project Great Western Star Hole # GWS-89-06

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
			176.13 ca veinlet, 4 mm, 35°			179					
			177.63 ca-[illegible] veinlet, 1 cm, 25° c.a.	177.63 – 178 bornite assoc. w. calcite, [illegible]		8767	.001				
			180.7 – 181 [illegible] 10%, dissem.	180.[illegible] – 181 bn tr.		181					
			182.27 – 182.7 ca [illegible] [illegible]			87[illegible]	.001				
			183.9 – 185.5 kspar-ep veiny 75°			183					
		184.7 = End of hole.				[illegible]	.001				
						184.71					

N C G

DRILL CORE LOG - Cover Page

Logged by: R.A. Running Start Date: 6/12/89 Completion Date: 9/12/89

Drill Hole No.: GWS- 89-07
Page 1 of 22
Project: Great Western Star

Contractor Information

Drill Contractor: Leber Mines
Foreman: Don Leslie
Hole Start Date: 27.11.189
Hole End Date: 1.12.189

Drill Hole Information

Size of Core: NQ
Location:
Property Name:
Claim Name:
Grid Name:
Zone Name:
Northing:
Easting:
Elevation:
Survey Method (eg. compass, altimeter):

Drill Hole Orientation Surveys:

Depth	Azimuth	Plunge	Method
collar	090	-45°	brunton
10.97	091	-44°	Hajari
91.74	090	-43°	"
204.52	095	-41°	"

Final Depth of Hole:

Symbols and Abbreviations Used in Log

Specific Gravity Determinations

meters	rock	S.G.
53.20	Mafic-Mantle	2.76
92.5	Lamprophyre	2.80

Samples for Staining

52.5	Lamprophyre

Note: for core measurements and recoveries, see geotechnical log.

Sample Shipment Information

Sample Numbers	Date Shipped	Shipment No.	Shipped Via	Laboratory	Date Results Received	File Number(s)

N C G — DRILL CORE LOG

Logged by: R. Rowing Date: 6/12/89 Sampled by: Date:

Drill Hole No.: GWS-
Page 2 of 22; From 0 To 10 m
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
0													
1													
2													
3													
4													
5													
6													
7			0-7.32	Cased in Overburden.									7.32
8			7.32-8.81	Monzo-Diorite	In least altered intervals, CI 20, bi, possibly after hb. Felsic groundmass dominantly kspar; softened + partly de-generated to clays due to near-surface weathering. Weakly magnetic.						.001		8790
9			8.81-10.01		kspar; bleached, CI 5.						.001		8.81 8791
10													10.01

N C G — DRILL CORE LOG

Logged by: P.R. Date: 6/12/89 Sampled by: Date:

Drill Hole No.: GWS- 89-07
Page 3 of 22; From 10 To 20m
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
10			10.01-12.48		unaltered	nil							10.01
											.001		8792
11							20	1					11.25
													8793
12											.001		12.48
			12.48-13.62		Kspar intense, CI = 1	nil							8794
13							1	0.1			.001		13.62
			13.62-289		minor, CI = 20	nil							8795
14											.0006		15
									rare				8796
15							20	2	trace				
											.005		17
16													8797
											.001		19
17													8798
											.004		
18													
19													
20													

N C G

DRILL CORE LOG

Logged by: P.R. Date: 6/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 4 of 22; From 20 To 30
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
20											.004		8798
21													21
22											.001		8799
23									rare				23
24							20	2	trace		.001		8800
25													25
26											.001		9201
27													27
28											.001		9202
29	55		28.9-29.82	Marzo-Diorite	st-chl (ca)	nil	5				.012		28.9 9203
30			Shear fabric @ 55°, marked by st-chl foliation.				90+	1					29.82

N C G — DRILL CORE LOG

Logged by: P.R. Date: 6/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 5 of 22; From 30 To 40
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
30			29.82-30.3	Fault Gouge	—	nil	90+	1	rare trace		.001		9204
				Earthy, greenish brown, chlorite-rich. Cont. a couple of angular fragments of monzo-diorite and one of fg porphyry. Upper contact @ 55° c.a. // Shear fabric above.			5	2				30.3
31	50										.002		9205
			30.3-31.85	Monzo-Diorite Fault Breccia	Kspar intense	nil							31.85
32	60 chl ca			Sub-ang to sub-rndd frgmts 60% of rock, in lithified gouge of similar comp. Shear fabric @ 55° marked by chloritic partings. 2 x 1 cm lamprophyre dikelets @ 55°.	Kspar, 1-3mm,				tr	tr	.001		9206
							0	0					32.6
33											.002		9207
			31.85-32.6	Monzo-Diorite	Kspar intense	py tr, cp tr	5						
34				Kspar flooding, mafics partly digested. Mr conc. on partings. Mottled grey-green. Py+Cp dissem locally but overall only trace.									34
35			32.6-32.63	Chl-ca vein	chl, ca	nil					.001		9208
				Ex mixture chlorite + calcite. 10% fragments of wall rock. 60°				2					
36			32.63-33	Monzo-Diorite	Kspar intense	cp tr, py tr							36
				Completely altered to pinkish buff.			20		tr				
37			33-34.75	Monzo-Diorite	Kspar intense	py tr					.006		9209
				Resembles 31.85-32.6									
38			34.75-41.31	Monzo-Di.	relatively unaltered	py tr							38
				Cl: 20, bi (after hb?) some ep on fract.									
39											.012		9210
40													40

N C G — DRILL CORE LOG

Logged by: R. Ronning Date: 7/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 6 of 22; From 40 To 50
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
40							20	2	tr				40
41											.016		9211
			41.31-41.70	Monzo-Diorite	kspar intense	cp ½%	0	0		½			
42			41.70-45.22	Monzo-Diorite	weak kspar ep 5% after plag; mt 1%	41.70-45.22 py tr 45-45.15 py 1%							42
43							20	1			.006		9212
44									tr				44
45			45.22-45.56	Monzo-D	kspar intense	py 1% cp 1% (fract. controlled)			1	1	.006		9213
46			45.56-48	Monzo-Diorite	kspar mod. Hard, mottled grey-white; masses grey + diffuse due to partial repl. by fg calcite. Apparent CI ± 20. Calcite 10%. Non-magn.	py 1%, dissem.							46
47							20				.006		9214
48			48-49.57	Monzo-Diorite.	weak kspar	py tr		2	tr				48
49											.007		9215
			49.57-50	Monzo-Diorite	weak kspar	py tr. Malach. on fractures; Mn oxides cont. Cu.							
50													50

N C G — DRILL CORE LOG

Logged by: P. R. Date: 7/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 7 of 22; From 50 To 60
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
50			50-51.30	MD	kspar mod. partial ca of mafics.	py tr	20	1	tr				50
51	45 Cu chl		51.3-51.8 Shear fabric marked by chloritic partings in kspar-flooded rock; ∠45	MD	kspar intense	py tr	5	0			.006		9216
52			51.8-60	MD	relatively unaltered. cp after plag, 2%.	sulphides nil	20	2					52
53											.002		9217
54			53.84-53.94		kspar vein. contacts @ 40°		0	1					54
55											.002		9218
56													56
57							20	2			.001		9219
58													58
59	30 mal ox		59.49 shear, 30°, contact with Cu mins.			mal, ox.					.002		9220
60													60

N C G — DRILL CORE LOG

Logged by: P.R. Date: 7/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 8 of 22; From 60 To 70
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
60			60–62.52	Monzo-diorite	ep., cal., Mn oxides	Mal 0.1% cp tr							60
61			Rock has porosity, as ½ to 3cm open gashes which were probably once filled with cal. Now lined with Mn, Fe oxides. Some contain malachite. Rare specks cp.				20	2		tr	.002		9221
62		vugs											62
63			62.52–64	Monzo-diorite	ep-, cal	mal 1% cp ½% tt (?) 0.1%				½	.016		9222
64			As interval above, but richer in Cu min'ls. Possible tetrahedrite with malachite, cp.										64
65			64–74	Monzo-diorite.	Kspar locally	unmineralized except local conc.					.005		9223
66			65.9	weathered out ca vein, 3mm, 40°						1%			66
			65.95			cp, 1% over 2cm.							
67			66.56–66.66		Kspar intense.	mal 1%	20	2			.005		9224
68													68
69	35 cp										.006		9225
70			69.74	vein @ 35°, 1mm		cp., az							70

N C G

DRILL CORE LOG

Logged by: RR. Date: 7/12/89 Sampled by: Date:

Drill Hole No.: GWS- 89-07
Page 9 of 22; From 70 To 80
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY
70	45 cu mal		70.1	veinlet @ 45°, 3mm		mal in vein	20	2		
71			71.59-71.87	M-D	kspar 49%, st 40% Fe oxides 10%	cp ½ % mal. tr	5	1		½
72		Lamprophyre 35°	Intensely bleached interval.					2		
			72.34-72.72	Lamprophyre		py 1%	20	1	1	
73			Black, finely crystalline; 20% biotite in calcite groundmass. Contacts 35° c.a. Weakly magnetic.					2		
74			74-74.52	M-D	Kspar 90%	cp ½ %	5	0		½
			Intense kspar altn. Mafics remain only as fuzzy "ghosts" made up of minor chl. + (?).				20	2		
75			74.52-74.98	M-D	weak kspar	nil	0			
			Variably altered, CI ±20. Magnetic. No significant sulphides.				20	2		rare tr
76			74.98-75.29	M-D	kspar 60% st 30%	cp tr				
77	45		Intensely bleached. Material descr. as sericite is greyish, vfx, soft with tiny hard grains; possibly mixture qt + st. May be repl. of mafics.						tr	
			75.29-77	M-D	weak kspar	cp very rare				
78			77-77.43	M-D	sheared	nil				
					kspar 60°	py tr	60	3		tr
			Kspar grains partly broken + or rotated. Calcic groundmass of unknown mineralogy 40% of rock. Foliation 45° c.a.							
79			77.43-80	Orthoclase Porphyry	kspar 40%	cp tr, py tr				
80			40% 1-3mm kspar xstals in vfx black groundmass. Groundmass too fine to ID; must be mixture Kspar, biotite, calcite, mT.							

From	To	Au	Cu	Sample Number
70	72.34	.009		9226
72.34	72.72	.005		9227
72.72	75	.001		9228
75	77.43	.001		9229
77.43	79	.002		9230
79	80	.001		9231

N C G — DRILL CORE LOG

Logged by: R.K. Date: 8/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 10 of 22; From 80 To 90
Project: Great Western Star

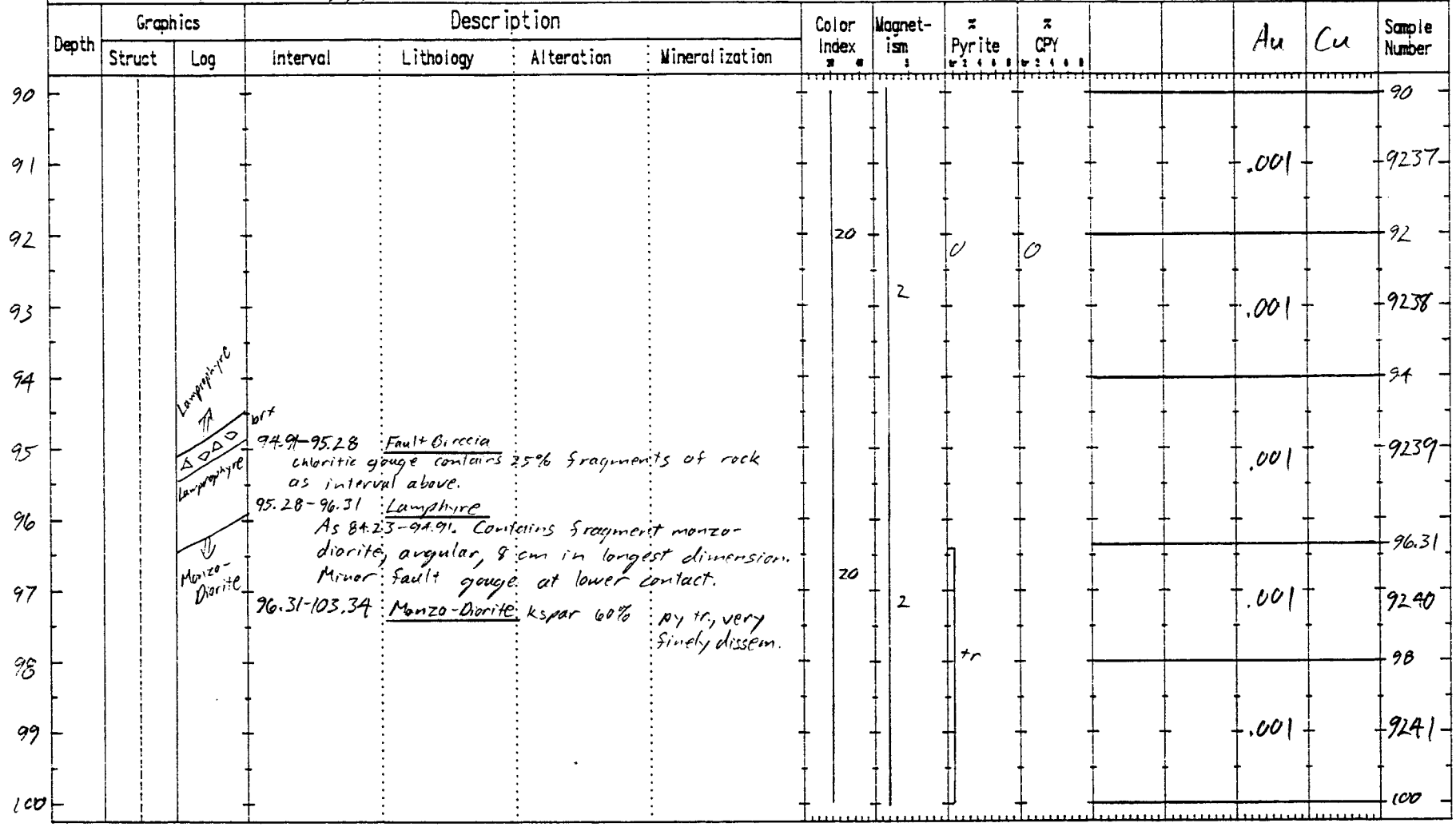
Depth	Graphics: Struct	Graphics: Log	Description: Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
80			80-81.52	Orthoclase Porph.	sheared kspar intense	py 1% cp ½%	5	0	1	½			80
			Shear foliation marked by alignment mafics; 40° c.a. 81.08: realgar noted.								.012		9232
81													
82			81.52-84.23	Pink Monzo-Di	Kspar 65% CI I 30	py tr cp tr	30	3	tr	tr			82
			Very hard, pink-black speckled rock. Pink color of kspar unusual here.								.001		9233
83		M-D											
84		⇑ 45 ⇓	84.23-94.91	Lamprophyre?		nil							84.23
			Identification problematical. 20% fine euhedral amphibole + biotite; pale yround mass kspar + calcite. Some apparent bleaching of monzo-diorite within 1m of upper contact. A few calcite veinlets. Upper contact sharp, 45°								.001		9234
85		Lamp.											
86							20	2	0	0			86
											.001		9235
87													
88													88
											.001		9236
89													
90													90

N C G

DRILL CORE LOG

Logged by: R.R. Date: 8/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 11 of 22; From 90 To 100
Project: Great Western Star



N C G

DRILL CORE LOG

Logged by: P.R. Date: 8/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 12 of 22; From 100 To 110
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
100													100
101							20	2	tr		.002		9242
102													102
103	45										.013		9243
			103.34–109.53	Monzo-Di	Shear Zone	py tr cp tr							103.34
104			Mylonitized & recrystallized as kspar; 80% kspar, 10% chl. Foliation marked by faint alignment of kspar separated by micro-lithons chlorite. Foliation @ 45°.								.001		9244
105													104.53
			104.53–123	Monzo-Diorite CI ± 15	kspar mod. bi ± chl + ca. ca veinlets	py tr cp, mal, Cu tr locally	15	2	tr	tr	.010		9245
106													106
107			Grey; biotite partly corroded by ca + chl. Some of kspar may be altn. Ca veinlets common								.018	.093	9246
			109.75			azarite 2% over 2 cm,							
108			110.1			2 specks native Cu.							108
109											.001		9247
110													110

N C G — DRILL CORE LOG

Drill Hole No.: GWS-89-07
Page 13 of 22; From 110 To 120
Project: Great Western Star

Logged by: P.L. Date: 8/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
110													110
											.001		9248
111							15	2					111.56
			111.56-112		Kspar 60%	py 3%, cp tr			3		.001		9249
112			112.30-112.44		Kspar 70%	py 3%, cp tr	5	0	3				112.44
							15				.001		9250
113													
									tr				114
114			114-115.2		fracture controlled cu vein's locally.	cp, 0.1%, mal, az				0.1			
			115.2-120.07			nil					.018		9251
115													116
116													
											.006		9252
117							15						118
118													
											.004		9253
119													120
120													

NCG — DRILL CORE LOG

Logged by: P.R. Date: 8/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 4 of 22; From 120 To 130
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
120			120.07-120.42	M-D	kspar 90%	cp ½ % diss.	0	1		½			120
121			Completely bleached, except ½% mt.								.013		9254
			120.42-121.72	M-D	relatively unaltered	py, cp tr							
122	45		121.72-123	M-D Shear	kspar 70%	py, cp tr	10	2	tr	tr			122
			Foliation weak-absent. Zone has core of 30 cm 90% kspar. Ca veinlets throughout, 5%. 2 x 1cm veinlets, 2 mm, w/in intense kspar. cp locally to 2% but overall only tr. Shear @ 45°				0	1					
123			123-144.89	Monzo-Diorite	little kspar	py ½%	10				.003		9255
					ca-chl-hm veinlets common	cp trimal tr.							
124			Relatively unaltered. Local zones 1-2 cm of kspar. Trace cp throughout, usually with ca, or in ca-chl-hm veinlets. py assoc with chlorite in veinlets.					2	½				124
125							15				.012		9256
126													126
127										tr	.005		9257
							15	2					
128									½				128
129											.006		9258
130													130

N C G — DRILL CORE LOG

Drill Hole No.: GWS-89-07
Page 15 of 22 ; From 130 To 140
Project: Great Western Star

Logged by: P.R. Date: 8/12/89 Sampled by: Date:

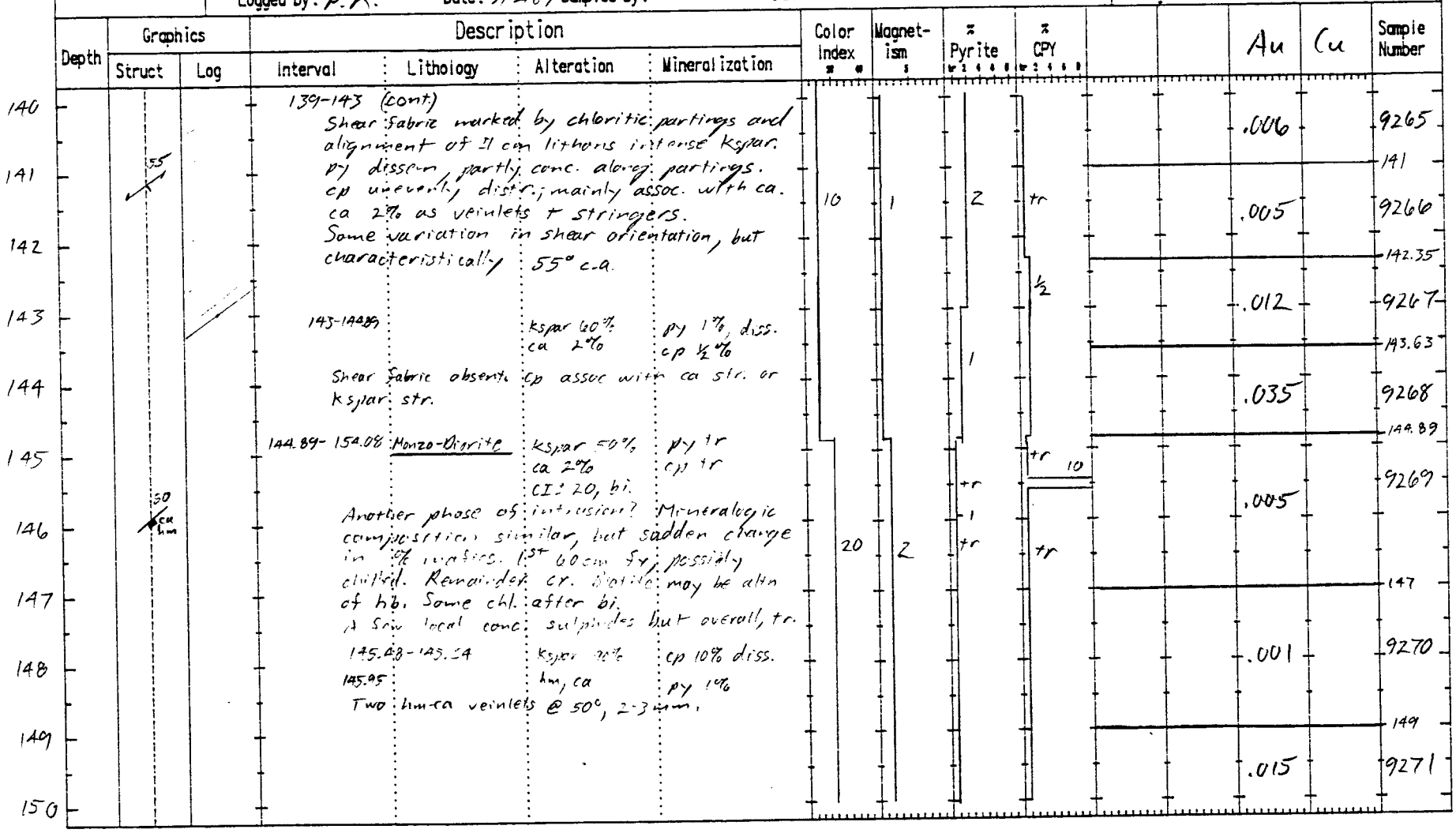
Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
130													130
131							15	2	tr	tr	.028		9259
132													132
											.006		9260
133													133
	co ca cp py		133.4		Ca vein, 1 cm, 60°	py 10%, cp 5% in vein			2	1	.018		9261
134	25		133.8		Ca veinlet, 3 mm, 25°	py 10%, cp 5% in veinlet							134
135							15	2	tr	tr	.004		9262
136													136
											.001		9263
137			136.8-137.2			cp 1%, py 1%	10		1	1			136.8
			Sulphides in localized concentrations in veinlets with cu, chl, hm										
138			137.2-139		ksPar 60% Cl± 10	py 2%, cp tr		1	2	tr	.012		9264
			Sulphides unevenly distr. in ca-chl-hm veinlets.										
139			139-143		Shear ksPar 60%								139
	55		139-142.35			py 2% cp tr					.0006		9265
140			142.35-143			py 2% cp ½%							

(See notes over)

N C G — DRILL CORE LOG

Drill Hole No.: GWS- 89-07
Page 6 of 22; From 140 To 150
Project: Great Western Star

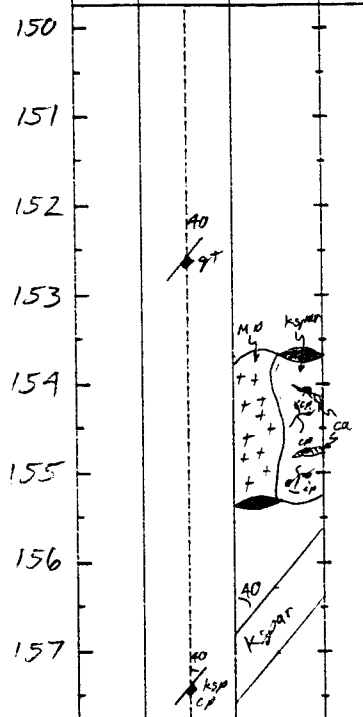
Logged by: P.R. Date: 9/12/89 Sampled by: Date:



N C G — DRILL CORE LOG

Logged by: V.L. Date: 9/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 7 of 22; From 150 To 160
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: D.R. Date: 9/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 18 of 22; From 160 To 170
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
160			159.4-162.61: (cont.) on fractures.										
			159.4		qt vein, 3cm, 15°	py in vein, 10%.					.018		9277
161			Vein marks upper contact of intensely altered zone.							0.1			161
162			162.61-175	Monzo-Granite.	Ksp. 40% CI 20 ca veinlets	py tr. cp nil					.017		9278
163													163
			163.65-164.15		Ksp-cp vein, 0° ca veinlets.	py tr cp nil	20	Z	tr		.029		9279
164	60 ca mal		Vein low < c.a. fx ca veinlets.		Ksp-str; 5% spots	cp. Late							
165			164.73		ca veinlet, 3mm, 60°	mal. in vnlt.							165
166			166		ca vnlt, 70°, 3mm	mal in vnlt.					.008		9280
			166.24		qt vnlt, 5mm, 30°								
167													167
168			168.1		qt vn, 8cm, 45°	1% cp in vein.				1	.006		9281
169									1	tr			169
			169.15-169.28		Ksp vein, 50°	py 1%, cp tr			tr		.007		9282
170			169.80-171	M-D	Ksp. 70 CI ±10		1						

N C G	DRILL CORE LOG	Drill Hole No.: GWS- 89-07
	Logged by: P.K. Date: 9/12/89 Sampled by: Date:	Page 19 of 22; From 170 To 180
		Project: Great Western Star

Depth	Struct	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au	Cu	Sample Number
170										.007	.	9282
171		171-171.76	M-D	ca vnlts, 10%	mal 2%, in vnlts							171
		High incidence of ca [illegible] malachite, [illegible] cp [illegible]. Variable orientation.										
172										.021		9283
	60 ksp ep	172.8-172.85		ksp.-ep vein, 60°		20	2	tr				
173		Epidote 10% of vein.										173
174		175-186.75	Monzo-Diorite	kspar ±40% CI ±20 ep after plag, 5%	py tr cp nil except local conc.					.035		9284
175	45 ca hm mal	175.27		ca, hm mal vnlt, 5mm, 45°								175
	ca hm mal 70	175.36		ca, hm, mal vnlt, 2cm, 70°					10 Au			
176	70 ksp	175.85-175.92		ksp vein, 70°	cp 10% speck gold					.090	.162	9285 ← metallic assay
177												177
178						20	2	tr		.002		9286
		178.5 brass cuttings on core.										
179		179.1 " " " .										179
		179.22-179.28		kspar flooding	cp 1%.				1	.005		9287
180												

N C G

DRILL CORE LOG

Logged by: R.R. Date: 9/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-07
Page 20 of 22; From 180 To 190
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Cu %	Sample Number
180											.005	.029	9287
181													181
182											.003		9288
183													183
184			183.5		ca vnlt, 65°, 5 mm	mal in ca vnlt.	20	2	tr		.014		9289
			183.5-184			5% malt azurite							
185													185
186											.006		9290
								10					
187			186.75-197	Monzo-Diorite	kspar 40% cl ± 20 shear, st.	py tr. cp rare, local							187
			Pronounced shear fabric, marked by alignment of mafics & fp. Strong sericitic parting. Characteristic angle of foliation 45°										
188	45										.004		9291
			186.85		ca vnlt, rem, 50°								
189			186.75-186.85		M+20%.								189
											.001		9292
190													

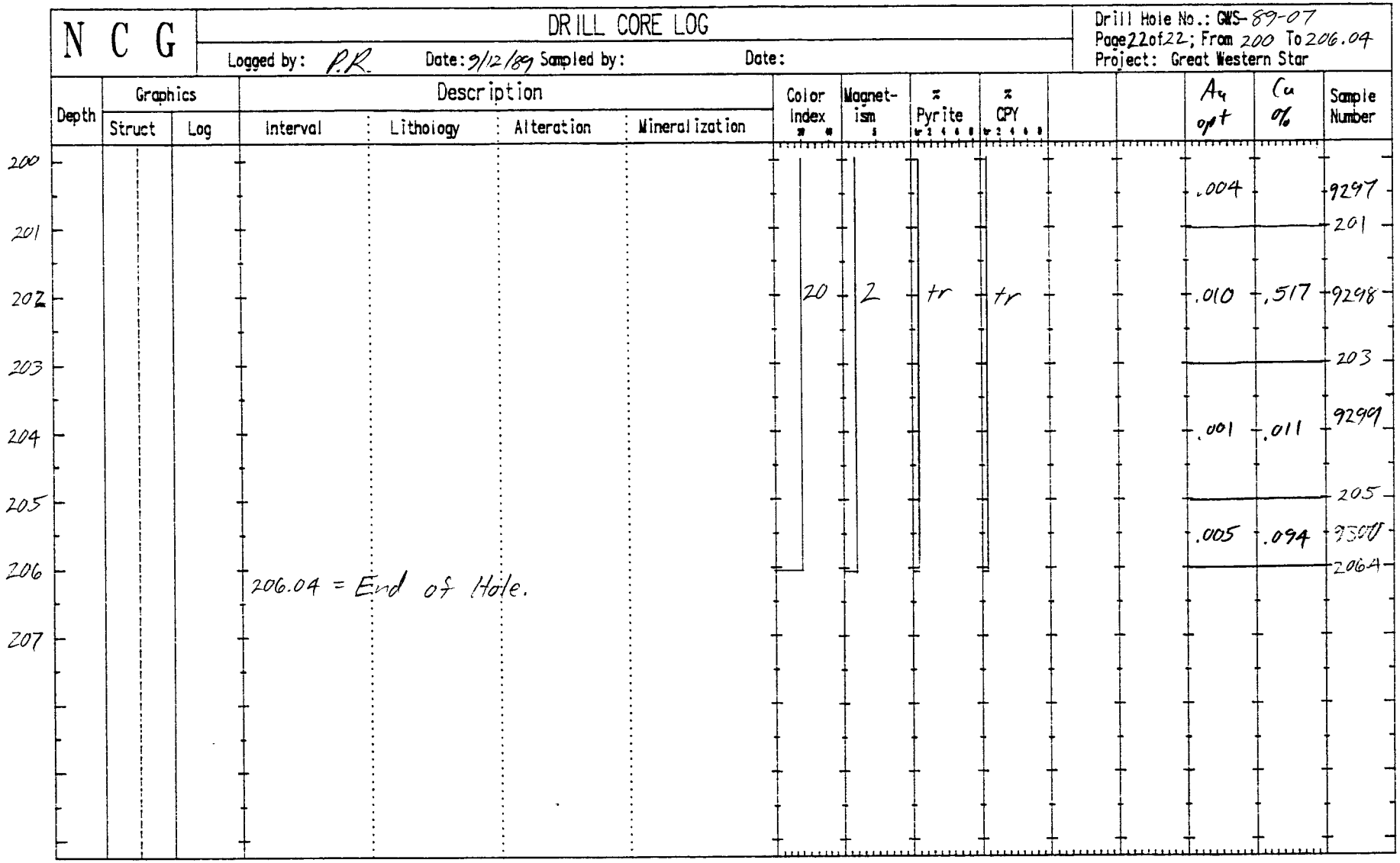
N C G — DRILL CORE LOG

Drill Hole No.: GWS-
Page 21 of 22; From 190 To 200
Project: Great Western Star

Logged by: R.R. Date: 9/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Cu %	Sample Number
190											.001		9292
191							20						191
192								2	tr		.004		9293
			192.69			sperks of py tr.							
193	45°												193
194											.001		9294
195													195
196											.001		9295
197			197-206.04	Monzo-Diorite	ca-hm-chl veins common, ca 5%	py tr cp tr mal tr	20						197
								2	tr	tr	.003		9296
199													199
200			199.9-199.95		mt 5%.			5			.004		9297

Core broken; ca-hm-chl veins many varied orientations. Malachite very irregularly distr.; locally intense.
Several ca-hm-chl veinlets // c.a.


N C G
DRILL CORE LOG
Logged by: P.R. Date: 9/12/89 Sampled by: Date:
Drill Hole No.: GWS-89-07
Page 22 of 22; From 200 To 206.04
Project: Great Western Star
Depth
Graphics
Struct
Log
Description
Interval
Lithology
Alteration
Mineralization
Color Index
Magnet-ism
% Pyrite
% CPY
Ag opt
Cu %
Sample Number
200
201
202
203
204
205
206
207
.004
9297
.010
.517
9298
20
2
tr
tr
203
.001
.011
9299
205
.005
.094
9300
206.04
206.04 = End of Hole.

DIAMOND DRILL LOG

Claim _____ Baseline _____
Township _____ Section _____
Elevation _____ Latitude _____
Total Depth _____ Longitude _____
Azimuth _____
Contractor _____

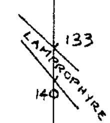
TESTS

Depth	Dip	Azimuth

HOLE # GWS-89-02
PROJECT Great Western Star
PAGE 1 of 15
NTS _____
Logged by K. Jagodzinski
Date 9/12/89 - 16/12/89
Scale _____

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au opt	Ag opt	Cu %	Pb	Zn
0	9.45	Cased in overburden									
9.45	22.59	Monzo-Diorite C.I ± 20, magnetic, mafic minerals altered to biotite & chlorite. Groundmass pred. white-coloured K-spar. Approx. 1% magnetite, varies locally. Decreases in bleached & highly oxidized zones to approx. 0.3%. Numerous open gashes (after calcite) now filled with Mn- & Fe-oxides forming inwards from margins. Local mod.-intense K-spar alt. over few cms.	Mn- & Fe-oxides coat most fracture surfaces. Otherwise only slight alteration throughout.	No significant sulfides.		9.45 6623	.002	.02	.012		
						11 6624	.001	.02	.009		
						13 6625	.001	.02	.007		
						15 6626	.001	.01	.007		
			16.04 - 17.82 Intense K-spar alt. C.I = 0.0.5% mag. Oxd. of mag. gives rock orange-brown, ida speckled appearance. V. fine gr. sericite alt. in purtings in rock.			16.04 6627	.001	.03	.013		
			17.82 - 19.05 Strong foliation at 130° c.a. Fe-ox staining intense throughout rock.		30	17.80 6628	.001	.02	.020		
			19.00 - 22.59 Rel. unaltered with Mn- & Fe-oxides coating most fract. surfaces & infilling open spaces after calcite.			19 6629	.001	.04	.010		

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-99-08

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
22.59	22.92	Alkaline Lamprophyre Dyke ≤ 1mm biotite phenocrysts (slightly alt. to chlorite) in a light col. calcic groundmass. Magnetic. Upper & lower contacts sharp – upper contact 133° c.a. lower contact 140° c.a. Small apophyses of lamprophyre in monzodiorite at lower contact.	22.18 - 22.45 local k-spar alt. C.I. ≈ 0 Sericitic alt throughout	No sig. sulfides	
22.92	30.34	Monzo-Diorite C.I. ave. 20. C.I. decreases to 10 around 25.12 mainly due to ca alt. Med. magnetic to ≈ 25 m, less magnetic to 25.45 m. Biotite altered to chlorite in places.	22.92 - 30.34 Numerous former calcite veins now filled ≈ Mn- & Fe-oxides 25.12 - 27.36 Ca alt + qtz-sericite alt of ? plag.		
30.34	31.94	Alkaline Lamprophyre Dyke a. above except coarser-gr. V. soft, highly altered bet. 30.34 & 31.15. Occasional calcite veinlets ≈ 90° c.a.		No sig. sulfides	
31.94	40.23	Monzo-Diorite C.I. ave. 0. Intense k-spar alt. C.I. increases to 10 over few cms. 0.5% mag. (fresh & oxd to rusty orange-red col) disseminated through rock & in seams. Local v. fine-gr. sericitic alt. & ca alt. Magnetic.	32.50 - 41.12 Intense red-brown Fe-oxide staining. Unoxidised intervals bet. 37.1 & 37.5 and 38 & 38.29 Intense k-spar alt. 33.31 - 33.38 Vuggy, milky qtz vein. Intense rusty orange-red Fe-ox staining	31.94 - 40.23 Uneven distb of py, local concn up to 1% in unoxd. zones, ave. 0.5% (bet. 37.1 & 37.5 and 38 & 38.29).	

ASSAY GEOCHEMISTRY

Interval	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
– 21		.001	.04	.010		
21 – 22.59	6630	.001	.02	.008		
22.59 – 22.92	6631	.001	.04	.019		
22.92 – 25	6632	.001	.01	.013		
25 – 27	6633	.002	.01	.009		
27 – 29	6634	.001	.01	.008		
29 – 30.34	6635	.003	.02	.014		
30.34 – 31.94	6636	.001	.04	.008		
31.94 – 34	6637	.006	.03	.006		

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-05

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
			34.03 - 34.65 Thin (1-1.5 mm) qtz vein approx parallel to c.a.		
			38.20 Qtz vein at 30° c.a. (3mm wide) with Fe-cbt. (1-2mm) forming along margins of vein. Fe-cbt oxd to deep, rusty orange-red.		qtz
40.23	43.3	Monzo-Diorite C.I. ± 20 local variations in K-spar alt over 10-15 cms. Magnetic	40.23 - 41.12 Abundant former ca veins filled c Mn- & Fe-oxides 41.12 - 43.3 Rel. fresh, intense orange-brown Fe-ox. staining & Mn-ox. staining on fractures. Former calcite veins filled c Fe- & Mn-oxides.		
43.3	43.95	Monzo-Diorite C.I.= 0 Weakly magnetic	43.3 - 43.95 Intense K-spar alt. Reddish speckled appearance due to oxidized magnetite	No sig. sulfides	
43.95	47.66	Monzo-Diorite C.I. = ± 20. Biotite partially alt. to chlorite in places Magnetism variable - weak to mod	43.95 - 47.66 Rel. fresh c orange-brown Fe-ox & Mn-ox staining on fractures. Occ. ep. patches (≤ 2cm).		
47.66	48.12	Monzo-Diorite C.I. = 0 Weakly magnetic	47.66 - 48.12 Intense K-spar alt. Sericitic alt. along partings in rock. Sharp lower contact c unaltered	Malachite staining on fractures (≤ 15%) and in ca - Fe cbt. veinlets.	ca, Fe-cbt

ASSAY GEOCHEMISTRY

SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
34					
6638	.012	.02	.016		
36					
6639	.005	.02	.014		
37.10					
6640	.001	.01	.007		
37.50					
6641	.005	.03	.011		
39					
6642	.006	.01	.012		
41					
6643	.004	.01	.016		
43.3					
6644	.002	.02	.017		
43.95					
6645	.006	.04	.053		
45					
6646	.005	.02	.021		
47.66					
6647	.006	.02	.059		
48.12					

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
			Monzo-diorite defined by a thin (2mm) ca-Fecbt vein at 135° c.a.								
48.12	54.05	Monzo-Diorite C.I. ave. 20. [illegible] magnetic, local [illegible]. [illegible] seams & calcite veinlets common.	48.12 - 52 Rel. unaltered, fresh. Light orange-brown Fe-ox & black Mn dendrites on fract. surfaces. [illegible] (≤1mm) patches of ep/dote. Local sauss. of plag. zones of intense K-spar alt. (few cms).	malachite staining on fracts. Tr mal. throughout. Local py conc. (up to 2mm) in chl seams & calc. veinlets. 49.71 cpy fleck in calc. veinlet. 49.31 cpy fleck in rock		6648	.002	.02	.044		
						50					
						6649	.005	.03	.043		
			52-54 as for 48.12 - 52	As for 48.12 - 52. Tr cpy throughout.		52					
				53.58 tr cpy in calc. veinlet 60° c.a.	ca, cpy	6650	.003	.04	.054		
			54.05 - 55.45 C.I. ±10, variable. Weak shear fabric [illegible] by alignment of chl 136° c.a.	V. fine dissem py (≤ 0.5%) throughout [illegible] distributed. Tr v. fine cpy	hm, chl, ca, py; chl	54					
						6651	.002	.04	.041		
			55.45 - 56.74 Intense k-spar alt. C.I. = 0. Red-brown Fe-ox & Mn-ox st. on fracts. 2 veins (former [illegible])	No sulfides noted	Monzo-diorite / 30 Lamprophyre	55.45					
						6652	.007	.04	.059		
56.74	57.35	Mafic Dyke [illegible] lamprophyre Bt (altered to chl in most parts) phenos in light calc calcic groundmass. Sheared, chloritic surfaces to chl. gouge in places. Strongly magnetic. S.G. = 2.62.	56.74 - 56.99 [illegible] contact c monzo-diorite 30° c.a. Chloritic gouge in fracts. near lower contact.	No sulfide mineralization		56.74					
						6653	.001	.03	.028		
57.35	58.19	Monzo-Diorite C.I. variable, ave 15. Bt. alt → chl. Mod. magnetic.				57.35					
						6654	.001	.03	.013		
58.19	58.51	Mafic Dyke as for 56.74 - 57.35, mod. magnetic				58.19					
						6655	.001	.04	.009		
58.51	61.78	Monzo-Diorite as for 57.35 - 58.19. Hm & chl seams common. Mod. mag, weaker in bleached zones.	58.51 - 61.78 Variable k-spar alt. → intense over few cms. calcite - Fe cbt. veins common. Chl. seams throughout. Sericite alt. in intense k-spar zones. Red speckled appearance due to oxdn of magnetite	Tr py. in chl. seams & dissem throughout. Unevenly distributed		58.70					
						6656	.001	.02	.006		
				61 cpy fleck in calc. veinlet, 150° c.a.	ca, cpy	60					
						6657	.001	.02	.070		
61.78	64.06	Fault Gouge Dk green chloritic gouge with angular - sub angular fragments of monzo-diorite & lamprophyre (40% rock). Number of frags. decrease around 63.4m. Highly calcic. calcite frags & veinlets abundant	61.78 - 64.06 Highly calcic.	No sulfide min. noted	35° hm, chl	61.78					

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
		Rock soft to clay in places. Lamprophyre fragments most abundant constituent, highly calcic. Pinkish feldspar occurs isolated & in monzo-diorite.				6658	.008	.04	.012		
64.06	70.13	Intensely altered Monzo-Diorite V. dk. col. v. hard, strongly magnetic. Randomly orientated bt. phenocrysts in a mag-bt-kspar-calc. groundmass. Where oxd. magnetism less. Minor epidote alt.		No sulfide min. noted.		64.06 – 66: 6659	.001	.02	.008		
			66 - 68.88 Highly broken rock, strongly - mod. magnetic. Pinkish-red colour. Varying degrees of k-spar alt.			66 – 68: 6660	.001	.02	.010		
						68 – 70.13: 6661	.003	.01	.012		
70.13	85.38	Monzo-Diorite C.I. ±10, variable. Mafics corroded ⇒ orange-brown Fe-ox. staining surrounding biotite. Mod. magnetic, V... Rock displays local pinkish-red haematite staining. Local intense k-spar alt. over a few cms.	70.13 - 74.4 Variable k-spar alt. Numerous calc veinlets (ave. 90°) ... Occ. calcite veins & chlorite selvedges, ± Fe carb.	No sulfide min. noted	calc.	70.13 – 72: 6662	.001	.02	.004		
			72.54 - 72.92 Intense Fe- & Mn-ox. coating on fractures. Occ. chlorite on fracts.			72 – 73.75: 6663	.001	.08	.016		
			74.4 - 85.38 C.I. ±20, local variations, intense k-spar alt. over few cms.	73.75 - 76 local mal. & azurite staining on fractures & in veins & chlorite.	26° chl, ca, k-spar; 15° hm, chl seam	73.75 – 76: 6664	.003	.05	.029		

Scale ____ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08 page 6 of 15

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
			77.14 - 77.44 Highly broken & crushed, rubbly in places. Intense Mn-ox staining.		
			79.2 - 83.5 Strongly magnetic		
			80 - 82.7 Vuggy rock. Former calcite veins filled c Fe- & Mn-oxides		
			83.5 - 87.17 Localized sauss. of plag. in patches near veins. [illegible]	83.03 [illegible] py. [illegible]	
85.38	85.42	Lamprophyre Dyke phenos. of bt in light col. calcic groundmass	85.38 - 85.42 Sharp upper contact c monzo-diorite 53° c.a.		Monzo-Diorite / Lamprophyre
85.42	107.17	Monzo? Diorite C.I. ± 20 calcite - chl. seams common. Variable mag. 87.54 - 88.02 → 1-2mm calcite vein parallel to c.a. Variable K [illegible] alt.	87.04 - 88.25 V. weakly mag. 87.17 - 89.38 Sauss. of plag. more prom., in patches (few cms). Bt → chl, chl. in fracts. 87.7 - 87.95 Highly alt., dk green col. Groundmass calcic + chlorite. 89.38 - 91.98 Greenish col. Pervasive calc., sericite ± chl. alt. Magnetite ± 1%. Alt. varies locally. Intense Fe- & Mn-ox.	No sign. sulfides	ca, Fe dol., chl. 110° (0.5cm vein @ 87.84m)

Depth scale (m): 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90

SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
6665	.162	0.31	.363		
77.85					
6666	.028	.06	.029		
79					
6667	.008	.04	.011		
81					
6668	.001	.01	.009		
83					
6669	.001	.01	.010		
85					
6670	.004	.03	.005		
87					
6671	.001	.02	.005		
89					
6672	.001	.01	.010		
89.38					
	.008	.01	.011		

Scale ________ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08 page 7 of 15

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
			staining on fract. surfaces. Rock broken up, rubbly in places. Chl. on some fracts ⇒ weak shearing.		
			91.5 - 91.78 Milky qtz. 10° c.a. c̄ calc, chl. & Mn-ox. along margins.	No sulfide min. noted.	qtz, calc, chl., sp. hm.
			91.92 - 97.22 C.I. ± 20. Occ. chlorite seams, hm seams. Calcite veining common. Minor calcite alt. & [illegible] of plag. Bt → chl. [illegible] Bt. preserved in places. Less alt. than 89.35-91.92		calc.
				94.15 3 cm bleached zone c̄ mal. staining	
			96 1.5cm k-spar alt'd zone Minor calc. alt. Red speckled app. due to oxdⁿ. of mag.		
			97.22 - 99.97 Highly alt. rock, greenish, [illegible] [illegible] highly broken - [illegible] Mn-ox	97.55 tr. mal. on oxd. [illegible] surfaces.	
			98 - 98.04 White milky qtz surrounded by [illegible] crushed rock. Intense [illegible] & Fe-ox staining		
			98.8 - 98.92 Intense k-spar alt. Tr. mal.	98.8 - 98.92 tr. mal.	
			99.97 - 104.64 Variable k-spar alt. ranging from rel. unaltered to mod. intense Fe-ox. staining on fracts.	99.55 - 99.7 [illegible] [illegible]	
			101.3 Calcite vein 0.5cm, 122° c.a.		calc.
			102.6 1cm milky qtz vein c̄ tr. mal., 47° c.a. orange-red (rusty) Fe-ox st. along margins.	sp. py in qtz.	qtz, mal.

SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
6673	.008	.01	.011		
91					
6674	.001	.01	.009		
91.92					
6675	.002	.01	.005		
94					
6676	.007	.01	.010		
96					
6677	.003	.03	.008		
98					
6678	.002	.05	.019		
99.97					
6679	.001	.06	.013		
102					
6680	.001	.04	.014		
104					

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-99-08 page 8 of 15

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
107.17	107.69	Mafic Dyke [illegible]	104.64 - 105.0 Red [illegible], C.I. ~20, [illegible] calcite [illegible]	Tr [illegible]	140° [illegible]
107.69	195.5	[illegible] C.I. variable, Local [illegible] Variable [illegible]	105.1 - 107.17 Pervasive calc. alt. [illegible] common. [illegible] chl. seams [illegible] Variable magnetism, weak to mod.	107.17 - 107.69 [illegible]	
			107.69 - [illegible] Variable [illegible] Oxidized [illegible] Pervasive [illegible]		
			110.42 [illegible]	110.39 [illegible]	hm, cal [illegible]
			111.14 Qtz [illegible] Tr. py.		
			112 - 114.3 [illegible] Weak [illegible]	113.3 [illegible] 3-4° [illegible]	31°
			114.3 - 117.08 Highly altered, soft rock. Qtz [illegible] calcite [illegible] variable [illegible] qtz veinlets [illegible]	No signif. sulfide mineralization	py, mal, qtz.
					-116.25m 23° calc, chl vein
			117.08 - 120.[illegible] C.I. avg 10 Sharp contact with highly altered. Variable [illegible] between [illegible] Mineralized [illegible]	117.4 - 117.5 mal [illegible] in vugs (≈0.5%)	70° spec. hm [illegible] (0.5mm)

SAMPLE NUMBER	Interval	Au	Ag	Cu	Pb	Zn
6631	– 106	.001	.04	.012		
6632	106 – 107.17	.005	.09	.019		
6633	107.17 – 107.69	.001	.06	.007		
6634	107.69 – 109	.001	.06	.014		
6635	109 – 111	.003	.12	.018		
6636	111 – 112.14	.001	.05	.013		
6637	112.14 – 114.3	.003	.06	.019		
6638	114.3 – 114.55	.001	.39	.400		
6689	114.55 – 115.79	.002	.05	.015		
6690	115.79 – 117.08	.007	.06	.018		
	117.08 –	.004	.04	.035		

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-[illegible] page 9 of 15

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
			[illegible] Bt. typically alt. to chl. Vuggy veins (formed [illegible]) Fe + Mn-oxide [illegible]		
			119.75 - 119.[illegible] High[illegible] Mn-ox [illegible]		
			120.55 - 122 C.I. [illegible] Fe + Mn-ox filling [illegible] veins.	No [illegible] sulfides	
			122 - 124.05 Variable K-spar alt. [illegible]		
			124.05 - 129.84 C.I. = 10, local [illegible] Pale [illegible] of [illegible]		specular hem.
			124.58 8mm qtz + specular hem. vein 30° c.a. [illegible] 3% [illegible]		125.55 135° [illegible]
			127.55 Chl. [illegible] seam, 145° [illegible]		hem., chl.
			127.51 - 12[illegible] [illegible] alt.		
			125.04 - 125.25 Intense K-spar alt. C.I. = 0		
			129.84 - 131.15 Highly fractured, intense Fe + Mn-ox staining on fracts. Variable K-spar bleaching - intense over few cms (C.I = 0)		129.7 148° calc., chl.
			131.15 - 131.40 Intensely alt. sericite - qtz - chl. alt. Rock has greenish tinge.		

Depth	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
118	6691	.004	.04	.035		
119	6692	.001	.01	.008		
120	6693	.001	.03	.007		
122	6694	.001	.01	.007		
124	6695	.001	.03	.014		
126	6696	.003	.05	.023		
128	6697	.001	.03	.008		
130	6698	.001	.04	.011		
132						

Scale _____ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08 page 10 of 15

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
132											
133			133.45-136.7 Intense k-spar alt. Highly broken, mildly to friable in places. Intense Mn-Fe-ox staining on fracts. Weakly sheared, chlorite on sheared surfaces. Weak sericitic alt. Variable mag. (ave. mod.) C.I. = 0-5. Occ. chl ± hm seams, calcite veining common. Shear fabric 110° c.a.	132.89 Tr malachite staining in fractures.		6699	.019	.06	.015		
134				No significant sulfides		134					
135					110	9601	.056	.06	.023		
136			136.7-139.65 C.I. 10-15. Fe-± Mn-ox staining on fracts. Bt typ. alt. to chl. Groundmass weakly calcic. Shear fabric marked by alignm. of bt/chl., 130° c.a. Magn. mod. to intense locally. Calcite veinlets common.	136.7-139.65 Tr py, cpy		136					
137						9602	.006	.05	.016		
138					130	138					
139						9603	.044	.09	.019		
140			139.65-145.86 C.I. ave. 20, rel. unaltered monzo-diorite. Occasional bleached zones over few cms (C.I. 0-10). Local weak shear fabric, 110° c.a. Local sauss. plag. (ep. preserv. constit.) Calcite ± Fe-carb. veining. Mag. variable, weak-mod.	140.74 Tr mal in qtz-chl-sericite vein		140					
141				141.10 4cm k-spar vein ± tr. mal, cpy, py. Approx 2% magnetite (largely oxidized).		9604	.006	.06	.024		
142					110	141.6					
143			142.8-143.4 Shear fabric defined by alignment of mafics, 110° c.a.			9643	.004	.02	.012		
144				143.18-145.13 Py unevenly distb. Up to 3% in veins & seams, ave. 1% Often occurs ± mafic minerals (replacing magnetite?). Tr. cpy (not common).		143.18					
145			Chlorite seams common. Localised intense Fe-ox staining.			9605	.006	.03	.009		
146						144					
			146.4 1.5cm milky qtz. vein, 145° c.a. no sulfides		qtz	9606	.001	.05	.008		
						146					

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
146	148		147 Shear fabric defined by alignment of bt, chl, 125° c.a.		125	9607	.006	.05	.017		
148	150		148·78 5mm qtz-calc-py vein, (chl. on margins), 30° c.a. 149·04-149·45 Qtz-calc-chl vein. Tr py. in vugs, 15° c.a.	148·13-151·26 Tr. py dissem through rock. Local conc"s up to 1%.	calc-qtz-py	9608	.007	.04	.011		
150	152		151·06 1cm calc-qtz-py vein; 151·22 4cm calc-qtz-py vein } 62° c.a. 151·26-158·15 C.I. variable - intense k-spar alt. over 20-30 cms (C.I. = 0-5). Rel unaltered monzo-diorite C.I. ave 20. Bt alt. → chl in places. Calcite, chlorite veining common	151·26-160·6 Dissem. py, unevenly distributed, local conc" 2-3% on fracts & veins. Ave. 1%. Typically occurs ̄c mafic minerals. V. fine tr. cpy.	calc-qtz-py	9609	.006	.03	.018		
152	154	* Run for Pb, Zn, Cu	153·34-153·43 Qtz vein	153·34-153·43 Patches (up to 6mm across) of honey-coloured to metallic grey (almost black) sphalerite, 3%. Tr. cpy, py.		*9610	.006	.05	.017		
154	156		Most of interval alt. to some degree. Localised sauss. of plag in patches (ave. 1cm across). Ep. main. constit. Magnetism variable, ave. mod. to very weak over 30-50cms.			9611	.005	.03	.013		
156	158·15		Local shear fabric (weak) ave. 62° c.a.			9612	.005	.02	.014		
158·15	160		158·15-160·6 Intense k-spar alt. C.I. = 0-5. Calcite veining common. Local intense Fe-ox staining on fracts. Pervasive calcite alt. in places. 159·3 Chl.-py seam offset by fracture. Seam 40° c.a. Offset by 4mm		calc.-chl; fract.; 4mm; chl-py seam	9613	.006	.06	.013		

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08 page 12 of 15

FROM	TO	LITHOLOGY
163.82	195.5	Coarser Grained Monzo-Diorite Slightly coarser-grained, C.I. ±25; local intense k-spar alt (C.I. 0-5), not common, over few cms. Sauss. of plag. common; plag. typically greenish colour due to predom. of epidote alt. Calcite & Fe-cb. veins common. Chlorite seams common, assoc. spec hm seams. Bt typically alt. to chlorite. Local strong shear fabric marked by alignment of chl. Sheared zones [illegible] abundant calcite & Fe-cb. veins & chl ± hm seams. Pervasive calcite alt. & chlorite in groundmass. Bt alt. to chl. [illegible] Variable magnetism, ave. mod. Strong in places.

ALTERATION

160.6-161.56 C.I. ±10. Weak-mod. k-spar alt. Bt. typ. alt. chl. Calcite, Fe-cb. & chl. veins common.

161.56-162.04 Intense k-spar alt. Mn-ox staining on fractures.

162.04-163.82 C.I. ±10 with intervals of intense k-spar alt. over few cms. Local Fe-ox staining. Chlorite seams common.

164.7-164.9 Highly broken, fractured. Intense Fe & Mn-ox. staining on fractures.

171.93 1cm calcite vein, 50° c.a.

172.28 S.G. = 2.71

172.6-172.76 Local intense shear fabric, 135° c.a.

174.57 1.5cm milky qtz-calcite vein, 148° c.a.

MINERALIZATION

160.55 Tr py in qtz-calc-chl-hm vein, 45° c.a.

160.56-161.56 Tr py, local conc. in seams to 0.5%

No significant sulfides in bleached zone

163.82-167.7 Py unevenly distributed - occurs tr. dissem. & mafic mins & in local concns up to 1% over few cms. In sheared zone py increases to ave. 1%, local concns. in veins & seams ≥ 2%.

167.7-176.18 Tr. py. & mafic minerals. Local concns. in calc (± qtz) veins & chlorite seams (0.5%).

170.78 Tr. mal. in qtz-calc-chl. seam.

170.86 Mal. on fract. surfaces. Intense Mn-ox. staining

171.7 Tr. mal. in calc-chl vein

172.52 Tr mal. in fract. Intense Fe-& Mn-ox staining

173.7 Tr az in fract.

No sulfides in qtz. vein

STRUCTURE

ASSAY GEOCHEMISTRY

SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
9614	.005	.06	.039		
160.6					
9615	.004	.02	.017		
162					
9616	.001	.03	.016		
163.82					
9617	.002	.06	.024		
166					
9618	.005	.05	.021		
168					
9619	.004	.06	.018		
170					
9620	.005	.02	.019		
172					
9621	.006	.04	.035		
174					

Depth scale: 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08 page 13 of 15

FROM | TO | LITHOLOGY | ALTERATION | MINERALIZATION | STRUCTURE | SAMPLE NUMBER | ASSAY GEOCHEMISTRY (Au, Ag, Cu, Pb, Zn)

Depth scale: 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188

ALTERATION

175·31 Fe-cbt veining [illegible] zone, 45° c.a. [illegible] of vein.

179·62-180·56 [illegible] shear fabric [illegible] 135° c.a. Hm veinlets [illegible]

181·66-183 [illegible] fabric, [illegible] c.a

184·4-184·7 Ep (+ calc ± sericite) patches (1-5cm) through rock, 5%

184·7-192·2 C.I. ± 20, Weak (to intense, locally) shear fabric, 60° c.a. (ave.). Local zones of K-spar alt. (mod-intense over [illegible]). Minor sauss. plag. Variable magn. Calc. veining + chl seams common.

186·96 Calc-chl veinlet, 60° c.a

187·52-187·62 Qtz-calc. vein, 35° c.a. Tr. spec. hm. tr. cpy.

MINERALIZATION

176·18-177·7 Local concn of py (to 0·5%) in veins + seams. Tr cpy

176·5 Tr mol + tr py (oxd.) in fracture

177·7 3% py + cpy, v. fine in chl-calc. vein.

179·27-181·66 V. fine py, unevenly distb., assoc. c mafics in rock. Ave. 0·5%.

181·66-184·7 No sig. [illegible]

184·70 Dissem. py occurs c mafic minerals. Uneven distb. Local concn in veins c seams to 2% Ave 0·5%. Tr cpy, [illegible] occurs in veins & seams.

187·85-188·1 Local concn. of py in calc-chl seams (crystals up to 2·5 mm) 3% in veins. @ 188·1 calc-chl vein, 140° c.a. 3% py. Tr cpy.

STRUCTURE

~176: Fe-cbt, chl
~179·5: 135
~182·3: 137
~187: calc, chl
~188: chl, calc, py
~188·6: 55

SAMPLES / ASSAY GEOCHEMISTRY

From	To	Sample Number	Au	Ag	Cu	Pb	Zn
	176	9622	.004	.03	.013		
176	178	9623	.032	.04	.069		
178	180	9624	.008	.06	.038		
180	182	9625	.007	.05	.032		
182	184	9626	.007	.03	.028		
184	186	9627	.013	.06	.078		
186	188	9628	.044	.11	.133		

Scale _____ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08 page 14 of 15

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
188				188.1 Tr py throughout, typ occurs with mafic minerals		9629	.013	.04	.044		
189											
190			190.43 0.5cm calcite veil, 135° c.a. Tr. cpy.	190.43 Tr cpy in calcite vein	calc. cpy	190					
191						9630	.005	.06	.022		
192			192.2-193.85 Variable K-spar alt. C.I. 0-10.	Uneven distrib" py. Local conc. in veins (calc ± qtz, hnl, chl seams) up to 2% ave. 0.5% cpy typically in veins, vugs up to 0.5%, ave. tr.		192					
193			192.26-192.55; Highly fractured, intense Fe-z Mn ox staining			9631	.007	.12	.045		
194			194.26-195.5 Intense K-spar alt. C.I. 0-5. Spec. hnl seams common.	194.26-195.5 Local conc. cpy on fracts. & in veins (up to 1%, ave. 0.25%		194					
195						9632	.013	.14	.158		
			195.5-215.19 C.I. ave 25 Variable C.I. = 10 in places. Occasional intense K-spar alt. (C.I. = 0) over 1-2 cms. Calcite (± dol, hnl) veinlets & chl, spec. hnl seams common throughout. Local shear fabric in places (ave. 60° c.a.) Bt typically alt. to chl. Occ. sauss. of plag, localized Magnetism; variable (ave. moderate)	195.5-204.6 Tr mal. & qtz. in veins and on oxid. fracture surfaces. Dissem. tr py, unevenly distributed, local concentrations in veins & seams up to 1%. Tr. cpy throughout.		196					
197						9633	.031	.22	.230		
198						198					
199						9634	.014	.16	.178		
200					60	200					
201						9635	.005	.05	.058		
202						202					

Scale _____ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-08 page 15 of 15

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE
202					
203					
204			204.04-204.24 Intense k-spar alt. C.I. = 0	204.3 Tr. cpy in qtz. vein. Local conc. of py around vein (1/2 %)	
205			204.24-209.6 C.I. variable 10-20. Intense bleaching over few cms (C.I. = 0) Bt alt. to chl Hm & chl. seams common. Abundant calcite veinlets. Tr az. & mal. in fractures.	204.6 2 cm k-spar vein Tr cpy & py in vugs. Silver-grey mineral, metallic, black streak, v. fine ? pssb arsenopyrite (trace).	
206				204.6-E.O.H. Mal & az. on oxd. fractures Tr. py & cpy	
207					
208			208.5 Calcite-spec. hm. - chl seams, 150° c.a.		chl-calc. spec. hm
209				209.15 az. & tr. mal. in rusty-orange oxd. qtz vein (1.5 cm. wide) chl, calc. + minor sp. hm also occur in vein.	
210				210.8 tr mal & az. in rusty-orange oxd. qtz-calcite veinlets Tr oxd. py.	
211			211.5 Shear fabric 135° c.a. over 20-30 cms.		
212			212.14-212.88 Highly fractured Intense Fe- & Mn- ox staining. Strongly magnetic		135
213			213.4-213.82 As for 212.14-212.88. Test t've for Cu on fractures.		
214				214.78 tr. az. in qtz. calcite vein. Chl & hm along margins of vein, 60° c.a.	
215	215.19	END OF HOLE	214.87 Intense Fe- & Mn- ox staining on fractures Intense bleaching (over few cms). Feldspar has Pinkish colour. Test t've for Cu in fractures.		qtz-calc, chl, hm, az.

SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
9636	.005	.06	.065		
9637	.019	.20	.232		
9638	.001	.03	.011		
9639	.051	.11	.086		
9640	.007	.11	.097		
9641	.005	.05	.075		
9642	.001	.06	.038		

N C G

DRILL CORE LOG - Cover Page

Logged by: R Kenning Start Date: 0 Dec. 1989 Completion Date:

Drill Hole No.: GWS-89-09
Page 1 of 29
Project: Great Western Star

Contractor Information

Drill Contractor: Leber Mines
Foreman: Leslie
Hole Start Date: 3 Dec. 1989
Hole End Date: 7 Dec. 1989

Drill Hole Information

Size of Core: NQ-2
Location:
Property Name: Great Western Star
Claim Name:
Grid Name: Star
Zone Name:
Northing: 7+00
Easting: 5+50 W
Elevation:
Survey Method (eg. compass, altimeter): chain & compass

Drill Hole Orientation Surveys:

Depth	Azimuth	Plunge	Method
collar			

Final Depth of Hole:

Symbols and Abbreviations Used in Log

Specific Gravity Determinations:

Meters	Rock	S.G.
238.25	Monzo-Micrite	2.65
240.50	Lamprophyre	2.82

Boxes not photographed:
15, 16, 17, 18, 19, 20

Note: for core measurements and recoveries, see geotechnical log.

Sample Shipment Information

Sample Numbers	Date Shipped	Shipment No.	Shipped Via	Laboratory	Date Results Received	File Number(s)

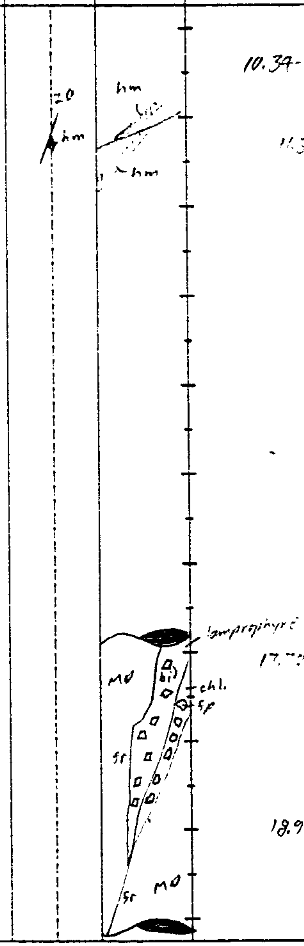
NCG DRILL CORE LOG

Drill Hole No.: GWS-89-C9
Page 2 of 29; From 0 To 10
Project: Great Western Star

Logged by: P.R. Date: 10/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
0			0-3.05 Cased in overburden.											
3			3.05-20	Monzo-Diorite	oxidized bi~chl~ca	py tr; cp local	10							3.05
4			CI ± 10, biotite. Variably but not completely chloritized. Feldspars 80%; kspar ± plag. Many fracture surfaces, all stained with Fe oxides. Rock has been veined & healed by veinlets hm+chl±ca. Almost stockwork. Magnetite ± 2%.					2	tr		.008	.06	.025	9401
5														5
6											.001	.01	.020	9402
7														7
8											.003	.01	.024	9403
9														9
10											.006	.05	.086	9404

N C G	DRILL CORE LOG	Drill Hole No.: GWS-89-07
	Logged by: Date: Sampled by: Date:	Page 3 of 29; From 10 To 20
		Project: Great Western Star



Depth	Graphics (Struct / Log)	Interval	Lithology	Alteration	Mineralization	Color Index	Magnet-ism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
10–11		10.34-11.52			cp tr, assoc with hm seams,	10	2	tr	tr	.006	.05	.086	9404
11–13		11.33		hm vnlt, 3 mm, 20°, described as illustr.						.006	.01	.072	9405
13–15										.001	.01	.015	9406
15–17										.005	.01	.030	9407
17–19		17.70-18.05	(possible altered	Strong massive chlorite, fault gouge).	nil					.018	.04	.036	9408
19–20		18.95	(as illustrated	Lamprophyre chlorite vein						.001	.01	.010	9409

Depth marks: 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

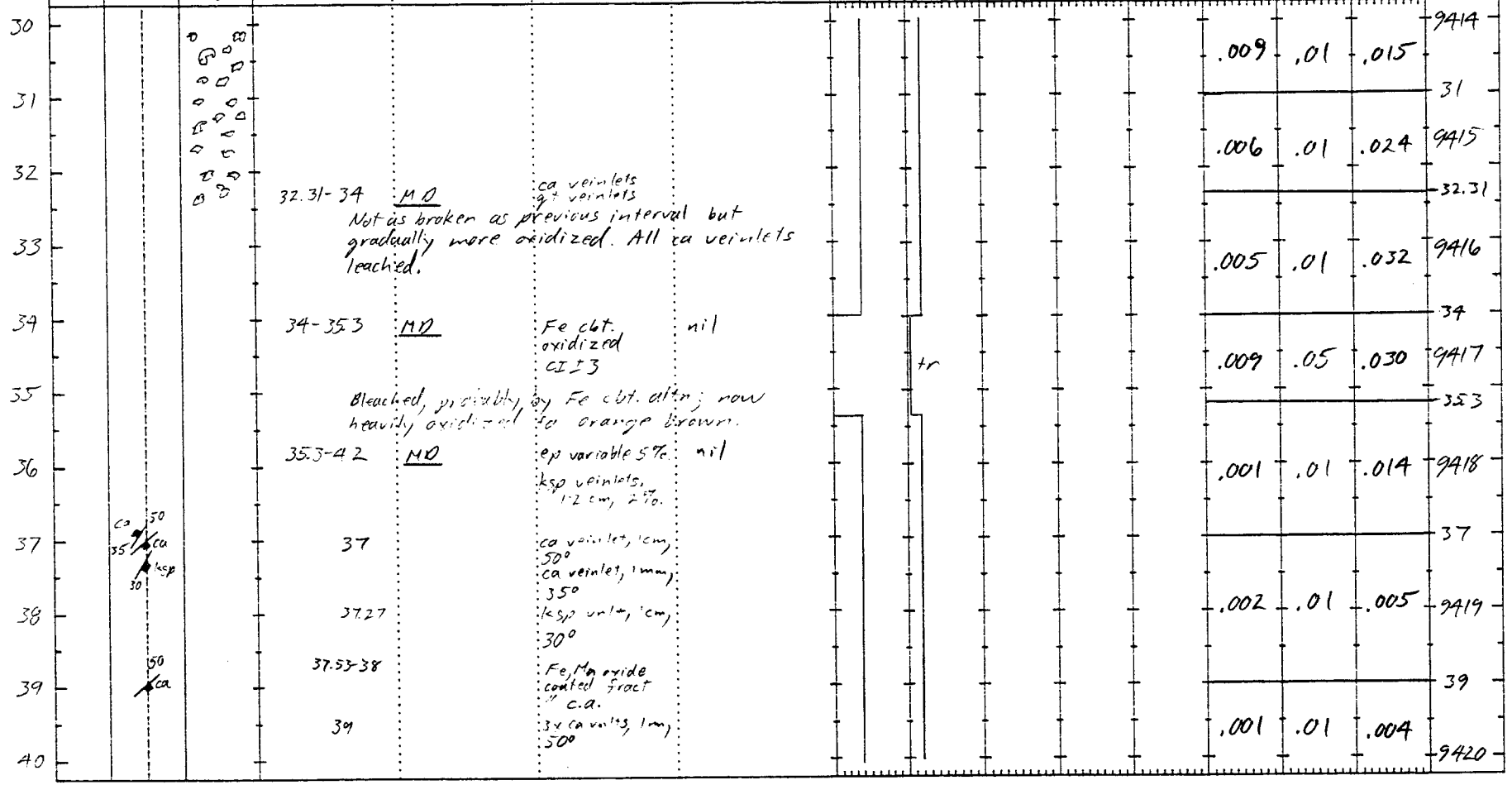
N C G	DRILL CORE LOG	Drill Hole No.: GWS-89-09
	Logged by: P.R. Date: 10/12/89 Sampled by: Date:	Page 4 of 29; From 20 To 30 Project: Great Western Star

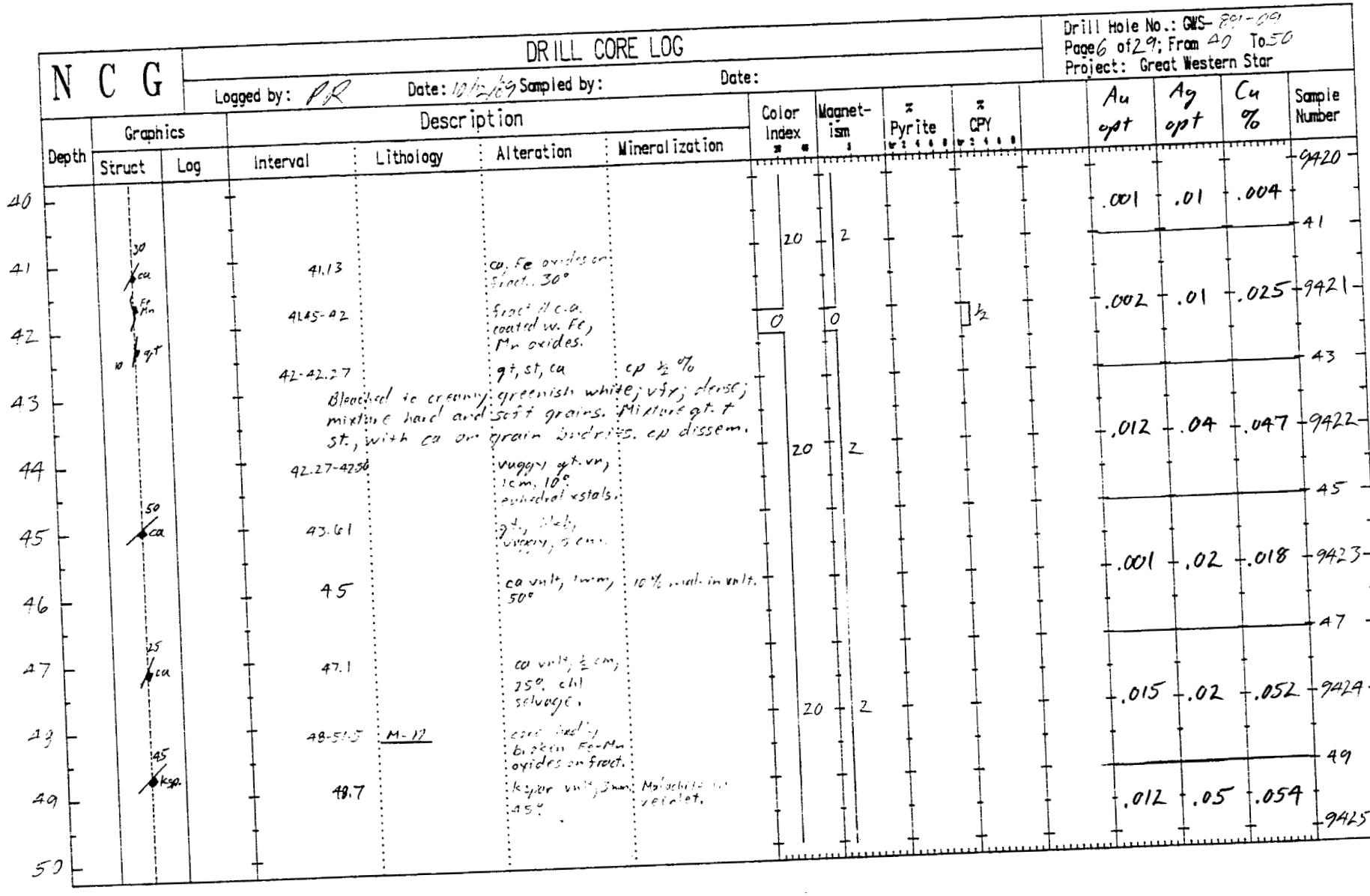
Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnet-ism	% Pyrite	% CPY		Au opt	Ag opt	Cu %	Sample Number
20			20-51.5	Monzo-Diorite	epidote 3%; hm (ca, chl) vnlts; ca vnlts; Fe oxides	nil (except locally)						.001	.01	.010	9409
21			Contact with previous interval arbitrary. Monzo-diorite coarser grained (1-3mm), fresher looking. CI incr to ±20, bi. Minor chloritization. Ep as veinlets + as partial altn. plag. Most fract surfaces rusty but rock not weathered. Py + cp absent except where noted. Mt dissem unevenly in mafics, overall avg. 2%.							speck					21
22												.006	.02	.024	9410
23							20			malach.					23
24												.011	.02	.034	9411
			21.65			speck cp.									
25			23.1			mal. on fract.									25
26	50 ksp mal.	Lamp	25.93		ksp/mal vein, 3cm; 50°	mal 3% in vein.						.006	.02	.036	9412
			26.35-26.45	Lamprophyre	nil	nil									
27			20% millimetric biotite in very calcic groundmass.				20								27
28	40 qt		28.16		qt vein, ½ cm; 40°	Fe oxide (after py?) 10% in vein. malachite tr.				mal.		.009	.01	.046	9413
29			29.26-32.31	MD very broken											29
			29.62			speck cp in ca				speck		.009	.01	.015	
30			29.80			speck cp in bi				speck					9414

N C G — DRILL CORE LOG

Drill Hole No.: GWS-89-09
Page 5 of 29; From 30 To 40
Project: Great Western Star

Logged by: P.R. Date: 10/12/89 Sampled by: Date:




N C G
DRILL CORE LOG
Drill Hole No.: GWS-89-09
Page 6 of 29; From 40 To 50
Project: Great Western Star
Logged by: AR Date: 10/12/89 Sampled by: Date:
Depth
Graphics
Struct
Log
Description
Interval
Lithology
Alteration
Mineralization
Color Index
Magnetism
% Pyrite
% CPY
Au opt
Ag opt
Cu %
Sample Number
40
41
42
43
44
45
46
47
48
49
50
30 ca
Fe Mn
10 qt
50 ca
25 ca
45 ksp
41.13
41.45-42
42-42.27
42.27-42.50
43.61
45
47.1
48-51.5
M-12
48.7
ca, Fe oxides on fract., 30°
fract'd c.a. coated w. Fe, Mn oxides.
qt, st, ca
cp ½%
Bleached to creamy greenish white; v.fr; dense; mixture hard and soft grains. Mixture qt + st, with ca on grain boundaries. cp dissem.
vuggy qt. vn, 1cm, 10° euhedral xstals.
qt, blebby, vuggy, 5 cm
ca vnlt, 1cm, 50°
10% sulf. in vnlt.
ca vnlt, ½ cm, 25° chl selvage.
core badly broken Fe-Mn oxides on fract.
k-spar vnlt, 3mm, 45°
Malachite in veinlet.
20
0
20
20
2
0
2
2
½
.001 .01 .004 9420 41
.002 .01 .025 9421 43
.012 .04 .047 9422 45
.001 .02 .018 9423 47
.015 .02 .052 9424 49
.012 .05 .054 9425

N C G — DRILL CORE LOG

Logged by: *[illegible]* Date: *10/2/89* Sampled by: Date:

Drill Hole No.: GWS- *89-09*
Page *7* of *29*; From *50* To *60*
Project: Great Western Star

Columns: Depth | Graphics (Struct, Log) | Description (Interval, Lithology, Alteration, Mineralization) | Color Index | Magnetism | % Pyrite | % CPY | | Au opt | Ag opt | Cu % | Sample Number

Depth markers: 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60

Struct graphics annotations: qt hm py (near 54); qt hm py cp (near 56)

Description

Interval	Lithology	Alteration	Mineralization
50.1		sgmt of qt vnlt, 1cm.	
51.5-55.76	Monzo-[illegible]	Fe cbt; intense	py 1%

Intensely altered to medium grey, fg rock. Moderately hard. Much of it oxidized to orange-red. Oxidized rock reacts readily with HCl; non-oxidized reacts weakly. Much of altn product may be Fe-carbonate; siderite or ankerite. In oxidized zones, where Fe leached out, calcite may be a product of oxidation process (??) Py finely dissem. Ca veinlets common; 3% of rock. Non-magnetic. A few short intervals, max 20 cm, less altered.

53.86-54.42 qt veinlet, 1 cm, spec. hem., sub-ll core axis. py 10%

55.6-57.68 qt veinlet, [illegible], spec. hem, sub-ll c.a. py 1%, same as wall rock. cp trace.

Interval	Lithology	Alteration	Mineralization
55.76-57.20		kspar, 60%	py 1%

Hard white mineral, tentatively id. as kspar, becomes important constituent of altn. zone.

Interval	Lithology	Alteration	Mineralization
57.20-74.30	M-D.	kspar 40% Ca vnlts 2% Ep 5%	py tr cp nil except where noted.

Relatively unaltered monzo-diorite. CI ± 20. Localized bleaching over 2-5 cm. Sulphides present only in Ca vnlts or, more rarely, kspar veinlets. Ep partly repl. plag.

Assays

Interval (m)	Au opt	Ag opt	Cu %	Sample Number
50.25-51.5	.005	.03	.035	9426
51.5-53	.008	.05	.049	9427
53-54.4	.004	.04	.017	9428
54.4-55.76	.006	.05	.034	9429
55.76-57.2	.007	.08	.072	9430
57.2-59	.010	.03	.020	9431
59-	.006	.01	.030	9432

Sample number boundaries: 9425 – 50.25 – 9426 – 51.5 – 9427 – 53 – 9428 – 54.4 – 9429 – 55.76 – 9430 – 57.2 – 9431 – 59 – 9432

NCG DRILL CORE LOG

Logged by: P.R. Date: 11/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-C9
Page 8 of 29; From 60 To 70
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
60	65 qt		60.53		qt vnlt, 1 cm, 65°						.006	.01	.030	9432
61			61.23-62.48		cavities after ca, 5%.	Fe oxides, possibly after py, trace malachite.								61
62							20	2	tr		.015	.04	.035	9433
63	50 qt		63.32		qt veinlet, 1 cm, 30°	nil								63
64											.001	.01	.005	9434
65														65
66											.005	.02	.027	9435
67	50 qt		66.70		qt veinlet, 5 cm, 50°	nil	20	2	tr					67
68											.001	.03	.016	9436
69	65 qt		69.18		qt vein, 1 cm, 65°	mal. in vein.								69
70											.006	.05	.094	9437

NCG DRILL CORE LOG

Logged by: PR Date: 11/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 9 of 29; From 70 To 80
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
70														70.35
71							20	2	tr		.012	.01	.086	9438
			71.03			cp vnlt, ½ mm, 30°								71.74
72			71.74-72.48		bi rca, 100%	cp tr.	50	3			.001	.03	.010	9439
			Dike or vein. Consists of mixture of felted biotite an calcite. Calcite forms groundmass and 1 mm to 2 mm spots, as well as veinlets. Core of zone hardened over about 20 cm; probably kspar. CI ± 90.											72.48
73							20	2	tr		.001	.02	.010	9440
74														74.30
			74.30-78.38		Fe cbt ± strgt. intense	py 1% cp tr								
75			Bleaching, variable but overall intense. Rock medium greenish grey. Locally oxidized. qt veinlets 3% of rock, variably oriented. veinlets specular hematite, 1%. py dissem. cp assoc. w. calcite, trace. Rock reacts with cold HCl when powdered; oxidizes to orange red. Much of alt. probably Fe cbt.				5	1	1	tr	.011	.04	.025	9441
76	qt chl													76
	qt cu 20													
77	45 qt							1	1	tr	.002	.02	.010	9442
			75.35-75.69		qt-chl vnlt, 1 cm, sub-// core axis.	cp ½%								
78			qt veinlet broken, healed by chl. cp occurs w/in 1cm of vein.				5							78
			75.75-76		qt-ca vnlt, 1 cm, 20°									
79			77.05		qt vein, 2 cm, 45°	cp tr. w. vnlt.		1	1	tr	.006	.04	.021	9443
80							20	2						80

NCG DRILL CORE LOG

Logged by: P.K. Date: 12/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 10 of 29; From 80 To 90
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
80			78.38-79.85		ksp + Fe cbt + ST + qt	py 1%, cp tr								80
			Atn becomes hardened by ksp, ±40%.											
81			79.1		ca-spe.hm. vnlt, ½ cm, 20°						.001	.01	.013	9444
82			79.28		Qt-chl vein, 2 cm, 45°									82
	30° qt		Qt vein with seams chlorite.											
83			79.85-105.64	Monzo-Di.	ksp ±5% qt vnlts ± 1% chl. vnlts ± 1%	py, cp nil except locally as noted.					.011	.02	.026	9445
84	40° ksp.				ca vnlts ± 1% ep ± 5%. Fe oxide local.									84
85			Relatively fresh Monzo-Diorite; zones a few cm intense ksp, patchy ep, spots + vnlts. Very localized sulphides assoc. with qt, chl or ca veinlets. Fe oxide staining variable; most intense within 2 m of upper bndry of intrusion.								.006	.02	.021	9446
86														86
87			82.75		qt. vnlt, 2 cm, 30°						.002	.01	.012	9447
			84.35-84.44		Ksp vein, 40°	py tr, cp tr, mal.								
88			86.7		jarosite on fr. surface									88
			First time jarosite noted.											
89	65° cu chl		89.70		Ca-chl vnlt. lenticular; 1 cm max, 65°						.014	.01	.028	9448
90														90

N C G — DRILL CORE LOG

Logged by: PR Date: 12/12/89 Sampled by: Date:

Drill Hole No.: GWS-
Page 11 of 29; From 90 To 100
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
90			90.13		ksp-ep vnlt, 2cm, 70°	minor mal.								90
91			90.34		Ca vnlt, 1cm, 70°)						.011	.01	.068	9449
92														92
93											.015	.01	.052	9450
94														94
95			94.35		qt vnlt, 1cm, 30°	mal in vnlt.					.008	.02	.042	9451
96			95.88		qt vnlt, 1cm, 60°									96
97			96.19 - 96.68		qt vein, 30°	barren					.005	.01	.018	9452
98														98
99											.002	.03	.016	9453
100														100

N C G — DRILL CORE LOG

Logged by: P.Z. Date: 12/2/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 12 of 29; From 100 To 110
Project: Great Western Star

Depth: 100 – 110

Interval	Lithology	Alteration	Mineralization
101.3-101.47	[illegible] of qt + chl vugary, probably [illegible] calcite, now weathered out.	qt-chl.	
103-103.9	Variable intensity shear fabric; sericitic shear planes separating micro-lithons monzo-di.	shear, 35°	
103.66 + 103.87		qt vnlts // shear	tr malachite in vnlts.
103.28 + 103.43		ca vnlts, 30° x'ing shear foliation	tr cp in ca vnlts.
104.37		qt [illegible] 40°	
103.9-106.56	Similar to interval above but intensity of shearing much less.	weak shear, as above.	
106.56-108.57	Altered to f.g., medium grey. Slight greenish tinge, possibly st. A few qt. veinlets. Chalcopyrite dissem.	Fe cbt, intense.	cp, tr.
108.57-112.41	Only localized cbt. altn. Sulphides localized, not dissem.	Fe cbt variable	cp tr.
109.90	6cm x 2cm; probably part of vein.	clot qt-cbt.	cp 10%

Interval	Color Index	Magnetism	% Pyrite	% CPY
100-106.56	20	2		
106.56-108.57	9	tr		tr
108.57-110	15	2		10

From	To	Au opt	Ag opt	Cu %	Sample Number
100	102	.011	.06	.022	9454
102	104	.012	.05	.030	9455
104	105.3	.005	.01	.011	9456
105.3	106.56	.005	.04	.014	9457
106.56	108.57	.006	.11	.044	9458
108.57	110	.006	.05	.050	9459

N C G — DRILL CORE LOG

Logged by: P.R. Date: 13/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page/3 of 29; From 110 To 120
Project: Great Western Star

Interval	Lithology	Alteration	Mineralization
110.47		Silicified shear, 3cm, 45°	
111.4		qt vein, 45°, 5 cm.	
112.12		vugs after ca.	mal assoc. with vugs.
112.41-114.36		Fe cbt intense; Fe oxide stains localized. ksp'ar 60%	cp dissem; py 1%, cp ½%
Similar to 106.56-108.5 Magnetite present but in local zone.			
114.36-120		ca veins 1%; qt veins [illegible]%; bi → chl (partial); vugs after ca.	[illegible]
carbonate [illegible] localized over [illegible] intervals. Overall 5% of interval			
114.86		qt vein, 2cm, 30°	vein barren.
119.80			cp, specks in bleb ca.

Depth interval	Color Index	Magnetism	% Pyrite	% CPY
110–112.41	15	2		tr
112.41–114.36	3	1	1	½
114.36–120	20	2		specks (at 119.80)

From	To	Au opt	Ag opt	Cu %	Sample Number
110	111.2	.003	.01	.032	9460
111.2	112.41	.011	.06	.158	9461
112.41	114.36	.005	.04	.022	9462
114.36	116	.004	.01	.014	9463
116	118	.004	.01	.014	9464
118	120	.005	.02	.012	9465

N C G — DRILL CORE LOG

Logged by: [illegible] Date: [illegible] Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 14 of 29; From 120 To 130
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
120			120-122.45		kspar 60% Fe clst 20% CI ± 10 Fe oxide stain ca vnlts 5%	py tr cp local as noted								120
121							10		tr		.005	.01	.017	9466
122					Altered interval. Looks much like clst. altered intervals above but rock hardened by kspar. Not very sulphidic, but Fe oxides suggest more may have been present. Qz veining less sign. than above.					speck	.003	.01	.010	121.2 9467 122.45
123								2			.003	.02	.013	9468
124			121.63		qt-chl. vnlt, 2 cm, 45°									124
			121.90		qt vnlt, ½ cm, 40°						.003	.01	.019	9469
125			122.3			spark cp. with ca.	20							
126			122.45-129.25		ca-chl vnlts, 3% qt vnlts rare Fe oxides on fract.	none.								126
127					Relatively less altered. No Fe oxide staining other than on fractures.						.005	.01	.015	9470
			127.4		qt - ca vein, 5 cm, 60°									127.6
128			Vein mainly qt, 4 cm, with 1 cm ca on downhole side.								.005	.01	.017	9471
129	28		129.25-130.9		shear, 28° qt vnlts, 1% ca vnlts 3%									129.25
130					Shear fabric marked by alignment of mafic minerals. Quartz veinlets tend to		10	1			.004	.02	.007	9472

(next page)

N C G — DRILL CORE LOG

Logged by: Date: Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 5 of 29; From 130 To 140
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
130			follow shear fabric; calcite later + cross-cuts shear fabric. Fe oxide staining on srfc, Sulphides not noted but may have existed.				10	2						130.4
131			129.35 + 129.45		2 x qt vnlts, 4mm, 28°						.004	.01	.022	9473
132			130.4-134.14		qt vnlts, 1% ca vnlts, 1%	mal stain with qt.								132
133			133		qt-ca veinlet ½-3cm, 25°	cp in vnlt.				specks	.018	.01	.085	9474
134	40 qT 40		133.8		qt vnlt, 40°	malachite in vnlt.								134
135			134.14-134.55		Strong shear fabric, 40°						.006	.01	.025	9475
			Shear marked by mineral alignment + closely spaced slip planes.				20	2						
136			134.34		qt vnlt, 40°, // shear.	trace azurite in veinlet.								136
137	45		134.55-141.33		qt veinlets rare ca vnlts 1%. cp vnlts, occasional.	nil					.001	.01	.007	9476
138			137.26		qt vnlt, 2cm, 45°									138
139											.004	.01	.019	9477
140														140

N C G — DRILL CORE LOG

Logged by: R.R. Date: 14/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 16 of 29; From 140 To 150
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
140														140
							20	2			.001	.03	.013	9478
141			141.33-144.20		Kspar, 70% ca,chl	py tr cp tr								141.33
142			Altn variable but overall intense. Highly fract, healed by ca+chl. No vuggy as ca leached out. mt amount similar to unaltered rock but conc. in seams & veinlets. Malachite locally, assoc. with vugs where ca leached out.				5		tr	tr	.006	.03	.109	9479
143														142.9
											.043	.04	.197	9480
144			144.20-152.7		Kspar 50% ca 1% Fe oxides on fractures.	py tr								144.2
145											.011	.04	.081	9481
146			Kspar altn. similar to previous interval persists, but more sporadic. Longest interval intense altn. 20 cm. Py unevenly distr., up to 10% locally in zones intense altn.				15	2	tr					146
147			147.8		spec. hem. on fract.						.002	.01	.011	9482
148														148
149											.006	.01	.017	9483
150														150

N C G — DRILL CORE LOG

Logged by: P.R. Date: 14/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09

Project: Great Western Star

Interval	Lithology	Alteration	Mineralization
152.7-156		Shear, 47° qt vnlts, 1% ca vnlts, 2% CI ±15	py 2% cp not noted
Shear marked by very thin chloritic partings separating 1-2 mm micro-lithons fp. Fabric not continuous throughout interval but comprises 50% of interval. Py dissem; mainly repl. mafics, or mt in mafics.			
153		ca vnlt, 1cm, 45°, sub-// shear.	
153.25-153.32		kspar intense; contacts // shear	
154.82		ca-qt-chl vnlt, 0-45°	
156-161		shear weak qt vns, 2% ca vnlts 1%	py 1% cp rare trace.
Shear fabric present locally but not characteristic. Py dissem, usually with mafics. Not as evenly distr. as previous interval.			
157.50-157.60		qt. vein, 35°; sucrosic	

Struct: 47 qt; 35 ca qt; 35 qt; 30 ca chl; 30 qt; 62 ca

Depth	Color Index	Magnetism	% Pyrite	% CPY
150-152.7	15	2	tr	
152.7-156	15 (0)	½	2	
156-160	20	2	1	

From	To	Au opt	Ag opt	Cu %	Sample Number
150	151.35	.012	.02	.012	9484
151.35	152.7	.007	.02	.016	9485
152.7	154.35	.009	.03	.010	9486
154.35	156	.019	.02	.008	9487
156	158	.008	.01	.009	9488
158	160	.009	.06	.011	9489

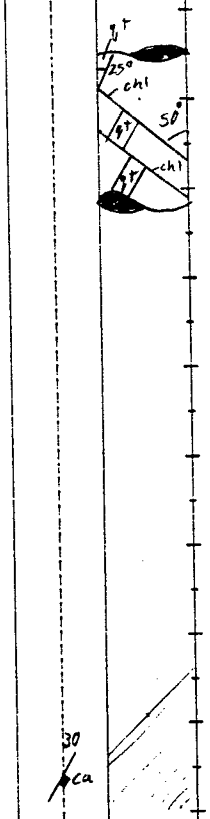
N C G — DRILL CORE LOG

Logged by: P.R. Date: 14/2/89 Sampled by: Date:

Drill Hole No.: GWS-89-09

Project: Great Western Star

Depth: 160–170



Description

Interval	Lithology	Alteration	Mineralization
158.46		ca-chl vnlt, 1 cm, 30°	
159.13		qt vnlts, 3 mm, 30°	
159.75		ca vnlt, ½ cm, 62°	
161-164.5		relatively unaltered. qt vnlts 2%, ca vnlts 2%.	py tr, cp rare tr.

py conc. variable; locally to 1% but overall just trace.

