60001561

Mining District File Summary Sheet

DISTRICT	Rosebud
DIST_NO	4010
COUNTY If different from written on document	Pershing
TITLE If not obvious	Rosebud Drill Hole File - Hole No. D-113-95
AUTHOR	C. Muerhoff; S. King; K Allen
DATE OF DOC(S)	1995
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Hecla Mining Co. South Zone
COMMODITY If not obvious	gold silver
NOTES	Drill log; geology; assay; total depth 219' handwritten notes 10p.

Keep docs at about 250 pages if no oversized maps attached
(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

SS: DD 5/29/08
Initials Date
DB: mah
Initials Date
SCANNED: NV Blue
Initials Date

Revised: 1/22/08

D-113-95

60001561 4010

6000 1561

Hecla MINING COMPANY

- quartz, chalcedony, silicification
- faults, fractures, joints
- FeO_X
- sulfide
- calcite, carbonate
- argillization, white clays
- propylitization
- potassic alteration
- chlorite, chloritic clays

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-113-95	LOCATION	South Zone / 825N
PAGE 1 OF 4		NORTHING	2,203,861.648
DATE	11/13/95	EASTING	481,709.076
LOGGED BY	KBA	ELEVATION	4652.067
SCALE	1" = 10'	AZIMUTH	Collar: 123.5° (S56.5°E)
TOTAL DEPTH	219'	INCLINATION	Collar: -23°

REMARKS

Drilled from decline @ station 15½

Northwest Drilling - Hagby On-ram 1000

NDBGM core (2.2" diameter)

110': 124° (S56°E) 219': 123° (S57°E)

110': -23.5° 219': -24°

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		0- '- LBT. 0-14.3'- Moderately hard, heterolithic, moderately potassically altered, matrix supported, volcanic breccia. Clasts appear to be "stretched" and or "compressed" as in an ash-flow tuff. Clasts are sub-rounded, ≈60% clasts - 40% matrix, ≈ 90% lapilli - 10% block sized clasts, and composed of planar laminated and massive ash-tuffs. Lt pink in color 14.3-20.7'- Moderately hard, fine-grained, massive, slightly planar laminated ash-tuff. Faint laminations @ 20° to CA. Possibly a block sized clast? Medium pink in color 20.7-21'- Possible fault? 21-42.4'- Moderately hard, heterolithic, moderately potassically altered, matrix supported, volcanic breccia. Clasts are sub-rounded to sub-angular, ≈ 70% clasts - 30% matrix, ≈ 75% lapilli - 25% block sized clasts, and composed of massive and planar laminated ash-tuffs. Lt pink in color w/ areas of matrix that are lt grey in color due to disseminated pyrite. Contains < 1% bk brown aphanitic tuff or mud clasts. 42.4-66.4'- Moderately hard to hard, heterolithic, moderately potassically altered w/ minor propylitic alteration of clasts, matrix supported, volcanic breccia. Lt pink matrix w/ buff to cream to lt green clasts. Clasts are dominantly sub-rounded w/ minor amounts sub-angular, ≈ 80% clasts - 20% matrix, ≈ 85% lapilli - 15% block sized clasts, and are composed of massive and planar laminated ash tuffs, and < 1% mm sized bk. brown aphanitic ash or mud clasts.	10 20 30 40 50	CA WK CA WK	0-14.3'- Calcite + marcasite veinlets & fractures are common 1) 50-60° to CA ≈ 3-4/foot ≈ 2-4mm wide 2) 30-40° to CA ≈ 3/foot ≈ 2-4 mm wide 3) ≈ 80° to CA ≈ .5/foot 14.3-20.7'- Marcasite ± $CaCO_3$ fractures common ≈ .5mm wide. 1) @ 10° to CA ≈ .2/foot 2) @ 20-30° to CA ≈ .5/foot 3) @ 40-60° to CA ≈ 3/foot 4) @ 70-80° to CA ≈ 3/foot 20.7-21'- Calcite + marcasite healed fault breccia. 21-42.4'- Calcite + SiO_2 veinlets + marcasite ± pyrite ± cpy? Pyrite & cpy? appear to partially replace marcasite? These fractures range in size from .5mm to 10mm. 1) @ 70-80° to CA ≈ 3-4/foot 2) @ 30-40° to CA ≈ 2-3/foot The 30-40° set appears to offset the 70°-80° set of fractures. (Not always). 42.4-48.4'- Quartz + marcasite ± pyrite ± white clay fractures common. ± barite 1) @ 70-80° to CA ≈ 5-6/foot. 2) @ ≈ 40° to CA ≈ 2-3/foot. These veinlets & fractures are up to ¼" wide. 48.4-56.4'- SiO_2 + marcasite ± pyrite ± barite fractures & veinlets ⇒ 1) @ 80° to CA ≈ 2-3/foot 2) @ ≈ 40° to CA ≈ 1/foot 3) @ ≈ 20° to CA ≈ .2/foot	0-14.3'- Potassically altered w/ disseminated pyrite and marcasite to 10%. Common calcite + marcasite veinlets & stockwork. Minor lt green clay along fractures 14.3-20.7'- Potassically altered w/ disseminated pyrite up to 10%. 20.7-21'- Fault? Breccia healed by $CaCO_3$ + marcasite ± pyrite ± Ag-sulfosalts? (black fine-grained mineral) 21-42.4'- Moderate potassic alteration and minor to moderate silicification (flooding & fracture fill). Disseminated pyrite up to 15%. Calcite + SiO_2 w/ marcasite + pyrite veinlets & stockwork moderately common. 42.4-48.4'- Moderate potassi alteration and moderate silicification (flooding & fracture fill). Disseminated pyrite up to 15%. Quartz (chalcedonic, lt grey) + marcasite veinlets common w/ open space marcasite blades ± white clay ± barite. Marcasite blades are coated w/ black material? Some of the marcasite appears to be partially replaced by pyrite. Calcite absent. 48.4-56.4'- Same as 42.4'-48.4', except lower density of silica-marcasite veinlets/fractures. No $CaCO_3$ & white clay.