Interval	Lithology	Alteration	Mineralization
161.5-162		qt vn, 5 cm, 25°	

vein displaced stepwise by series chloritic slips at 50°, as illustr.

Interval	Lithology	Alteration	Mineralization
163.95			specks cp.
164.5-166		ca vnlts 5%, CI ≐ 10	py tr, cp nil except as noted.

Core ... by envelopes carbonate bleaching around ca vnlts. Becomes fx, medium gray.

Interval	Lithology	Alteration	Mineralization
166-168.87		shear fabric, 55°, kspar 70%	py 2%, coars. dissem. cp nil (?!)

Shear fabric marked by light-dark banding of variable kspar intensity. Sericitic partings. Mt removed in most intense kspar.

Logs

Interval	Color Index	Magnetism	Pyrite %	CPY %
160–161	20	2	1	
161–164.5	20	2	tr	
164.5–166	10			
166–168.87	15		1	
168.87–169.77	20	3	5	
169.77–170			tr	tr

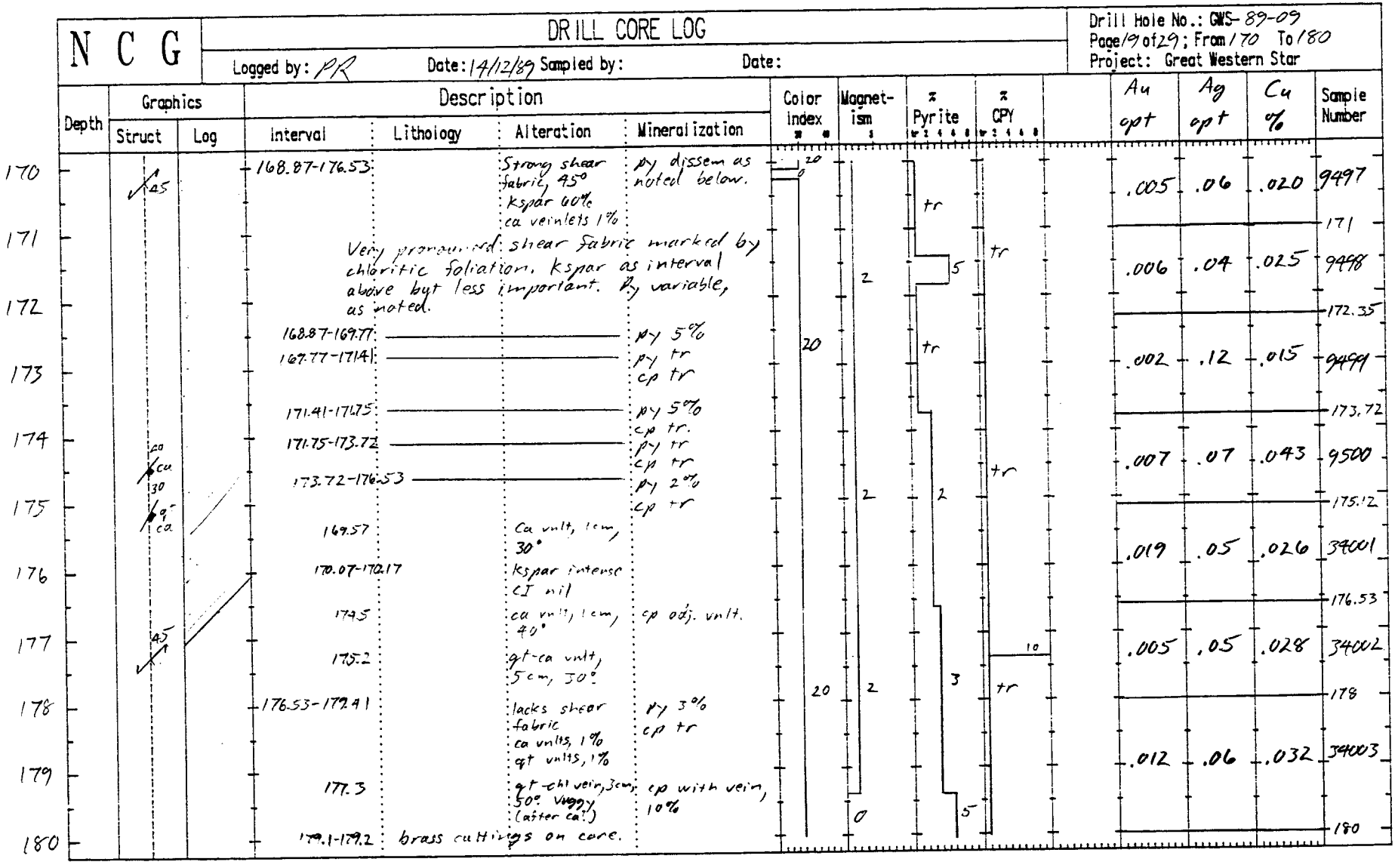
Assays

From–To	Au opt	Ag opt	Cu %	Sample Number
160–162	.006	.02	.006	9490
162–163.25	.002	.06	.009	9491
163.25–164.5	.010	.09	.016	9492
164.5–166	.004	.09	.017	9493
166–167.5	.015	.17	.012	9494
167.5–168.87	.012	.05	.011	9495
168.87–169.77	.016	.03	.017	9496

N C G — DRILL CORE LOG

Drill Hole No.: GWS-89-09
Page 9 of 29; From 170 To 180
Project: Great Western Star

Logged by: PR Date: 14/12/89 Sampled by: Date:



N C G — DRILL CORE LOG

Logged by: PK Date: 4/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 20 of 29; From 180 To 190
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
180		50	179.21-180.28		shear @ 50° mt nil	py 5% cp tr		3	5	tr				180
181			180.28-185.84		shear @ 45°-50°, localized. ca veins 1% qt veins 1%				2	0.1%	.067	.04	.093	34004
182			180.28-185			py 2% cp 0.1%	20	2	1	1				182
183			181.84-182.25			cp 1% py 1%			2	0.1%				
184	50		185-185.84			py 3% cp 0.1%	5	1	½	½	.028	.05	.102	34005
			183-183.29		kspar 80 CI 5	cp ½% py ½%			2					184
185			185.84-189.59	Calcite-Quartz Vein	ca, qt.	py 2% cp ½%	20	2	3	0.1%	.018	.05	.048	34006
186		45°	Ratio calcite 80/20, Qt was later shattered and re-cemented by ca. vein (milded grey-white, at 45°											185.84
187		qt+ca vein	189.30-189.59		hm 5%.					1/4	.022	.15	.215	34007
188		qt+ca vein	189.59-190.40	Monzo-Diorite	shear fabric, 50°	py 3% cp ½%			2					187.7
189		qt+ca vein	pyrite dissem + fracture controlled; cp fracture controlled.								.046	.18	.154	34008
	50													189.59
190							10		3					

N C G — DRILL CORE LOG

Logged by: P.K. Date: 14/12/89 Sampled by: Date:

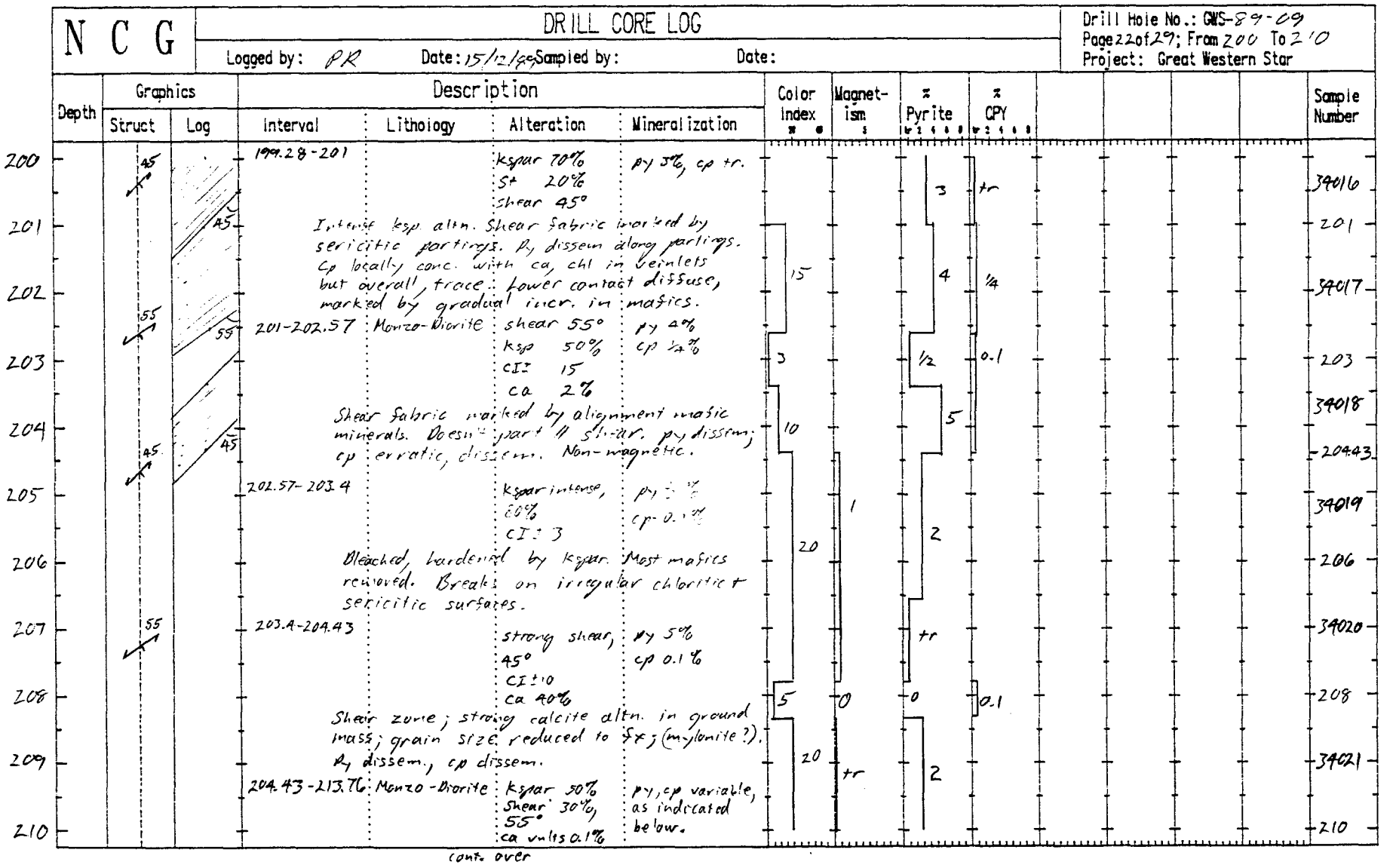
Drill Hole No.: GWS-89-09
Page 2 of 29; From 190 To 200
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
190	50 ca py cp		190.9-191.05		ca vein, 50°, banded	py 10% cp tr.	10		3	1/4	.027	.11	.082	34009
														190.90
191			191.05-191.20		ksp/ar 90%	cp 2%			10 tr	tr				
			191.20-192	Monzo-Diorite	ksp/ar 30% CI ± 20	py 2% cp tr	20		2	tr	.093	.06	.147	34010
192														192
			192-195.59	Lamprophyre										
				10% mafic phenocrysts in very calcic groundmass. Upper contact marked by 7 cm. of fault gouge. Localized chloritic shears within unit at 45° c.a.							.001	.06	.007	34011
193	45													
194							30							194
											.005	.07	.086	34012
195			195.59-197.71	Monzo-Diorite CI ± 20	Shear, 45°									195.59
			195.59-196.29			py tr, cp tr dissem		2	tr	tr	.006	.09	.189	34013
196			196.29-197.71			py 3%, cp ± %								196.70
				Pyrite dissem after mafics, cp assoc with ca ± chl vnlts; repl. mafics w/in a few mm of veinlets.			20		3	1/2	.007	.08	.110	34014
197														197.71
			196.29		qt-ca-chl vnlt 2 cm, 35°	cp in vnlt, 10%					.037	.21	.140	34015
198			196.49		ca-chl vnlt, 5cm, 40°	cp in vnlt, 2%				tr				
			197.71-198.28		cbt veins, 1-10mm, low ∠ c.a.	cp tr in wall rock mal tr in veins.			3					199
199				Veins are mixture white ca, fragmented, in matrix orange-red Fe oxides that may be after Fe cbt.							.011	.05	.052	34016
200														

N C G — DRILL CORE LOG

Logged by: PR Date: 15/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 22 of 29; From 200 To 210
Project: Great Western Star



cont. over

N C G — DRILL CORE LOG

Logged by: P.R. Date: 6/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 23 of 29; From 210 To 220
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
210			204.93-213.76 (cont.) Degree of shearing variable on scale of 20-30 cm. Localized zones intense kspar altn to 20 cm. Ca as vnlts.					tr	2		210
211			204.93-206.51		mt 2% CI ± 20	py 2%, dissem	20	2	tr		34022
212			206.51-207.80		mt 2% CI ± 20	py tr					212
213			207.80-208.26		kspar 80% CI ± 5 mt nil	cp 0.1%	2	0	½	tr	34023
214			208.26-210.63		shear 55° CI ± 20 mt tr	py 2%	40	2	0		214
215			210.63-212.70		CI ± 20 mt 2%	py tr	10	1	1		34024
216			212.70-213.76		kspar 80% CI ± 2	py ½% cp tr mal tr					216
217			213.76-213.92	Lamprophyre	CI ± 40 mt 2% ca 50%	nil					34025
			Contacts approx 35° c.a.								
218			213.92-218.05	Monzo-Diorite	CI ± 10 shear 10% kspar 60% ca vnlts 1%	py variable 1%		2			218
219			Character highly variable on scale of 10-30 cm. Variables are shearing, kspar flooding, py. Py most intense where most sheared.								34026
220											220

N C G — DRILL CORE LOG

Logged by: PR Date: 6/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 2 of 29; From 220 To 230
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
220			218.05-220.20	Monzo-Diorite	shear 45°	py tr					220
			Interval characterized by shear fabric, marked by stretching of mafics + sericitic foliation.					2			
221			220.20-221.40	M-D	ca vnlts 2%	py tr	20				34027
			221.40-222.20		kspar 90%	cp tr w. ca vnlts					
					ca vnlts 1%						
222					chl 2%						222
					mt 0						
			Interval characterized by kspar flooding								
223			222.20-223.78	M-D	CI 20	py tr	20				34028
					Kspar 40						
					mt 2%						
224			223.25-223.95		Kspar vnlt, 20°	mal tr	30				224
					hm selvages						
225			223.78-224		kspar 90%	py tr					34029
					ca vein 10%						
			224-224.33	M-D	CI 30	py tr					
226			224.33-224.80		kspar 90%	py tr					226
					ca vein, 10%	mal tr					
			224.80-229.42	Monzo-Diorite	CI 20, bi	py, cp as noted	20				34030
227					ep 2%, local patches						
					ca vnlts, 1%						
228					bi → chl						228
			Comparatively fresh looking, ca veinlets common, hm vnlts common. Lacks shear fabric except locally. Biotite partially chloritized.								34031
229			224.80-229.37			py trace					229.37
			229.37-230.15		kspar 80%	py 2%	10		2	1/2	34032
					chl, hm,	cp 1/2%					
230											

N C G — DRILL CORE LOG

Logged by: P.R. Date: 16/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 25 of 29; From 230 To 240
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
230			230.15-231.78		CI ± 20 kspar 40	py tr cpy tr	10			½	34032
231			231.78-232.15		CI ± 10 kspar 60	py 1% cp ½%	20		tr	tr	231
232			232.15-235		CI ± 20 kspar 40 cp 2	py tr cpy tr	10	2	1	½	34033
233			Relatively unaltered interval.								233
234			235-239.42		CI ± 20 kspar 40 ca 10	py 1% cp ½%				tr	34034
235			Interval calcified, ca in veinlets and in groundmass. Rock has greyish hue which is characteristic of calcic intervals.								235
236			237.16		qt vnlt, 1cm, 45°	py 2% cpy 1% w/in 1-2 cm of veinlet.	20				34035
237	45 qt		238.35		ksp vnlt, 1cm, 55°	cp 20% in veinlet			1	½	237
238	55 ksp		238.55		ca vnlt, 45°	py 10% cp 10% in vnlt.		2			34036
239			239.42-241.95	Lamprophyre bi 10% ca 40%	chl	nil	40	5			239
240			Biotite phenocrysts in groundmass calcite, chlorite, biotite, ksp, magnetite.								34037

N C G — DRILL CORE LOG

Drill Hole No.: GWS-89-09
Page 26 of 29; From 240 To 250
Project: Great Western Star

Logged by: P.K. Date: 16/2/90 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
240			241.95-243.57	M-D	ca-chl veins, 5% CI: 20	py ½ % cp ½ %	40	5	0	0	34037 240.5
241			Relatively unaltered cp disseminated concentrated with ca, chl.								34038
242			243.57-244.30	Lamprophyre as 239.42-241.95							241.95
			244.30-245.23	Monzo-Diorite.	CI: 20 mt 2% cp tr bi → chl, partial	nil	20	2	½	½	34039
243											243.57
			245.23-246.25	MD	Kspar 80% CI nil ca 2% chl 1%	cp 2%	40	5	0	0	34040
244							20	2			
245			Intensely altered, except 5% remnant unaltered M-D. cp with ca or fract + locally dissem.								245.23
			246.25-248.32	Monzo-Diorite	Kspar 40% CI: 20 ca 2%	py, cp as noted	0	0		2	34041
246										5	246.5
			246.25-246.50		mt nil	cp 5%, repl. mafics					
247			246.50-248.32		mt 2%	py ½% cp tr			½	tr	34042
248			Sulphides on fractures with chl and/or ca. Locally cp to 5%. over 1-2 cm.				40	5	0	0	248
	35 ca qz cp		248.32-248.54	Lamprophyre as 239.42-241.95			20	1	1	½	34043
249			248.54-249.64	Monzo-Diorite.	CI: 20 Kspar 40 mt 1	py 1% cp ½%		5	0	0	250
250											

N C G — DRILL CORE LOG

Logged by: PR Date: 17/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 27 of 29 ; From 250 To 260
Project: Great Western Star

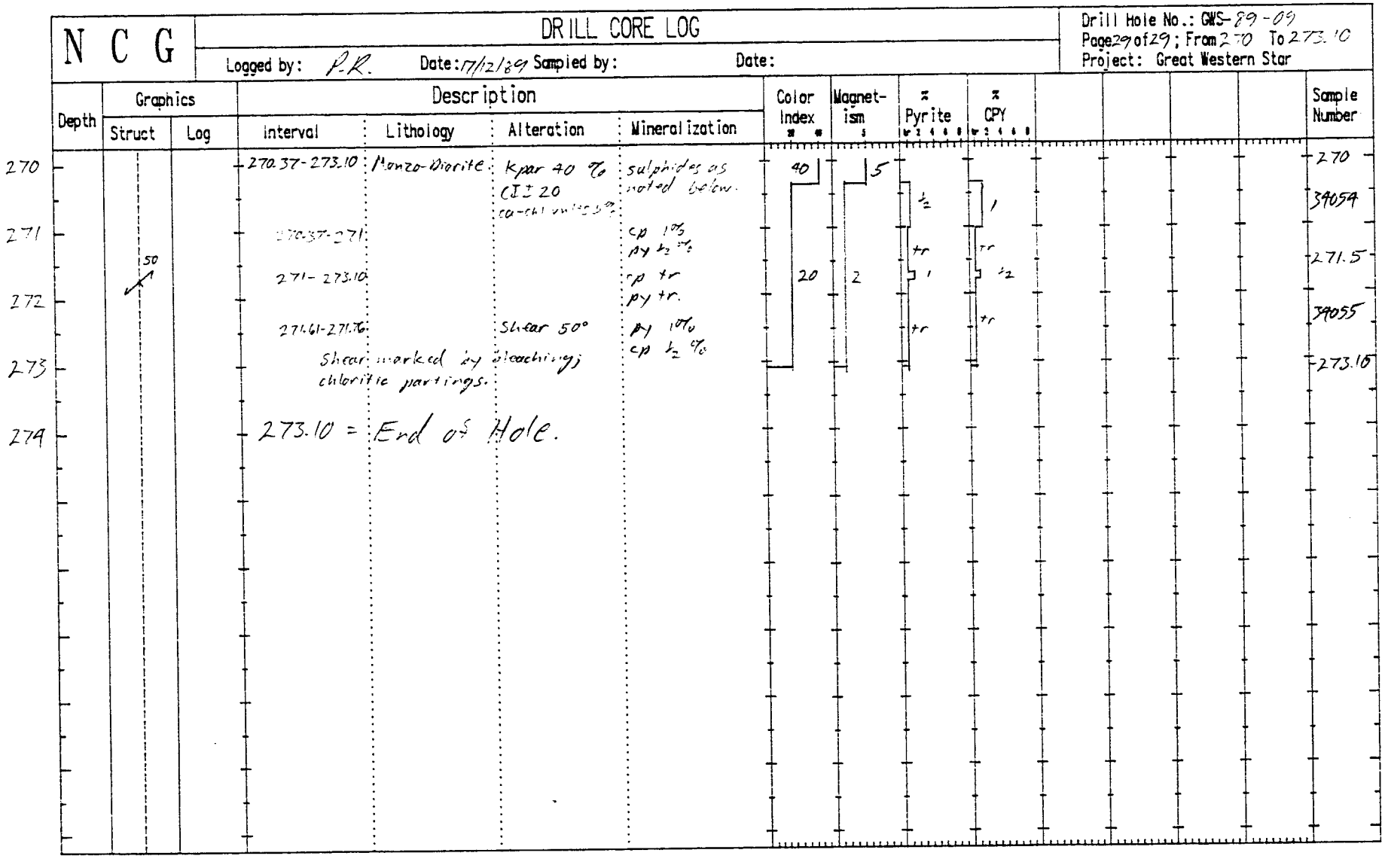
Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
250			248.54-249.64 (cont.)				40	5			250
			Most py + cp w/in 10 cm of vein at 249.						1	½	
			249		qt-ca vein, 4 cm, 35°	cp 10% in vein.					34044
251									0		
			249.64-250.15	Lamprophyre							
			250.15-250.79	Monzo-Di	CI 20 mt 2% ca 2% bi → chl, partial	py 1% cp ½%					
252											252
							20	2			
			cp fracture controlled with ca, chl.						½	¼	
253											34045
			250.79-251.35	Lamprophyre							
			251.35-254.53	Monzo-Diorite	Kspar 40 CI 20 Ep 2 ca 5 chl 5	py ½% cp ¼%					
254											254
			py, cp mainly with ca and/or chl in veinlets. Locally replacing mafics.				25	0		1	34046
255	40										
			254.53-255.35	Monzo-Diorite	shear 40° CI 25 mt nil Kspar 60	cp 1% py ½%					
256											256
			Shear fabric marked by alignment of mafics, chloritic parting.							½	34047
257								2			
			255.35-262.21	Monzo-Diorite.	Kspar 50 CI 20 mt 2 ep 2	py ½% cp ½%			½		
258											258
			Relatively unaltered, but does contain intervals intense kspar up to 20 cm. cp highly variable; richest in zones intense kspar to 5%. Diss cp. present throughout, trace.								34048
259											
260											260

N C G — DRILL CORE LOG

Logged by: P.K. Date: 17½/89 Sampled by: Date:

Drill Hole No.: GWS-89-09
Page 280f29; From 260 To 270
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
260			262.21-262.78	M-D	Kspar 50% ca 5% chl 2%	cp 3%					260
261			cp fracture controlled, assoc with vugs where ca weathered out.				20	2	½	½	34099
262			262.78-268.22	Monzo-diorite	Kspar 40% ep 5% bi > chl, partial, ca-chl veins, 5%	cp ½% py tr	0	0	0	3	262 34050
263											
264			M-D: looks relatively unaltered. ep unevenly distributed, ~5%, locally over 5-10 cm. Assoc. with ca-chl veins, hm								264
265			264.9		ca-qt vein, ½ cm, 40°						34051
266			268.22-270.37	Lamprophyre			20	2	tr	½	266
267											34052
268											268
269							40	5			34053
270											270


NCG
DRILL CORE LOG
Logged by: P.R. Date: 17/12/89 Sampled by: Date:
Drill Hole No.: GWS-89-09
Page 29 of 29; From 270 To 273.10
Project: Great Western Star
Depth
Graphics
Struct
Log
Description
Interval
Lithology
Alteration
Mineralization
Color Index
Magnetism
% Pyrite
% CPY
Sample Number
270
271
272
273
274
270.37-273.10
Monzo-Diorite
Kpar 40 %
CII 20
ca-chl veinlets 5%
sulphides as noted below.
270.37-271
cp 1%
py ½ %
271-273.10
cp tr
py tr.
271.61-271.76
Shear 50°
py 1%
cp ½ %
Shear marked by bleaching; chloritic partings.
273.10 = End of Hole.
50
40
20
5
2
½
1
tr
1
½
tr
tr
tr
270
34054
271.5
34055
273.10

N C G

DRILL CORE LOG - Cover Page

Logged by: R Ronning Start Date: 17/12/89 Completion Date:

Drill Hole No.: GWS-89-10
Page 1 of 23
Project: Great Western Star

Contractor Information

Drill Contractor: Leber Mines
Foreman: D. Leslie
Hole Start Date: 9/12/89
Hole End Date: 14/12/89

Drill Hole Information

Size of Core: NQ-2
Location:
Property Name: Great Western Star
Claim Name:
Grid Name:
Zone Name: Eureka
Northing: 11+00 N
Easting: 4+55 W
Elevation:
Survey Method (eg. compass, altimeter): chain + compass

Drill Hole Orientation Surveys:

Depth	Azimuth	Plunge	Method
collar	090	-45	bruntem

Final Depth of Hole: 212.14

Symbols and Abbreviations Used in Log

Samples for staining

49.75	bleached	180-20	M-D
55.10	bleached	185.45	bleached
62.20	bleached	203	bleached

Note: for core measurements and recoveries, see geotechnical log.

Sample Shipment Information

Sample Numbers	Date Shipped	Shipment No.	Shipped Via	Laboratory	Date Results Received	File Number(s)

N C G

DRILL CORE LOG

Drill Hole No.: GWS-89-10
Page 2 of 23; From 0 To 10 m
Project: Great Western Star

Logged by: A.R. Date: 17/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
0			0-6.10	Cased in overburden.							
6			6.10-22.41	Monzo-Diorite oxidized CI = 20 mt 1%		nil					6.10
7				Mafic minerals altered to mixture Fe oxides and soft brownish chlorite. All fractures coated with orange-brown Fe oxides. Mineralization that may have been present removed. No Cu carbonates.			20	1			9644
8											8.00
9											9645
10											10

47

N C G

DRILL CORE LOG

Logged by: P.R. Date: 17/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 3 of 23; From 10 To 20
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
10			see description previous page.								10
11							20	1			9696
12											12
13											9697
14											14
15											9698
16											16
17											9699
18											18
19											9650
20											20

N C G

DRILL CORE LOG

Logged by: P.K. Date: 17/2/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 4 of 23 ; From 20 To 30
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
20											20
21							20	1			9651
22			22.41-23	M-O	CI = 5 Ksp. 60	Py tr					22
23			23 - 29.80	M-O OS 6.10-22.41	CI = 20 Mt 1% Fe,Mn oxides	nil.	5		tr		9652
24			29.80-30.97	Lamprophyre	mt 2%						24
25											9653
26							20				26
27											9654
28											28
29											9655
30											29.8

Weath to soft, brown friable rock. All calcite removed. 20% chlorite after biotite phenocrysts.

N C G — DRILL CORE LOG

Logged by: P.R. Date: 17/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 5 of 23; From 30 To 40
Project: Great Western Star

Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism
30.97-33.62	Monzo-Diorite	CI: 20; mt 2	py tr	40 / 20	1 / 2
33.62-34.10	Lamprophyre				
34.10-34.75	Monzo-Diorite	unoxidized; CI: 15; mt 2%	py tr.	40	1
34.75-39.07	Lamprophyre			20 / 40	2 / 1
39.07-39.92	Monzo-Di.	CI: 20; mt 2%; kspar 40	nil	20	2
39.92-40.92	Lamprophyre			40	1

30.97-33.62: Similar to previous intervals, but less oxidized. Patches are biotite, probably replaced by white mineral, probably calcite. Heavy iron stains (?) after [illegible] weathered cut.

33.62-34.10: Upper contact at 35°. Lower contact ⊥ core axis.

39.07-39.92: Relatively unaltered. Broken; largest piece 7 cm.

Graphics (Log): MD; 35°; Lamp.; 90°; MD

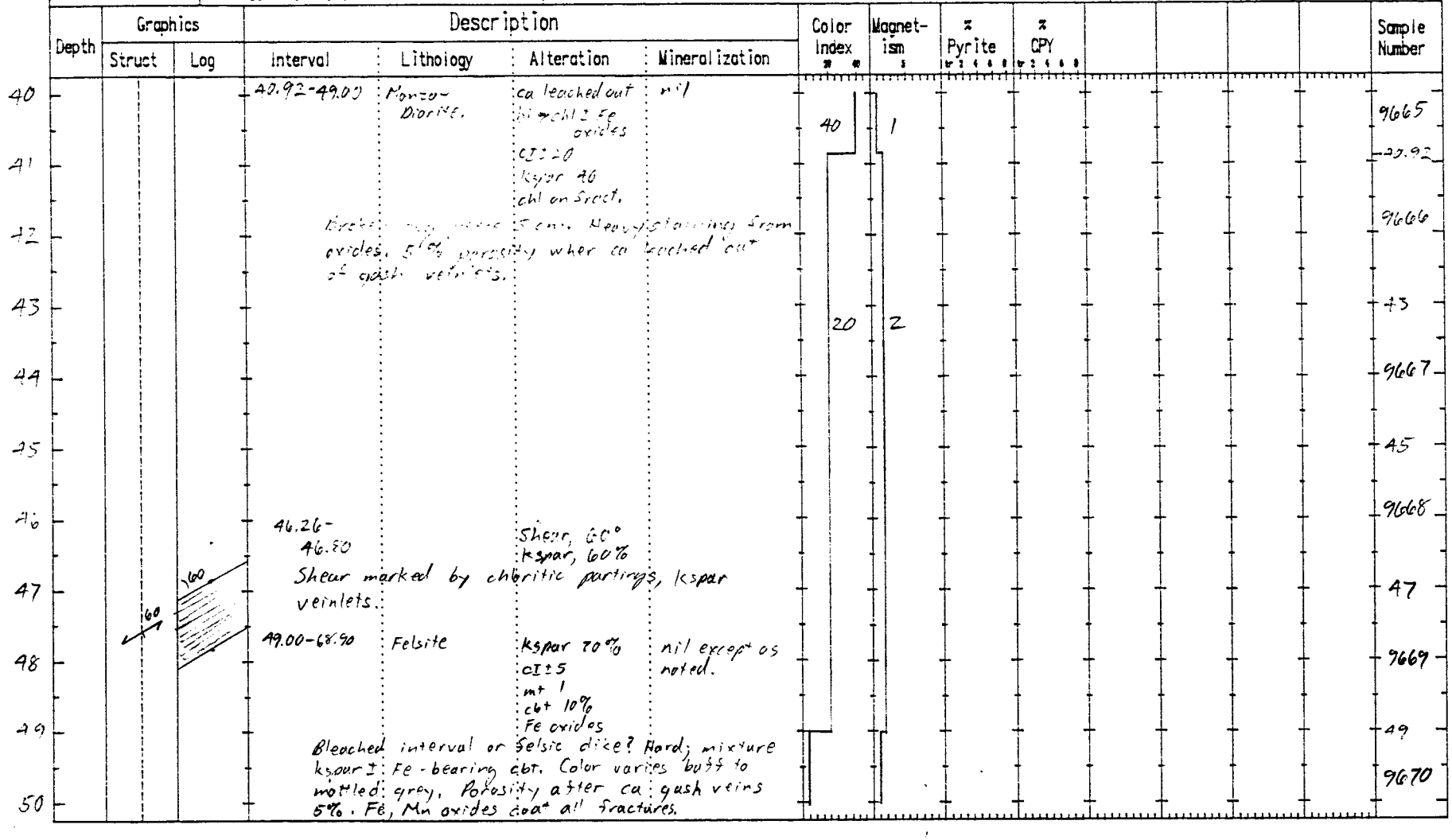
Depth	Sample Number
30–31	9656
30.97	
31–32	9657
32.3	
33	9658
33.62	
	9659
34.10	
	9660
34.75	
35–36	9661
36	
36–37.5	9662
37.5	
37.5–39.07	9663
39.07	
	9664
39.92	

Depth: 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40

NCG — DRILL CORE LOG

Logged by: RK Date: 18/1/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 6 of 23 ; From 40 To 50
Project: Great Western Star



N C G

DRILL CORE LOG

Logged by: JR Date: 18/12/89 Sampled by: Date:

Drill Hole No.: GWS- 89-10
Page 7 of 23 ; From 50 To 60
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
50			49.00-68.90 (cont.) chloritic, partings common. Mo/ossem.								9670
51											51
							5	1			9671
52											
53											53
54											9672
55											55
56											9673
							5	1			
57											57
58											9674
59			58.83			minor malachite					59
											9675
60											

N C G

DRILL CORE LOG

Logged by: P.R. Date: 18/12/89 Sampled by: Date:

Drill Hole No.: GWS- 89-10
Page 8 of 23 ; From 60 To 70
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
60											9675
61											61
62											9676
63											63
64			63.83-64.23			cp 0.1%	5	1		0.1%	9677
65											65
66											9678
67											67
68			68.4			tr malachite with Fe oxides on fract.					34056
69											68.90
70			68.90-82.81	Monzo-Diorite	k-spar 40 CI=20 Bi→chl+Fe oxides.	variable, as noted.					34057

over

N C G — DRILL CORE LOG

Logged by: P.R. Date: 18/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 9 of 23; From 70 To 80
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
70			68.90 - 82.81	(cont.)	chl on fract						
				Matics partly oxidized 1% porosity after cu wash veinlets.							34057
71											71
			69.20			azurite in fract, 1mm, 50°					
72			70.3 - 70.71			mal, az, on fract, 1%					34058
			72.10			malachite on fract.					
73											73
	bi		73.58		bi vnlt, 25°						
74			73.58 -75			mal, az, 2% on fract.					34059
	60 hem			Appearance of fractures lined with secondary Cu minerals suggests they once contained calcite.			20	2			
75											75
			74.60		vnlt spec. hem, 2mm, 60°					malachite	
76											34060
			75 - 78.13			mil					
77			78.13-78.34		qt-ca vnlt, 4cm, 15°	mal. in vnlt.					77
	15 qt cu mal		78.34 - 79.13			mal 5%					
78			79.13-82.81			mal trace					34061
79											79
											34062
80											

N C G

DRILL CORE LOG

Logged by: P.R. Date: 18/12/89 Sampled by: Date:

Drill Hole No.: GWS- 89-10
Page 10 of 23 ; From 80 To 90
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
80											34062
81											81
82											34063
83			82.81- 84.12	Lamprophyre							82.81
				30% bi, hb in calcite groundmass. 10% rounded fragments, wax lustre, reddish dark rims. soft. Calcite I.O.							34064
84			84.12- 84.26	Monzo-Mz.							84.12 34065
											84.26 34066
			84.26-84.87	Lamprophyre							84.87
85				Upper + lower contacts Lamprophyre 45° c.a.							34067
			84.87-85.83	Monzo-Mzorite.							85.83
86			85.83-88.26	Lamprophyre							34068
87			88.26- 93	Monzo-Diorite	Kfp 40 cz 20 mt 2 Fe oxides	minor malachite.					87
											34069
88				Fe oxides on fractures and healy coating core. Porosity after ca, 3%. Malachite on hairline fractures.							88.26
89											34070
90											90

N C G

DRILL CORE LOG

Drill Hole No.: GWS-89-10
Page 11 of 23; From 90 To 100
Project: Great Western Star

Logged by: PR Date: 19/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
90			93-9.5cm		kspar 90 % CI nil co vnlts 10 % st partings	py tr, mal 3%					90
91							20	2			34071
											91.5
92			Intense kspar altn, ± 10% porosity where ca leached out. Fe oxides on fractures. Malachite on fract. after ca.								34072
93											93
			95.92-103		st 70 % CI nil co vnlts 10% kspar 10%	mal tr sulphides nil,			tr	malachite	34073
94											94.5
95			Bleached to mottled, medium grey. Dominantly sericite, with intervals 10-20cm more intense kspar. ±10% porosity after calcite. Malachite widely disp. in small amounts. Almost schistose; sericitic parting at 45° c.a.								34074
											95.92
96	45										
97											34075
98	45										98
99											34076
100											100

N C G

DRILL CORE LOG

Logged by: PR Date: 19/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 2 of 23; From 100 To 110
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
100											100
101											34077
											101.5
102											34078
103			103-104.24	Monzo-Di.	Shear 45° Cl: 20 ksp 40% mt 2% ca 15% bi → chl	nil					103
104											34079
105					Shear fabric marked by alignment mafic minerals, chl after bi; sericite-chlorite patches. Characterised by porosity after ca ± ash veinlets. Fe oxides dark brown.						105
106											34080
			104.24-108.10	Monzo-Diorite.	Shear 45° Cl 20 ksp 40% mt 2% ca 5% bi → chl, weak	nil					106.5
107											34081
108					Similar to preceding interval but much less weathered; calcite not leached out.						108.10
109			108.10-111.60	Vein	ca (qt) (chl)	cp 3%				3	34082
110					Vein banded grey-white, banding // adjacent shear fabric. Qt 5% of vein, as broken fgmts; suggests an early qt vein broken by ca.						110

(over)

N C G — DRILL CORE LOG

Logged by: PR Date: 19/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 13 of 23; From 110 To 120
Project: Great Western Star

Depth	Struct	Interval	Lithology	Alteration	Mineralization	Color Index	Sample Number
110		108.10-111.60	(cont)				110
		chl as stringers // banding and shear fabric. cp occ. in ca, dissem. Locally conc. near but never in qt fragmts. Upper, lower contacts are roughly // shear fabric. Bleaching of M-D to grey, calcareous st rock over 20 cm at lower contact.					34083
111							111.60
112	60 ca	111.60-135.53	Monzo-Diorite	ep 2% bi variable ca vnlts 2% CI 15-30	py tr cp rare, as noted below.	15 30	34084
113							113
114		Characterized by highly variable colour index, dependent on felted secondary biotite. A few ca vnlts. Rare cp or mal. assoc. with ca. Ep in plag gives pale yellow green tint to more leucocratic intervals.					34085
115		112.25		Ca vnlt, ½ cm, 60°	cp speck in vnlt.		115
116	ca	113.70		3× ca vnlts, 3mm, 25°	mal. speck in vnlt.		34086
117		116.90		Ca vnlt, 3mm, sub-//,	mal, speck cp in vnlt.		117
118							34087
119		117.75 -118.84		kspar 90%			119
120							

Magnetism, % Pyrite, % CPY columns (graphical)

N C G

DRILL CORE LOG

Logged by: PR Date: 19/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 14 of 23 ; From 120 To 130
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
120											
121			121.8		ca vnlt, 3 cm, 40°	mal in vnlt					121
122										mal.	
123											123
124			124.1-124.2		shear, chloritic, 30°						
125			125.8-125.9		ca vnlt, 3mm, sub-//	mal in vnlt.					125
126										mal.	
127			127.45		ca vnlt, 2 mm, 25°, + patches.	cp assoc. w. ca, 5 % over 5 cm.				5	127
128											
129											129
130											

N C G — DRILL CORE LOG

Logged by: RR. Date: 19/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 15 of 23; From 130 To 140
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
130											
131	125 ca chl		131.25–133.53			cp tr					131.25
132	70 ca chl				cp is in ca or ca-chl vnlts, locally to 2% but avg only trace.		15 30	2		tr ½	
	75 ca chl		131.52–132		ca-chl vnlts 25°	cp ½ %, in vnlts.					
133	40 ca chl		132.10		ca-chl vnlt, ½ cm, 70°.	cp in vnlt.					133
134			132.36		chl vnlt, ½ cm, 75°					tr	
			133.05		ca-chl vnlt, 4mm, 40°						
135			135.53–138.79	Monzo-Diorite	CI ± 20 ca 5% chl 2% hm 2% si local, 5%	py ½% cp ½%					135
136			Monzo-diorite bleached + hardened over intervals 5–10 cm. Looks more like si than kspar. Silicified intervals shattered; healed by soft chlorite. Some fractures contain sooty black powder; looks carbonaceous (?). Sulphides assoc. w. ca, chl.; fracture controlled.					2	½	½	
137							15 30				137
138											
139			138.79–145.30	Lamprophyre bi 40% calcite							138.79
140			± 1 mm biotite phenocrysts in clear grey groundmass that is at least partly calcite. Locally contains fragments wall rock to 10 cm.				40	1			

N C G

DRILL CORE LOG

Drill Hole No.: GWS-89-10
Page 16 of 23; From 140 To 150
Project: Great Western Star

Logged by: P.R. Date: 19/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
140											
141											141
142							40	1			
143											143
144											
145			145.30-145.93	Chlorite schist	Essentially massive chlorite. Believed to be altn of lamprophyre. Foliation at 45° c.a.						145
146	45		145.93-153.70	Lamprophyre ± Monzo-Di	Mainly lamprophyre but contains short intervals of monzo-diorite as noted. Highly variable angle of contacts & variable sulphide content of M-D suggests M-D is stoped fragments w'in lamprophyre.		15	4	+r		
147							40	1			147
148							15	2	1	1	
149			145.93-146.20	M-D	Kspar 60 mt 4 CI: 15	py tr	40	1		½	149
150			146.67-147.36	M-D	Kspar 60 mt 2 CI: 15	py 1 % cp 1 %	10	2		¼	
							40	1			
							10	2			
							40	1			
							20	2	½	½	

N C G — DRILL CORE LOG

Drill Hole No.: GWS-89-10
Page 17 of 23 ; From 150 To 160
Project: Great Western Star

Logged by: R.K. Date: 19/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
150			147.71-147.94	M-D	kspar 70 CI 10 mt 2	cp ½, dissem.	20 40	2	1/2	1/2	
151			148.47-148.92	M-D	kspar 70 CI 10 mt 2	cp ¼	10 40	2	5		151
152			cp assoc. with cpy and comic near upper contact.				15	2	½	tr	
153			149.26-150.1	M-D	kspar 40 CI ± 20 mT 2	cp ½ %, dissem. py ½ %, dissem.	40				153
154			Relatively unaltered. Sulphides partly replace mafics.				15	2	½	tr	
			150.83-151.17	M-D	kspar 80 CI ± 10 mt 2%	py 5%, dissem	40				
155											155.04
			151.78-152.96	M-D	kspar 40 CI ± 15 mt 2	py ½ % cp tr		2	tr		
156											156
			153.70-154.46	M-D	kspar 60 CI ± 15 mT 2 bi → chl (+ca?)	py ½ %, diss. cp tr, diss.	35		1	tr	
157											
158			cp assoc with intervals 2-3cm intense kspar altn.					2			158
159			154.46-155.04	Lamiprophyre	kspar 40						
			155.04-159.5	Monzo-Diorite melanocratic.	CI 35, bi ca vn/vlts 5%	py, cp variable, as noted.					
160			More mafic than usual M-D. Bi partly corroded by ca and? Chlorite veinlets common (over.				15				160

N C G — DRILL CORE LOG

Logged by: R.R. Date: 19/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 18 of 23; From 160 To 170
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization
160			155.04 - 159.5	(cont.)		Sulphides very variable; conc. on fract. with ca.
161	50 qt chl		155.04-156			py trace.
			156 - 159.5			py 1% cp tr
162			159.5 - 161.40	Monzo-diorite leucocratic.	CI = 15 kspar 40 ep 10 ca vnlts 1	py 1% cp tr
163	5 cu chl cp py 30			Rock has pale green tint due to partial epidotization of plagioclase.		
164	qt py			Sulphides fracture	bi→chl, partial. controlled.	
	0 ca chl py cp		160.8		qz-chl vnlt, ½ cm, 50°	
165			161.40 - 172	Monzo-Diorite melanocratic	CI = 35 kspar 40 mt 2 ep 10	py 1% cp tr
166				Mafic content highly variable; probable biotite alt'n. Rock has greenish tint due to ep.		
167				Ca vnlts 5%. qt vnlts 1%. Sulphides variable on local scale but overall quite consistent. Most on fractures with chlorite.		
168			163.79		qt vein, 30°, 4 cm.	py conc. near vein.
169			162.85-163.2		ca-chl, 1 mm, 5°	py, cp in vnlt.
			169.34-165		ca-chl vnlt, ½ cm, sub-11	cp 5% py 1%
170						

Depth	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
160					160
161	15		1	tr	
162		2			162
163					
164					164
	35			5	
165					
166					166
167		2	1	tr	
168					168
169					
170					170

N C G

DRILL CORE LOG

Logged by: R.R. Date: 20/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 9 of 23 ; From 170 To 180
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index %	Magnetism	% Pyrite	% CPY	Sample Number
170			172 - 177.53	Monzo-Diorite		nil					170
			As previous interval except for lack of mineralization.								
171									1	tr	
172											172
173							35	2			
174											174
175											
176											176
177											
178			177.53 - 181.38	Monzo-Diorite	kspar 50 ca 10 CI: 20, bi	cp ½		2			178
179			Relatively intense ca alin as vnlts and partial repl. of mafics. Lacks epidote. Looks darker than previous interval due to lack of cp. bi not chloritized. cp dissem + assoc with ca vnlts.				20			½	
180											180

N C G — DRILL CORE LOG

Drill Hole No.: GWS-89-10
Page 20 of 23; From 180 To 190
Project: Great Western Star

Logged by: PR Date: 20/12/89 Sampled by: Date:

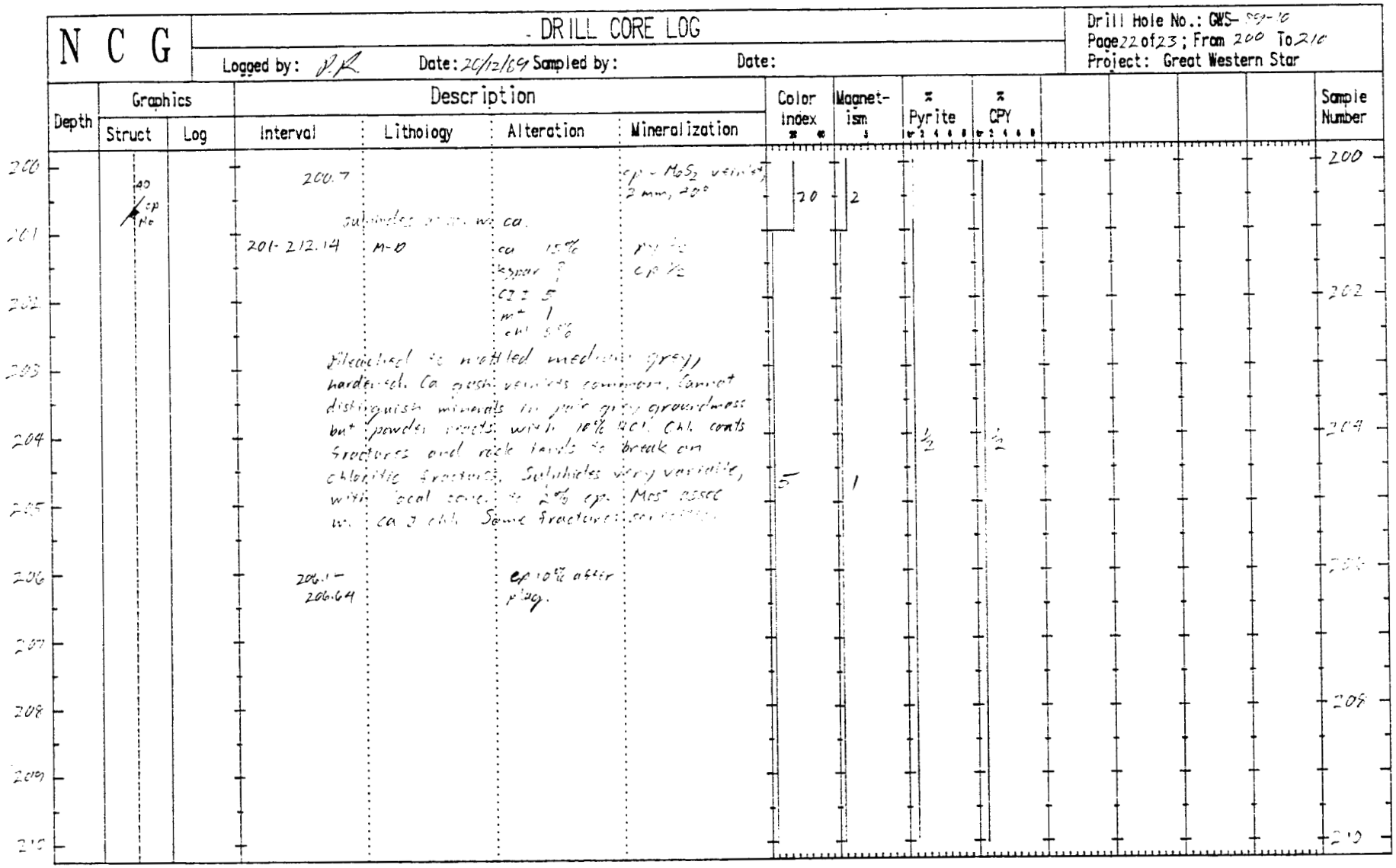
Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
180			181.38–182.7	Monzo-Diorite.	Kspar 70% CI = 5, chl. ca 5, vnlts mt 1	cp ½	20	2	½		180
181				Bleached to pale grey, cp disseminated/ fracture controlled with ca, chl.							
182			182.7–185.1	Monzo-Di.	Kspar 50 CI = 20 mt 2 bi → chl slight ca 2 ep 2	cp tr.	5	1			182
183											
184							20	2	tr		184
185				Looks melanocratic, but actual CI no higher than usual. Cp concentrated at beginning & end of interval, w/in 10–20 cm of bleached zones.							
186			185.1–187.2	Monzo-Di	Kspar 70% CI = 5 ca 5, vnlts chl 5, vnlts	cp 1%, fract controlled with calcite.	1	1	1		186
187											
188			187.2–188.82	M-D	CI = 20 Kspar 40 mt 2 ep 10 ca 1, chl 1	nil	20	2			188
189				Relatively unaltered M-D. Greenish tint due to epidote.						½	
190											190

NCG — DRILL CORE LOG

Logged by: PR Date: 20/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 21 of 23; From 190 To 200
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
190			188.82 - 193.54	M-D	CI = 20 ca 5 chl 3 kspar 50 mt 2	cp + bn, ½ %					190
191											
192				Looks dark but CI avg. Strong ca altn as veinlets + part'y repl mafic. Chl as fine seams. cp assoc with ca, chl on fract. bn w/in 1m of end of interval. Bleached zones 5cm to 10cm resemble 185.1 - 187.2.						½	192
193							20	Z			
194			193.54 - 201	M-D	CI = 20 ca 5 chl 3 kspar 20 ep 5 mt 2	as noted below.					194
195	30 / ca									tr	
196				Variable between dark grey as 187.2 - 188.82 and green as	dark grey as 188.82 - 193.54					10	196
			195.35		ca vnlt, 1 cm, 30°, vuggy	cp 10% in vnlt.					
197			193.54 - 196			cp tr			1	½	
			196 - 198			py 1% cp ½ %, fracture control.					
198							20	Z			198
			198 - 199			cp tr				tr	
199			199 - 201			cp ½ % py ½ %			½	½	
200											200


N C G
DRILL CORE LOG
Logged by: DR
Date: 20/12/89
Sampled by:
Date:
Drill Hole No.: GWS-89-16
Page 22 of 23 ; From 200 To 210
Project: Great Western Star
Depth
Graphics
Struct
Log
Description
Interval
Lithology
Alteration
Mineralization
Color Index
Magnetism
% Pyrite
% CPY
Sample Number
200.7
cp - MoS2 veinlet 2 mm, 20°
Sulphides assoc. w. ca.
201-212.14
M-D
ca 15%
kspar ?
Cl : 5
mt 1
chl 5%
py 1/2
cp 1/2
Silicified to mottled medium grey, hardened. Ca-qtz veinlets common, cannot distinguish minerals in pale grey groundmass but powder reacts with 10% HCl. Chl. coats fractures and rock tends to break on chloritic fractures. Sulphides very variable, with local zones to 2% cp. MoS2 assoc w. ca & chl. Some fractures
206.1 - 206.64
cp 10% after plug.
20
2
5
1
1/2
1/2
200
202
204
206
208
210

N C G

DRILL CORE LOG

Logged by: P.R. Date: 20/2/1999 Sampled by: Date:

Drill Hole No.: GWS-89-10
Page 23 of 23 ; From 210 To 212.4
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
210											210
211							5	1	tr	tr	211
212			212.4 = End of Hole.								212.4
213											

DIAMOND DRILL LOG

Claim _____ Baseline _____

Township _____ Section _____

Elevation _____ Latitude _____

Total Depth _____ Longitude _____

Azimuth _____

Contractor _____

TESTS

Depth	Dip	Azimuth

HOLE # GWS-89-11

PROJECT Great Western Star

PAGE 1 of 12

NTS _____

Logged by K. Jagodzinski

Date 17/12/89 - 21/12/89

Scale _____

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
0	27.43	Cased in overburden									
27.43	27.88	Monzo-Diorite Occ. bleached frags.	27.88-28 Highly broken, rubbly. Rusty Fe-ox staining	27.88-28 No sulfide mineralisation		27.43 34151 28					
27.88	28	Mafic Dyke Feldspar porphyry, 10% plag. phenos in plag-bt-chl grnmss	28-31.7 C.I. ± 20, mod. magnetic. Highly broken, rubbly in places. Intense Fe-& Mn-ox. staining on fractures. K-spar pinkish col., pkg. sauss. Bt. partly alt. to chlorite. Occas patches (5mm)	28-31.7 Tr mal. & azurite on fractures No sign. sulfides. Mn-ox test positive for Cu.		34152 30					
28	168.63	Monzo-Diorite	31.70-37.50 Increase in cp-calcite alt. of plag. Occas. patches of cpt chl & sericite (≈ 5%) up to 1cm across. Highly fractured & intense Fe-& Mn-ox coating fracture surfaces. Bt partly alt. to chlorite. Occasional calc-chl ± spec. hm seams.	31.45 Mal & tr az coat lower margin of qtz vein. Tr. spec. haematite. Qtz. vein 50° c.a. Tr. mal. & az. on highly oxd. fracture surfaces. Mn-ox test pos. for Cu.	qtz-az-mal-hm	34153 32					
			35.40 Chl-calc-hm seam, 15° c.a.		chl, calc, hm.	34154 34					
			35.45-40.04 Weakly to non magnetic.			34155 36					
			37.5-40.04 Ept-calc-sericite patches incr to 10% throughout rock. Up to 4cm, ave 1cm across. C.I ± 20, Bt partly alt. to chl.	37.5-40.04 No sign. sulfides Mn-ox test pos. for Cu.		34156 38					

Scale _____ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-11 page 2 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
		oxd. Fe-cbt alt. bet. 40.04 & 40.45, 40.92 & 41.26, 41.58 & 41.88	39.4-39.6 Calc-chl vein approx. parallel to c.a. Mn-ox st.	40.04-42.35 V. Fine dissem. py, local concn in veins up to 2%. Ave. 1%. Tr. cpy, local concns in veins/seams up to 0.5%	qtz, py	34157					
			40.04-42.35 Intense k-spar alt. C.I. = 0 ± rusty orange-brown oxd. zones of Fe-cbt alt over 20-40 cms.			40.04					
			41.45 2mm wide qtz. vein, 110° c.a. Tr. py.			34158					
			42.35-46.95 C.I. ave. 20. Occas. patches (ave. 0.5cm wide) ep+calc+sericite alt. Variable magnetism, ave. mod., weak-non magnetic in places. Intense Fe-& Mn-ox staining on some fracts. Calcite veining common. Rusty orange-brown Fe-cbt alt. over 20-30cm, locally hm common.	Tr. mal. on heavily oxd. (intense Fe & Mn ox. staining) fractures. No signif. sulfides		42 <34159					
						42.35					
						34160					
						44					
						34161					
						45.5					
						34162					
			46.95-47.50 Intense k-spar alt. C.I. = 0. Local rusty oxd zones of Fe-cut. alt. over few cms. Crushed, sheared rock act: 47.31 & 47.37	No signif. sulfides.		46.95 34163					
						47.50					
			47.50-52.04 C.I. = 15-20, rel. unaltered monzo-diorite. Intense k-spar alt locally between 50.65 & 51.05, 51.85 & 52.04, 54.35 & 54.60, 57.25 & 57.50	47.50-52.04 Uneven distbn of sulfides py-ave. 1%, local concns in veins & seams 2-5%		34164					
				cpy-ave. 0.25%, local concns in veins & seams to 1%		49					
						34165					
			Local ep-calc patches (1cm) up to 5% of rock. Occas. spec. hm seams. Calc veining throughout	47.8 Mal coating oxd fract.	1mm spec. hm seam	51					
			51.94 Calcite-qtz-chl-magnetite vein (5mm) 40° c.a. Tr py	NB. in bleached zones sulfide concn decreases slightly py n.c. 0.5% cpy ave. tr-0.25%		34166					

Scale ________ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-11

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn

LITHOLOGY

52.06 Calc-chl vein, 0.5% cpy, 5mm wide, 40°c.a. →

*

57.39 Qtz-kspar vein (2mm) c ≃ 4% sulfides py : cpy 3 : 1. Tr covellite

57.44 Qtz-kspar (slivered edges?) vein c 2% py; tr cpy

58.37 - 58.49 Milky qtz vein, c 2mm seam of 5% py & sericite @ 58.48.

ALTERATION

52.04 - 53.64 C.I. ± 20, epidote - calc. - sericite alt in patches (ave. 1cm, 2-3%). Rel. unaltered.

53.64 - 57.25 C.I. variable ave. 20 (up to 25). Local. k-spar alt. (± sericite) over 20-30 cms. Calcite veining throughout. Mod. - strongly magnetic.

55.65 Chl - calcite vein, tr. cpy.

57.25 - 59.22 Intense k-spar alt. (C.I. = 0-2). Bt alt. to chl. giving rock a black speckled app. Ep-calc. patches locally, up to 2 cm across

59.22 - 63.21 Dk. grey monzo-diorite. C.I. ave. 20. Localised ep-calc-ser. patches up to 1.5cm across. Calcite veining common. Bt. partly alt. to chl. Variable magnetism, weak to mod.

* 62.44 5mm calc-chl vein, 27° c.a. Tr cpy, tr mal

* 63 4mm chl-calc vein, ≃ 1.5% cpy, 1.5% py, tr bornite

63.21 - 66.07 As for 57.25 - 59.22. Tr spec. hm assoc. c py in veins.

* 63.38, 63.4, 63.46 Ave. 5mm qtz veins, 110° c.a, Local conc^ns py (up to 3%)

* 64.08 & 64.41 1cm qtz veins c 1mm thick py seam along lower margin of each vein. Tr py in vein

* 65.61 Calcite vein (5mm) c 5% py & 1-2% spec. hm.

66.07 - 68.54 C.I. ave 20. Sausss of plag in patches (up to 1cm across). Bt.

MINERALIZATION

52.04 - 53.64 Tr py, occas. local conc^ns (up to 0.5%) but not common. Local conc^ns cpy (0.5%) in veins. Tr cpy throughout rock.

53.64 - 57.25 Tr cpy, py. Local conc^ns cpy (up to 1%) in veins & fractures. Py conc^ns up to 3-4% in qtz veins within bleached zones.

57.25 - 59.22 Tr py dissem. throughout. Local conc^ns in veins as described.*

59.22 - 63.21 Tr py, cpy throughout. Local conc^ns. in veins / fractures as described *

NB. 59.14 - 59.35 Calc-chl. vein 2mm wide - 8mm in places 15° c.a. Tr spec. hm & ≃ 40% py.

63.21 - 66.07 Uneven distb^n cpy & py. Ave. cpy : tr - 0.25%, py : 1%. Local conc^ns in veins as described *

STRUCTURE

chl, cpy, calc.

qtz, kspar, cpy, py, covellite

py, calc, chl

py, qtz

py, qtz

SAMPLE NUMBER

34166

52.04

34167

53.64

34168

55.50

34169

57.25

34170

59.22

34171

61.20

34172

63.21

34173

64.60

34174

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-11

FROM	TO	~~LITHOLOGY~~ ALTERATION	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
		68.54-68.75 Intense k-spar alt. C.I. = 0 68.75-71.35 Light grey col. monzo-diorite C.I. ave. 20. Local sauss. of plag & in patches (ave. 1cm across, 1-2% of rock) calc-chl, Fe clot veins & chlorite seams common. 71.3-71.35 Intense k-spar alt, C.I. = 0 71.35-79.71 As for 68.75-71.35 except darker grey-green col. Bt. alt to chl. * Approx. 0.75-1% cpy throughout in fracts. & veinlets. 79.71-80.14 Intensely bleached (k-spar + qtz), C.I. = 0. Rusty orange col. Fe-ox st. occurs on fracts. & penetrates rock up to 1.5cm either side of fracture ≠ calcic [illegible]. Fe & Mn-ox [illegible] test pos. for Cu. Weak [illegible]	partly alt. to chl. Chl.-calcite veins common. 68.04-68.27 Qtz-calcite-chl vein (1cm), 165° c.a. 69.9-71.25 Cu-rich interval. Overall, approx. 2% cpy in fractures & veins and seams. Up to 2% mal. on oxd. fracture surfaces. Local concn's of cpy up to 4% in fractures & veins 71.35-79.71 Fe- & Mn-ox staining on fractures common. Intense in places. 74.98-75.65 Network of calc-qtz-chl. veins up to several cms wide in places. 75.4-76.4 Local shear fabric, 155° c.a.	68.04-68.27 Tr. cpy & tr spec. hm in vein. 69.33 Tr. malachite in calc-chl veins. 70.52 Tr. mal. on oxd. fract. surfaces 70.62-70.93 Fracture ≈ parallel to c.a. Chl, Fe- & Mn-ox, malachite (1%) coat fract. surface. 1-2% cpy where no oxidation on fracture. 71.00 Tr covellite, 0.5% cpy, poss tr ? bornite on fracture surface. 71.35-79.71 Tr py, cpy throughout. Local concn's cpy (~0.25%) in veins & seams. Tr mal staining c corroded cpy (tr) in oxd. qtz-calc. veins 74.98-75.65 Cpy (+ tr mal) conc. in veins up to 2% cpy in patches up to 8mm across. 79.71-80.14 Dissem py (0.5%), tr cpy.	calc, qtz, chl, hm, cpy. 155 55° calc-qtz-chl-tr py fracture oxd. Fe-ox alt.	34174 66.07 34175 68 34176 69.9 34177 71.25 34178 73 34179 75 34180 77 34181 78.5 34182 79.71 34183					

Scale _____ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-99-11 page 5 of 12

FROM	TO	~~LITHOLOGY~~ ALTERATION	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
80.14	85.07	80.14 - 85.07 As for 71.35 - 79.71. Variable magnetism, ave. mod. to intense in places. Calcite & qtz veining, chl. seams common. Occ. Fe-cbt veins, typically oxd.		80.14 - 85.07 Tr cpy, py throughout rock. Local conc'ns. in veins & fractures cpy 0.5%, py 1%. Tr. mal. on oxd fracture surfaces & in veins.		80.14 34184 82 34185 84 34186					
85.07	88.59	85.07 - 88.59 Intensely bleached (k-spar, qtz, sericite alt.) C.I. ave. 0, up to 10 in places. Abundant calcite veining throughout rock. Localised rusty (oxd.) Fe cbt alt. along fractures (as for 79.71 to 80.14). Occ. spec. hm seams. Weak-mod. magnetic, black speckled app. due to alt. magnetite.	87.31 1 cm wide qtz-calc-chl vein, 45° c.a. Local conc'n of py (3-4%) bet. 87.28 & 87.31. Tr py in vein.	85.07 - 88.59 Uneven distb'n of sulfides. 0.5% py, tr cpy. Local conc'ns py & cpy (up to 1%) in veins & seams.	calcite veins chl vein 4 cm dissem. py, cpy shaded? py, cpy stringers.	85.07 34187 86.80 34188 88.59					
88.59	90.72	88.59 - 90.72 Grey, mottled monzo-diorite, C.I. ave. 20. Local, intensely bleached zones (over few cms). Calcite veining common, Mod. magnetic		88.40 cpy & py (2:1) stringers around & within chl vein (see figure) 88.59 - 90.72 Uneven distb'n of sulfides. Overall, tr py, cpy. Local conc'ns py up to 1%, cpy up to 0.8% in fractures, veins & seams.		34189 90					
90.72	93.10	90.72 - 93.10 Dk. grey col. altered monzo-diorite. Predom. qtz-calcite-chlorite alt. Abundant calcite veining throughout. Chlorite seams common.	91.48 5mm wide calcite vein 50° c.a. Tr py, cpy & spec. hm.	90.72 - 93.10 Tr cpy, py.	calc, cpy, py, spec. hm.	34190 92					
93.10	99.36	93.10 - 99.36 Rel. unaltered monzo-diorite, C.I. ± 15. Local intense k-spar alt. over few cms. Local sauss. of plag. in patches (1-1.5cm) & along fractures + veinlets (3-5%). Bt partly alt. to chl. Calcite veining common, occ. Fe cbt veinlets. Chlorite seams common.	92.80 Weak shear fabric over few cms marked by alignment of chl & bt; 40° c.a. 94.75 5mm wide qtz-calcite-cpy (0.5%) vein, 25° c.a.	93.10 - 99.36 Tr py & cpy dissem through rock. Typ. occurs ± mafics. Local conc'ns in veins & seams py 1%, cpy 0.5%.	40 calc., qtz, cpy	34191 94 34192					

Scale _____ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-11 page 6 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
						34192					
						96					
			96.83 Abundant chl. seams, ave. 45° c.a. over few cms.		chl	34193					
			97.00-97.60 Weak shear fabric 138° c.a.		138						
			97.52-97.71 k-spar vein (few cms wide) approx. parallel to c.a.	97.52-97.71 tr py, cpy & spec. hm assoc. ε k-spar.		98					
						34194					
		99.36-99.80 Intense k-spar (+ qtz?) & sericite alt. C.I. = 0		99.36-99.80 Diss. py (ave 1%), up to 4% in veins/fracts. Tr cpy in qtz-calcite veins.		99.36					
		99.80-112.95 C.I. ave. 20. Local. sauss. of plag. (epidote & calcite predom.) in patches & along veins. (1-2%). Local intense bleaching over few cms (typ. red spotted appearance due to oxd. magnetite up to 1%). Variable magnetism, ave. mod. to intense in places. Calcite veining common, vuggy qtz veins & chl (±calcite) seams throughout.		99.80-112.95 Uneven distⁿ of sulfides.		34195					
				py: typically concentrated in fracts & veins up to 3%. Local py stringers, dissem. throughout rock occurring ε mafics. Ave. 1-1.5%.		101					
				spy typically occurs in veins & fractures. Local concns. up to 2%. Ave. 0.5-1% throughout rock.		34196					
				103.66 Up to 1cm (ave. 2-3mm) py-qtz-chl. vein. 30% py in vein.		103					
						34197					
			105 4mm qtz-chl-calc-cpy vein. 45° c.a. Approx. 1% cpy in patches up to 8mm across.	105.62 Py-calc-chl vein. Vein predom. py, ave. 2mm wide, up to 6mm, 125° c.a. Py stringers (≤1mm) around vein. Tr cpy. Spec. haematite typ. occurs ε py (up to 1%). Local concⁿ of magnetite around vein (4%).	qtz-chl-calc-cpy	105					
					Py (±calc, chl)	34198					
			106.78-107.16 2 cm wide k-spar-sericite zone, 15° c.a. Red speckled appearance due to oxd. magnetite (to hm). Tr py, cpy.		k-spar, sericite	107					
						34199					
						109					

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-11

FROM	TO	~~LITHOLOGY~~ ALTERATION	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
						34200					
						111					
			111.70 – 111.83 Calc.-chl. vein (5mm)	111.70 – 111.83 2% cpy, tr. py		34201					
		112.95–113.63 Intense qtz+ k-spar alt, sericite alt. along partings in rock. Vuggy calcite-chl-spec. hm veins, chlorite seams, qtz-calc. veins common. Weak shear fabric on fracts. slickensides. Mod. - v. strong magnetism.	112.72 1mm vuggy qtz-calc-chl vein, 20° c.a.	112.72 0.5% cpy, 3% v. fine py, 1% magnetite. 112.95-113.63 Mineralisation confined to veins. Tr py, up to 0.25% cpy. Tr covellite c̄ cpy.	qtz-calc-chl-py-mag-cpy	113					
			113.61 7mm vuggy qtz-calcite vein, 70° c.a.	113.61 0.5% cpy in patches up to 8mm within vein.	qtz-calc-cpy	34202					
		113.63-120.78 As for 99.8 - 112.95. Magnetite occas. concentrated in seams (1-2mm). Spec hm seams (± calcite) common. Variable mag., ave. strong.		113.63 - 120.78 Cpy occurs typically in veins up to 2%. Pyrite in vuggy qtz-calc. veins up to 2%		115					
						34203					
						117					
				117.55 2% cpy, tr py, tr. v. fine covellite, tr spec. hm on fracture surface.	mag-qtz-chl-tr py	34204					
			118.21 4mm wide qtz-chl-magnetite vein c̄ tr py.			119					
						34205					
		120.78-121.06 Intense k-spar alt. sericite on partings in rock. [illegible] veining common. Mod. magnetism.	120.86 4mm wide quartz-spec. hm vein c̄ calcite along margins, 112° c.a.	120.78-121.06 V. fine dissem py (0.5%). Local concns (up to 10%) in calc-qtz veins, assoc. c̄ spec. hm (3-4%). Tr. cpy.	qtz-spec. hm	121.06					
		121.06 - 123.88 As for 113.63 - 120.78. Local very intense magnetism bet. 121.06 & 121.14. Localised intense k-spar alt over 20-25cm. Chl. seams common, abundant calcite-qtz veins. Mod magn. [illegible]		121.06 - 123.88 Less sulfide mineralization. Py ave. 0.5% occurs c̄ mafics & conc. in veins [illegible]. Cpy ave. tr. [illegible] conc. in veins / [illegible] up to 2-25%.		34206					
						123					

Scale _____ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-99-11 page 8 of 121

FROM	TO	~~LITHOLOGY~~ ALTERATION	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
						34207					
		123.88 - 125 Variable k-spar & sericite alt C.I. = 0-5. Qtz-calcite veins throughout. Occ. Fe-dol, qtz & calcite veins, intense rusty orange & yellowish Fe-ox staining on fractures. Tr spec. haematite, mod. magnetic				123.88					
						34208					
				125 - 126.03 Tr cpy, py assoc. ± mafics & in patches (1-2 mm).		125					
		125 - 126.03 Rel. unaltered, C.I. 15 to 20. Abundant calc-qtz veins, ave. 135° c.a. Weak pervasive calcite alt. occ. 1-1.5cm patches ep-calcite (± sericite) alt			calc-qtz veins	34209					
						126.03					
		126.03 - 129.1 Variable k-spar alt. Typically intense ± C.I. = 0-5. Rel. unaltered (C.I. = 15 to 20) over 20-30 cm intervals. V. abundant qtz-calcite veining. Occ. ep-calcite-sericite patches (dk. green col., up to 4cm across) Chl seams common, spec. haematite on some fractures (up to 2%) & assoc. ± pyrite in veins (tr). Weak-mod. magnetic.	126.57 - 126.90 2.5cm wide vuggy calcite -chl vein. Qtz + calcite + tr py ± cpy in vugs. Approx. parallel to c.a.	126.03 - 129.10 Uneven distrb of sulfides. Typically concentrated in bleached zones, veins & seams. Py ave. tr - 0.5%, local concns up to 1%	calc-chl ± qtz, py, cpy	34210					
						127.5					
						34211					
						129.10					
		129.1 - 131.94 Rel. unaltered monzo-diorite. C.I. ave. 20, to 15 in places. Ep-calcite (± sericite) patches (ave. 1cm across) common (1-2%). Bt. fresh or partly alt. to chlorite. Calcite (± qtz, = cnl) & chlorite veinlets & seams common. Pervasive calcite alt. over few cms.		129.10 - 131.94 Local concns cpy (up to 2%) in veins & on fracts. Tr throughout rock assoc. ± mafics. Tr py, local concns up to 1%		34212					
			130.7 5mm wide magnetite (25%) - qtz - cpy (5%) vein, 25° c.a.		qtz-cpy-magnetite	131					
			131.22 Vuggy calcite vein, 3-4% spec. hm. Tr py, 1-2% cpy. Chl selvedges, 22° c.a.		calc-chl spec. hm py, cpy	34213					
		131.94 - 132.45 2cm wide k-spar zone ≈ parallel to c.a. Ep + calcite patches ave. 2cm across (5%).	132.79 2mm magnetite band, 57° c.a.								
		132.45 - 134.20 As for 129.10 - 131.94. Localized intense k-spar (± qtz?) alteration (C.I. ave. 5) over 20 - 25cms.		132.45 - 134.20 As for 129.10 - 131.94.	hm, calc-chl.	133					
						34214					
						134.2					
		134.20 - 136.55 Variable alteration throughout this interval C.I. = 5 to 15. Intense k-spar alt. over few cms (C.I. = 5). Calcite, qtz veins & chlorite seams common. Chl. alteration throughout.		134.20 - 136.55 Tr py, cpy throughout rock ± local concn's. in veins & fracts. Py up to 1%, cpy up to 0.5%.	145	34215					
			135 - 135.23 Strong, localized shear fabric, 145° c.a. Intense chlorite alt.			136					
						34216					
		136.55 - 137.10 Intense k-spar alt, sericite along partings. C.I. = 0. Calcite & qtz veining common. K-spar selvedges [illegible] along qtz veins [illegible]		136.55 - 137.10 Sulfides typ. concentrated in qtz-calc veins. Cpy up to 0.5%, py tr. 1-2% spec. hm in veins.		137.10					

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-11

FROM	TO	~~LITHOLOGY~~ ALTERATION	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn
		137.10 - 140 C.I. variable, ave. 10-15, 0 over 5-10 cms. Sericite alt. along partings in bleached zones. Qtz & calcite veining common. Qtz veins c̄ 1mm k-spar selvedges. Chl veinlets (± calc) common. Ep + calc. alt in patches (1 cm across) confined to intensely alt. zones.		137.1 - 140 Sulfides typ. occur in veins & fracts. cpy tr - 0.25% Py 0.5% - 1% Spec. hm commonly occurs c̄ py in calc. veins		34217					
						139					
		140 - 142.35 C.I. ave. 20. Local zones of intense k-spar (+ qtz ?) alt. over 15-20 cms. (C.I. = 0-5). Calcite (± chl, ± qtz) & qtz veins common.		140 - 142.35 Significant increase in sulfide min. esp. in bleached zones where veining is most intense. Py ave. 1-2%, up to 4% in veins, fracts. cpy ave. 0.5-1%, up to 3%		34218					
						141					
						34219					
		142.35 - 146.33 Intensely altered & sheared zone, Chl + qtz alt. predom. in sheared rock. Variable degrees of k-spar alt. C.I. = 0 bet. 145.26 & 146.33 and 143.94 & 144.34. Local. rel. unaltered monzo-diorite over 40-50 cms. Chl, calc, hm seams common. Patchy magnetism mod to strong in places.	142.35 - 146.33 Shear fabric defined by parallel align. of chl seams & mafics in the rock., 15° c.a.	142.35 - 146.33 V. uneven distbn of sulfides. 142.35 - 142.73: tr py, tr cpy 142.73 - 144.3: ave. 3% py & cpy (3:1). Locally up to 5% py + cpy in veins/fracts Typ. assoc. c̄ mafics & chl veins 144.3 - 144.84: tr py, cpy 144.84 - 146.33: tr py, cpy. Local concns 0.5% py in veins c̄ spec. hm.	15	142.35					
						34220					
						144.3					
						34221					
						146.33					
		146.33 - 154.97 Rel unaltered monzo-diorite. C.I. ave. 20 (to 25 in places) Localised bleached zones over few cms. Occas. patches of ep - calc - sericite alt. up to 4cm across, 5-10%. Bt partly or totally altered to chl. Calcite veining common. Magnetism variable, mod. - strong. Occasional concn. magnetite in veins & patches within (eg. bet. 151.54 & 151.9 ≈ 30% mag).	149 - 149.08 4 chl-calc-magnetite veins approx. 65° c.a. c̄ up to 2% py, 1% cpy. 149.55 - 149.65 Vuggy k-spar-calc - qtz patch c̄ 1% ep-calcite patches, tr cpy, tr py. 149.92 - 150 As for 149.55 - 149.65, incr. [illegible] 15%	146.33 - 154.97 Tr cpy & py throughout. Occ. concns in veins / fracts (particularly chl-calc-magnetite veins) up to 2% py, 1% cpy. Spec. hm occas. occurs c̄ py in veins	chl-calc-mag-py-cpy	34222					
						148					
						34223					
						150					
						34224					

Scale ______ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-11

FROM	TO	~~LITHOLOGY~~ ALTERATION	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	Au	Ag	Cu	Pb	Zn

~~LITHOLOGY~~ ALTERATION

154.96 - 155.98 Intense k-spar - sericite alt. C.I. = 0 - 5. Bt. alt. to chl. Qtz - calcite veins, chl seams common. Approx 1% magnetite

155.98 - 157.96 Rel. unaltered c local intense bleaching over few cms. 1% local saussi. of plag. Occas. conc'ns of magnetite in veins (up to 2mm wide), typ. assoc. c pyrite!

157.96 - 159.02 Intense k-spar + sericite alt. [illegible] NB. @ 158.78 5mm py - qtz - k-spar vein, 25% py. @ 155.80 5mm qtz-mag-py vein 5% mag, 5-10% py. Both veins 75° c.a.

159.02 - 162.4 Grey-col. monzo-diorite Variable alteration ranging from rel. unalt. to mod. k-spar alt. C.I. varies between 10 & 20. Calcite ± hm veins & chlorite seams [illegible]. NB. between 160.32 & [illegible] rock has a banded appearance c magnetite & [illegible] veins (up to 5mm thick) approx. [illegible] c.a. Py typ. occurs c [illegible] up to 2% [illegible] veins also c magnetite.

162.4 - 163.95 Light greenish col. rock, intense k-spar + sericite alt., NB. between 163.02 & 163.98 bleached zones alternate c rel. unaltered zones over few cms. Variable magnetism, weak - mod.

163.95 - 168.05 Dk. grey rel. monzo-diorite. Varying degrees [illegible] [illegible] k-spar [illegible] to [illegible]

ALTERATION

155.10 chl-calc-spec. hm seam, 25° c.a.

155.15 2½ cm wide milky qtz - calcite vein, 30° c.a. Tr cpy.

156.11 - 156.17 Vuggy milky qtz calcite vein 36° c.a. No sulfides.

157.85 4mm wide magnetite, calc, chl vein, 135° c.a. 0.5% cpy, tr py.

159.02 - 162.4 Magnetite bands common in this interval. Py typically occurs c magnetite up to 25% in veins (few mms wide)

162.55 - 162.95 ? milky qtz veins (up to 1.5cm wide) c kspar selvedges ave. 85° c.a.

164.41 - 161.70 3cm wide qtz - calcite - chl vein, 10° c.a.

MINERALIZATION

154.96 - 155.98 Tr cpy, py.

155.98 - 157.96 Tr py ± cpy throughout c local conc'ns in veins & fractures up to 0.5%

157.96 - 159.02 Uneven distribution of sulfides Local conc'ns in veins & fractures! py up to 2% ! cpy up to 1%
Tr py dissem. throughout rock!

159.02 - 162.4 Overall tr. cpy in calc - chl veins & qtz veins. Py ave. 1% overall, unevenly distb. c local concin's in veins & Occ. seams of py c magnetite

162.55 - 162.95 Tr cpy in qtz veins. Occ. patches cpy up to 1.5cm across.

163.95 - 164.41 No signif. sulfides where rel. unaltered. local conc'ns cpy in calcite veins (1%) in bleached zones

164.41 - 164.70 2% cpy in patches up to 2cm across.

STRUCTURE

qtz-chl-tr cpy

qtz-py-kspar

qtz-mag-py

magnetite py

qtz, cpy

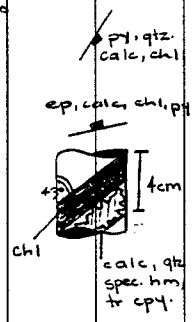
SAMPLE NUMBER

34224
152
34225
154
34226
156
34227
157.96
34228
160
34229
162.4
34230
163.95
34231

Scale _____ Logged by K. Jagodzinski Project Great Western Star Hole # GWS-89-11 page 11 of 12

FROM	TO	LITHOLOGY + ALTERATION	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
		164.65-165.55 C.I. ave. 10. Abundant calcite veining ± chl seams throughout. Bt. alt to chl.		164.70-165.55 Local conc's cpy in veins & seams & assoc. ± chl. (up to 0.5%). Tr py.		34231					
				165.55-168.08 Tr cpy, py. Local conc's cpy in veins up to 2%, py up to 1%. Not common.		166					
			166.52 1mm wide mag-cpy veinlet, 145° c.a. 2-3% cpy.			34232					
		168.08-168.63 Intensely alt. monzo-diorite - chl-qtz-calcite alt. predom. sheared on fract. surfaces. Dk grey-green chl. Hm staining throughout.	168.15-168.3 1 cm wide qtz-calc-spec hm vein, 160° c.a.	168.08-168.63 1% v. fine dissem. py, tr cpy		168					
						34233					
168.63	169.26	Mafic Dyke Chloritised (greenish tinge). Randomly orientated plates chl. after bt. in predom. chl-calcite groundmass. Highly calcic		168.63-169.26 No sulfides.		168.63					
						34234					
						169.26					
						34235					
169.26	173.95	Monzo-Diorite C.I. ± 20, Notable sauss. of plag. Ep (predom) - calcite - sericite patches up to 1cm across constitute ± 15% of rock. Weakly sheared on some fracture surfaces. Bt. alt. to chl. Chl seams common. Pervasive calcite alt., occ. calcite veins. Weak - mod. magnetic. Zone of intense alt. between 169.26 & 169.83 ⇒ chl "schist"). Same bet. 173.98 & 173.95 plus		169.26-169.83 Tr cpy, py, local concns in veins & fracts (0.25% cpy, 0.5% py)		170					
						34236					
			171.92 2mm calcite vein 155° c.a. Tr cpy, 0.25% py.	169.83-173.95 Tr cpy in calcite (± chl) veins, tr py throughout rock.	calc, cpy, py	172					
						34237					
						173.95					
173.95	175	Mafic Dyke As for 168.63-169.26 with ≈ 1% white, tabular, calcite phenos (≤ 1mm across) throughout. V. calcic groundmass.		173.95-175 No sulfides		34238					
						175					
175	EOH	Monzo-Diorite			chilled margins 175.73 175.92 qtz-chl "schist" mafic dykelet	34239					
		175-177.75 Intensely alt. qtz-chl "schist". Shear fabric 5° c.a. Rock dk. greenish-grey col. due to intense chl. alt., calcite veins, chl ± hm seams common. Calcic groundmass. Ave. strongly magnetic	175.73-175.92 1½ cm wide mafic dykelet in monzo-diorite. Chl (after bt) phenos. Chilled margins (1-2mm wide). 170° c.a. See figure.	175-177.75 Tr v. fine dissem. py up to 0.5% in veins / fractures. Tr cpy		177					
						34240					
				177.75-180.56 Tr cpy, py.		177.75					
		177.75-EOH C.I. 15-20. Sauss of plag. in patches throughout. Local intense shear fabric over 20-30 cm, 155° c.a. defined by alignment of chl in the rock. Bt alt. cln. in sheared zones. Fresh or weak alt.			158	34241					

Scale _____ Logged by K Jagodzinski Project Great Western Star Hole # GWS-89-11 page 12 of 12

FROM	TO	LITHOLOGY	ALTERATION	MINERALIZATION	STRUCTURE	SAMPLE NUMBER	ASSAY GEOCHEMISTRY Au	Ag	Cu	Pb	Zn
			180.56-180.66 Zone of intense qtz ± calcite veining ave. 32° c.a. ∠1mm chl selvedges	180.56-180.66 Py conc. in veins to 5%		34241					
				180.66-181 V. fine tr disseminated py.		180					
			182.09 Ep-chl-calcite seam 800 c.a., tr py. (1.5cm wide)	181-EOH Tr cpy, py in veins.		34242					
			182.76 4cm wide vuggy chl-calcite - spec hm, qtz vein, 43° c.a. (see figure). Tr specks cpy			182					
						34243					
	181.1	END OF HOLE.				184.10					

N C G	DRILL CORE LOG - Cover Page	Drill Hole No.: GWS-89-12
	Logged by: P. Ronning Start Date: 20/12/89 Completion Date:	Page 1 of 21
		Project: Great Western Star

Contractor Information

Drill Contractor: Leber Mines
Foreman: Leslie
Hole Start Date: 16/12/89
Hole End Date: 18/12/89

Drill Hole Information

Size of Core: NQ-2
Location:
Property Name: Great Western Star
Claim Name:
Grid Name:
Zone Name: Eureka
Northing:
Easting:
Elevation:
Survey Method (eg. compass, altimeter): Clinometer compass

Drill Hole Orientation Surveys:

Depth	Azimuth	Plunge	Method
collar			

Final Depth of Hole:

Symbols and Abbreviations Used in Log

Note: for core measurements and recoveries, see geotechnical log.

Sample Shipment Information

Sample Numbers	Date Shipped	Shipment No.	Shipped Via	Laboratory	Date Results Received	File Number(s)

N C G

DRILL CORE LOG

Drill Hole No.: GWS-89-12
Page 2 of 21; From 0 To 10 m
Project: Great Western Star

Logged by: P. Ronning Date: 20/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
0			0-3.66	cased in	weathered	bedrock.					
1											
2											
3											
4			3.66-12.06	Monzo-Diorite	CI 20 Fe, Mn oxides 15%; Ca 3% leached out. int 2	nil	20	2			3.66 34251
5											5
6											34252
7											7
8											34253
9											9
10											34254

Weathered Monzo-diorite. Mafics → clay + Fe oxides. All fractures coated with Fe + Mn oxides. Porosity where calcite gash veins leached out. Approx 10%. Any sulphides that were present leached out.

N C G — DRILL CORE LOG

Logged by: R.R. Date: 20/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 3 of 21; From 10 To 20
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
10			12.06-12.42	vein	ksp vein 5% porosity ksp ca. Fe oxides 10% chl. banding 50° c.a.	nil	20	2			34254
11											11
12			12.42-22	Monzo-diorite	CII20 Fe,Mn oxides 15-20%. ca 3%, leached mt 2	nil					34255
13											13
14											34256
15											15
16							20	2			34257
17											17
18											34258
19											19
20											34259

Similar to 3.66-12.06.