ANALYTICAL DATA (opt)

FROM	TO	W	Au	Ag	Au2	Au Gray ~~AGZ~~
0	5	5'	0.033	0.17		
5	10	5'	0.210	0.44		0.238
10	14.3	4.3'	0.079	0.16		
14.3	18	3.7'	0.353	0.77		0.318
18	20.7	2.7'	0.438	10.00		0.506
20.7	21	0.3'	0.765	1.95		0.792
21	25	4'	7.210	26.80		8.480
25	30	5'	0.271	1.91		0.320
30	35	5'	0.198	0.25		0.198
35	40	5'	0.066	1.04		
40	42.4	2.4'	0.028	0.26		
42.4	45	2.6'	0.865	1.53		0.940
45	48.4	3.4'	2.110	3.20		2.170
48.4	52.1	3.7'	0.178	0.62		0.208

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%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		66.4-69.2'- MODERATELY SOFT, LT. PINK, FINE-GRAINED, MASSIVE to VERY SLIGHTLY PLANAR LAMINATED ASH-Tuff. PLANAR LAMINATIONS @ ≈ 60° to CA. THIS Could BE A LARGE BLOCK CLAST W/IN THE BRECCIA? IT ALSO APPEARS TO BE THE PINK MATRIX MATERIAL OF SOME OF THE MATRIX SUPPORTED BRECCIAS AND CONTAINS <1% of THE DK BROWN SMALL LAPILLI SIZED ASH OR MUD CLASTS. 69.2-73.6'- MODERATELY SOFT to MODERATELY HARD, MONOLITHIC?, LT. PINK, POTASSICALLY ALTERED, MATRIX SUPPORTED, VOLCANIC BRECCIA. CLASTS ARE SUB-ROUNDED & "STRETCHED"?, ≈ 70% LAPILLI - 30% BLOCK SIZED, ≈ 60% CLASTS - 40% MATRIX, AND COMPOSED OF MINOR PLANAR LAMINATED ASH-Tuffs. 73.6-84.2'- MODERATELY SOFT to MODERATELY HARD, FINE- to COARSE-GRAINED ASH w/MODERATE PLANAR LAMINATED ASH-Tuff. LT PINK IN COLOR POTASSICALLY ALTERED. Contain RARE DK. BROWN ASH OR MUD CLASTS ≈ 1" IN SIZE. 84.2-85.6'- MODERATELY SOFT, POTASSICALLY & ARGILLICALLY ALTERED BRECCIA. PROBABLY ASSOCIATED w/ STRUCTURE @ 84' DK PINK to LT REDDISH-BROWN IN COLOR. 85.6-100'- MODERATELY SOFT to MODERATELY HARD, POTASSICALLY ALTERED, MONOLITHIC, MATRIX SUPPORTED, VOLCANIC BRECCIA. LT PINK MATRIX w/ LT GREEN to Buff COLORED CLASTS. CLASTS ARE SUB-ROUNDED, 50% MATRIX - 50% CLASTS, 90% LAPILLI - 10% BLOCK SIZED, AND ARE COMPOSED OF MASSIVE OR POSSIBLY WEAKLY PLANAR LAMINATED ASH-Tuff. (PINK MATRIX BX). 100-153.2'- MODERATELY HARD to HARD, Buff to LT GREEN IN COLOR, POTASSICALLY ALTERED w/minor PROPYLITIZATION, FINE-GRAINED, MASSIVE (VERY MINOR PLANAR LAMINATIONS) ASH-Tuff. ALT & MIN 100-112.3'- MODERATELY PROPYLITIZED & POTASSICALLY ALTERED WITH 5% DISS Py. Common CaCO3 + SiO2 VEINLETS w/MARCASITE ± PYRITE ± CPy ± WHITE CLAY ± LT GREEN CLAY. 112.3-114.3'- AN ≈ 4" WIDE CaCO3 RICH PEBBLE DIKE? CaCO3 VEINLETS Contain MARCASITE ± PYRITE ± CPy DISSEMINATED PYRITE up to 5%, THE MATRIX SUPPORTED BRECCIA'S MATRIX CONSISTS of A HARD' CLAY + CaCO3. THIS "DIKE"? IS AT ≈ 10° to CA & EFFECTS ≈ 2' of CORE. 114.3-124.2'- PROPYLITIZED w/MINOR POTASSICALLY ALTERED w/ ≈ 5% DISSEMINATED PYRITE. Common CaCO3 + SiO2 VEINLETS w/ MARCASITE + PYRITE ± CPy ± TRACE Amounts of BLACK Ag-Sulfosalt?? MED to DK GREEN CHLORITIC CLAY COMMON ALONG FRACTURES.	60 70 80 90 100 110 120	CA UNK CA UNK 60° 60° 65° 65° 65 65 40 40 50 50 50° 50°	56.4-66.4'- CaCO3 + MARCASITE ± PYRITE FRACTURES @ ≈ 70° to CA ≈ 1/FOOT. SiO2 + MARCASITE ± PYRITE ± TRACE Amounts of WHITE CLAY ± LT GREEN CLAY @ 1) 70-80° to CA ≈ 3-4/FOOT 2) 30-50° to CA ≈ 3/FOOT } 1-4 mm WIDE 66.4-69.2'- CALCITE + SiO2 ± MARCASITE ± LT GREEN CLAY VEINLETS & FRACTURES 1) @ 50-70° to CA ≈ 3-4/FOOT AND MAY BE ALONG MINOR LAMINATIONS 2) @ ≈ 10-20° to CA ≈ 0.2/FOOT. 69.2-73.6'- CaCO3 ± SiO2 + MARCASITE ± PYRITE ± WHITE CLAY FRACTURES ⇒ 1) @ 60-70° to CA ≈ 4-5/FOOT 2) @ 30° to CA ≈ 0.2/FOOT 73.6-77.2'- CaCO3 ± SiO2 VEINLETS w/ MARCASITE ± PYRITE. @ 60-70° to CA ≈ 1-2/FOOT 77.2-77.8'- POSSIBLE SILICIFIED FAULT? BX. 77.8-82.6'- SILICA + CLAY + MARCASITE FRACTURES Common ALONG LAMINATION PLANES, ≈ 5-6/FOOT @ ≈ 40-60° to CA. 82.6-84'- SILICA CRACKLE BX ASSOC w/ FAULT? AT 84'. 84-84.2'- 84.2-85.6'- FAULT BRECCIA? 85.6-100'- CaCO3 + SiO2 VEINLETS w/ MARCASITE ± PYRITE @ ≈ 0-20° to CA ≈ 1/FOOT ≈ 30-40° to CA ≈ 2/FOOT ≈ 50-70° to CA ≈ 2-3/FOOT. 100-112.3'- CaCO3 + SiO2 VEINLETS w/MARCASITE ± PYRITE Common. ⇒ @ 0-20° to CA ≈ 1/FOOT @ 30-40° to CA ≈ 2-3/FOOT @ 50-70° to CA ≈ 2-3/FOOT 112.3-114.3'- CALCITE MARGINS of "DIKE" @ ≈ 10° to CA. MARCASITE + CaCO3 @ 40° to CA ≈ 1/FOOT. 114.3-124.2'- CALCITE + SiO2 VEINLETS w/ MARCASITE ± PYRITE Common. MED-DK GREEN CHLORITIC CLAY ALSO Common. @ 30° to CA ≈ 2-3/FOOT. @ 50° to CA ≈ 2-3/FOOT.	56.4-66.4'- MODERATELY SILICIFIED w/MODERATE POTASSIC & MINOR PROPYLITIC ALTERATION. MINOR LT. GRN CLAY ALONG FRACTURES. SiO2 (CHALCEDONY) AND CaCO3 VEINLETS Common w/ MARCASITE, ± PYRITE ± TRACE Amounts of WHITE CLAY. SOME of the MARCASITE APPEARS to BE PRETRACTLY REPLACED by CPy? DISS PYRITE up to 10% 66.4-69.2'- POTASSICALLY ALTERED w/DISSEMINATED PYRITE up to 5% MINOR LT GREEN CLAY. MINOR to MODERATE CaCO3 + MARCASITE AND SiO2 + MARCASITE VEINLETS. 