N C G — DRILL CORE LOG

Logged by: P.R. Date: 20/12/84 Sampled by: Date:

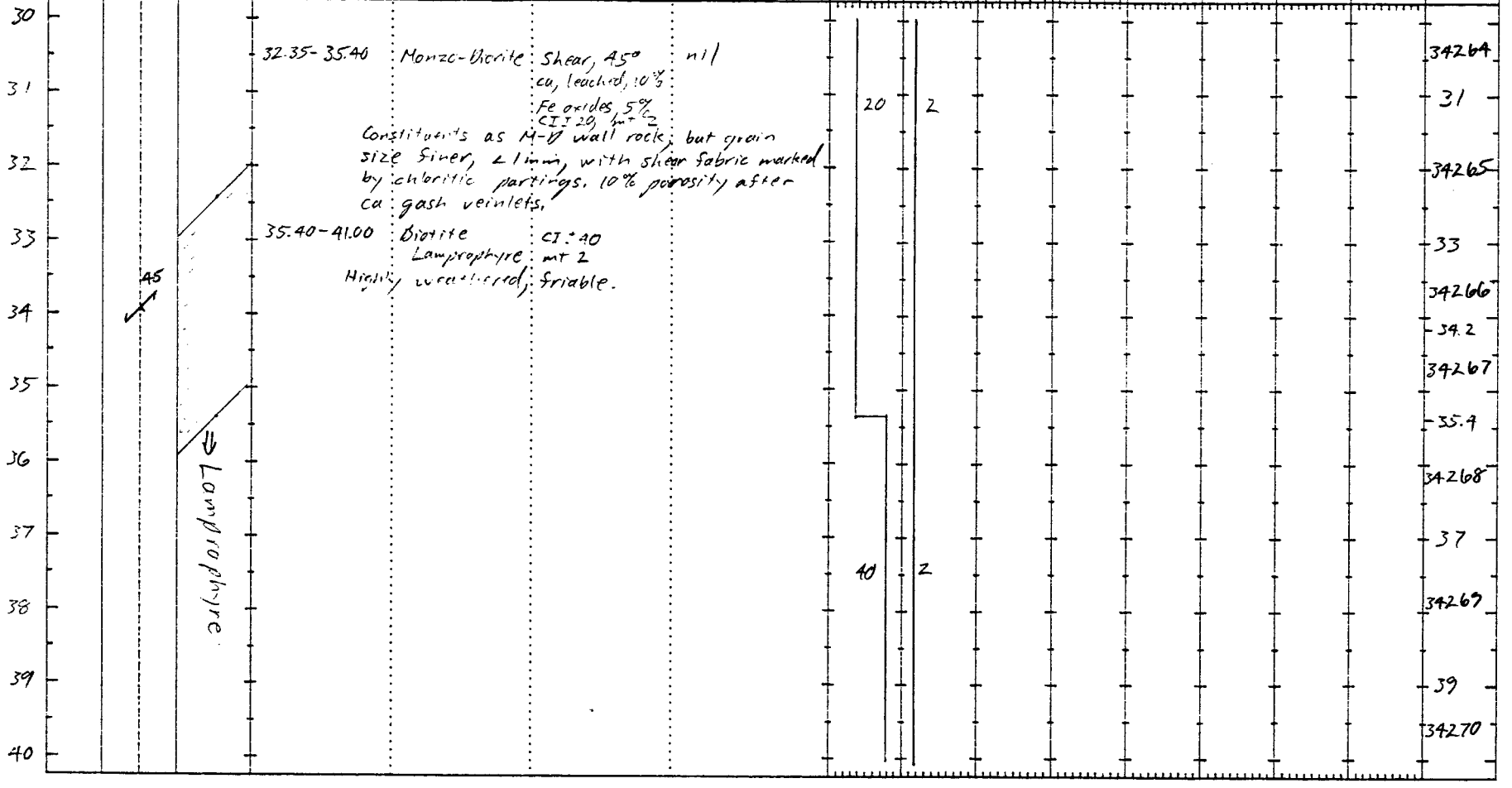
Drill Hole No.: GWS-89-12
Page 4 of 21 ; From 20 To 30
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
20											34259
21							20	2			21
22			22-23.8	Monzo-Di.	bi 50% Fe oxides 10% Ca 2%, leached mt 3% CI 20,50	nil					34260
23							20 50	3			23
24				Intensely biotitized; bi occ. as veinlets and as felted masses, fx-cy.							34261
25			23.8-29.0	Dike? Monzo-diorite	CI 15 mt 2 Fe oxides 5	nil					25
26				Components are similar to monzo-diorite but fine grained < 1mm. Cbl alt'n in preceding unit suggests this fx dike(?) intruded coarser grained rock. Patches ep. locally.			15				34262
27								2			27
28			29.0-32.55	Monzo-diorite	CI 20 mt 2 ksvar 40 ca 2, leached Fe oxides 10	nil					34263
29							20				29
30											34264

N C G — DRILL CORE LOG

Logged by: K.F. Date: 20/12/89 Sampled by: Date:

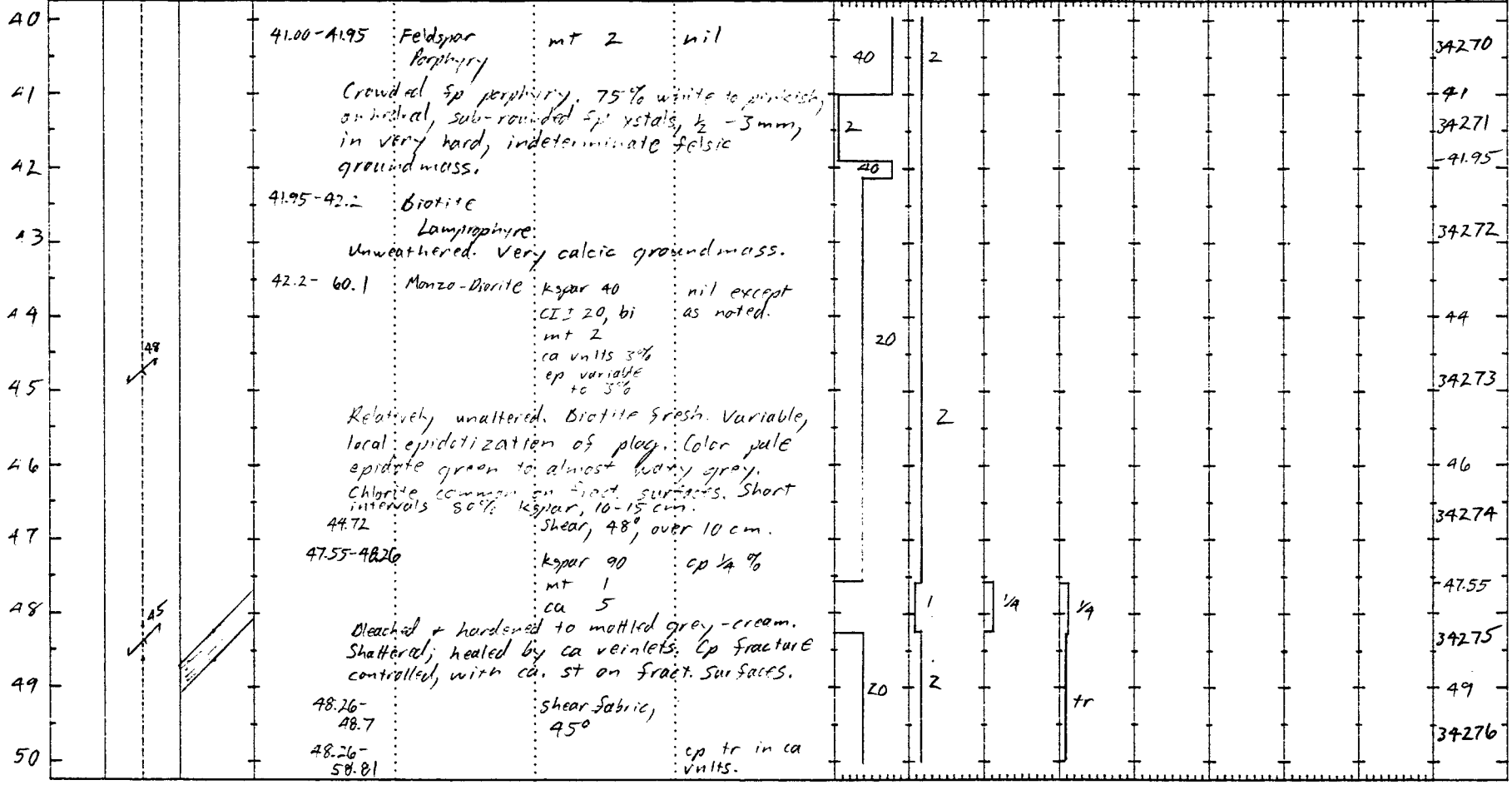
Drill Hole No.: GWS-89-12
Page 5 of 21 ; From 30 To 40
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: DR. Date: 20/12/89 Sampled by: Date:

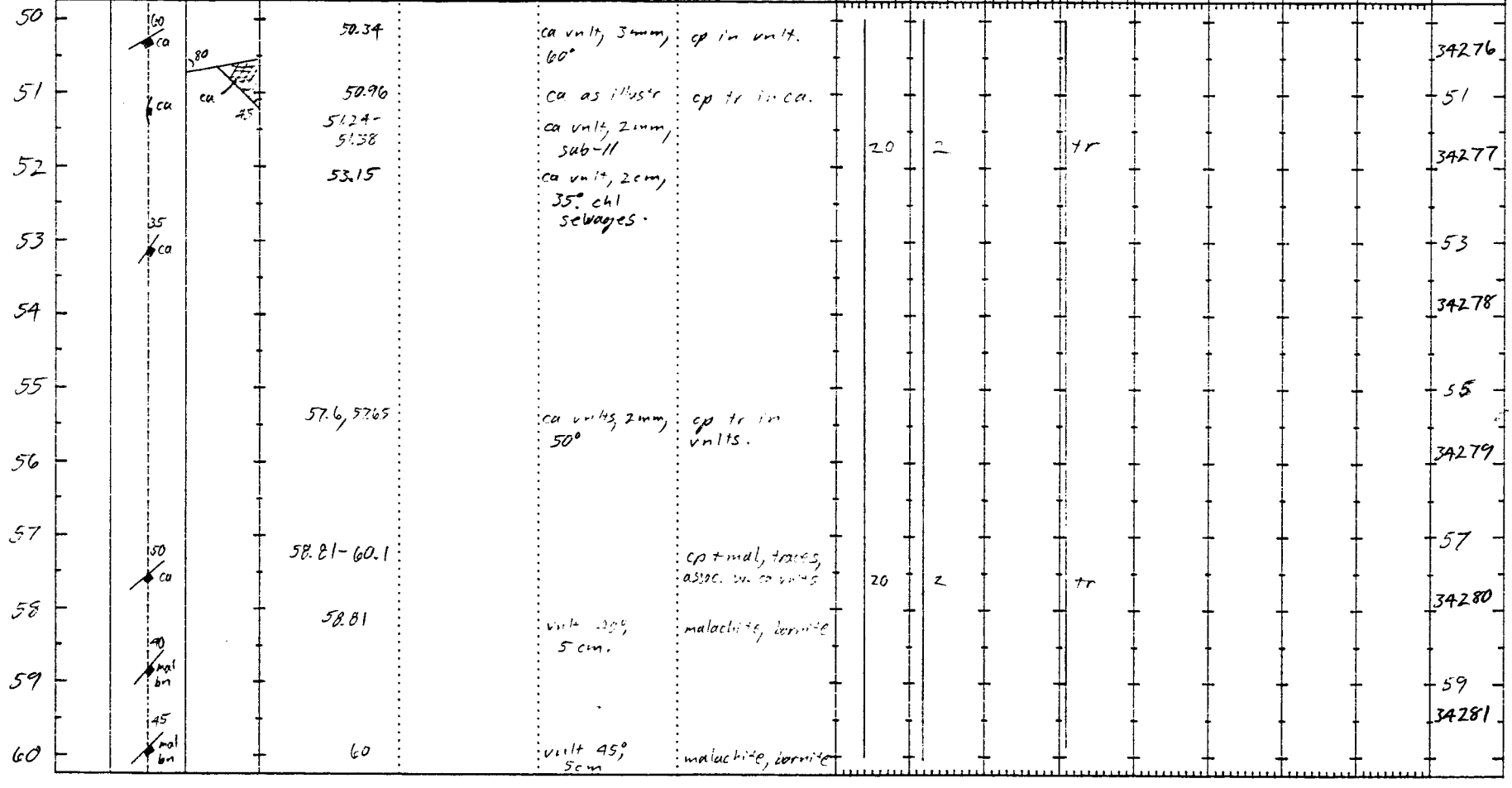
Drill Hole No.: GWS- 89-12
Page 6 of 21; From 40 To 50
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: P.R. Date: 20/12/89 Sampled by: Date:

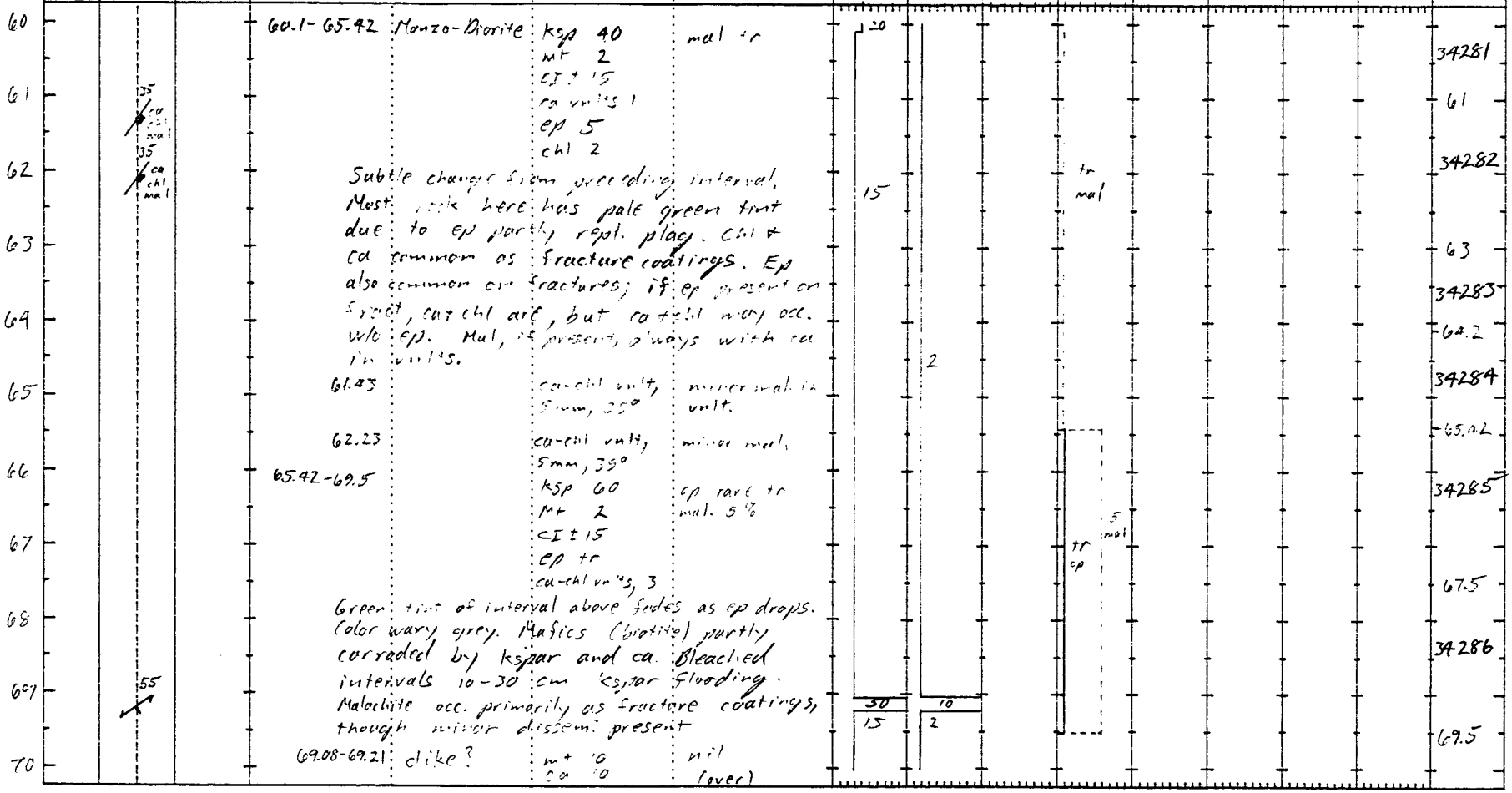
Drill Hole No.: GWS-89-12
Page 7 of 21 ; From 50 To 60
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: P.K. Date: 20/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 8 of 21; From 60 To 70
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: P.R. Date: 20/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 9 of 21; From 70 To 80
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
70			69.08-69.21 (cont.) Black; vfg; speckled with spots ½ to 2 mm ca.								34287
71			69.21-69.5		shear, 55°						71
			69.5-73.6	Monzo-Diorite	ksp 40 mt 2 CI ± 15 ca vnlts 1 ep 5 chl 2	nil					34288
72				Resembles 60.1-65.42			15	2			
73			73.6-77.2	M-V.	CI ± 15 mt 2 ksp 60 ep tr ca 3	mal tr bn tr					73
74				Grey, lacks epidote. Short intervals 5-10 cm ksp bleaching.							34289
75										tr mal bn	75
76			76			native Cu on fracture.					34290
	45 qtz		76.46-76.56	M-V	ksp (?) 80% ca 10% CI nil	bn 1%	0	0		1 bn tr mal bn	77
77	ep			Intensely bleached; aphanitic.							34291
			76.8		qtz vnlt, 45°, 2 cm.	mal in vnlt.	15	2			
78	ep		77.2-81.28	M-V	as 69.5-73.6 and 60.1-65.42	nil					78
				Pronounced fracture set @ approx 5° c.a., coated with ep.							34292
80											

N C G — DRILL CORE LOG

Logged by: PR   Date: 21/12/89   Sampled by: Date:

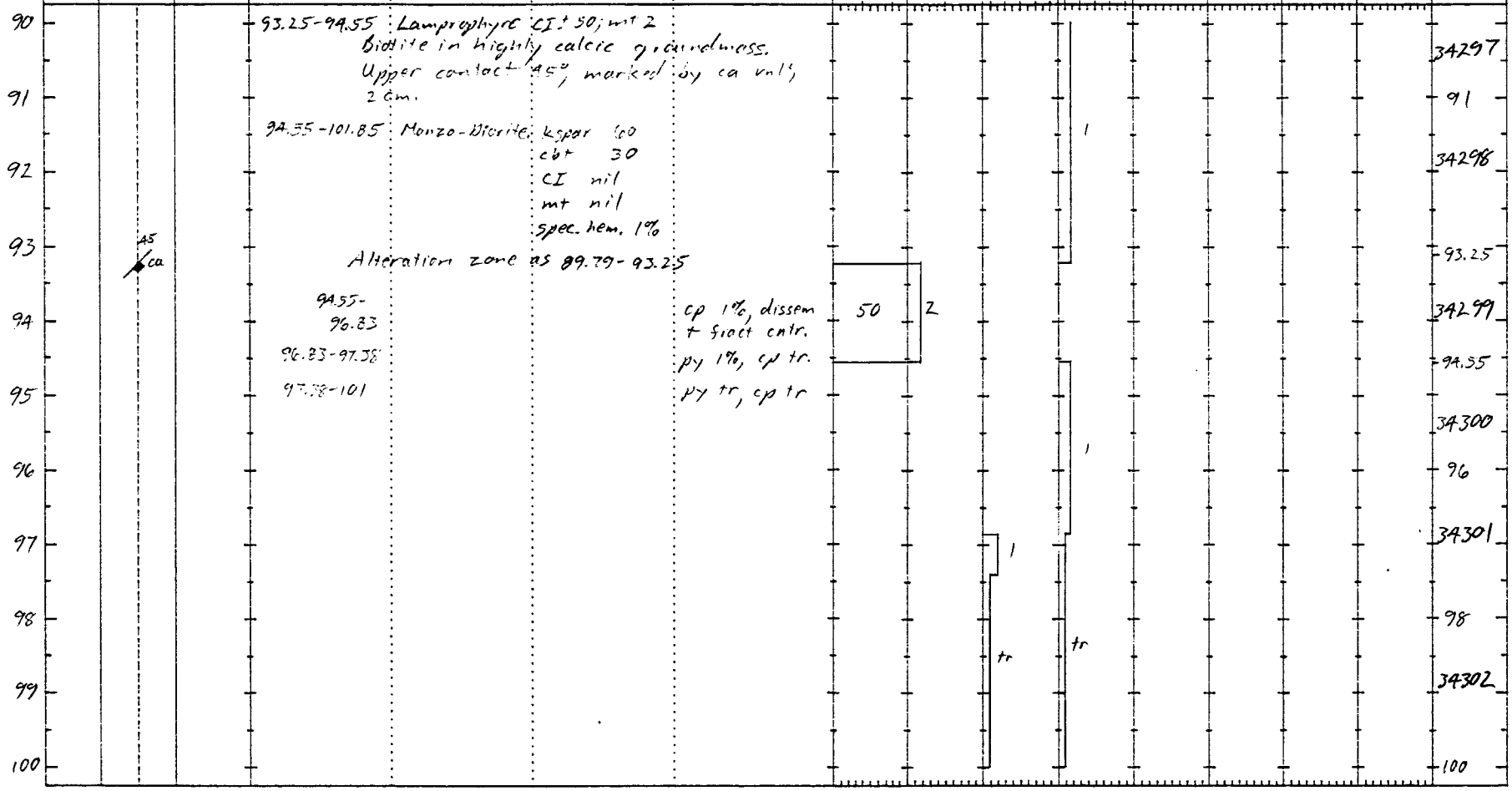
Drill Hole No.: GWS-89-12
Page 10 of 21; From 80 To 90
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
80			81.28-	Monzo-Di	CI ±20 ksp 40 mt 3 ca-chl vn'ts 2 qt vn'ts 1	nil except as noted.	15	2			34292
81											81
82			84.28		qt vnlt, 1cm, vuggy, 45°	mal 10% in vnlt.					34293
83			85-86 Fractures sub-ll c.a. create prisms of rock.								83
84	45 qt mal.		86.30		ca vnlt, 2 mm, 40°	trace cp in vnlt.	20	3		mal 10%	34294
85			86.94 cp speckled on fracture surface, ...			cp					85
86	40 ca		87.64-88.20 88.2-89.79			cp 1%, conc. on fract. surfs. cp trace				tr	34295
87	65 cp		89.79-93.25	Monzo-Diorite.	kspar 60 cbt 30 CI nil mt nil spec. hem 1%	cp 1%, dissem + conc. on fract. bn tr cv tr				tr	87
88										1	34296
89			Completely altered, bleached zone. Variable on scale of ½ m betw. intense kspar and intense cbt. Irregular sericitic partings present in carbonate zone.							tr	89 34297
90										1	

N C G — DRILL CORE LOG

Logged by: P.R. Date: 21/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 11 of 21; From 90 To 100
Project: Great Western Star



N C G — DRILL CORE LOG

Drill Hole No.: GWS-89-12
Page 12 of 21; From 100 To 110
Project: Great Western Star

Logged by: P.R. Date: 21/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
100			101-101.85			cp 1%					100
			101.85-102.46	Monzo-Di.	CI ± 20 mt 2 ksp/or 30 ca vnlts 5	mal			tr	tr	34303
101										1	
102			102.46-104.20	M-D	CI ± 5 Ksp/or 35 cbt 20 mt ½	mal	20	Z			102
103				Partially altered zone.			5	½			34304
104			104.20-108.51	MD	CI ± 20 mt 2 ksp/or 40 bi → chl, partial spec hm, 2%	mal tr					104
105										mal	34305
106				Relatively unaltered, grey monzo-diorite. Mal with ca vn vnlts or coating fractures.			20	Z		mal cp	106
			105.8-106			cp tr, mal 1%					34306
107				Porosity after ca, 10%; ca vn'lts assoc. with vugs.							
			108.51-114	MD	CI ± 20 mt 2 ksp/or 40 bi → chl partial ep 5% ca vnlts 1%	mal tr in ca vnlts				mal	108
108							20	Z			
109	45 ca										34307
			108.66		ca vnlt, 1cm, 45°	mal in vnlt,					
110											110

N C G — DRILL CORE LOG

Logged by: P.R. Date: 21/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 13 of 21; From 110 To 120
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
110											116
111			112 - 112.1		Ca vnlt, as illustr.						
			114 - 117.13	M-O	CI 20 mt 3 kspar 50 ca 5 bi→chl, partial	nil except as noted.		2			34308
112		30									112
113					Differs from previous interval primarily in lack of epidote. Ca as veinlets and partly corroding mafics.						34309
114		85									114
			115.36		chl vnlt, 1mm, 30°	py ½% w/in 2 cm of vnlt.					
115	30 chl		117.13 - 118.67	Monzo-Diorite	CI ± 10 mt 2 kspar 50 bi→chl, partial cbt 10	nil	20	3			34310
116											116
											34311
117			Some bleaching + cbt altn as contact with diorite at 119.98 approached.								117.13
			118.67 - 119.98	Monzo-Diorite	silicified. qt 80 ca 10, gash vnlts	cp 2%	10	2			34312
118											118.67
119	45 qt ca cp		119.52 - 119.57	vein	qt vein, 45°, barren.					2	34313
			119.57 - 119.64	vein	ca vein, 45°, cp 10%		35	5			119.98
120											

N C G — DRILL CORE LOG

Logged by: R.R. Date: 21/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 4 of 21; From 120 To 130
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
120			119.6-179.87	Diorite bi 35% plag 40% mt 5%	plag → ep, partial. ca 10% vnlts; approx 2/m.	nil except as noted.	35	5			
121			Dark green diorite. Ep as alter as above as vnlts. ca as alter plag, fractures and as vnlts.								34314
122											122
123			122.48		ca vnlt, 40°, 2 cm.						34315
124											124
125											34316
126											126
127							35	5			34317
128											128
129											34318
130											130

N C G

DRILL CORE LOG

Logged by: K.K. Date: 21/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 5 of 21; From 130 To 140
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
130											130
131											34319
132			132-135		ep 20% epidote increases in this interval and partly replaces mafics.						132
133											34320
134											134
135											34321
136											136
137											34322
138			137.53		ca-ep vnlt, 45°						138
139											34323
140			139.57		Ksp-ar-ep vnlt, 3cm, 35°						140

N C G — DRILL CORE LOG

Drill Hole No.: GWS-89-12
Page 16 of 21; From 140 To 150
Project: Great Western Star

Logged by: M.R. Date: 22/12/89 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
140											140
141											34324
142											14[illegible]
143			142.5		qt-ca vnlt, 4 cm, 50° hematite.	5% mal in vnlt.				mal	34325
144			142.82		qt-ca-chl vnlt, 2cm, 50°						144
145											34326
146											14[illegible]
147			147.12		ksp/ar-ep vnlt, 4 cm, 35°					10% in vnlt. ↓	34327
148			148.03		ca vnlt, 1mm, 45°	ep in vnlt, 10%					148
149											34328
150											150

N C G — DRILL CORE LOG

Logged by: YR Date: 22/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 7 of 21; From 150 To 160
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
150											150
	45 ca		150.67		Ca vnlt, 1cm, 45°. Highly leached.	mal, azurite in vnlt.	35	2			34329
151							20				150.75
			150.75-151.18		calcite 50% chl 10% CI ≈ 20 mt 0	nil	0				34330
152											
			151.18-152.60	Highly calcified zone.	qt 50% ca 30% chl 10% mt nil	py tr	20	0			152.6
153											34331
154											
	45 ca			Calcified zone flooded with white bull quartz.							154.9
155			151.18-152		Fe oxides 10%						34332
				Core stained orange-brown.							
156			152.60-154.40	as 150.75-151.18			35				156
157			154.95		ca vnlts, 1mm, 45°	cp tr in vnlt.		2			34333
158	ca chl. 5		157.48-158.20		ca-chl vnlt, 1-4mm, 5°	tr bn, mal in vnlt.					158
				Bleached, calcified envelope, 4cm around ca vnlt.							
159											34334
160											160

N C G

DRILL CORE LOG

Logged by: Date: 22/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 18 of 21; From 160 To 170
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
160			161.18		mt vnlt, 2 mm, 55°						160
											34335
161			161.22		ca vnlt with mt selvage, 2cm, 55°						
162											162
			161.50		mal, azurite vnlt, 3 mm, 40°						
163							35				34336
			162.82 - 163.70	Diorite Breccia	ca 40% hm 40%			2			
164			Brecciated; healed by hm-rich calcite.								164
											34337
165											
166			166-174.2		ca 20 cl 20 mt 1 shear 25°	py tr cp very rare tr.					166
							20				34338
167								1	tr	very rare trace.	
168											168
											34339
169											
170											170

N C G

DRILL CORE LOG

Logged by: A.R. Date: 22/12/89 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 19 of 21; From 170 To 180
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
170			Diorite cont.								170
171											34340
172							20	1	tr	rare tr	172
173											34341
174											174.2
175											34342
176											176
177							35	2			34343
178											178
179											34344
180											179.87

N C G — DRILL CORE LOG

Logged by: Date: 22/12/87 Sampled by: Date:

Drill Hole No.: GWS-89-12
Page 20 of 21; From 180 To 190
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
180			179.87-191.31	Monzo-Diorite	kspar 70% CI avg 5 ca 10% mt 1/ vnlts, 1%				1		
181											34345
182					Intense kspar altn, variable on a scale of decimeters from complete to moderate, ca as gash veinlets + hairline veinlets, possibly some ca altn in groundmass.		5			tr	182
183					Contact with preceding unit abrupt. 5 cm of chill fabric in diorite suggest that it post-dates Monzo-Diorite. cp occurs in ca vnlts w/in chill zone, suggesting that ca vnlts + mnl. post-date diorite.				tr		34346
184											184
185			179.37- 180.67			py 1%, dissem cp tr, dissem in vnlts. with ca.					34347
186											186
187	ca qr py		180.67-		spec. hm common in ca vnlts.	cp tr, mainly with ca vnlts.	5			tr	34348
188			186.85- 187.65		ca vnlt, 2cm, // c.a. graphite selvage along vnlt wall.	py tr in vnlt.					188
189											34349
190											190

NCG — DRILL CORE LOG

Logged by: PR Date: 22/12/89 Sampled by: Date:

Drill Hole No.: GWS- 89-12
Page 21 of 21; From 190 To 198.75
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
190											190
							5	1	tr	tr	34350
191			191		qt-chl (ca) vnlt, 1cm, 20°						191.31
192			191.31 - 198.75	Monzo-Diorite.	Ksjar 50 CI I 10 mt 2 ep 10 ca vnlts 3% chl in ca vnlts 2%	pyrite very rare trace.					34351
193											193
							10	2	tr		34352
194											
195					Interval characterized by dominance of pale epidote green color due to epidotization of plagioclase.						195
196					198.75 = end of hole.						34353
197											197
							10	2	tr		34354
198											
199											198.75

N C G

DRILL CORE LOG - Cover Page

Logged by: GJD Start Date: JAN 12 Completion Date: JAN 19

Drill Hole No.: GWS-90-13
Page 1 of 20
Project: Great Western Star

Contractor Information

Drill Contractor: LEGER MINES
Foreman: DON LESLIE
Hole Start Date: JAN 7, 1990
Hole End Date: JAN 9, 1990

Drill Hole Information

Size of Core: NQ-2
Location: RON GRID
Property Name:
Claim Name: RON #1 FR.
Grid Name:
Zone Name: RON
Northing: 18+00
Easting: 23+80
Elevation:
Survey Method (eg. compass, altimeter): COMPASS
GRID LINES

Drill Hole Orientation Surveys:

Depth	Azimuth	Plunge	Method
collar			

Final Depth of Hole:

Symbols and Abbreviations Used in Log

PY	= PYRITE	↑	= INCREASE
CPY	= CHALCOPYRITE	↓	= DECREASE
SER	= SERICITE	N.V.S.	= NO VISABLE SULFIDE
BI	= BIOTITE		
CHL	= CHLORITE		
TOURM	= TOURMALINE		
HEM	= HEMATITE		
CARB	= CALCIUM CARBONATE		
FX	= FRACTURE		
KSPAR	= POTASSIUM FELDSPAR		
PLAG	= PLAGIOCLASE		
HB	= HORNBLEND		
CONT	= CONTACT		
W	= WITH		
INCL	= INCLUSION		
CON	= CONJUGATE		
VNLT	= VEINLET		
DISS	= DISSEMINATED		
ENV	= ENVELOPE		
//	= PARALLEL		

Note: for core measurements and recoveries, see geotechnical log.

Sample Shipment Information

Sample Numbers	Date Shipped	Shipment No.	Shipped Via	Laboratory	Date Results Received	File Number(s)

N C G — DRILL CORE LOG

Logged by: GJD Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS- 20 -14
Page 2 of 29 From 0 To 10
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
0 – 4			0-4.26 OVERBURDEN								
4.3 – 10	20°		4.3-14.8	DIORITE: MED. GRAIN; PLAG [illegible]; [illegible]; QZ < 5% -CORE V. BROKEN TO 8m	[illegible] MOD [illegible] [illegible]; [illegible]; -MINOR [illegible] OF FELDSPARS TO 8m, NO OXIDE	NO VIS SULFIDES; 8.7; 1cm QZ VN HOSTS 2% CPY				N/A; N/A; V/O; V/O	10001; 10002; 10003

N C G — DRILL CORE LOG

Logged by: G-J D Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS-
Page 3 of 20; From 10 To 20
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
10			4.3 - 14.8	DIORITE	HB + BI TO CHL				N/o	N/o	
11					MINOR CARB VNS	NO VIS SULFIDES			N/o	N/o	1004
12											
13									N/o	N/o	1005
14	CaCO3 VN								N/o	N/o	
			CONTACT GRADATIONAL								
15			14.8 - 20.2	DIORITE INTRUDED BY K-SPAR PEGMATITE VN.	STRONG DEV OF K-SPAR IN WALL ROCK AND INCLUSIONS OF DIORITE IN PEG.				N/o	N/o	1006
16						N.V.S.					
17	CaCO3 VNLTS				LOCAL CHLOTS OF MG (AFTER ?)				N/o	N/o	1007
18						N V S			N/o	N/o	
19				LOCAL SMALL VUGS		TR MAL			N/o	N/o	1008
20											

N C G	DRILL CORE LOG	Drill Hole No.: GWS-
	Logged by: GJD Date: 01/12-18 Sampled by: Date:	Page 4 of 20; From 20 To 30
		Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
20			CONTACT GRADATIONAL						N/0		
			20.2-29.1	DIORITE	MINOR BI & HB → CHL.						
21	CaCO₃ VNLTS				- NUMEROUS HIGH ANGLE CALCITE VNLTS				N/0		10009
22					C NARROW ALT HALOS (KSPAR?)	- 3cm QZ CARB VN CNTS TR PY & CPY					
23	KA 15cm CaCO₃								N/0	N/0	10010
24									N/0	N/0	
25			25-26.8 CONTACT SHARP	NO AFFECT ON INT					N/0		10011
			FINE GRAINED MAFIC DYKE NUMEROUS 2m OVAL CaCO₃ INCL. - CONTACT 50° FROM C/A - WEAK FOL.								
26			CONTACT SHARP.	- 25.7-26.3 AXIS PAR. KSPAR - PLAG PEG VEIN - CROSSCUT BY MAF. DYKE		- TR CPY IN VUGS IN PEG VEIN.					
27										N/0	10012
28					- HEM & CaCO₃ ON Fx				N/0	N/0	10013
29			CONTACT GRADATIONAL						N/0	N/0	
			29.1-39.5	DIORITE INTRUDED BY KSPAR-PLAG PEGMATITE	MODERATE POTASSIC ALT. OF HOST DIORITE, PLAG PHENOS TO KSP.+SER.	TR MAL IN PEG.			N/0	N/0	10014
30									N/0	N/0	

NCG DRILL CORE LOG

Logged by: GJD Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS-
Page 5 of 20; From 30 To 40
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
30			29.1-39.5	DIORITE/PEG.					N/o		10014
31				PEG IS F.G. RSP HOSTING PLAG PHENOS TO 7x20mm		- TR CPY AND MAL. IN PEGMATITE			N/o		
32	$CaCO_3$ VNTS								N/o		10015
33									N/o		
34									N/o		10016
35					- STRONG BI IN DIORITE HIGHER CONC OF $CaCO_3$ VNTS IN THIS ROCK	- 1% CPY IN AXIS PAR $CaCO_3$ VNLTS					
36				- VNLTS & $CaCO_3$ ARE OFFSET BY HIGHER ANGLE $CaCO_3$ VNLTS							10017
37	$CaCO_3$ VNTS				- Fe OXIDE ON VUGS IN PEG.	- TR MAL ON Fx IN PEG					
38											10018
39											
			CONTACT GRADATIONAL								
40			39.5-55.5	DIORITE					N/o	N/o	

NCG — DRILL CORE LOG

Logged by: GTD Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS-
Page 6 of 20; From 40 To 50
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
40	2cm Qz		39.5-55.5	DIORITE INTERVENED W IRREGULAR PEG VNS	- SOME HBL BI TO CHL. - KSPAR F_T ABOUND PEG VNS - MODERATE $CaCO_3$ VNLTS	- NONE TO TR MOSTLY IN $CaCO_3$ OR $CaCO_3$ - QZ VNLTS			N/o	N/o	
41											10019
42	$CaCO_3$								N/o	N/o	
43						- TR PY ON FX			N/o	N/o	10020
44											
45	$CaCO_3$ +CHL			- IRREG 10CM KSPAR VEIN (NO PLAG)	- BIO AROUND KSPAR VN	- TR PY & CPY ON $CaCO_3$ VNLTS					10021
46				- @ 45.5 30° $CaCO_3$ +CHL FX SHOWS SIGNS OF MOVEMENT HIGH ANGLE $CaCO_3$ FX DO NOT SHOW							
47	$CaCO_3$					- TR CPY ON $CaCO_3$ VNLTS					10022
48						- TR CPY + PY DISS ON $CaCO_3$ VNS AND					
49				- @ 49 KSPAR VN, CHL SELVAGE							10023
50											

NCG — DRILL CORE LOG

Logged by: GJD Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS-
Page 7 of 20; From 50 To 60
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
50			50.2 - 54	- MORE INTENSE IRREGULAR K SPAR VNS, (PEG) ONLY A FEW RELIC PLAG - BOUNDARIES IRREGULAR BUT GENERALLY LOW ANGLE TO C/A	@ 51 NUMEROUS 1 cm MAG CLOTS IN KSPAR	TR CPY + PY IN PEG + QTZ-CARB VNS					
51											10024
52	$CaCO_3$ Fx				51.5-52 STRONG DEV OF FRACTS, MAG + CHL IN KSPAR						
53				@ 53.6 HARD BLACK MINERAL ON SELVAGE OF KSPAR VEIN		TR CPY + PY IN PEG + QTZ CARB VNS					10025
54											
55	30°										10026
56	CONT.	30°	55.5-64.7	MAFIC DIKE BLACK, MED GRAIN + EQUIGRANULAR PLAG, BIOTITE, $CaCO_3$ CONTAINS INCLUSIONS OF HOST DIORITE. GENERALLY FRESH							
			56.4-57.4	DIORITE INCLS.		TR PY IN $CaCO_3$ VNLTS					
57	IRREG K-SPAR INCLS	MAFIC DIKE (LAMP)							N/o		10027
58											
59									N/o	N/o	10028
60	CHL Fx		@ 59.7	→ CHL Fx, CORE BROKEN					N/o		

[illegible] 117.7

N C G	DRILL CORE LOG	Drill Hole No.: GWS-
	Logged by: GJD Date: 01/12-18/90 Sampled by: Date:	Page 8 of 20; From 60 To 70
		Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
60			55.5-64.7	MAFIC DIKE							
			62-64.5	→ NUMEROUS 1-3m KSPAR "EYES"							
61	CaCO3 VNLTS					TR PY OCCURS IN INCLUSIONS IN DYKE				N/0	10029
62											
63			@ 63	75 cm BROKEN CORE						N/0	10030
64	45° CONT	45									
65			64.7-117.2	DIORITE, MED GRAINED, EQUIGRANULAR, ALT INCREASES DOWN HOLE AS DESCRIBED		– CPY, PY, 3N IN KSPAR VN					
66	1cm KSP. VN				→ STRONG DEV OF K SPAR INCREASES DOWN HOLE ACCOMP. BY DESTRUCTION OF MAFICS (TO CHL + EP) MINOR SERICITE OCCURS AS WISPS ON GRAIN BOUND.						10031
67						– TR CPY AND PY IN $CaCO_3$ VNLTS					
68						– @ 68.5 ?R MAL IN $CaCO_3$ VN.					10032
69									N/0	[illegible]	10033
70			– @ 69.7	1cm QZ-CARB VN		→ 6 cm ALT HALO (KSPAR?) AROUND VN					

72 - 73.