69.2-73.6'- POTASSICALLY ALTERED w/ ≈ 5% DISSEMINATED PYRITE. INTERVAL Contains DISSEMINATED CaCO3 + CaCO3 VEINLETS + MARCASITE ± PYRITE ± WHITE CLAY. ALSO Contains MINOR SiO2 VEINLETS. 73.6-77.2'- POTASSICALLY ALTERED w/ MINOR SILICIFICATION AND ≈ 5% DISSEMINATED PYRITE. INTERVAL IS "CRACKLE" BRECCIATED HEALED w/ VERY LT GREEN CLAY AND/OR SILICA. COMMON CALCITE ± SiO2 VEINLETS w/ MARCASITE ± PYRITE FILLED FRACTURES. CALCITE APPEARS to HAVE FOLLOWED PREEXISTING SILICA FRACTS & VEINLETS. 77.2-77.8'- SILICIFIED CRACKLE BRECCIA w/ OPEN SPACE & MINOR MARCASITE. 77.8-82.6'- POTASSICALLY ALTERED w/MINOR SILICA CRACKLE BX, AND MODERATE SILICA + MARCASITE VEINLETS CaCO3 ABSENT AND MODERATELY COMMON VERY LT GREEN to MILKY COLORED CLAY VEINLETS. MINOR WHITE CLAY. 82.6-84'- SILICA MATRIX SUPPORTED CRACKLE BX ASSOCIATED w/ PROBABLE STRUCTURE @ 84'. INTERVAL Contains FINE-GRAINED MARCASITE ± PYRITE. 84-84.2'- POTASSICALLY ALTERED w/ DISS PYRITE up to 10% 84.2-85.6'- ARGILLIZED & POTASSICALLY ALTERED FAULT? BRECCIA ASSOCIATED w/ FAULT @ 84' MODERATE WHITE & LT GREEN CLAY. MINOR MARCASITE. DISSEMINATED PYRITE up to 10%. 85.6-100'- POTASSICALLY ALTERED w/ MINOR PROPYLITIZATION of CLASTS. DISS PYRITE up to 7%. Common CaCO3 VEINLETS up to ½" WIDE w/ MARCASITE ± PYRITE ± CPy. MINOR SiO2 VEINLETS w/ MARCASITE.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag2~~ Au Grav
52.1	56.4	4.3'	0.028	0.28		
56.4	61.4	5'	0.026	0.16		
61.4	66.4	5'	0.226	0.88		0.280
66.4	69.2	2.8'	1.500	2.30		1.470
69.2	73.6	4.4'	0.034	0.14		
73.6	77.2	3.6'	0.058	0.65	0.066	
77.2	77.8	0.6'	0.842	1.24		0.802
77.8	82.6	4.8'	0.383	0.59		0.348
82.6	84	1.4'	0.028	1.92		
84	84.2	0.2'	0.085	0.34		
84.2	85.6	1.4'	0.206	0.36		0.220
85.6	90	4.4'	0.483	0.59		0.450
90	95	5'	0.530	0.78		0.545
95	100	5'	0.565	1.02		0.660
100	105	5'	0.446	0.48		0.414
105	109.2	4.2'	1.040	1.44		1.030
109.2	112.3	3.1'	0.244	0.60		0.296
112.3	114.3	2'	0.780	1.56		0.933
114.3	119.3	5'	0.578	0.93		0.637

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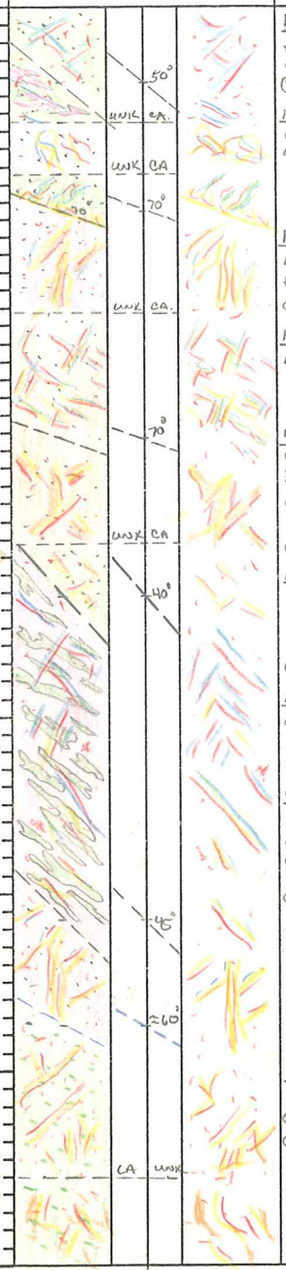
%REC	RQD	LITHOLOGY	FT
		153.2-171.6'- MODERATELY HARD, FINE-GRAINED, LT PINK w/MINOR LT GREEN, POTASSICALLY ALTERED, ASH-TUFF. THIS UNIT HAS A MOTTLED TEXTURE AND APPEARS TO BE ≈ PLANAR LAMINATED. Contains ± 1% DK. BROWN FRAGMENTS OR CLASTS OF FINE-GRAINED ASH OR MUD up to 1/4" WIDE.	
		171.6-177.5'- MODERATELY HARD, FINE-GRAINED, Buff to LT. PINK, POTASSICALLY ALTERED ASH-TUFF. VERY MINOR PLANAR LAMINATED.	
		177.5-206.6'- MODERATELY HARD to HARD, COARSE (ASH) GRAINED, LT GREEN to Buff colored, MINOR PLANAR LAMINATED ASH-TUFF. THIS INTERVAL OR UNIT HAS THE APPEARENC of THE LEOPARD SKIN TUFF IN THAT THE COARSE ASH SIZED PARTICLES ARE PROPYLITIZED AND/OR ARGILLIZED to WHITE OR CHLORITIC CLAY. THIS UNIT LOOKS LIKE A FINE-GRAINED "LST"- LEOPARD SKIN WANNA BE.	