N C G	DRILL CORE LOG	Drill Hole No.: GWS- Page 9 of 20; From 70 To 80 Project: Great Western Star
	Logged by: GTD Date: 01/12-18 Sampled by: Date:	

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
70	QZ		64.7-	DIORITE							
			@ 70.4	1cm IRREG QZ VN @ 10° TO CA OFFSETS KSPAR VNLTS, IS IN TURN CUT BY $CaCO_3$ VNLTS	CHL ENV. AROUND QZ VN.	PY & CPY DISS IN DIORITE AROUND QZ VN					10033
71	CHL FX										
72						- SOME DISS PY, MOST PY & CPY ON $CaCO_3$ FX					10034
73											
			73.5-75.4		STRONG DEV OF PATCHY AND DISS EP.	TR IN $CaCO_3$ VNLTS					
74											10035
75											
			75.4-76.5	MAFIC DIKE AS 55.5-64.7		TR CP & PY IN $CaCO_3$ VNLTS					
76											10036
			76.5-78.2	DIORITE	MAFICS PARTIALLY TO CHL., SOME KSPAR VNLTS.						
77											10037
78	35			@ C/A 35°							
	DIKE		78.2-78.7	STRONGLY CHLORITIC MAFIC DIKE. CORE V. INCOMPETENT, ALMOST TO CLAY IN SECTIONS		@ 78.4 5x IN DIORITE INCL.					
79	45		78.7 TO 84.7		STRONG KSPAR DEV., MAFICS TO CHL + EP. LOCAL CLOTS OF EP.						10038
80									N/O	N/O	10639

N C G — DRILL CORE LOG

Logged by: GJD Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS-
Page 10 of 20; From 80 To 90
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
80			647 - 117.2	DIORITE		STRONG K-SPAR DEV AND MOD EP CONTINUES			N/o	N/o	
81	20° HM FX		81 - 81.7 CORE BROKEN			STRONG DEV K-SPAR MAF TO CHL @ 81.3 [illegible] FX			N/o	N/o	10039
82	15° 70°		@ 82.4 QZ CALCITE CON. FX			TR PY + CPY ON CHL FX					10040
83											
84	CO_3 FX										
85			84.3 - 87.3 CORE V. BROKEN.	MAFIC DYKE (LAMPRO.?) 1-2m 31 BOOKS IN PLAG $CaCO_3$ MAG. [illegible]	310→ CHL STRONG CHL ON FX	@ 84.4 CORE SW TO K-SPAR AND $CaCO_3$ AROUND 60° QZ-CARB VNLT.			N/o	N/o	
86					3-5mm FRACTURES $CaCO_3$ EP AT 87.M				N/o	N/o	10041
87						TR PY + CPY ON FX					
88				@ 88 3mm $CaCO_3$ VNLT, CHL CENTRE							10042
89						1% PY, TR CPY ON LOW ANGLE QZ-CHL VNS AND DISS IN DIORITE					10043
90						TR PY + CPY ON FX					

NCG — DRILL CORE LOG

Logged by: GJD Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS-
Page 11 of 29 From 90 To 100
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
90			64.7 - 117.2	DIORITE	- STRONG KSPAR AND EP CONT, NUMEROUS HIGH AND LOW ANGLE QZ-CARB VNLTS	CPY ALWAYS ASSOT. E CALCITE/EPIDOTE					
91				- @ 90.4 QZ-CHL HEM VNLT							
92						TR PY + CPY ON LOW ANGLE QZ CARB FX					10044
93					- 93 - 99.7 CORE MOTTLED OLIVE DUE TO STRONG KSPAR - EP ALT.						
94					- 93.3 - 94 IRREG KSPAR VNS SURROUNDED BY F.G $CaCO_3$ + KSPAR BUT (10cm)	- TO 1% CPY DU QZ-CARB VN IN STRONG K-ALT ZONE					10045
95											
96						TR ON CHL FX					10046
97											
98						TR PY ON CHL FX					10047
99											
100						TR PY + CPY ON CHL + EP + $CaCO_3$ FX					10048

NCG — DRILL CORE LOG

Logged by: GJD Date: 01/12-18 Sampled by: GJD Date:

Drill Hole No.: GWS-
Page 12 of 20 From 100 To 110
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
100			64.7 - 117.2	DIORITE	STRONG EPIDOTE CONTINUES	TR PY + CPY ON Fx AND DISS					10048
101			96.5-98. STRONG EPIDOTE CONTINUES, CALCITE STRINGERS THROUGHOUT, LARGER ONES HAVE DARK ENVELOPES OF CALCITE, CHLORITE & KSPAR. ALL Fx HAVE CHL. EP & $CaCO_3$		STAIN KSPAR LOCALLY 50%						
102					- @ 101.5 3cm CLOSE EPIDOTE	- TR PY ON $CaCO_3$ Fx AND DISS.					10049
103					@ 103 25cm VN COARSE GRAINED KSPAR & RELIC PAG	TR PY ON VN ON CHL, EP, $CaCO_3$ Fx AND KSPAR VN.					
104											10050
105					@ 105.4 10cm DIFFUSE KSPAR AND CHL	TR PY & CPY ON CHL-EP-$CaCO_3$ Fx					
106											10051
107					- @ 106.4 AXIS 11 2cm PINK KSPAR VN						
108						TR PY - CPY ON CHL-EP-$CaCO_3$ Fx					10052
109			109-111.2		STRONGLY CALCITIZED AND KSPAR? AROUND NUMEROUS $CaCO_3$ VNLTS						
110											10053

115-117.2 117.2-12[illegible]

N C G — DRILL CORE LOG

Logged by: GJD Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS-
Page 13 of 20; From 110 To 120
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	% Pyrite	% CPY	Sample Number
110			64.7-117.2	DIORITE					
111									10053
112						-TR PY ON CHL-EP-$CaCO_3$ FX			10054
113						-TR PY ON CHL-EP $CaCO_3$ FX			
114									10055
115–117			115-117.2	DIORITE WITH MAFIC DYKE, NUMEROUS QZ-CARB STRINGERS. CORE [illegible] ALT. TO $CaCO_3$ KSPAR? CHL	@ 116.3 DIFFUSE PINK KSPAR.	-TR PY ON CHL, EP $CaCO_3$ FX TR CPY IN KSPAR-$CaCO_3$ VN. - PY ALSO DISS IN $CaCO_3$ ENV. AROUND KSPAR-$CaCO_3$ VN.			10056
117–120		CONT // TO C/A	117.2-127.7 INTERMEDIATE-MAFIC DYKE FINE TO MEDIUM GRAINED PLAG, BIO, CALCITE, MAGNETITE CONTACTS APPEAR // TO C/A. CONTAINS ALT INCLUSIONS OF DIORITE FROM 3CM TO 1M X CUTTING SHOWS DYKES TO POSTDATE KSPAR VEINS		-ALL FX STRONGLY CHLORITIZED	BIO-CHL	N/O	N/O	10057
							N/O	N/O	10058

N C G — DRILL CORE LOG

Drill Hole No.: GWS-
Page 14 of 20 From 120 To 130
Project: Great Western Star

Logged by: GJD Date: 01/12-18 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
120			117.2-127.7	MAFIC DIKE					N/o	N/o	10058
121											
122									N/o	N/o	10059
123			123-124 INCLUSION OF ALTERED DIORITE								
124									N/o	N/o	10060
125			124.5-127.2		-> NUMEROUS 1 TO 10mm ROUND INCLUSIONS [illegible] RIMS						
126									N/o	N/o	10061
127				CONTACT IRREGULAR AND // TO C/A							
128			127.7-135.1	DIORITE SOME INCL. OF MAF DIKE	MAFICS PARTIALLY TO EP+CHL MINOR DEV. K SPAR THROUGH OUT, AND LOCAL IRREG VNS						10062
129											
130											

NCG — DRILL CORE LOG

Logged by: GJD Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS-
Page 15 of 20; From 130 To 140
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
130			127.7 - 135.1	DIORITE	MULTI-DIRECT. $CaCO_3$ STRINGERS THROUGHOUT SOME E DARK HALOS OF CALCIFIED DIORITE	@ 130.1 2% PY ON [illegible]					
131	$CaCO_3$										10063
132											
133						7% PY ON CHL ED. [illegible]					10064
134			133.8 - 135.1	CORE BROKEN	→ CALCITE STRINGERS ↑ CHL. ↑ EP ↓						
135		?	135.1 - 142.2	MAFIC DIKE	- [illegible] PLAG. CALCITE - MAFIC STRONGLY CHLORITIZED AND CALCITIZED - LOCAL PATCHES OF EP	NVS					10065
136											
137											
138											10066
139						NVS					
140	CONTACT		@ 139.8	CHILLED CONTACT OF MAF DIKE/MAF DIKE							10067

142.2-184.71

N C G	DRILL CORE LOG	Drill Hole No.: GWS-
	Logged by: GJD Date: 01/12-18 Sampled by: Date:	Page 16 of 20; From 140 To 150 Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
140			139.8-142.2	SAME COMP. AS 142.2-139.8 BUT CONTAINS [illegible] 1-3mm [illegible] AROUND [illegible]	EYES	NVS					10067
141											10068
142	30° Con.	30°	142.2-184.71	CONTACT CHILLED AND @ 30° TO C/A							
143				DIORITE - VARYING GRAIN SIZE AND ALTERATION STYLES LIKELY REPRESENT COMAGMATIC INTRUSIONS OR DIFFERENTIAL COOLING RATES IN THE [illegible]		TR PY					10069
144						TR PY					
145			142.2-146.0	- SOME MAFIC DIKE STRINGERS	- MINOR KSPAR ER[illegible] ON LOW ∠ FR - CALCIFIED DIORITE AROUND MAFIC STRINGERS						10070
146	CONTACT		- 145-146.8	→ COARSE GRAIN. CONTACTS DISTINCT @ ≈ 60° TO CA	→ STRONG KSPAR [illegible] MINOR SECONDARY BI?	TR [illegible] [illegible]					
147											10071
148			- @ 147.7 - 148.2-150.3	→	- DIFFUSE K-SPAR VN WITH CLOTS OF SECONDARY BI. STRONG [illegible] ALONG LOW ANGLE [illegible] OVER PREVIOUS STRONG KSPAR.	TR PY					
149											10072
150											

7

N C G	DRILL CORE LOG	Drill Hole No.: GWS-
	Logged by: GJD Date: 01/12-18 Sampled by: Date:	Page 17 of 20, From 150 To 160
		Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
150			→ 150.3 - 154	- INDISTINCT CONTACT FINE GRAIN	→ CALCIFIED HALOS AROUND HIGH ANGLE CARB-QZ VNS → MINOR EPIDOTE, BIO MOSTLY FRES-	TR PY ON Fx					
151											10073
152						TR PY ON Fx					10074
153											
154			154 - 155.5		- @ 154: 10cm KSPAR "FLOODING" STRONG SEC. BIO WITH MINOR KSPAR AND EP	→ 2% DISS PY + TR CPY					
155			155.5 - 157		NUMEROUS LOW ANGLE CALCITE STRINGERS	TR PY					10075
156			156 - 184.71		→ STRONG PERV. EP OVERPRINTING STRONG KSPAR	→ TR PY TAR-OUT LOCAL TR CPY ALWAYS ASSOC. Ē CALCITE VNLTS, $CaCO_3$-CHL-EP Fx, OR CALCIFIED HALOS AROUND QZ-CARB VNLTS					
157			157 - 159.7		- MINOR KSPAR, EPIDOTE AROUND Fx, FEW CALCITE VNLTS						10076
158											
159											10077
160			159.7 - 184		MODERATE KSPAR AND EP, MANY HIGH ANGLE						

N C G — DRILL CORE LOG

Logged by: GJD Date: 01/8-12/ Sampled by: Date:

Drill Hole No.: GWS-
Page 18 of 20; From 160 To 170
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
160			142.2-184.7	DIORITE	QZ CARB VNS & DARK HALOS OF CALCITE PLUS KSPAR						
161											10078
162	Qz-carb vns					@ 162 TR CPY					
163											10079
164			164-165		STRONG KSPAR SOME SEC BIO.	DOES NOT STAIN QZ ?					
165			165-167.5		FX CONTROLLED ED.	@ 165.5 TR CPY					10080
166											
167	Qz-carb		167.5-168		STRONG CHLORITIC AROUND QZ-CARB VEIN						10081
168			168-183.4		STRONG VNLT CONTROLLED ED OVER WEAK TO LOCALLY STRONG KSPAR LOCALL ZONES OF FRESH APPEARING BIO	@ 168.8 3% PY TR CPY IN LARGE BLEACHED ZONE AROUND QZ-CARB VN. @ 65° TO CA					
169											10082
170											

N C G	DRILL CORE LOG	Drill Hole No.: GWS-
	Logged by: GJD Date: 01/8-12 Sampled by: Date:	Page 19 of 20 From 170 To 180 Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY					Sample Number
170			142.2-184.71	DIORITE											
171															10083
172						@171.9 ~2 CPY									
173															10084
174			@174.5		60° QZ-CRB VNLTS OFFSET 45° PY [illegible] CALCITE VNLTS	@174.5 1% PY ~2 CPY									
175															10085
176															
177															10086
178			@178	V.F.G TOURM VNLT @20°											
179			@179		15cm DARK CALCIFICATION AROUND [illegible]0° QZ VN										10087
180						~@180.3: TR CPY									

N C G — DRILL CORE LOG

Logged by: GTD Date: 01/12-18 Sampled by: Date:

Drill Hole No.: GWS-
Page 20 of 20, From 180 To 184.71
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY					Sample Number
180			@ -180	DIORITE	QZ-CARB VNLT @ 20°, NO [illegible]										
181															2085
182															
183			183.2-184m	DIORITE? (MONZO-DIORITE)	V. LITTLE ED MINOR CHL-BI	- P 183.									2089
184					@ 184.1 WISPY CaCO3 VN = CHL SELVAGE [illegible] C/A	5 x 3cm QZ SWEAT [illegible] PY DISS IN SURROUNDING ROCK									
185			→ 184.71 E.O.H.								4.0%				
186															
187															
188															
189															
190															

N C G

DRILL CORE LOG - Cover Page

Logged by: P. Running Start Date: 13/01/90 Completion Date:

Drill Hole No.: GWS- 90-14
Page 1 of 21
Project: Great Western Star

Contractor Information

Drill Contractor: Leber Mines
Foreman: Leslie
Hole Start Date:
Hole End Date:

Drill Hole Information

Size of Core: NQ-2
Location:
Property Name: Ron
Claim Name:
Grid Name:
Zone Name:
Northing: 16+00 N
Easting: 25+80 W
Elevation:
Survey Method (eg. compass, altimeter): 90

Drill Hole Orientation Surveys:

Depth	Azimuth	Plunge	Method
collar	090	45	

Final Depth of Hole:

Symbols and Abbreviations Used in Log

Specific Gravity Determinations

meters	rock	SG
175.17	Monzo-Di	2.92
192.10	Lamprophyre	2.99

Note: for core measurements and recoveries, see geotechnical log.

Sample Shipment Information

Sample Numbers	Date Shipped	Shipment No.	Shipped Via	Laboratory	Date Results Received	File Number(s)

N C G — DRILL CORE LOG

Logged by: P.R. Date: 13/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-14
Page 2 of 21 ; From 0 To 10
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
0			0-4.57	Cased in overburden.							
1											
2											
3											
4											
5			4.57-11.65	Diorite	CI ± 25 hb → bi → chl plag → sauss mt ± 3%	variable as noted.					4.57
6	40° ca	6.55 m 1 mm		Medium grained. Mafics originally hb + bi; hb may have been partly altered to biotite; both now chloritized. Plag weakly sauss. to pale waxy ep green. Mag: kspar 80:20. mt dissem; sometimes reduced in more mafic intervals. Cu occurs in gash veinlets.			25	3			9901 6.00
7									2		9902
8			6.92-7.80		CI ± 30 mt 0	py 2%, diss.	30	0			8.00
9	40° ca	9.14 3 mm	9-9.35 9.32		ca 1% 2 cm patch qt plus ca.	py 1%	25	3	1		9903
10											10.00

N C G — DRILL CORE LOG

Logged by: P. R. Date: 14/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-14
Page 3 of 21 ; From 10 To 20
Project: Great Western Star

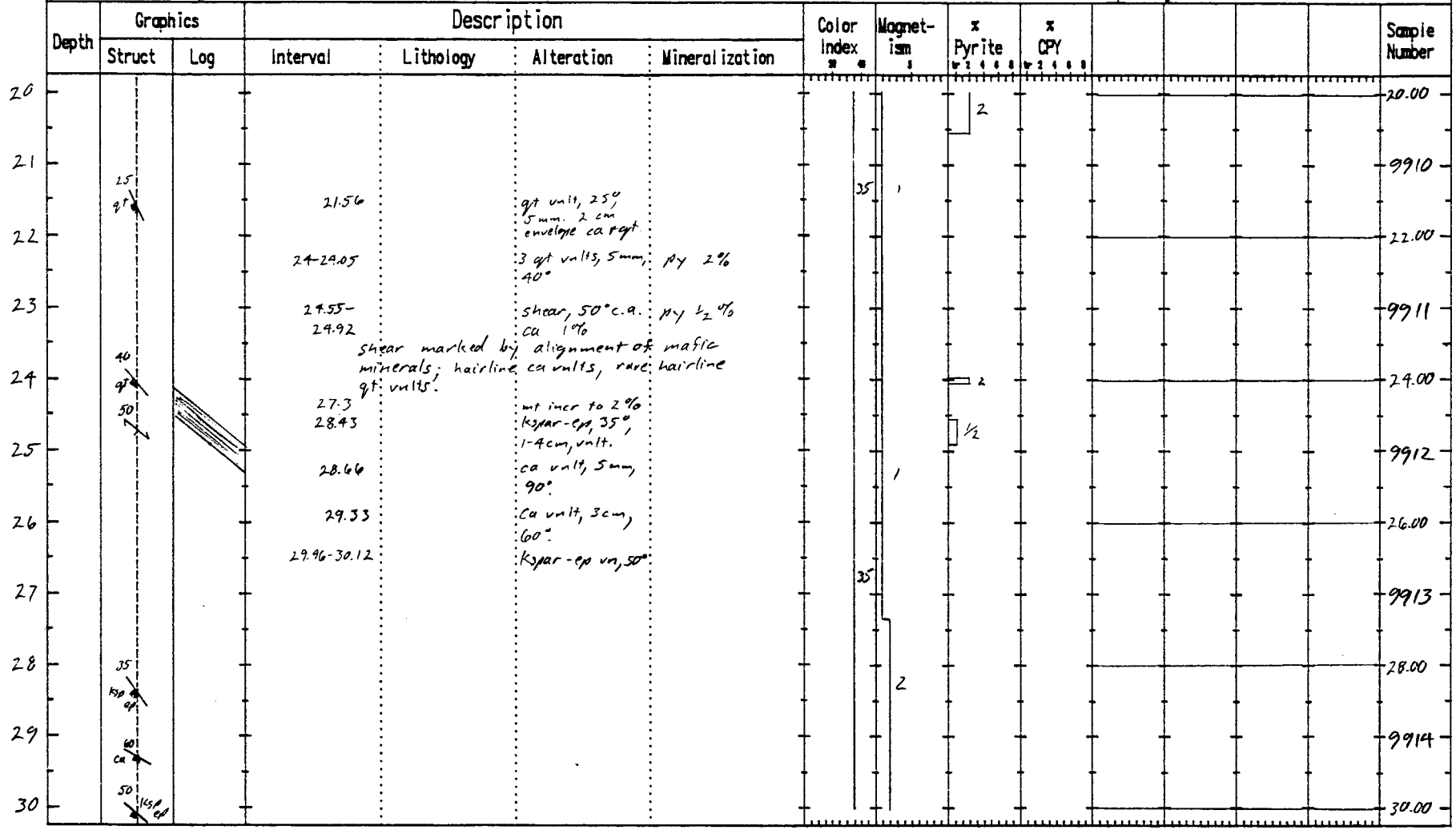
Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
10											10.00
11		Diorite	11.65 - 12.47	(Dacite?) Dike	ep 3%; vnlts + groundmass	py tr diss. bn rare tr.	25				9904
		Dacite		10% qt phenos to 3mm; 5% hb phenos to 1 mm as laths; pale grey vfx groundmass; possibly qtz fp. Non-magnetic. Upper contact sharp but not planar; at lower contact, stoped fgmts diorite over 20 cm.			5		tr		11.65
12		Qi Qi									9905
		Diorite									12.47
13	50 ca mt	13.16 m 5 mm	12.47 - 15.70	Diorite As 4.57 - 11.65.							9906
14	26 ca ch	14.24 m 5 mm					25				14.00
	35 kfsp mt	14.83 m 10 mm	14.5 - 14.83		kspar 50%	py ½ %			½		
15				Orthoclase enrichment as bleached envelopes around hairline veinlets at 30° c.a.							9907
			15.70 -	Diorite	CI ± 35 mt ± 1%	variable as noted, ep rare tr in ca					
16				Differentiated from preceding interval due to increased CI, decreased mt.							16.00
	73 py		16.53 - 16.58		shear, 73° c.a.	py 5% ep rare trace					
17											9908
							35				
18											18.00
19	25 qtz py	19.34 m 3 mm	19.7 - 20.58			py 2%, coarsely dissem.					9909
20									2		20.00

(7)

N C G — DRILL CORE LOG

Logged by: P.K. Date: 14/01/90 Sampled by: Date:

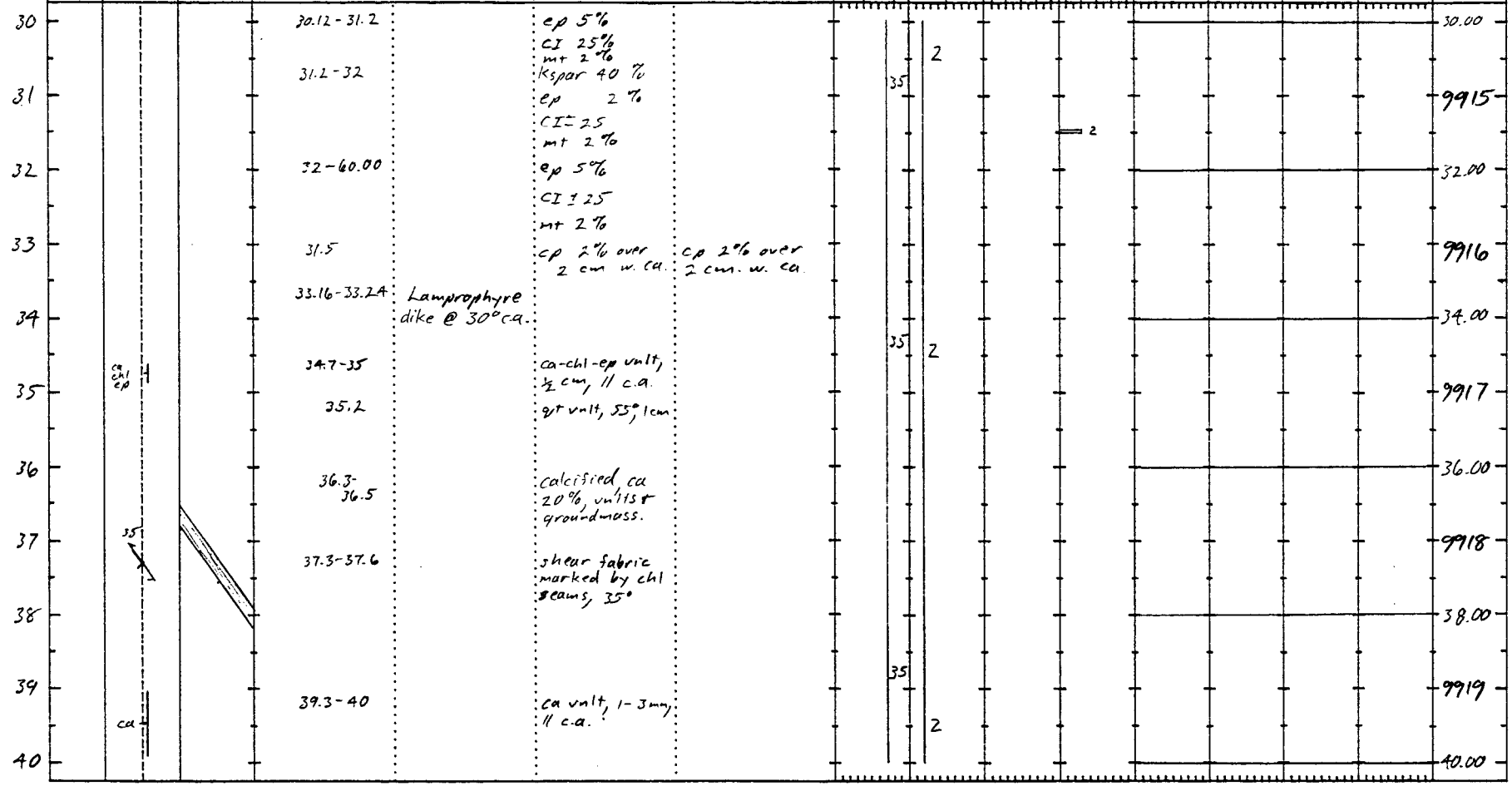
Drill Hole No.: GWS- 90-14
Page 4 of 21; From 20 To 30
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: P.R. Date: 14/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-14
Page 5 of 21; From 30 To 40
Project: Great Western Star

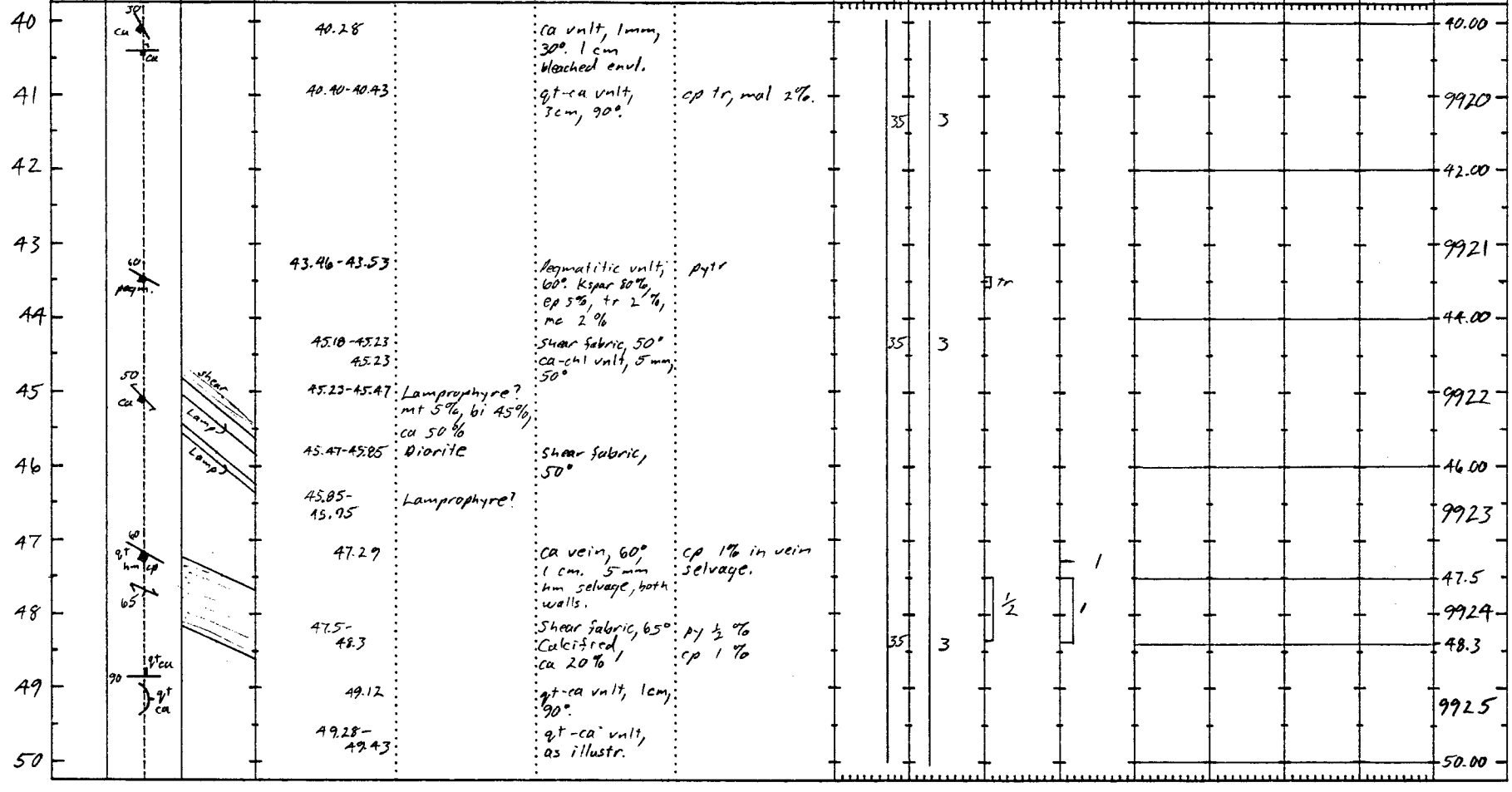


Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Sample Number
30			30.12 - 31.2		ep 5% CI 25% mt 2%			2			30.00
31			31.2 - 32		kspar 40 % ep 2 % CI= 25 mt 2 %		35			2	9915
32			32 - 60.00		ep 5% CI = 25 mt 2 %						32.00
33			31.5		cp 2% over 2 cm w. ca.	cp 2% over 2 cm. w. ca.					9916
34			33.16 - 33.24	Lamprophyre dike @ 30° c.a.							34.00
35	ca chl ep		34.7 - 35		ca-chl-ep vnlt, ½ cm, // c.a.		35	2			9917
			35.2		qtz vnlt, 55°, 1cm						
36			36.3 - 36.5		calcified, ca 20%, vnlts & groundmass.						36.00
37	35		37.3 - 37.6		shear fabric marked by chl seams, 35°						9918
38											38.00
39			39.3 - 40		ca vnlt, 1 - 3mm, // c.a.		35	2			9919
40	ca										40.00

N C G — DRILL CORE LOG

Logged by: P. R. Date: 14/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-14
Page 6 of 21; From 40 To 50
Project: Great Western Star

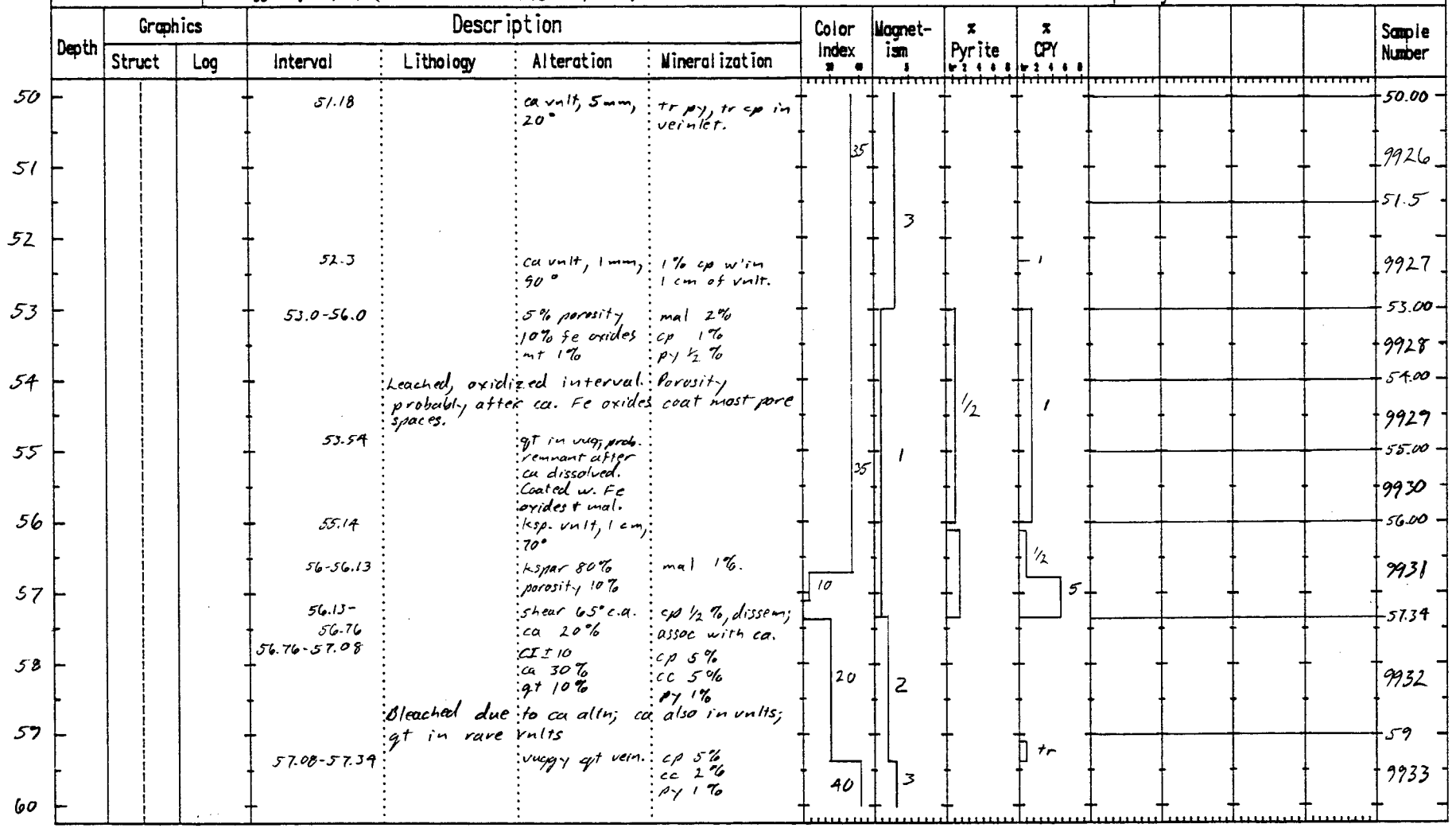


Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Sample Number
40	30° ca		40.28		ca vnlt, 1mm, 30°. 1 cm bleached envl.						40.00
41			40.40-40.43		qt-ca vnlt, 3cm, 90°.	cp tr, mal 2%.	35	3			9920
42											42.00
43											9921
	60° pegm.		43.46-43.53		Pegmatitic vnlt, 60°. Kspar 80%, ep 5%, tr 2%, me 2%	py tr			tr		
44											44.00
			45.18-45.23		Shear fabric, 50°		35	3			
			45.23		ca-chl vnlt, 5mm, 50°						
45	50° ca	shear	45.23-45.47	Lamprophyre? mt 5%, bi 45%, ca 50%							9922
		Lamp.									
46		Lamp.	45.47-45.85	Diorite	Shear fabric, 50°						46.00
			45.85-45.95	Lamprophyre?							9923
47	60° qt hm cp		47.29		ca vein, 60°, 1 cm. 5mm hm selvage, both walls.	cp 1% in vein selvage.				1	
	65°								1/2		47.5
48			47.5-48.3		Shear fabric, 65° Calcified ca 20%	py 1/2 % cp 1 %	35	3		1	9924
											48.3
49	90° qt ca		49.12		qt-ca vnlt, 1cm, 90°.						9925
			49.28-49.43		qt-ca vnlt, as illustr.						
50											50.00

N C G — DRILL CORE LOG

Logged by: P.K. Date: 14/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-14
Page 7 of 21 ; From 50 To 60
Project: Great Western Star



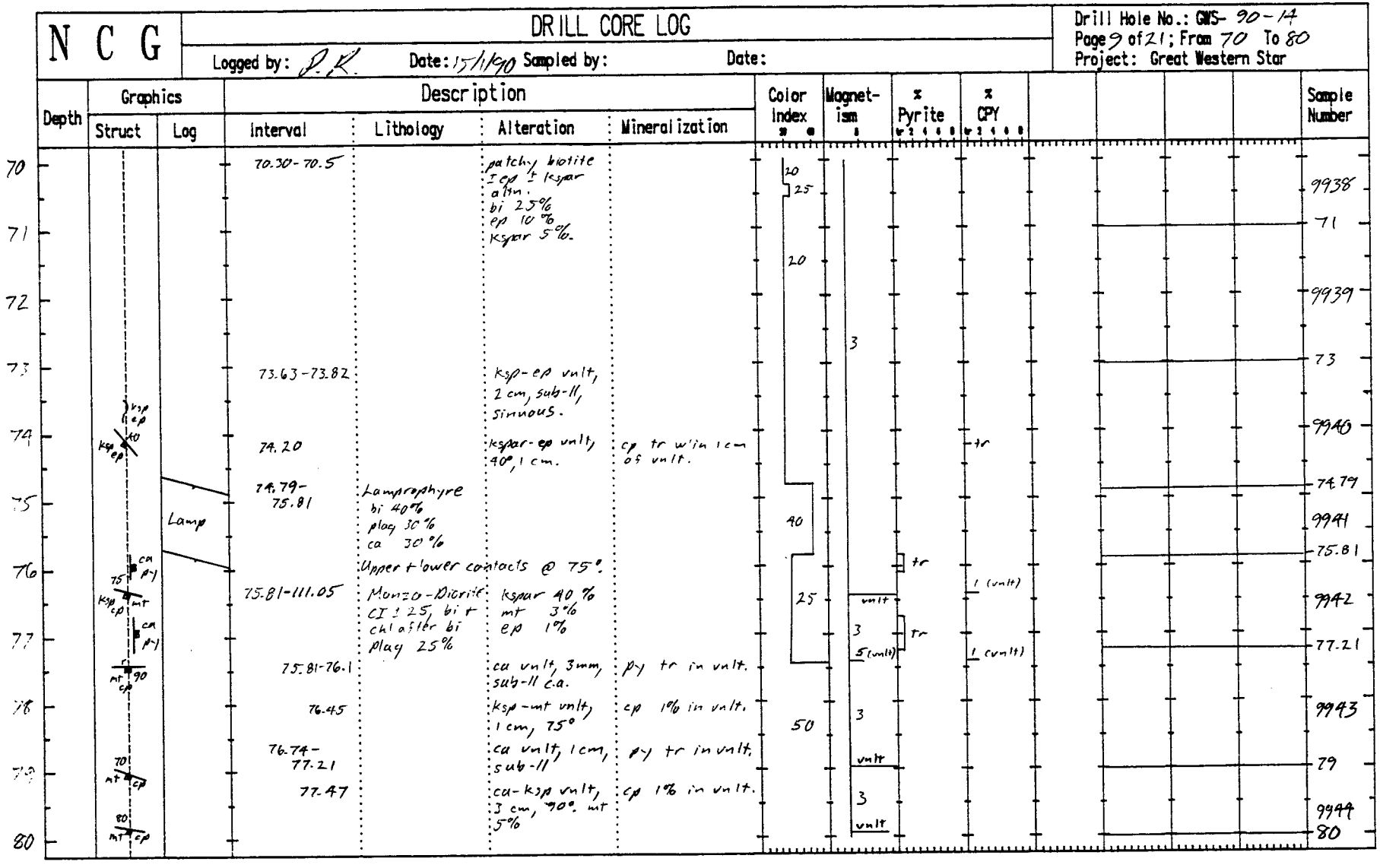
Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
50			51.18		ca vnlt, 5 mm, 20°	tr py, tr cp in veinlet.	35	3		1	50.00
51											9926
52			52.3		ca vnlt, 1 mm, 90°	1% cp w'in 1 cm of vnlt.					51.5
53			53.0-56.0		5% porosity 10% fe oxides mt 1%	mal 2% cp 1% py ½ %					9927
54				Leached, oxidized interval probably after ca. Fe oxides spaces.		Porosity coat most pore			½	1	53.00
55			53.54		qt in vugs, prob. remnant after ca dissolved. Coated w. Fe oxides + mal.		35	1			9928
56			55.14		ksp. vnlt, 1 cm, 70°						54.00
57			56-56.13		kspar 80% porosity 10%	mal 1%.	10			½ 5	9929
58			56.13-56.76 56.76-57.08		shear 65° c.a. ca 20% CI 10 ca 30% qt 10%	cp ½ %, dissem; assoc with ca. cp 5% cc 5% py 1%	20	2			55.00
59				Bleached due to ca alln; ca also in vnlts; qt in rare vnlts							9930
60			57.08-57.39		vuggy qt vein.	cp 5% cc 2% py 1%	40	3		tr	56.00
											9931
											57.34
											9932
											59
											9933

N C G — DRILL CORE LOG

Logged by: P.R. Date: 14/01/99 Sampled by: Date:

Drill Hole No.: GWS- 90-14
Page 8 of 21 ; From 60 To 70
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
60			57.34-59.38		CI ± 20 kspar 50% chl 5% ep 5%	nil except as noted.					
											9933
61			59.10-59.38		ca-chl vnlts at low ∠ to c.a.	cp tr in vnlts	25				61
			59.38-60	Lamprophyre ca 30%	mt 3% CI ± 40	nil		3			
62											9934
			60-62.1	Monzo-Diorite	ep 10% CI ± 25, bi	nil				1/4	
63	85 ca chl qt			Epidote occ. in veinlets + partially repl. plagioclase.							63
	ca chl 20		62.1-62.79	Monzo-Diorite	kspar 40% ca 5%	cp 1/4%; localized.					
64											9935
			62.79-74.79	Monzo-Diorite	ep 5%, kspar 40% CI ± 20 ca 2%, vnlts	nil except as noted.					
65	85 ca qt chl 75 chl			Relatively unaltered. Ep in vnlts and partly replacing plagioclase.							65
66			62.96		vuggy ca, qt, chl vnlt, 85°, 1 cm.						9936
			63.53		ca-chl vnlt, 1mm, 20°						
67	35 ksp tour cp		64.86		vuggy ca-qt-chl vnlt, 85°, 1 cm.					10	67
	mal ksp		65.4		chl vnlt, 1 cm, 75°					5	
68	60 ksp cp		67.08		kspar vnlt, 1cm, 35°, vuggy, tour.	cp 10% in vnlt coated with cc.				1	9937
	55 ca cp		67.29		" , 90°, vuggy	mal 10%					
69			68.1		" , 60°, vuggy	cp 5% in vnlt					69
			68.71		ca vnlt, 55°, 3mm	ep 1% in vnlt					
70			69.0		patchy biotite over 5 cm.	plus epidote					9938


N C G
DRILL CORE LOG
Logged by: J.K. Date: 15/1/90 Sampled by: Date:
Drill Hole No.: GWS- 90-14
Page 9 of 21; From 70 To 80
Project: Great Western Star
Depth
Graphics
Struct
Log
Description
Interval
Lithology
Alteration
Mineralization
Color Index
Magnet-ism
% Pyrite
% CPY
Sample Number
70.30-70.5
patchy biotite ± ep ± kspar alt'n. bi 25% ep 10% kspar 5%.
73.63-73.82
ksp-ep vnlt, 2 cm, sub-11, sinuous.
74.20
ksp-ep vnlt, 40°, 1 cm.
cp tr w/in 1 cm of vnlt.
74.79-75.81
Lamprophyre bi 40% plag 30% ca 30%
Upper + lower contacts @ 75°.
Lamp
75.81-111.05
Monzo-Diorite CI ± 25, bi + chl after bi plag 25%
kspar 40% mt 3% ep 1%
75.81-76.1
ca vnlt, 3mm, sub-11 c.a.
py tr in vnlt.
76.45
ksp-mt vnlt, 1 cm, 75°
cp 1% in vnlt.
76.74-77.21
ca vnlt, 1 cm, sub-11
py tr in vnlt.
77.47
ca-ksp vnlt, 3 cm, 90°, mt 5%
cp 1% in vnlt.
9938
9939
9940
9941
9942
9943
9944
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79
80

N C G — DRILL CORE LOG

Drill Hole No.: GWS- 90-14
Page 10 of 21 ; From 80 To 90
Project: Great Western Star

Logged by: P.R. Date: 15/01/90 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
80			77.47-81.14		bi 50% kspar 20% plag 10% ep 5% ca 2%	py tr; unevenly distributed.	50	3	1	1	80 9945
81	75 ca		79		mt vnlt, 4mm, 70°	cp 5% in vnlt					81
82	75 ca cp		79.88		mt vnlt, 1mm, 80°	cp 20% in vnlt					9946
			80-80.88		Black tourmaline, 10%	cp 1%; assoc. with tourmaline. py 1%	25				
83			81.08		ca vnlt, 1cm, 75°	nil					83
84	70 ca cp,py		81.74		ca vnlt, 1mm, 75°	cp tr in vnlt.			vnlt 5	vnlt 10	9947
			83.83		ca vnlt, 1mm, 70°	cp 10%, py 5% in vnlt					
85	42 ca		85.44		ca vnlt, 2mm, 42°	nil		3			85
	30 ca		85.90		ca vnlts, 30° 3mm, 1cm btw.	nil	25				
86	ca cp 80		86.49		ca vnlt, 1mm, 80°	cp 5% in vnlt					9948
	ca cp		86.60		ca-rhl vnlt, 25°, 1mm	nil				vnlt 5	
87			88.94-89.20		kspar 60% bi 20% ep 5%	cp 1% py tr					87
88				Short interval more intense kspar altn.							9949
			89.76-89.86		Vein-like zone intense altn. kspar 60% bi 20% ep 5% ca 1%	nil	20 25	3	tr	1	89
90	35 kspar				35°		20 25				9950

(7)

N C G — DRILL CORE LOG

Logged by: P.R. Date: 15/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-14
Page 11 of 21; From 90 To 100
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
90			90.17-91.13		ksp 60% cp 10% bi 20 mt 0	cp 1%, dissem	125				
91				Zone of ksp-cp enrichment; rock looks dark due to high % cp + bi.			20	3		1	9950 91
92											9951
93	55° cp tour		92.97		cp vnlt, 55°, 4 mm. Tour 5%.		25				93
94	28° ca ksp		94.24		ca (ksp) vnlt, 28°, 2 mm			3			9952
95	65° ca 65° ksp		95.86-96.35	Shear fabric; variable mylonitization + re-xstallization. Two 1cm ca-ksp vnlts follow shear.	shear 65°	py 1%, diss.					95
96			96.27-96.38			cp ½%, diss.			1	½	9953
97											97
98							25				9954
99	55° ca chl		98.90-99.23 99.16		ksp 60%, vernlets + grnd mass ca-chl vnlt, 55°, 1 cm.	cp 1% py ½%		3	½ tr	1 tr	99 9955
100											

11

N C G — DRILL CORE LOG

Logged by: R.R. Date: 15/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-14
Page 12 of 21; From 100 To 110
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
100			99.23-103.60		ksp ar 50%	py tr cp tr					9955
101				Increase in ksp ar above background due to veinlets ksp ar, avg 5/m, pale grey. py + cp assoc. with veinlets.							101
102			103.60-105.20		cl 35, bi mi 4%	nil	25		tr	tr	9956
103				Unusually mafic interval.							103
104											9957
105							35				105
106			106.8		Ca vnlt, 65°, 3 mm	cp 5%					9958
107	05 ca cp									vnlt 5	107
108	cu cp		107.4-107.6		Ca vnlt, 2 mm, low ∠ c.a.	cp tr in vnlt.	25			tr	9959
109	30 ca		108.6		ca vnlt, 2 mm, 30°	nil					109
110											9960

N C G — DRILL CORE LOG

Logged by: P.R. Date: 15/01/90 Sampled by: Date:

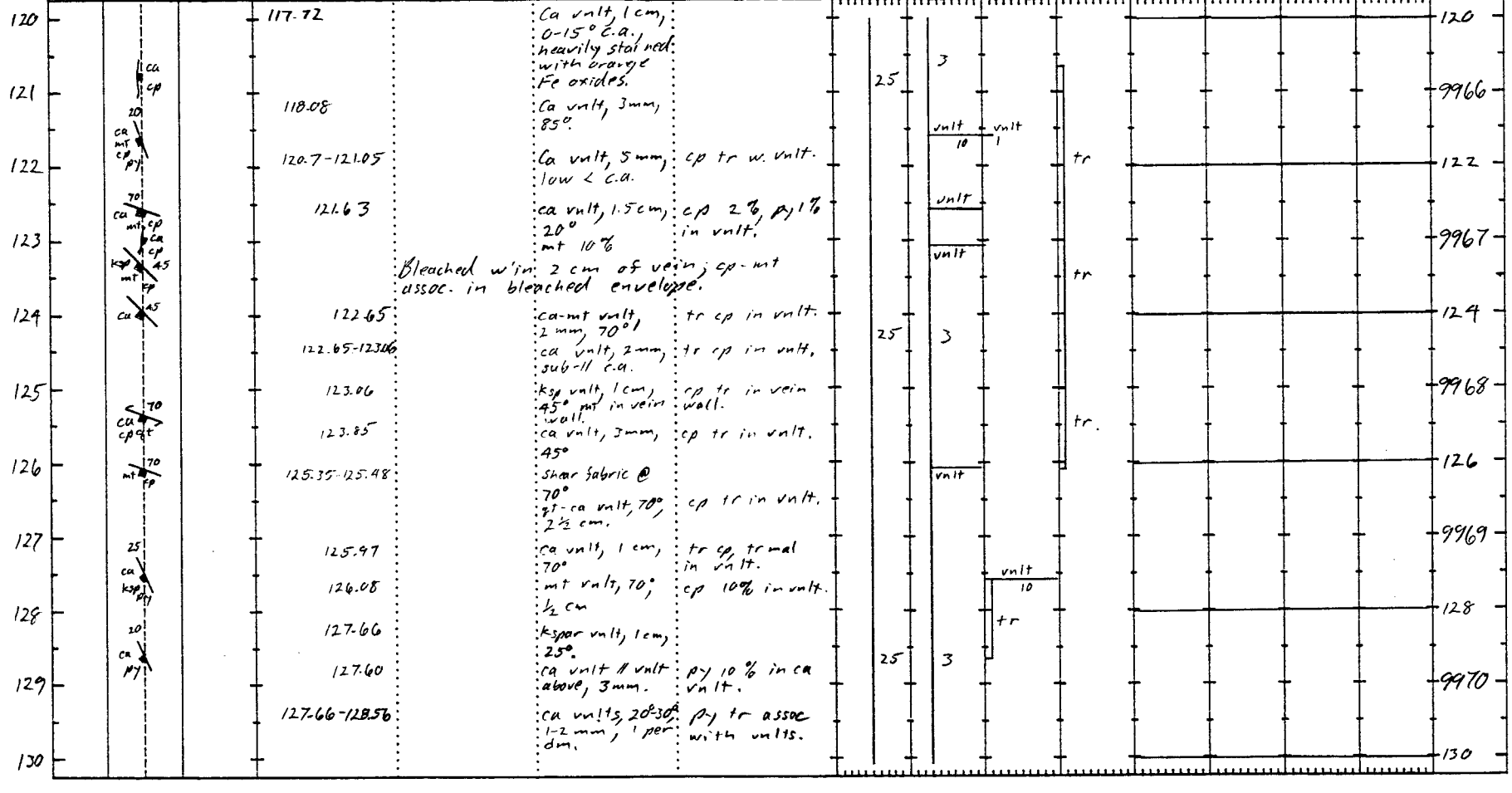
Drill Hole No.: GWS-90-14
Page 13 of 21; From 110 To 120
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Sample Number
110											
111		40	111.05-116.33	Lamprophyre bi 10%	ca vnlls 5%	nil	25	3			9960 111.05
112				Biotite xstals to 1 mm in highly calcic groundmass. Ca veinlets common. Soft, soapy chlorite common as selvages along edges of veinlets. mt 2%			10	2			9961
113			112.82-113.50		ksp 10% ca 60% chl, hm on fract.						113
114				Change from blurk to dark grey. Incr. in kspar and ca. bi absent.							9962
115			115.06-115.59		ksp 50% ca 30% chl 10% hm 5%	py 1%	10	2	1		115
116	40 ca chl	40		ksp altered interval, similar to but more intense than 112.82-113.50							9963
			116.33		ca-chl vnlt, 40° c.a., 1 cm.						116.33
117				Veinlet marks lower contact of lamprophyre.							9964
118	15 ca 85 ca		116.33-133.42	Monzo-Diorite CI ± 25, bi (after hb?) ksp 40% plag 25% ep 5% mt 3%			25	3			118
119				Medium grained; bi 1-3mm; ksp 1-3mm. Overall colour pale epidote green due to partial epidote altn. of plag. Hairline ca veinlets common at various orientations; 1-3mm bleached envelopes around vnlts.							9965
120											120

N C G — DRILL CORE LOG

Logged by: P.R. Date: 15/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-14
Page 14 of 21 ; From 120 To 130
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: R.R. Date: 16/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-14
Page 15 of 21; From 130 To 140
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
130			128.56-130.8	Interval characterized by pinkish kspar.	kspar 60%	nil					130
						increase in					9971
131			129.44-129.53		kspar 85% CI 1	nil					131.51
	30 ca; cp; 120 ca; py		131.51-132.52		kspar 75% CI 5 ca 5%, vnlts	py tr dissem cp tr, mainly in ca vnts	25	3	tr	tr	9972
132			131.51		ca vnlt, 1 mm, 30°	cp, mal 1% in vnlt.					132.52
			132.08		ca vnlt, chl selvage, 5mm, 20°	py tr in vnlt.					9973
133											133.42
			133.42-137.03	Lamprophyre bi 40% plag 40% ca 20%		nil					9974
134											
135			137.03-149	Monzo-Diorite CI ±25, bi kspar 40% cp 5% plag 20%	ca vnlts 2% cp 5%, partly altering plag.	as noted.	40	2			135
				Potassic sp is slightly pinkish, giving rock a mottled pinkish green aspect in groundmass.							9975
136											
137	60 ca; cp		137.82		ca vnlt, 1cm, 60°	cp 10% in vnlt. ~~Cuprite~~ locally.					137.03
			138.90-141.21		ca-qt vnlt, 5-15 mm, low ∠ ca; variable chl selvage.	cp 10% in vnlt, 1% of total rock py 5% in vnlt, ½% of total. Cuprite locally				vnlt 10	9976
138							25	3			138.90
139	ca; qt; cp; py			Anastamosing, sinuous veinlet(s); variable but low angle to core axis. True width of mineralized interval 5-10 cm. Slight bleaching of wall rock over most of interval.					½	1	9977
140											

N C G — DRILL CORE LOG

Logged by: P.R. Date: 6/04/90 Sampled by: Date:

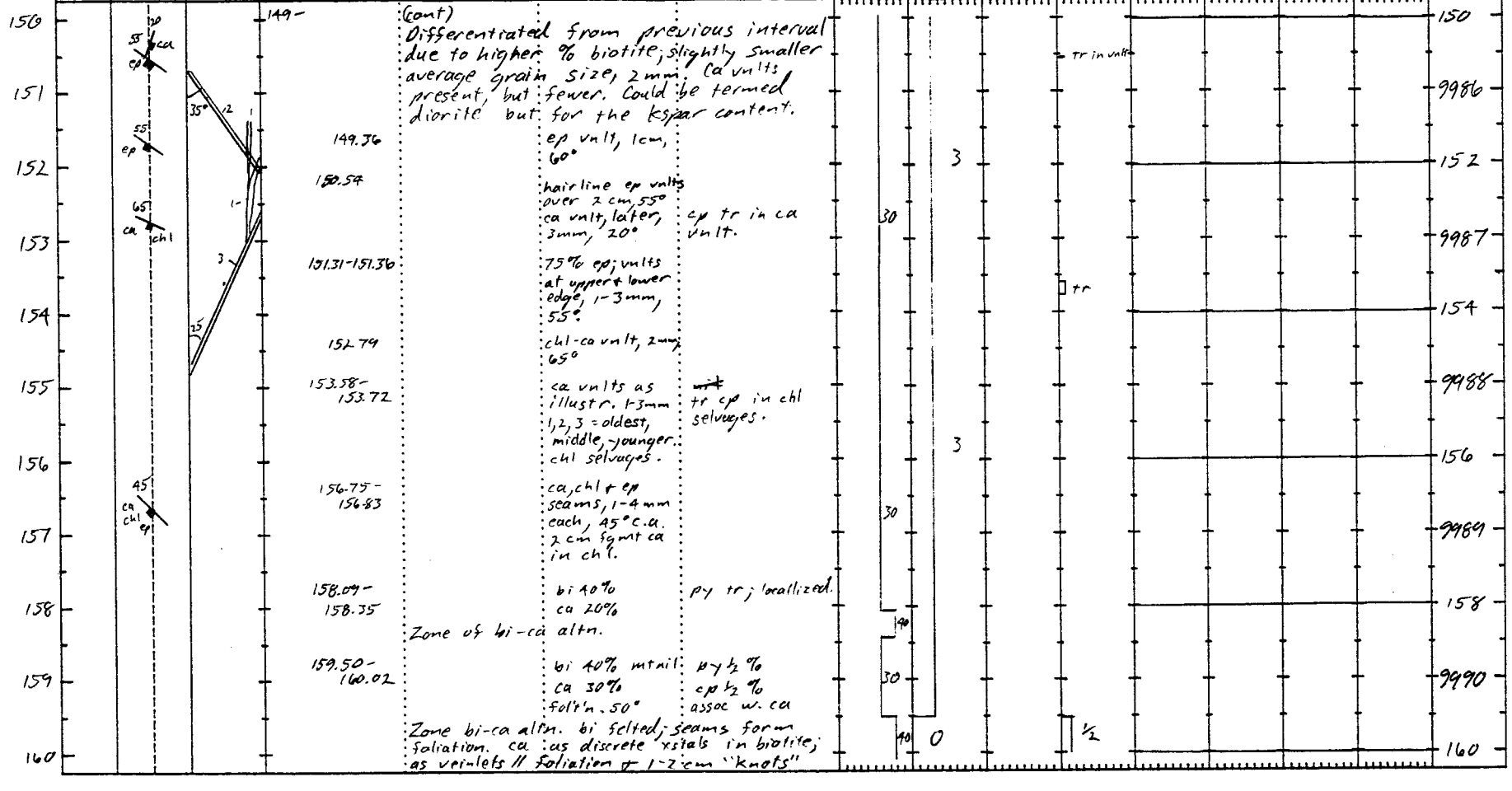
Drill Hole No.: GWS-90-14
Page 16 of 21; From 140 To 150
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
140			141.21-141.83		Ca-chl vnlt, 2mm, sub-//	py tr, cp tr, assoc w. vnlt.					9977
141			142.70		ep vnlt, 3mm, 20°						141
	ca chl cp py		143		ep vnlts, 1mm, 40°, two, 1cm apart				tr	tr	
142							25				9978
	20 ep										
143	ep 40		143.3-143.60		ca (qt) vnlt, 1cm; sinuous, avg 15° c.a.	py tr, in vnlt cp tr)			tr	tr	143
	ca qt py 15 cp										9979
144	ca chl mt		144.1-144.58		ca (chl) vnlt, 1mm, sub-//.	nil					
145			144.58-145.23	Lamprophyre	mt 2%	nil	40				144.58
			bi 40% in groundmass ca and sauss. plag.								9980
			145.23-145.32		fragment qt, ca, tour at lamp contact.	nil					145.23
							25				9981
146											145.67
			145.32-145.67	Monzo-Diorite			40				9982
											146.40
147			145.67-146.40	Lamprophyre			25				9983
			146.40-148.33	Monzo-Diorite							
148			148.33-148.74	Lamprophyre							148.33
			149-	Monzo-Diorite; melanocratic. CI ± 30; biotite kspar 30% Plag 20% ep 5% mt 3%	ca 1% ep 5%		40				9984
							25				148.74
149							30				9985
150											150

N C G — DRILL CORE LOG

Logged by: P.R. Date: 16/01/90 Sampled by: Date:

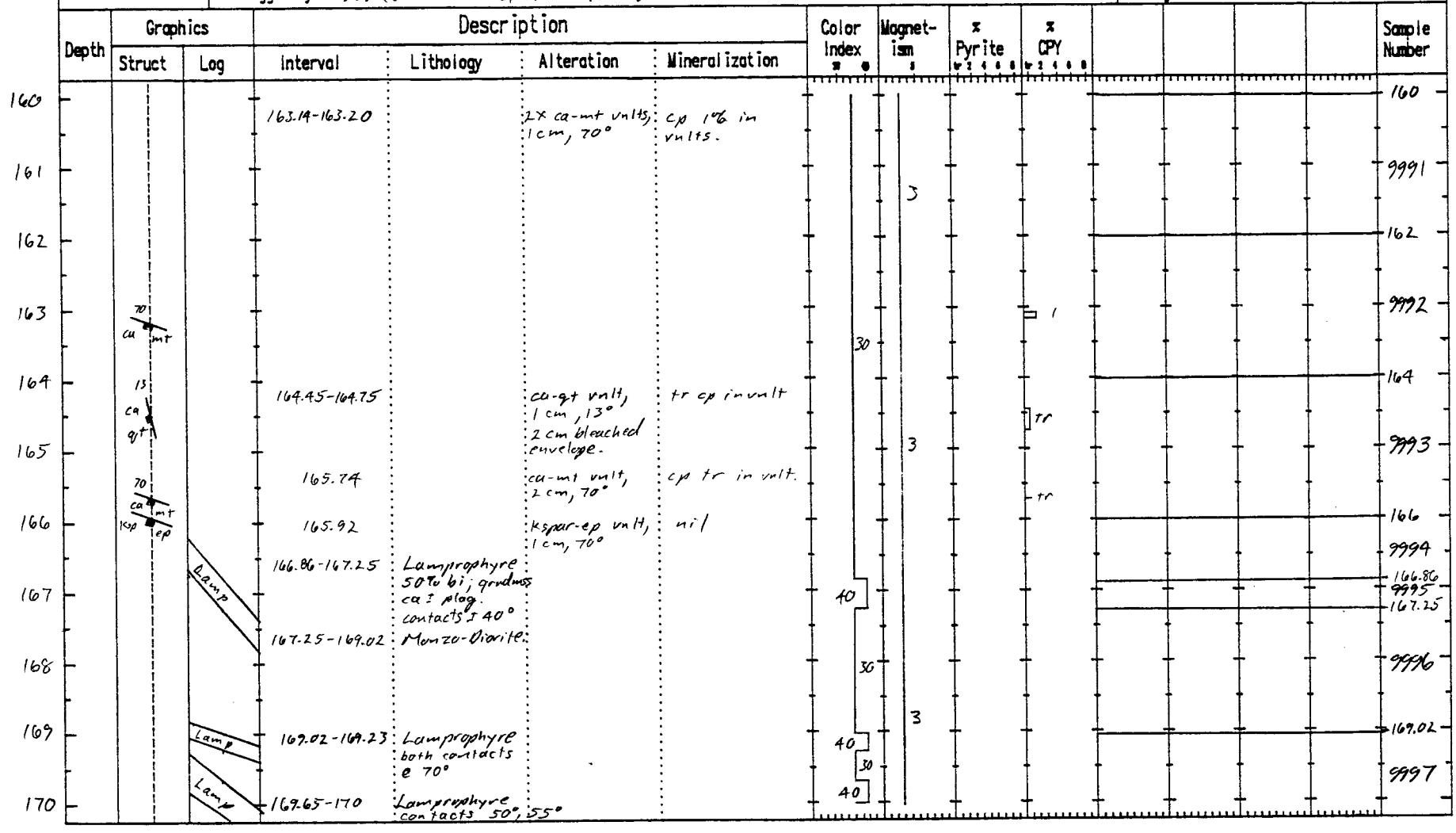
Drill Hole No.: GWS-90-14
Page 17 of 21; From 150 To 160
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: P.R. Date: 16/1/90 Sampled by: Date:

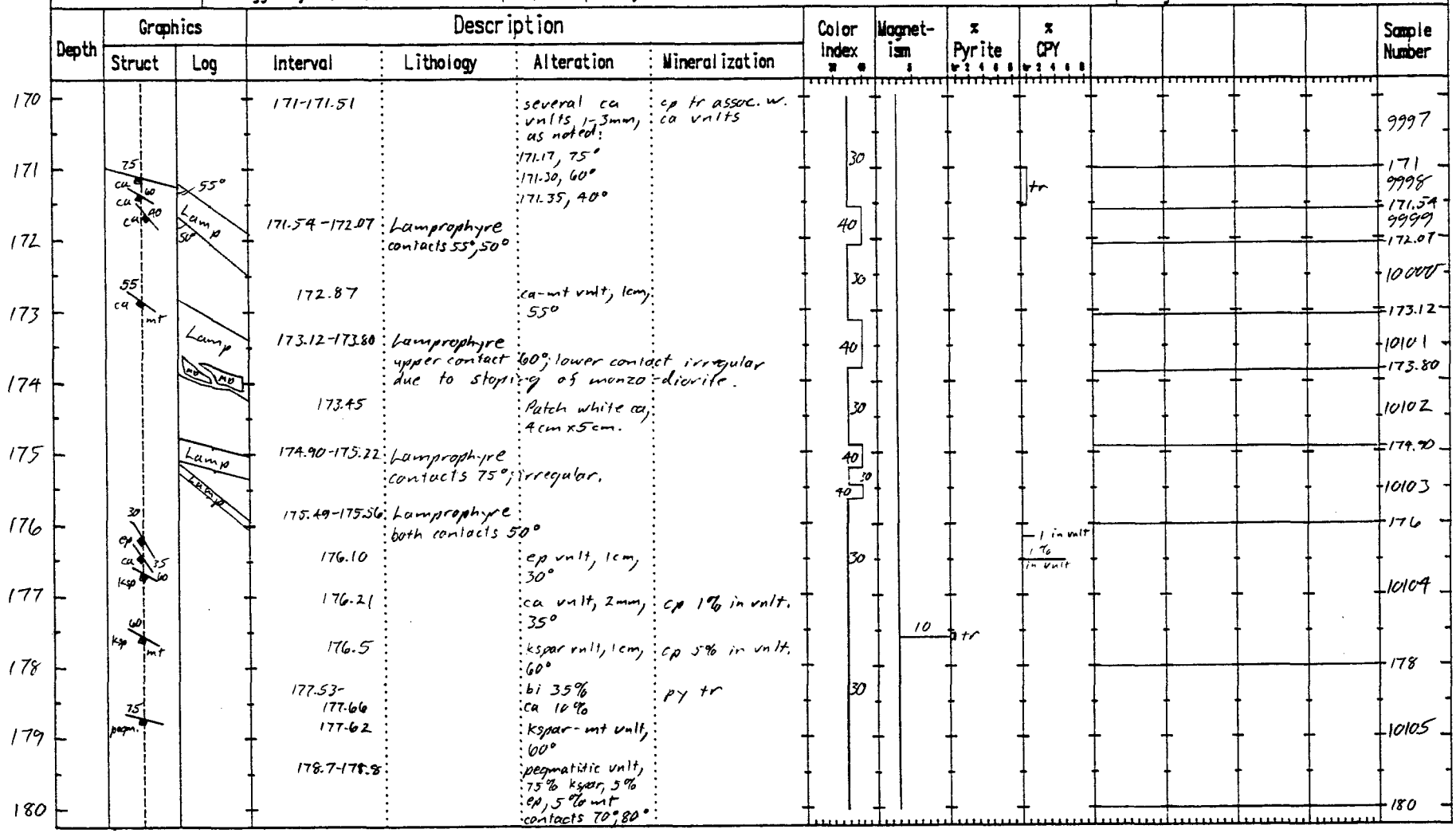
Drill Hole No.: GWS-90-14
Page 18 of 21; From 160 To 170
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: P.R. Date: 16/01/90 Sampled by: Date:

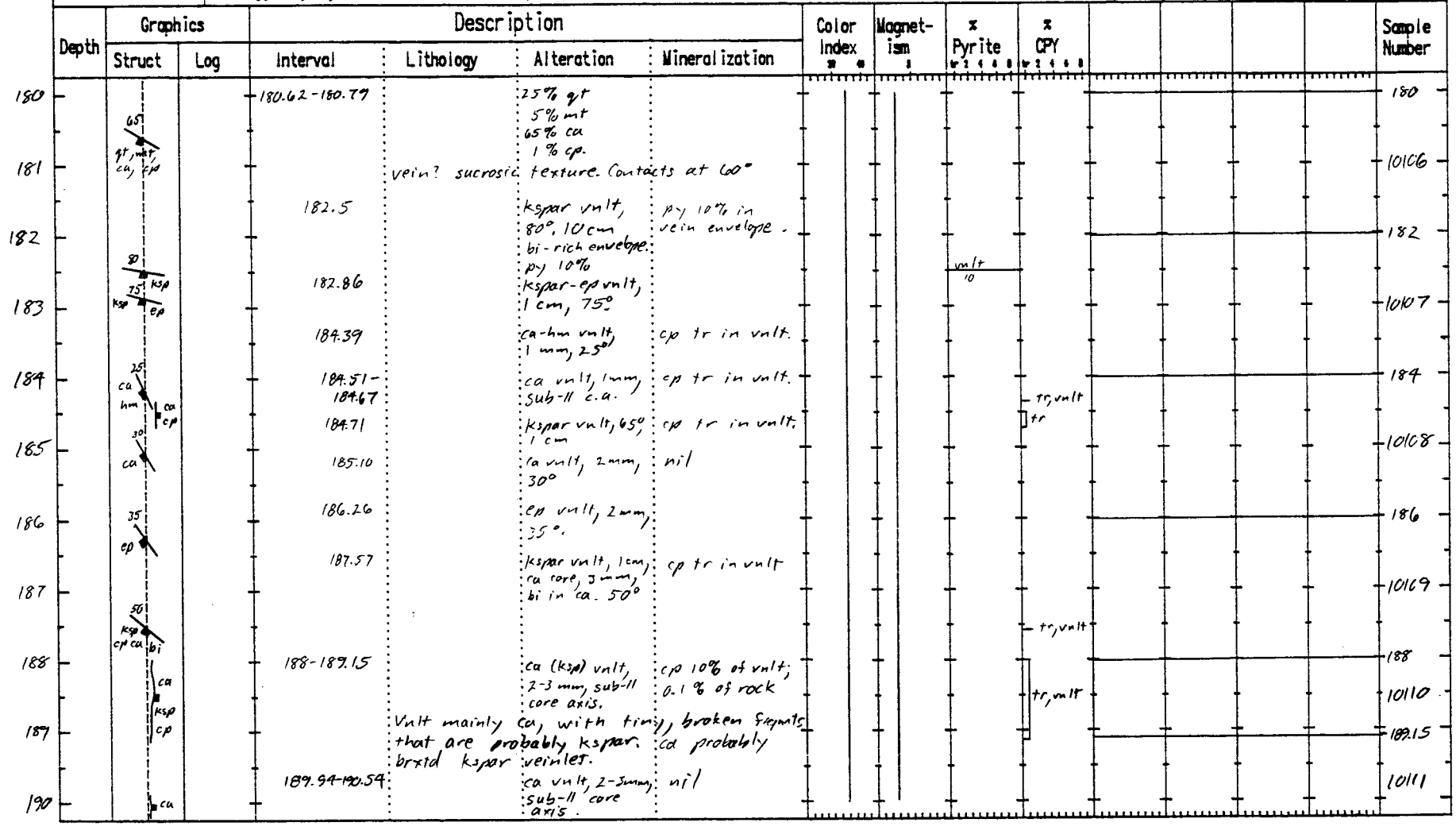
Drill Hole No.: GWS- 90-14
Page 19 of 21 ; From 170 To 180
Project: Great Western Star



NCG DRILL CORE LOG

Logged by: P.R. Date: 16/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-14
Page 20 of 21; From 180 To 190
Project: Great Western Star



N C G — DRILL CORE LOG

Logged by: P.R. Date: 17/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-14
Page 21 of 21 ; From 190 To 195.68
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Sample Number
190			191.77		ca vnlt, 1 cm, 75° chl selvages. Possible tour.		30		3		10111
191	75° chl cu		192.07-192.40	Lamprophyre							191
192	ca 30°		192.25		Ca vnlt, 1mm, 30°						10112
193	55° ksp ep cu		193.06		ksp-ep-ca vnlt; patchy, 1-3cm, 55° chl selvages.	cp 1% in vnlt, possible tr cc.	30		3	1, vnlt	193
194			194.2-195.68		ep 10% as altn. of groundmass.						10113
195											194.34
											10114
											195.68
196			195.68 = End of Hole.								

N C G

DRILL CORE LOG - Cover Page

Logged by: P.R. Start Date: 17/01/90 Completion Date: 22/01/90

Drill Hole No.: GWS-90-15
Page 1 of 23
Project: Great Western Star

Contractor Information

Drill Contractor: Leber Mines
Foreman: Leslie
Hole Start Date: 14/01/90
Hole End Date: 16/01/90

Drill Hole Information

Size of Core: NQ-2
Location:
Property Name: Taughnut
Claim Name:
Grid Name:
Zone Name:
Northing: 0+10 N
Easting: 0+16 E
Elevation: ~2092m
Survey Method (eg. compass, altimeter):

Drill Hole Orientation Surveys:

Depth	Azimuth	Plunge	Method
collar			

Final Depth of Hole:

Symbols and Abbreviations Used in Log

Note: for core measurements and recoveries, see geotechnical log.

Sample Shipment Information

Sample Numbers	Date Shipped	Shipment No.	Shipped Via	Laboratory	Date Results Received	File Number(s)

N C G — DRILL CORE LOG

Drill Hole No.: GWS- 90-15
Page 2 of 23 ; From 3.35 To 10
Project: Great Western Star

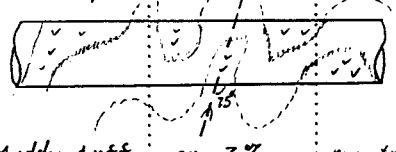
Logged by: P. K. Date: 17/01/90 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
0			0 - 3.35 cased in overburden.											
1														
2														
3														
4			3.35 - 18.23	Intermediate Tuff	ca 10% chl in veinlets 2% of rock	nil except as otherwise noted.	10	2			.001	.06	.012	3.35 10115
5			Dark green; almost black. v.fg; < 1mm. 10% fine mafic specks, hb or chl after hb. Groundmass greenish medium grey; mainly sauss plag. Ca in gash veinlets and diss as white flecks through rock. Greenschist grade; most mafics probably chloritized. Foliation variable from an apparent preferred orientation of mafic grains to actual chloritic schistosity. Overall impression is dark green, slightly schistose rock speckled with white ca and gash veinlets. Locally ca forms altn rim around mafic crystal fragments.									5
6											.001	.06	.005	10116
7							10	2						7
8	↔ B5		8		∠85°						.001	.06	.005	10117
9														9
10							10	2			.001	.05	.008	10118

N C G — DRILL CORE LOG

Logged by: P.R. Date: 17/6/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 3 of 23; From 10 To 20
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Sample Number
10			11-	Ca vnlts reddish, hematitic.	hm 1%						.001	.05	.008	10118
			12.75		↙ 60°									
11			14-15.68	Rock porous where ca leached out.	porosity 2%									11
			15.68-18.43	Rock heavily stained by Fe oxides; partly as surface coating, partly as remnant after ca in ground mass.	Fe oxides 10%		16	2			.001	.04	.006	10119
12	<60													
13			17.32	Patch of qtz, 2-3cm, pocketed with 25% 1-5mm vugs lined with Fe oxides, probably after ca.	qt									13
14			17.60-17.84	Vein folded, similar type with axial plane // foliation in rock, wavelength 5cm, amplitude 10cm (?). Vein now ca, heavily stained with orange-red Fe oxides; qt as fine grains in calcite.	cbt (qtz) vein, 50% of rock.		10				.001	.06	.008	10120
15														15
16								2			.001	.06	.009	10121
17														17
18			18.23-19.93	Muddy tuff, intermediate.	ca 3%	py tr	10				.001	.04	.004	10122
19				Aphanitic to vfg, grey to pale greyish green, banded on scale of cm's, generally // foliation, 5% mafic spots, 1-2 mm, "smeared" // banding. 3% spots ca, 1-3mm, angular - ovoid, long axes // foliation. Py as fine xstals, conc. on foliations.				3	tr		.001	.05	.011	10123
20														

N C G — DRILL CORE LOG

Logged by: P.R. Date: 17/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 4 of 23; From 20 To 30
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Sample Number
20	65°		19.93-20.84	Int. Crystal Tuff. CI ± 20	ca ± 10 locally porous where ca leached. mt ± 2%	nil					.001	.05	.011	10123
21			Medium crystalline; 20% spots chlorite after hb(?). Indeterminate groundmass; plag ± chl ± ca ± kspar. Foliated; coarse cleavage along schistosity, ∧ 65°				20	2						21
22			20.1								.005	.04	.025	10124
23			20.84-22	Mudd, Tuff intermediate			50							23
24			22-23.47	Feldspar Crystal Tuff	porosity ± 5% ca ± 5%						.001	.06	.014	10125
25				50% sub-rounded felsic grains, 1-2 mm, supported in dark green chloritic matrix. Porosity where ca leached.										25
26			23.47-32.80	Mafic tuff CI ± 50; chlorite	ca ± 5%	nil	50				.001	.04	.017	10126
27				Very finely crystalline mixture chlorite and plag; ca as fine grains in groundmass and as veinlets and fragments of veinlets smeared in to schistosity. A few intervals ± 10cm resemble 22-23.47, Soft; chloritic schistosity, 60° c.a.										27
28			32.41-32.55	Latite(?) Dike							.001	.05	.028	10127
29	60°			25% 2-3mm xstals identified as leucite. 20% chlorite pseudomorphous after hb. Upper contact 60°, 11 ∧. Lower contact 65°, slightly x-cuts ∧.			50							29
30											.001	.05	.023	10128

N C G — DRILL CORE LOG

Logged by: R.R. Date: 17/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 5 of 23; From 30 To 40
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
30			32.80-34.1	Intermediate Tuff (latite?)	cbt 20% cl ± 10%	py 1%, finely dissem.					.001	.05	.023	.010	10128
31				Less mafic, cl 5-30, avg 10. Mainly vfg, locally medium grained. Cbt-rich; cbt as part of groundmass, as mm speckles, as variably deformed veinlets. Over 50% of interval cbt oxidized to orange & reacts readily with 10% HCl.			50								31
32											.001	.06	.021	.010	10129
33			33.6-34		cl ± 5 cbt ± 10% mt 1%	py 2% diss.									32.8
34			34.1-38.78	Intermediate Tuff	cl ± 20 cbt ± 10% mt 2%	py 1% diss.	20	1	1 2		.001	.03	.013	.010	10130 34.1
35				Darker, more chloritic than preceding interval. Speckled with white cbt grains, 1-3 mm. May occur in concentr. // √ but xstals angular, not elong. Porphyroblasts? Cbt stained orange-red where oxidized.					1		.001	.05	.015	.010	10131
36															36
37	∠67		37		√ 67°		20				.006	.04	.008	.010	10132
			37.9-38.4		cbt 20% cl ± 10%	py 2%									
38				Short, more change may	leucocratic interval. Colour be an altn.	effect,	10		2						38
39			38.78-51.77	Intermediate Tuff	cl ± 30 cbt 5% porosity 3% leached, oxidized	nil	30		1		.002	.04	.014	.010	10133
40				Resembles preceding interval but much of cbt leached out. Variably coated with orange-red Fe oxides.											40

N C G — DRILL CORE LOG

Logged by: P.R. Date: 18/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 6 of 23; From 40 To 50
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
40			43		✓65		30								40
41											.001	.02	.011	.010	10134
42															42
43	65 ✓										.001	.06	.018	.010	10135
44															44
45							30	2			.001	.04	.026	.010	10136
46	16 ✓		46.5		✓65										46
47											.001	.04	.013	.010	10137
48								2							48
49											.001	.03	.014	.010	10138
50							30								50

N C G — DRILL CORE LOG

Logged by: P.R. Date: 18/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 7 of 23; From 50 To 60'
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
50			51.77-78.70	Quartz Porphyry	Ca 5% mt nil chl to 2% assoc w. ca.	Py ½% dissem.									50
51				10% qt phenos, 1-4 mm, rounded to sub-angular, no apparent preferred alignment, evenly distributed. Pale, slightly greenish grey groundmass, v fy. Probably mixture qt + plag + kspar. Reaction with HCl indicates 5% ca in groundmass. Foliation marked by alignment of minerals in groundmass - most evident where highlighted by orange-red oxidation of ca. Stain indicates no Kspar.							.001	.03	.014	.010	10139
															51.77
52											.001	.03	.016	.010	10140
53									½						53
54			59.15-54.69		qt vn, 2cm, 5° c.a.						.001	.01	.001	.010	10141
55				Vein vuggy, with idiomorphic qt xstals in vugs. Cbt leached out, leaving Fe oxides.											55
56			51.77-57.94, and 59.20-59.80		carbonates oxidized to orange-red						.001	.01	.001	.010	10142
			59		↗ 75°										
57			59.7		↙ 65°				½						57
58											.002	.01	.001	.010	10143
59															59
60											.001	.01	.001	.010	10144

N C G — DRILL CORE LOG

Logged by: P.R. Date: 18/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 7 of 23; From 50 To 60
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
50			51.77-78.70	Quartz Porphyry: 10% qt phenos, 1-4 mm, rounded to sub-angular, no apparent preferred alignment, evenly distributed. Pale, slightly greenish grey groundmass, vfx. Probably mixture qt + plag + kspar. Reaction with HCl indicates 5% ca in groundmass. Foliation marked by alignment of minerals in groundmass - most evident where highlighted by orange-red oxidation of ca. Stain indicates no kspar.	Cu 5% mt nil chl to 2% assoc w. ca.	1% ½% disseminated								50
51											.001	.03	.014	.010	10139
															51.77
52											.001	.03	.016	.010	10140
53									½						53
54			59.15-54.69	Vein vuggy, with idiomorphic qt xstals in vugs. Cbt leached out, leaving Fe oxides.	qt vn, 2cm, 5° c.a.						.001	.01	.001	.010	10141
55															55
56			51.77-57.94, and 59.20-59.80		carbonates oxidized to orange-red						.001	.01	.001	.010	10142
			59.7		↙ 75°										
57			59.7		↙ 65°				½						57
58											.002	.01	.001	.010	10143
59															59
60											.001	.01	.001	.010	10144

7

N C G — DRILL CORE LOG

Logged by: R.R. Date: 18/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-15
Page 8 of 23; From 60 To 70
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
60			61.37		qt-cbt vnlt, 1 cm, broken						.001	.01	.001	.010	10144
61			61.96-62.3		orange-red Fe oxide staining.				½ %						61
62	38 qt cbt chl		62.61		qt-cbt-chl vnlt, 38°. Chl as selvage. Only slightly deformed.	nil					.001	.00	.001	.010	10145
63			63.20-66.94		orange-red Fe oxide staining, 40% of rock. 70°										63
64			65 68.91		qt-cbt-chl 1cm, 35°	nil					.005	.00	.002	.010	10146
65	70		69.29		ca-chl vnlt, ½ cm, 45°										65
66									½ %		.001	.00	.002	.010	10147
67															67
68											.001	.00	.001	.010	10148
69	45° qt cbt chl 45 ca chl														69
70											.001	.00	.001	.010	10149

N C G — DRILL CORE LOG

Logged by: P.R. Date: 18/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 9 of 23; From 70 To 80
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
70			72.07-78.50		40% of surface stained orange-red from Fe oxides. 2% porosity where cbt leached. Late hairline fractures, healed by cbt + now oxidized. ↙ 65				½		.001	.00	.001	.010	10149
71															71
72											.001	.00	.001	.010	10150
			75												
73			78.70-91.03	Intermediate, Muddy Tuff.	cbt 10%	~~nil except as noted~~ py trace, very finely diss.									73
74				Very fine grained; 10% mafic flecks in grey groundmass, probably plagioclase 1 st 1 cbt. Overall colour dark green to dark grey, banded on cm scale. cbt as white veins // or x-cutting foliation + as white specks					½		.004	.00	.001	.010	10151
75	15 ↘														75
76											.001	.00	.002	.010	10152
77															77
78									½		.006	.03	.009	.010	10153
															78.7
79	70 ↘		79		↙ 70°		10		tr		.010	.02	.010	.010	10154
80															80

N C G — DRILL CORE LOG

Logged by: PR Date: 8/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 10 of 23; From 80 To 90
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
80			83.1		cbt-qt vnlt, sub-// ↗ at 65°; 1cm										80
81			83.1-83.6	Slight coarsening of grain size changes color to medium grey from dark, although CI remains the same.			10				.001	.02	.010	.010	10155
82															82
83	65 qt cbt										.003	.02	.008	.010	10156
84	65 qt cbt		83.88		qt vnlt, 2 cm, 63°, // ↗				tr						84
85	70 qt cbt		85.0-85.5	Veinlets give rock light-dark striped appearance.	qt (cbt) vnlts, 1mm-2cm, 10% of rock, // ↗ at 70°. Veins attenuated, boudin-like.		10				.005	.03	.014	.010	10157
86			85.5-86.3		qt (cbt) vnlts, 10%.	py 1%, cliss.			1						86
87	50			Similar to preceding interval, but vnlts more commonly at slight angle to ↗. py 1%, dissem. One late qt vnlt, 3 mm, x-cuts others at high ∠ to c.a. Folded, amplitude ½ cm, wavelength ½ cm.				2	tr 2		.006	.03	.010	.010	10158
88			86.68-87.34		silicified	py 2%			1						88
89	66			Hard, medium grey, vfx, probably qt+plag+ st. Weak sericitic schistosity. 10% white qt. veinlets, folded, ✗ 50° c.a., // ↗, rootless. py 1%, dissem + vnlts.	MT 2%			2			.001	.01	.005	.010	10159
90															90

7/

N C G

DRILL CORE LOG

Logged by: P.R. Date: 18/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-15
Page 11 of 23; From 90 To 100
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY
90			87.34-90.52	Banded tuff altered to light-medium grey bands. Bleaching may be sericitization of groundmass. Qt-cbt vnlts persist, 5%.	Bleached mt 2% CI±5; ✓65°	py 1%, diss.	5		1, 0, tr, 1	
91	qt 65		89							
92			90.52-91.03	Banding completely removed; hard, vfg rock, greenish grey, probably mixture qt + st + plag. Hairline qt. veinlets at low ∠ c.a.; folded on cm scale; ∠ 55°. mt conc in 1 mm vnlts, low ∠ c.a.	Bleached mt 2% qt 3% CI ±5	py nil	20	2	tr	
93										
94	60		91.03-104.3	Intermediate Tuff. Banded medium-dark grey on cm to mm scale; CI ± 20. Qt (cbt) as veinlets ∥ schistosity, deformed veinlets at variable angles to ✓, knots and fragments of veinlets and undeformed veinlets.	qt 10% mt 2%	py tr as localized conc. on ✓	2	1		
95			91.5-91.8		qt vein, mottled white-grey. chl core, 3 cm contacts at 65°, ∥✓	py 1%			1	
96										
97			94.7-96.9	Qt + st in groundmass variable overall, but intense. Mt decr, py incr. ✓ decr as altn. incr. Deformed fgmts qt veins still common.	CI ± 2 qt-st, intense mt 1%	py 1%, diss.	20	1		
98										
99										
100			94		✓ 60°					

From–To	Au opt	Ag opt	Cu %	Zn %	Sample Number
90–92	.002	.02	.010	.010	10160
92–94	.001	.03	.010	.020	10161
94–94.7	.001	.02	.009	.020	10162
94.7–96.9	.011	.03	.020	[illegible]	10163
96.9–99	.021	.02	.018	.015	10164
99–	.005	.02	.015	.010	10165

N C G — DRILL CORE LOG

Logged by: P.R. Date: 19/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 12 of 23; From 100 To 110
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au g/t	Ag g/t	Cu %	Zn %	Sample Number
100			96.9 - 104.3		Cbt 5% qt 5%, 0% mt 1%	py 1%, finely dissem.					.005	.02	.015	.010	10165
101				White cbt as millimetric spots flecking core. Qt + cbt as veinlets, variably deformed. Py: dissem; a few euhedral grains occur in qt-cbt veinlets. Mt unevenly dist; most concentrated in slighly coarser grained bands.			20	1	1						101
102			97		qt-cbt vn lt, 1cm, 50°, x-cuts ✓						.009	.01	.010	.010	10166
103			98.5		qt-cbt vn lt, 2mm to 1cm, 45°, x-cuts ✓		20								103
104			100 100.7-101.1		✓ 60° qt 50% CI 5 mt 0	py 1		1	1		.003	.02	.005	.010	10167 104.3
105			104.3 - 109	Deformed qt vnlts + patchy sil of groundmass. Tuff ? original comp. unknown?	st 70% cbt 1%, qt 1% CI 2 mt 2%	py 2%	2	2	2		.001	.02	.010	.010	10168 106
107				Strongly sericitized. original composition masked by sericitization. Could be called sericite schist. Qt veinlets present but fewer than in previous interval. Actual composition of groundmass not discernible. Overall colour medium grey.							.004	.02	.008	.010	10169
108			105		✓ 65			0	1						108
			106.85		qt (cbt) vn lt, 1cm, 25°		2								10170
109			107.23 - 108.30		silicified qt 70% CI 2 mt nil hem 2%	py 1%, dissem.		2	2		.001	.03	.021	.010	109
110				Silica as flooding in groundmass. Schistosity persists as chloritic partings, 65°.			10		1		.015	.03	.079	.010	10171

N C G — DRILL CORE LOG

Logged by: C.R. Date: 19/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-15
Page 13 of 23; From 110 To 120
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
110			109 - 111.30	Intermediate, mudd, Tuff	variably silicified CI avg 10	py 1% mt 2%									110
111				Variable on scale of cm from rock as 107.23 - 108.38 to dark, banded rock with CI ± 20, chl. mt 2%, irregularly distr. Banded effect in dark rock mainly from qt (cbt) stringers sub-11 v.			10		1		.011	.03	.013	.010	10172
112			111.30-112	Int. M. Tuff	CI 120 qt 10% as veinlets mt 2%	py tr	20	2	tr		.001	.02	.009	.020	10173
113			112 - 117.47	Tuff?	intense sericitization. st 70% qt 2% as vnlts cbt 2% mt 2%	py 1%, diss.			1		.001	.01	.007	.010	10174
114															114
115	16			Sericite schist. A few qt (cbt) vnlts, variably deformed.											10175
			115.1 - 115.2		qt 80%	py 5%			5		.001	.02	.006	.010	
			115		✓ 60°				1						116
116			116.7		stained orange-red from Fe oxides w/in 3 cm of fract,	py 5% over 6cm.			5						
117	55								10		.001	.02	.015	.010	10176
			117		✓ 55°	py 10% over 5 cm.			1						117.47
118			117.47-120.39	Chlorite Schist	chl 40% cu 5% mt 2%	py 1%, dissem or conc in seams.	60	2	10		.001	.02	.020	.010	10177
				May have originated as muddy tuff.		Sing. Fe-rich			1						
119			117.9-118.1		qt 20%	py 10%			2						119
				Local silicified zone.					1		.001	.02	.009	.020	10178
120			119-119.6			py 2%, diss									

N C G — DRILL CORE LOG

Drill Hole No.: GWS- 90-15
Page 14 of 23; From 120 To 130
Project: Great Western Star

Logged by: P.R. Date: 19/01/90 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
120			120.34-122.8	Chlorite Schist pale greenish grey	qt 2% cb 2% mt 1% CI = 5	py ½%; unevenly distr., conc. in veinlets.	60				.001	.02	.009	.020	10178
121			121.8-122		4 x qt-cbt vnlts, ½-1cm, 50°, // A.	py in one vnlt, 5%.	5	1	tr ½						121
122	50 qt cbt py		122.8-128.5	Chlorite Schist	CI = 30 cbt 5% mt 2%	py ½%			5 tr ½		.001	.0	nr 6	n'd	10179
123			123.65		5 cm cbt 60%	py 5%									123
			123.75-123.94		cbt 50% CI ± 5 mt nil	py 5%	30	2							
124			124.87-126		cbt 70% mt nil CI ± 5 ca 1%, vnlts	py 2%, assoc. with ca vnlts.	5 30	0 2	5 ½		.001	.0	.017	.010	10180
125			126.56		minor red hm in ca vnlt.		5	0	2						125
126			127.8-128.5		cbt 80% CI ± 5 mt nil ca 5%	py 2%, with ca.	30	2	½		.001	.02	.013	.010	10181
127			128.5-129.15	Chlorite Schist	qt 50% CI = 30 mt 1%, erratic cbt 10%	py 2% 65°									127
128							5	0	2		.004	.02	.008	.00	10182
129	65 qt cbt py			Light-dark banded qt (cbt) vnlts in black chlorite schist.		mm to cm py in veinlets.	30	1							129
			129.15-130.6	chlorite Schist	qt 20%, cbt 10% CI = 15 mt tr	py 1%	15	tr	1		.001	.02	.009	.010	10183
130															

N C G — DRILL CORE LOG

Logged by: P.R. Date: 19/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-15
Page 15 of 23; From 130 To 140
Project: Great Western Star

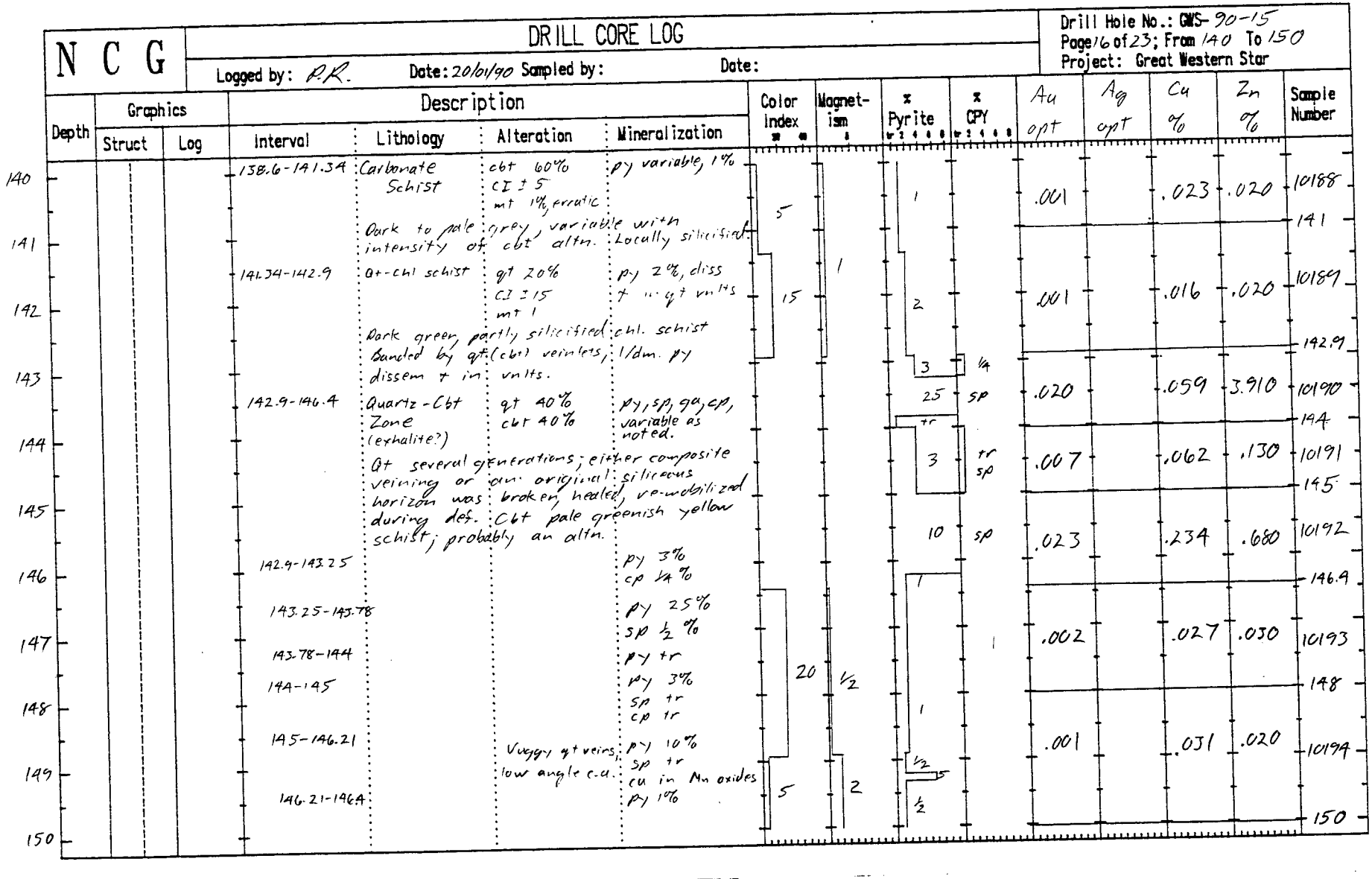
Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
130			129.15-130.6	cont. Medium greenish gray, banded on cm scale. py mainly in qt-cbt veinlets. Mt with ca in veinlets.			15	tr	1		.001	.02	.009	.010	10183
131			130.6-131.7	Chlorite Schist	ca 20% CI 10 mt nil	py 1%, dissem	10	nil							131
132				Calcified to medium grey, 10% 1-3mm mafic spots, unaltered. May be original mafic crystal fragments, more resistant.			30				.001	.02	.010	.010	10184
133		qt 55°-70%					0		0						133
			131.7-138.6	Chlorite Schist (volcanic mud?)	qt 20% cbt 10% CI 30 mt variable as noted	py variable as noted.			tr						
134								2	2	noted	.001	.02	.010	.020	10185
135	55°	qt 70% 55°		Dark green to black, characterized by siliceous bands sub-// foliation. Also x-cutting qt-cbt veinlets, variably deformed. Could some of foltn-// units be siliceous exhalite?			15	nil	tr						135
136								tr	½		.001	.02	.01	.010	10186
			131.7-132.7		mt nil	py 1%, diss.									
137			132.7-133		qt 90% CI nil hm tr, mt nil	py nil	30								137
			133-134		mt nil	py tr									
138	55		134-134.3		mt 2%	py 2%		2	2		.012		.017	.020	10187
			134.3-135.2		qt 70% mt nil	py tr cp rare tr									
139			135.2-137.1		mt tr	py ½%									139
			137.1-138.6		mt 2%	py 2%	5	1	1						
			137.7-138		vuggy ca vnlts sub-// c.a. Fe oxides 10%						.001		.023	.020	10188
140															

4

N C G — DRILL CORE LOG

Drill Hole No.: GWS-90-15
Page 16 of 23; From 140 To 150
Project: Great Western Star

Logged by: R.R. Date: 20/01/90 Sampled by: Date:



N C G — DRILL CORE LOG

Logged by: P.R. Date: 20/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-15
Page 17 of 23; From 150 To 160
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
150			146.4-148.9	Chlorite Schist partly silicified	qt 20% cbt 20% Cl 20% chl. mt ½%, erratic	py 1%	5	5	15						150
151				Dark green, speckled with slight color banding.		white cbt.;		2	30 ½		.004		.033	.070	10195
152			148.9-151.7	Carbonate Schist	cbt 50% st 35% mt 2%, erratic Cl ± 5	py ½% except as noted. cp tr		2	1		.001		.015	.010	10196 152
153	70			Pale greenish grey. Light-dark colour banding. mt assoc w. py. A few rich seams mt-py.											
154			149.21-149.32			py 5%	20	tr							154
			150.03-150.12		mt 5%	py 15%					.018		.014	.010	10197
155	65		150.43-150.48			py 30%									
			151.7-153	Carbonate Schist	cbt 50% Cl ± 5 mt 2%	py 1%									156
156	65			Differs from interval above in streaky appearance due to finely stretched mafic minerals.											
157	cbt		153-171.4	Chlorite Schist	ca 15% Cl avg ± 20 mt tr, erratic	py avg 1%, unevenly distr.	20	tr			.005		.012	.020	10198
158	70			Dark green, variably banded on mm or cm scale. ca as part of groundmass and as mm and cm veinlets variably deformed. py dissem & locally conc. in ca veinlets.											158
159											.007		.010	.020	10199
160															160

N C G — DRILL CORE LOG

Logged by: P.R. Date: 21/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-15
Page 18 of 23; From 160 To 170
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
160			156.4		cbt vnlt, 2cm, 65°, // V, py 10%										160
161			164.56		cbt vnlt, 3cm, 50° partly folded. py 10%						.011		.026	.020	10200
162			167.33-167.40		py (cbt?) vn, 85° py 40% cbt leached out.		20	1	1						162
163			168		∧ 70°						.005		.020	.030	10301
164															164
165	50° cbt py								10 vnlt		.095		.028	.030	10302
166									!						166
167	85° py cbt								40		.070		.030	.150	10303
168							20	1							168
169									1		.040		.018	.080	10304
170															170

N C G — DRILL CORE LOG

Logged by: R.R. Date: 21/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 19 of 23; From 170 To 180
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
170			170.17-172.23		Crumbly; heavy Fe oxide staining.										170
							20	1			.011		.024	.650	10305
171			171.4-182.9	Trachyte	Carbonatized Silicified qt 20% ca 10% cbt 20%	py variable as noted.									171.4
172	75						5	2	1		.005		.026	.180	10306
				variable from carbonatized schist with 40% kspar in groundmass of st and carbonate to rock which was originally 90% kspar, now variably brecciated and marbled with white qt and speckles of calcite. Original color pale brownish pink; now marbled with white.											173
174											.001		.028	.090	10307
			171.4-174			py 1%, dissem.									175
175			174-179.9			py 2%, disseminated assoc. w. ca.									
			179.9-181			py 5%, assoc w. most intense qt.					.006		.018	.320	10308
176															177
177							5	2	2		.004	.04	.013	.370	10309
178	66														179
179											.006	.06	.006	.240	10310
180									5						

N C G — DRILL CORE LOG

Logged by: P.R. Date: 21/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-15
Page 20 of 23; From 180 To 190
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
180			181-182.4			py 2%									
			182.4-182.9			py 1% dissem.			5		.006	.06	.006	.290	10310
181			182.9-183.35	kspar-cbt schist	mt 2% CI nil kspar 40 cbt 20	py ½% repl. mt.	5								181
182				Pale greyish green schist, speckled with mt + py. ✓90					2		.006	.06	.011	.360	10311
			183.35-189.40	Breccia	kspar 50% cbt 30% mt 2% CI nil	py 1% cp rare tr.			1						182.9
183	90								½		.003	.06	.018	.510	10312
				50% fragments of kspar-rich material, similar to 171.4-182.9. Dark grey to brownish, aphanitic. Supported in greenish grey matrix that is at least partly cbt; reacts with 10% HCl on powdering. Fragments are 1mm to 1cm, sub-angular to sub-rounded; must have been some abrasion.				2						183.35
184							0				.004	.04	.029	.270	10313
185									1						185
186	50			py dissem in matrix and as x-cutting veinlets.							.005	.01	.014	.190	10314
			189.4-190.0	~~Advsic Fp (?)~~	(kspar ~~90%~~ 3% qt ~~2%~~ 7% cbt ~~5%~~ 85% CI nil mt nil	py 1% ga 1% sp ½%									187
187			Note: > mineral percentages revised after staining				0		1		.006	.01	.015	.040	10315
188				Hard, opaque white aphanitic rock cut by seams py, ga, sp. Rare grey, almost amorphous qt veins. Wispy cbt seams. In white groundmass, 5% sub-mm grains, grey, hard, probably qt. White aphanitic material reacts with HCl after powdering; probably cbt.											188.2
									1		.006	.01	.012	.360	10316
189															189.4
										ga sp	.011	.20	.017	2.77	10317
190															

NCG — DRILL CORE LOG

Logged by: R.R. Date: 21/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-15
Page 2 of 23; From 190 To 200
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
190			190 - 198.8	Potassium Fp-Carbonate Zone.	Kspar 65% cbt 20% qt 3% mt rare tr,	py variable as noted below.			2						190
191				Greyish brown kspar, totally, with brx texture as 183.35 - 189.4; locally white aphanitic as 189.4-190; locally almost gel-like in appearance. Mottled with white veinlets & fragments of veinlets of qt. Some rounded "blobs" aphanitic qt with white rims grading to grey centers; gives impression of ppt from colloidal gel. Overall impression is mottled grey-white rock.					½		.006	.01	.012	.260	10318
192									1						192
193									½		.009	.06	.010	.150	10319
194															194
195			190-190.3			py 2%					.010	.06	.028	.140	10320
			190.3-190.9			py ½%									
			190.9-191.4			py ½%									
			191.4-192.2			py 1%									
196			192.2-193.52			py ½%			1						196
			193.52-197			py 1%, unevenly distributed.									
197			197-197.6			py tr					.005	.04	.003	.020	10321
			197.6-198.8			py 2% unevenly distr.			tr						197.4
198			198.8-202.34	Aphanitic qt-cbt-kspar rock.	kspar 10% qt 20% ? cu 20% ?	py 1% unevenly distr.			2		.019	.06	.004	.070	10322
199				Hard, white, opaque, aphanitic. Laced with clear grey qt vnlts and spots white qt. ½ mm clear grey rhombohedral crystals, 5%, white groundmass.							.009	.06	.008	.100	198.8 10323
200			201-201.35		white qt stringer, 2cm, subparallel to c.a.	py tr in qt stringer.									200

N C G — DRILL CORE LOG

Logged by: P.R. Date: 21/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-15
Page 22 of 23; From 200 To 210
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
200			202.34 - 202.83	Mafic Dyke or Lamprophyre bi 20% cu 40%	mt 2 %.	nil									200
											.003	.07	.014	.070	10324
201									1						201
			202.83 - 204.84	Aphanitic qt-cbt-ksp as 198.8-202.34	kspar 10% qt 20%(?) cu 20%(?) mt nil						.006	.05	.006	.030	10325
202															202.34
							20	2	0		.001	.03	.005	.070	10326
203			204.84 - 207.61	Potassium-Fp - Carbonate Zone; As 190-198.8	Kspar 65% cbt 20% qt 3% mt locally 4%; 2% averaged.	py 1%.									202.83
			205-207.61	- - - - - -							.011	.05	.003	.020	10327
204									1						
			207.61 - 208.14	Carbonate-chl-(st) schist	cbt 25% chl ± st, 60% mt 2%, uneven.	py ½% finely dissem.									204.84
205											.005	.06	.020	.010	10328
				Medium to dark grey schist, spotted with ovoid porphyroblasts (?) pale grey cbt; long dimension of cbt spots roughly aligned // ✓											206
206								2							
									1						
207			208.14-208.9	Lamprophyre upper contact 25°, x-cuts V, lower contact // ✓	ca 30% mt 1% bi 30%	nil					.006	.06	.037	.030	10329
															207.61
208							20		½						
							30	1	0		.002	.06	.007	.020	10330
209			208.9 - 211.2	Carbonate-chl-(st) schist	cbt 25% chl ± st, 60% mt 2%	py ½%									209
				Similar to	207.61 - 208.14		20	2	½		.002	.05	.012	.020	10331
210			210		✓ 60°										

N C G — DRILL CORE LOG

Logged by: P.R. Date: 22/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-15
Page 23 of 23; From 210 To 220
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
210	<60		211.2 – 212	Lamprophyre bi 30% cu 30%			20	2	½		.002	.05	.012	.020	10331
211			212 – 212.3	cbt-chl schist	cbt 40% chl 30% mt 2%	py 1%									211
212			212.3 – 213.12	Lamprophyre bi 30% cu 30%			30		1		.002	.05	.006	.010	10332
213			213.2 – 217.04	cbt-chl-(st) schist	cbt 40% chl 30% qt 10%	py 1%									213
214				Two types of qt present; opaque white veinlets, partly deformed and boudined. Also boudins clear grey qt to 3cm in long dimension.							.005	.06	.008	.100	10333
215	<60		215		∠60°		30	2	1						215
216											.003	.05	.011	.020	10334
217															217.04
218			217.04 = EOH												
219															
220															

N C G

DRILL CORE LOG - Cover Page

Logged by: P. Ronning Start Date: 22/01/90 Completion Date:

Drill Hole No.: GWS- 90-16
Page 1 of 26
Project: Great Western Star

Contractor Information

Drill Contractor: Leber Mines
Forman: Leslie
Hole Start Date:
Hole End Date:

Drill Hole Information

Size of Core: NQ-2
Location:
Property Name: Taughuut
Claim Name:
Grid Name:
Zone Name:
Northing: 0+19 N
Easting: 0+65 W
Elevation: ~2085 m
Survey Method (eg. compass, altimeter):

Drill Hole Orientation Surveys:

Depth	Azimuth	Plunge	Method
collar			

Final Depth of Hole:

Symbols and Abbreviations Used in Log

Note: for core measurements and recoveries, see geotechnical log.

Sample Shipment Information

Sample Numbers	Date Shipped	Shipment No.	Shipped Via	Laboratory	Date Results Received	File Number(s)

N C G — DRILL CORE LOG

Drill Hole No.: GWS- 90-16
Page 2 of 26; From 3.08 To 10
Project: Great Western Star

Logged by: P.R. Date: 22/01/90 Sampled by: Date:

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
0			0-3.08	Cased in overburden.											
1															
2															
3															3.08
4			3.08-27.55	Chlorite-carbonate schist	ca 30%, chl 40%, mt 1%, variable.	py variable as noted.	40	1	1½		.001	.03	.02	.010	10335
5	60			Dark green to medium grey, depending on % ca in groundmass, ca occurs pervasively in groundmass and, locally, as avoid white spots mottling rock to 10%. In oxidized zones, ca (or other cbt) turns orange-red. Local variations as noted.											5
6											.001	.01			10336
7	60		3.08-7.25			py 1½%									7
8			5.2-5.4		qt (cbt) stringers, to 5 cm, 60° (sub-11 V)						.001	.02	.012	.010	10337
9			7.05-7.16		ca stringers to 2cm, 60°		40	1	1½						9
10			7.25-15.59			py nil					.001	.02	.010	.020	10338

N C G — DRILL CORE LOG

Logged by: P.R. Date: 22/01/90 Sampled by: Date:

Drill Hole No.: GWS-
Page 3 of 26; From 10 To 20
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
10			14.2 - 17.0		All clt stained orange-red. 30% of rock.						.001	.02	.010	.020	10338
11	70		15.1-15.55		10% avoid spots clt (not ca), 2-20 mm.										11
12			15.59-16.25		silicified qt 30%	py tr	40	1			.001	.02	.005	.010	10339
13				vfx, milky white qt partly floods groundmass. Looks almost chalcedonic but fine xstals are visible.											13
14			16.25-27.55			py mil					.002	.02	.017	.010	10340
15															15
16									tr		.005	.02	.017	.010	10341
17	105														17
18							40	1			.001	.01	.005	.020	10342
19															19
20											.001	.02	.007	.020	10343

N C G — DRILL CORE LOG

Logged by: P.R. Date: 22/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-16
Page 4 of 26; From 20 To 30
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
20			27.55-60.3	Quartz Porphyry	clot 20% Fe oxides 20% mt nil porosity 10% CI nil	Fe oxides after (py or mt) ½%					.001	.02	.007	.020	10343
21				Mottled cream to grey; variably carbonatized. Extensive Fe oxide staining of carbonates. Porosity after leached clot. Ovoid qt "eyes" only 2% initially, incr to 10% in core of zone. Foliation most apparent where oxidation highlight ca micro-lithons. Sericitic cleavage.											21
22											.001	.02	.005	.010	10344
23															23
24	65°		34-42.21			py tr; no longer completely oxidized.					.003	.02	.006	.010	10345
25			42.21-48		Fe oxides 5%	py ½%					.001	.02	.009	.010	10346
26				Only about half core shows oxide staining. Much less porosity. In unoxidized zones, powdered groundmass reacts readily.											26
27			48-60.3		Qtz vnlts, 3% 5 per m, avg ½ cm, 30° ca, though orientations highly variable; Fe oxides 5%.	py 1%					.001	.01	.013	.020	10347
28											.01	.01	.002	.010	10348
29															29
30											.010	.01	.002	.010	10349

N C G	DRILL CORE LOG	Drill Hole No.: GWS-90-16
	Logged by: P.R. Date: 22/01/90 Sampled by: Date:	Page 5 of 26; From 30 To 40
		Project: Great Western Star

Depth	Graphics		Description				Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	As %	Zn %	Sample Number
	Struct	Log	Interval	Lithology	Alteration	Mineralization									
30			see notes on page 4												
31									½		.010	.01	.002	.010	10349
32															31
33											.001	.01	.001	.010	10350
34															33
35	75								½		.008	.01	.001	.010	10351
36															35
37											.001	.01	.001	.010	10352
38															37
39											.006	.01	.003	.010	10353
40	60								½						39
											.003	.01	.001	.010	10354

N C G — DRILL CORE LOG

Logged by: P.R. Date: 22/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 6 of 26; From 40 To 50
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
40			see notes on p. 4								.003	.01	.001	.010	10354
41															41
42									½		.001	.01	.002	.020	10355
43	65														43
44											.001	.01	.001	.010	10356
45															45
46											.001	.01	.001	.010	10357
47	70		46-40-46-50	Stained sample	Kspar nil				½						47
48											.005	.01	.001	.010	10358
49									1						49
50											.001	.01	.010	.010	10359

47

N C G — DRILL CORE LOG

Logged by: P.R. Date: 22/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 7 of 26; From 50 To 60
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
50			see notes on p. 4.								.001	.01	.001	.010	10359
51	70								1						51
52			52-60.3		30% of core has 25% Fe oxides.						.001	.01	.002	.010	10360
53															53
54											.006	.06	.002	.010	10361
55			56.4-56.6		Fe oxides 30% ca leached out.	py 5%			1						55
56			57.66			cp speck in qt stringers.			5		.029	.15	.006	.010	10362
57															57
58	60		57.8	stained sample	kspar 1%, as hairline veinlets and alteration in groundmass						.088	.19	.009	.010	10363
59									1						59
60											.128	.30	.020	.010	10364

N C G — DRILL CORE LOG

Logged by: P.R. Date: 22/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 8 of 26 ; From 60 To 70
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
60			60.3 - 67.11	Carbonate - Chlorite Schist	CI 20%, chl Kspar 15% cbt 25% mt 3%, unevenly distr.	py variable as noted.			1		.128	.30	.020	.010	10364 60.3
61	65			Banded dark green to grey schist. May have originated as fine andesitic tuff. Locally, ovoid spots white cbt to 10%, 1-2 mm. Staining indicates groundmass contains fine kspar; could be primary or altn. Qt veins erratically distributed; degree of deformation highly variable.				3	tr		.027	.06	.019	.030	10365 62
62															
63							20		0		.005	.02	.021	.020	10366 64
64															
65	65		61 - 61.1		Ca 10% as broken stringers			3	tr		.013	.04	.020	.040	10367 66
66			60.3 - 61			py 1%									
			61 - 62			py tr as local conc. to 1%			1		.001	.01	.009	.020	10368 67.11
67			62 - 63.5			py nil									10369 67.46
			63.5 - 65			py tr as local conc. to 1%	30				.001	.02	.008	.010	
68			65 - 67.11			py 1%, dissem.									10370 69
			67.11 - 67.46	Lamprophyre bi 30%	cu 30%	py nil	20	3	tr		.001	.02	.011	.020	
69			67.46 - 80.7	Carbonate - chlorite schist	CI 20%, chl Kspar 15% cbt 25% mt 3%	py variable as noted.									10371
70	65										.001	.03	.001	.010	

N C G — DRILL CORE LOG

Logged by: R.R. Date: 22/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 9 of 26; From 70 To 80
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	Pyrite	CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
70			67.46-70		Ca 5% as variably determined veinlets + stringers.	py tr, erratic.					.001	.03	.004	.010	10371
71	65		70-73.37			py nil									71
72			73.37-73.70		ca 30%, as stringers, BOO	py 2%, diss.	20	3			.001	.02	.002	.010	10372
73			73.70-77			nil									73
74	80		77-80.7			py tr, erratic			2		.014	.02	.002	.010	10373
75	80		79.7	Stained Sample	Kspar 10% as hairline stringers // + ⊥. Localized.										75
76			79.1-79.4		Fe oxide staining of clot 10%.						.001	.01	.001	.010	10374
77							20	3	tr						77
78											.001	.02	.004	.010	10375
79	70								tr						79
80											.001	.01	.003	.010	10376

N C G	DRILL CORE LOG	Drill Hole No.: GWS- 90-16
	Logged by: P.R. Date: 23/01/90 Sampled by: Date:	Page 10 of 26; From 80 To 90 Project: Great Western Star

Depth	Struct	Interval	Lithology	Alteration	Mineralization
80		80.7-93.7	Andesitic Tuff	CI ± 10 wt avg 3% Kspar nil	py variable as noted.
81			Medium greenish grey - not as dark as preceding unit. Grain size variable from fine to aphanitic. Locally to 10% pale cream coloured grains ± 3 mm, anhedral, aligned lengthwise in foliation. Gives trachytic appearance that is probably just an artifact of translation in to foliation. Now consist of st ± cbt; may once have been plag or may be de-vitrified glass. Mafic grains, 1-3mm, that look like shards are magnetite. Overall textures suggest pyroclastic pile with grain size variable over decimeters.		
82	70				
85	65			cbt 10% ca vnlts 5%.	
		80.7-83			py 1%, erratic
86		83-84		oxidized	py, nil
			Pyrite may have been oxidized		
87		84-84.5			py tr
		84.5-84.9		oxidized	py nil
		84.9-86.9			py tr
88		86.9-88			py 1%, erratic.
		88-88.3			py nil
89	70	88.3-88.86		oxidized	py tr.
		88.86-89.64			py tr
90	45	89.64-92.33			py 2%, finely diss.

From	To	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
80	81	20 / 10	3	tr		.001	.01	.003	.010	10376
81	83			1		.001	.01	.004	.010	10377
83	85	10	3	0 / tr / 0		.001	.02	.006	.010	10378
85	87			tr		.001	.02	.006	.010	10379
87	89			1 / 0 / tr		.001	.02	.006	.010	10380
89	90	10	3	2		.001	.03	.005	.010	10381

N C G — DRILL CORE LOG

Logged by: B.R. Date: 23/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 1 of 26; From 90 To 100
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
90			89.93		qt vnlt, 2cm, 45°, undeformed	cp in vnlt, 1% mt in vnlt, 5%									
			91.25		cbt vnlt, 5mm, 60°	py 40% cp tr			2		.001	.03	.005	.010	10381
91	60 cbt														91
			92.33-93.27			py tr	10	3							
92			92.17-93.7			py ½%, erratic					.001	.03	.005	.010	10382
			93.7-99.66	Sericite Schist (Tuffaceous Mudst.)	cl ± 5 mt variable as noted cbt 10% ksp variable as noted.	py variable as noted. cp very rare trace. pyritized.			tr						
93	70														93
94									½						
				Grey to buff, locally greenish schist. Color banded on mm + cm. scale. Some bands cont. mm mafic flecks that may have been tephra. cbt throughout as part of groundmass.						.001	.03	.008	.010	10383
95							5		1						95
	50 qt 50 qt 50 qt		93.7-95.53		ksp 30% mt 5%	py 1%, finely dissem.					.001	.01	.001	.010	10384
96				Diffuse bands Mt assoc. w. ksp	ksp enrichment; erratic. ksp ± py variable.										
97			95.53-96.40		mt 5% qt vnlts, 1-2mm, 4/m, ± 50° ⊥ 70°	py 1%, dissem.		tr	2						97
98	75		96.2 96.31			cp, speck.	5				.001	.01	.008	.010	10385
			96.4-98.54		cbt 20% mt tr erratic.	py 2% dissem ± in seams sub-ll foliation.		3	1						98
99				Locally hardened, carbonatized.				tr	5						
100							30	2	2		.001	.02	.011	.010	10386

N C G — DRILL CORE LOG

Logged by: P.R. Date: 23/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 12 of 26; From 100 To 110
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
100			98.54-99.30		mt 3% cbt 20%	py 1%									
101	65			Grey, flecked with 10% pale mm cbt flecks, aligned // ∨, giving trachytic appearance that may or may not be primary.			30	2	2		.001	.02	.011	.010	10386
102			99.3-99.66		mt tr	py 5%	10		1		.001	.02	.011	.00	10387
103			99.66-101	Chlorite Schist (Fe-rich mudstone?)	mt 2%, conc. in bands. Kspar 15% cbt 20%	py 2%, unevenly dist.									103
104	65 (pr)			kspar + cbt conc in vnlts, 1-3 mm, sub-// ∨, giving rock banded appearance. kspar tends to occ as fgmts in cbt. 10% white cbt "porphyroblasts" locally.					tr		.001	.02	.00	.00	10388
105			101-106.61	Intermediate Crystal Tuff	cl ± 10 mt 2% cbt 10% (?)	py as noted.	10								
106	25				S + 40% plag 30%			2			.001	.02	.003	.010	10389
107				Medium grey, relatively equigranular, ½ to 2 mm. Moderate sericitic schistosity.											107
108	60		101-102.4 102.4-106.61 103.75		 qt vnlt, 1cm, 65°	py 1% py tr. py 10% in vnlt.	10		tr		.001	.03	.008	.010	10390
109			106.1		qt-cbt vnlt, 25°, 1cm	py 1% w/in 5cm of vnlt.	25		1						109
110			106.61-108.51	Andesite.	cl ± 10 mt 2% cbt 15%	py tr					.001	.02	.011	.010	10391

N C G — DRILL CORE LOG

Logged by: P.R. Date: 23/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-16
Page 13 of 26; From 110 To 120
Project: Great Western Star

Interval	Lithology	Alteration	Mineralization
106.61-108.51	cont. Interval characterized by 15% mm white porphyroblasts (?) cbt, giving it speckled appearance. Original composition probably similar to preceding interval.		
107.7-107.9		Ca vnlts 5%, sub-// Γ or deformed.	py 2%.
108.51-117.58	Chl-carbonate Schist (Andesitic Tuff)	CI ±25, variable, mainly chl. Cbt 20% mt nil	py variable as noted.
	Chlorite schist throughout, textures variable on a local scale. 5% of interval has mg texture suggesting xstal tuff. Veined, speckled + spotted with white cbt. In places, cbt veinlets give core banded appearance.		
108.51-112.3			py 1%
112.3-113.7			py 2%
113.7-117.58			py ½ %
117.58-118.3	kspar-st Schist	kspar 40% st 50% CI nil mt nil, cbt 5%	py 5% as soltn // stringers.
	Ribbons waxy brownish grey and cream. Some but not all of brownish grey is hard kspar. Locally kspar in ½ cm boudins. May be altered lapilli tuff.		
118.3-130.19	Chl-cbt Schist (and. tuff)	CI ±25, var. Cbt 20% mt nil	py variable as noted.
	Similar to 108.51-117.58.		

Structure (angles marked in the Struct column): 70 at ~111; 60 at ~115; 70 at ~119.

Pyrite (% Pyrite column, approx. depth): 1 (111–112); 2 (112.3–113.7); ½ (113.7–117.6); 5 (117.6–118.3); 0 (~119); tr (~119.5–120).

Depth (from–to)	Au opt	Ag opt	Cu %	Zn %	Sample Number
110–111	.001	.02	.011	.010	10391
111–113	.001	.02	.015	.010	10392
113–115	.001	.01	.012	.010	10393
115–117	.001	.02	.011	.010	10394
117–119	.001	.02	.012	.010	10395
119–120	.001	.02	.020	.020	10396

N C G — DRILL CORE LOG

Logged by: R.R. Date: 23/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 4 of 26; From 120 To 130
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
120	65		118.3 - 119.36		Fe oxide stain 20%	py nil			tr						
			119.36 - 120.1			py tr	25				.001	.02	.020	.020	10396
121			120.1 - 123.42		ksp ar 20%	py 2%									121
				Buff bands in dark green schist, ½ cm to 3cm, are probably ksp ar-enriched.					2						
122											.001	.02	.013	.010	10397
			123.42 - 124.16			py 2%									
123			124.16 - 124.61		cbt 40%	py 3%									123
				Bleached, carbonatized, pyritized.											
124			124.27		qt-cbt vein, 3cm, 45°	py 10% in vein.					.001	.03	.019	.010	10398
			124.61 - 128.97		ksp ar 5%	py 1½%	25		3						
125	70		128.97 - 130.08			py tr									125
			129.18		ca vnlt, 1 cm, 40°, repeated through sdding.	py 50% in vnlt.									
126											.001	.03	.01	.010	10399
									1½						
127															127
128											.001	.02	.016	.010	10400
									1½						
129	70														129
							25		tr						
130											.001	.03	.010	.010	10401

N C G — DRILL CORE LOG

Logged by: P.R. Date: 23/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 15 of 26; From 130 To 140
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
130	∠70		130.08-130.19		qt-cbt vein, 60°, sub-// ↗ cbt leached out.	py 30% in vein		0	tr 10 vein		.001	.03	.010	.010	130.19
131			130.19-139.01	Kspar-St-Chl Schist (Andesitic Tuff)	Kspar 25% cbt 20% Cl 15, chl. qt 1% mt nil	py 3%	25		3		.001	.02	.015	.013	10402
132															
133				Essentially intermediate, chloritic schist derived from pyroclastics. Grain size ranges from very fine to possible lapilli. 50% of rock is made up of brownish grey, aphanitic rock with sericitic partings; mixture of st + kspar. Hardens as kspar incr. Locally, lapilli-size fragments kspar; may be preferential altn of fragments. py dissem throughout, but most abundant in kspar-altered rock.				0			.001	.02	.014	.010	10403
134															134.1
135	∠70						25								
136								0	3		.001	.03	.013	.010	10404
137			138.88-139.01		qt vein, 50° 5cm kspar envelope in wall.	py 10% in vein.					.001	.03	.011	.010	10405
138	∠65		139.01-142.44	Chlorite-Carbonate Schist	ca 15% Cl 20 mt trace, local	py ½%, mainly assoc w. ca veinlets.	25	0			.001	.01	.016	.010	10406
139	60 qt Kspar 10%		139.19-139.26		qt vein, 60°. kspar in vein, 10%, as fgmts.	py 10% in vein			10 vein						139.01
140	65 qt ksp py						20	tr	10 1 2 25 1/2		.001	.02	.013	.010	10407

N C G — DRILL CORE LOG

Logged by: P.R. Date: 2/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-16
Page 16 of 26; From 140 To 150
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
140			139.68-139.82		ksp vein, bxtd + cmtd by qt., 65° ksp 40% qt 35%.	py 25% in vein.			½		.001	.02	.013	.010	10407
141	60						20								141
142			142.44 144.17	chl-cbt-(ksp) Schist	co 15% CI 15 Ksp 10% mt nil	py ½%, assoc with co.					.001	.02	.011	.010	10408
143	70			Schist as preceding interval but with a few brownish ksp-rich bands.					½						142.44
144			144.17-145.1	chl-cbt Schist	co 15%						.001	.03	.019	.010	10409
145	70		145.1-148.3		Feox 10%	nil	20								144.17
146			148.3-148.63		co 20%	py ½%			¼		.001	.02	.015	.00	10410
147			148.63-			py 1% by erratic									146
148							20		¼		.001	.01	.013	.010	10411
149	65								10						148
150									1		.001	.03	.008	.010	10412
															150

N C G	DRILL CORE LOG	Drill Hole No.: GWS- 90-[illegible]
	Logged by: [illegible] Date: 29/01/90 Sampled by: Date:	Page 7 of 26; From 150 To 160
		Project: Great Western Star

Depth	Struct	Interval	Lithology	Alteration	Mineralization	Color Index	% Pyrite
150		[illegible]-158.59	[illegible] Schist (Andesite Flow)	K-spar 40% CI avg 5 [illegible] veinlets. [illegible]	Py 1%, [illegible]	20	1
			[illegible] 10% to 90% avg. [illegible] cbt primarily as veinlets and [illegible] as [illegible] spots aligned [illegible] pyrite assoc. w. cbt veinlets and repl. cbt. spots; also dissem. [illegible] some primary [illegible] rock may have been a [illegible] flow, with up to 10% fp phenos [illegible] kspatilized augen-like grains.				
155	60	155-155.6		cbt [illegible] [illegible] 4		5	
		[illegible]	Chl-cbt-(K-spar) Schist ([illegible] Flow)	[illegible] cu 5% cbt [illegible]% qt minor [illegible] K-spar 15%	Py [illegible]		
			Primary textures not readily visible but where apparent suggest at least partly flow origin. Dark green with brownish [illegible]-like [illegible]			20	
160	60						

Interval	Au opt	Ag opt	Cu %	Zn %	Sample Number
150–152	.008	.03	.009	.010	10413
152–153.6	.005	.04	.012	.010	10414
153.6–155	.002	.03	.016	.010	10415
155–157	.002	.03	.018	.010	10416
157–158.59	.001	.02	.014	.010	10417
158.59–160	.003	.02	.020	.010	10418

N C G — DRILL CORE LOG

Logged by: R.R. Date: 24/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 19 of 26; From 160 To 170
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnet-ism	% Pyrite	% CPY
160			162.92-164.6	Lapilli Tuff [illegible]	chl 10% in groundmass [illegible]	py [illegible]				
161	60°			[illegible] fragments, sub-rounded, [illegible] mixture [illegible] pale brown [illegible] groundmass [illegible]			30		1	
162			163.1-163.5	Quartz flooding [illegible]	qt 50% [illegible]					
163			163.5		[illegible]					
164			164.2-164.5		[illegible] HCl [illegible]				½	
165	65°		164.6 - 181	[illegible] - Chl (sapor) schist. [illegible]	[illegible] sapar [illegible] % [illegible]	[illegible]				
166							20			
167				Locally [illegible] others folded with axial plane // [illegible]. Textures not diagnostic [illegible] tuff. Strong [illegible]						
168									1	
169							20			
170	55°									

From	To	Au opt	Ag opt	Cu %	Zn %	Sample Number
160	162	.002	.02	.021	.010	10419
162	164	.001	.01	.007	.010	10420
164	166	.001	.03	.010	.010	10421
166	168	.002	.04	.017	.010	10422
168	170	.001	.04	.028	.010	10423

N C G — DRILL CORE LOG

Logged by: A.L. Date: 2/4/01 Sampled by: Date:

Drill Hole No.: GWS-30-16
Page 9 of 26; From 170 To 180
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
170			169.35-181, pg. 17. See description ... pg. 18.												170
	65°						20		1		.001	.04	.028	.010	10424
172															172
											.006	.01	.019	.020	10425
174															174
	65°						20		1		.002	.03	.016	.010	10426
176															176
											.005	.04	.015	.010	10427
178															178
							20		1		.001	.04	.010	.010	10428
180	65°														180

NCG DRILL CORE LOG

Logged by: F.R. Date: [illegible] Sampled by: Date:

Drill Hole No.: GWS-90-16
Page 20 of 26; From 180 To 190
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
180	35°		181-183.26	Kspar-Chl-Cbt [illegible]	Kspar 40% [illegible] chl. ?/ ca 6% mt	py 2% assoc. w/ Kspar, cbt.	20		1						180
							10				.003	.05	.015	.030	10429
182				[illegible]	[illegible]	1/2 of [illegible] to [illegible]			2						182
183	45°				[illegible] from [illegible] to 5cm [illegible]				tr		.006	.06	.012	.030	10430
184	65		183.3 -187.97	Chl-[illegible]	[illegible] 35%, chl. mt nil	py variable [illegible]	30								184
185	qt 47				Kspar 5% qt 1%				1		.006	.06	.016	.040	10431
									30 vnt						
186				[illegible] appearance. Kspar as wispy stringers to [illegible] cm wide. [illegible] as [illegible]		[illegible] banded [illegible] veinlets.			1/2						186
187			[illegible] 4.0 184-[illegible].7 185.45		qt vnlt, 1cm, 47°	py tr py 1% py 30% in vnlt.	30				.003	.05	.019	.020	10432
188			185.7-187.97			py [illegible]		3							187.89
			[illegible]	[illegible]	mt 2%						.003	.05	.008	.010	10433
189	65		189.1-190.50	St-cbt-[illegible] Schist	St 50% chl 10%		10		1/2		.001	.05	.011	.020	189.1 10434

N C G	DRILL CORE LOG	Drill Hole No.: GWS- 90-16
	Logged by: R.R. Date: 24/6/90 Sampled by: Date:	Page [illegible] of 26; From [illegible] To 200 Project: Great Western Star

Depth	Struct	Interval	Lithology	Alteration	Mineralization
190		189.1-190.5	[illegible]	[illegible] nil	[illegible]
			[illegible] with [illegible] schist groundmass.		
192	∠60	189.77-[illegible]	[illegible]	[illegible]	[illegible]
		190.5-191.88	[illegible]	[illegible] ca 20% [illegible] nil	[illegible] diss. [illegible]
		191.88-192.93	[illegible]	[illegible]	py 2%, diss.
	∠60		[illegible]	[illegible]	[illegible]
196			[illegible] plag. [illegible]. Only weakly [illegible].		
		[illegible]-5	[illegible] schist	[illegible] 30% ca 60% [illegible] nil	py 2%, mainly assoc. w. ca veins.
197			[illegible] groundmass and as veinlets both // & x-cutting foliation.		
198	∠60	195-195.82	Lamprophyre [illegible] ca 45%	[illegible] 3%	nil
			Upper & lower contacts of lamprophyre sub-// [illegible].		
200					

Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
		3		.001	.05	.011	.020	10434
30		½						191
20		2		.001	.06	.03	.020	10435
								193
30		½		.009	.06	.015	.020	10436
								195
	3	0		.002	.05	.007	.010	10437
								195.82
		3						
		2		.019	.09	.067	.020	10438
								198
1		2	tr in vnlt	.017	.04	.026	.020	10439
								200

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N C G — DRILL CORE LOG

Logged by: [illegible] Date: 24/01/[illegible] Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 22 of 26; From 200' To 210'
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
200			195.82 - 200.35	[illegible]	[illegible]	[illegible]									200
[illegible]	70										.007	.04	.032	.010	10440
[illegible]															202
[illegible]			195.82 - 196.35							tr in vn lts	.005	.06	.059	.030	10441
[illegible]			[illegible]												204
[illegible]	60		[illegible]	[illegible]						¼ % in vn lt.	.017	.05	.041	.020	10442
[illegible]			[illegible]				30	2	0						205.35
[illegible]			[illegible]								.013	.05	.005	.010	10443
[illegible]			[illegible]				10								206.08
[illegible]			[illegible]								.013	.05	.008	.080	10444
[illegible]			[illegible]						1						208
[illegible]			[illegible]					2							
[illegible]			[illegible]				10				.008	.05	.003	.020	10445
210	55														210

N C G — DRILL CORE LOG

Logged by: P.R. Date: 25/6/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 23 of 26; From 210 To 220
Project: Great Western Star

Depth	Struct	Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
210			205.75-206.08 [faint]	Lamprophyre; ol 30%; [illegible]											210
211			206.08-227.69	Volcanic Breccia (schistose)	cbt 20%; kspar 10%, variable.; CI ± 10, variable; mt 2%	py variable as noted; cp rare as noted	10	2	1	tr in qt vnlts	.006	.06	.032	[illegible]	10446
212															212
213	70								½		.001	.04	[illegible]	[illegible]	10447
214							10								214
215								2			.001	.04	.005	.020	10448
216															216
217			206.08-210.4			py 1%, dissem.			½		.001	.04	.001	.020	10449
218			210.4-211			nil									218
			211-212.4		qt vnlts to 5% of rock; late; x-cut ✓	py 1%; cp tr in qt vnlts	10								
219								2			.001	.04	.002	[illegible]	10450
			212.4-227.69			py ½ %, erratic; cp rare tr.									
220															220

Textures variable but appears to be pyroclastic breccia. Fragments variable from 1 mm to 10 cm; many lithologies although all volcanic in andesite-latite range. Fragment density ranges from 25% to 50%; most is matrix supported but locally fragments support each other. Fx groundmass contains cbt throughout; reacts with 10% HCl on powdering. Degree of kspar alteration, as opposed to content of originally potassic fragments difficult to est. Pyrite mainly dissem, although enriched veinlets occur.

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N C G — DRILL CORE LOG

Logged by: P.R. Date: 25/01/90 Sampled by: Date:

Drill Hole No.: GWS-90-[illegible]
Page 24 of 26; From 220 To 230
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Description: Interval	Description: Lithology	Description: Alteration	Description: Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
220			206.08-227.69 cont	See description p. 23											220
221			227.69-228	Volcanic Ash (Felsic Schist)	cbt 10% Cl nil mt nil	nil	10	2	½		.001	.04	.001	.010	10451
222				Breccia unit above grades over 4 cm to very fine ash. Banded grey-white // V. Powder reacts with 10% HCl. ∠ 65°											222
223			228-228.33	Silicified	qt 75% st 5%	py 2% dissem sp trace, dissem.					.001	.05	.001	.010	10452
224			228.33-230.8	St-Fp-(Gt?) (cbt?) Schist	cbt 10% mt 1% cu 1% Cl nil	py tr Cp tr in ca vnlts.	10	2	½		.001	.04	.002	.010	10453
225				Fine ash comprised of sub-mm fgmts, Light-dark color banding on mm-cm scale; medium grey overall.											224
226															226
227	60						10	2	½		.002	.05	.011	.010	10454
228									0 2						228
229								1	tr	tr	.004	.05	.006	.010	10455
230	55														230

N C G — DRILL CORE LOG

Logged by: P.R. Date: 2/6/90 Sampled by: Date:

Drill Hole No.: GWS-90-16
Page 25 of 26; From 230 To 240
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	% Pyrite	% CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
230			230.8-233.32	Potassic Altered Rock (Volcanic brx)	kspar 80% mt 5% qt 2%	py 1%, finely disseminated cp tr		1	+r		.001	.04	.015	.010	230 10456 230.8
231				Zone of kspar flooding. Hard, aphanitic buff brown rock. Mt as specks & wispy stringers. Suggestion of relict fragmental texture indicates possible origin as volcanic brx. Qt as spots & late veinlets, opaque white.					2						
232								5	1	tr	.001	.04	.021	.010	10457 232
233			230.8-231	Flooding by late, clear grey qt.	Qt 70%	py 2%					.001	.05	.064	.020	10458 233.32
234	65		233.32-234.59	Ash tuff (schistose)	cbt 10% mt 1% Cl nil	py tr		1	+r		.006	.05	.014	.020	10459
235				Medium grey muddy tuff, 10% fgmts in aphanitic grey groundmass. Fgmts 1 mm-1 cm; may have originated as pumice. Now white, carbonatized; a few silicified.				2 1							235
236			234.59-235.20	Volcanic breccia	mt 2% cbt 5%	py tr		½	+r		.001	.05	.002	.020	10460 236.68
237				Dark grey sub-rndd fgmts, 3mm to 3cm, in medium grey groundmass. Matrix supported. Fgmts & groundmass very hard-silica or kspar?			5	2			.001	.04	.008	.010	10461
238	50		235.2-235.47	Ash tuff as 233.32-234.59						tr					238
239			235.47-236.68	Volcanic Brx As 234.59-235.20	mt ½ %	py tr			+r		.001	.04	.017	.010	10462
240	60		236.68-240.64	Ash Tuff	cbt 5% qt 3% mt 2% Cl ±5	py tr cp tr	5	2							240

N C G — DRILL CORE LOG

Logged by: P.R. Date: 26/01/90 Sampled by: Date:

Drill Hole No.: GWS- 90-16
Page 26 of 26; From 240 To 245.67
Project: Great Western Star

Depth	Graphics: Struct	Graphics: Log	Interval	Lithology	Alteration	Mineralization	Color Index	Magnetism	x Pyrite	x CPY	Au opt	Ag opt	Cu %	Zn %	Sample Number
240			236.68-240.64 (cont.)	Medium grey, very fine volcanic ash. Locally a few lapilli-size fragments, probably pumice. Qtz and cbt as 1-5 mm veinlets; most // ↓, a few ptygmatically folded. Traces py + cp in qt + cbt veins.			5	2	tr	tr					240
241											.001	.02	.013	.010	10463
242			240.64-245.	Volcanic breccia	kspar 50% cbt 20% qt 20% mt 2%	py 1% cp ¼%			1	¼					242
243				Brx and fine ash interbedded on decimetric scale. Brx preferentially altered, with fgmts pale brownish or pinkish grey. Matrix cbt or opaque white qt. Mt. as patches + seams; cp dissem or assoc. with mt.				2			.001	.01	.02	.020	10464
244									1						244
245	70							2		¼	.001	.06	.01	.010	10465
			245-245.67	Volcanic breccia	kspar 20% qt 10% cbt 20% mt 2%	py 1% cp mil									245.67
246				Less altered; original lithologic differentiation of fgmts apparent. Resembles 206.08-227.69.											
247															
248			245.67	= EOH.											
249															
250															