GRAPHIC LOG



STRUCTURE	ALTERATION AND MINERALIZATION
124.2-126.6'- Clay + $CaCO_3$ + MARCASITE ± PYRITE FRACTURES @ ≈ 40-50° to CA ≈ 1/FOOT @ ≈ 80° to CA ≈ 0.5/FOOT.	124.2-126.6'- PROPYLITICALLY ALT OVERPRINT, w/ ARGILLIZATION w/up to 5% DISSEMINATED PYRITE. CLAY (LT GREEN) AND $CaCO_3$ veinlets w/ MARCASITE + PYRITE ± CPY MODERATELY Common.
126.6'-129.4'- CALCITE + SiO_2 ± WHITE CLAY Stockwork & veinlets w/MARCASITE ± PYRITE. 1) RANDOM Stockwork 2) @ 30-40° to CA ≈ 0.5/FOOT 3) @ 80° to CA ≈ 0.2/FOOT	126.6-129.4'- POTASSICALLY ALTERED w/ MINOR PROPYLITIZATION AND ABUNDANT $CaCO_3$ + SiO_2 Stockworks & veinlets Containing MARCASITE ± PYRITE w/ WHITE to LT GREEN CLAY.
129.4-131.6'- Quartz + MARCASITE RANDOM Stockwork MINOR. $CaCO_3$ + GREEN CLAY + MARCASITE ± PYRITE @ 30-40° to CA ≈ 2-3/FOOT.	129.4-131.6'- PROPYLITIZED w/up to 5% DISSEMINATED PYRITE. MINOR Quartz + MARCASITE Stockwork. MODERATE $CaCO_3$ + GREEN CLAY FRACTURES w/ MARCASITE ± PYRITE
131.6-137.2'- Quartz + Clay + MARCASITE ± PYRITE FRACTURES @ 30-40° to CA ≈ 2/FOOT, @ 0-20° to CA ≈ 2/FOOT	131.6-137.2'- POTASSICALLY ALTERED w/up to 5% DISS PYRITE. Common to ABUNDANT SiO_2 + VERY LT GREEN to WHITE CLAY FRACTURES & STOCKWORKS w/ MINOR $CaCO_3$ + MARCASITE ± PYRITE. up to 1/2" WIDE.
137.2-144.2'- $CaCO_3$ + SiO_2 veinlets Containing MARCASITE ± PYRITE ± CPY + GREEN CLAY FRACTURES Common. @ 30-50° to CA ≈ 5-6/FOOT @ 0-20° to CA ≈ 1/FOOT.	137.2-144.2'- MODERATELY BLEACHED ZONE w/up to 5% DISSEMINATED PYRITE. Common THIN 2-4mm WIDE $CaCO_3$ + SiO_2 veinlets w/ MARCASITE ± PYRITE + GREEN CHLORITIC CLAY ± CPY?
144.2-150.2'- Quartz + WHITE CLAY FRACTURES w/MARCASITE ± PYRITE @ 50-60 ≈ 3/FOOT @ 30-40° to CA ≈ 2-3/FOOT @ 0-20° to CA ≈ 1-2/FOOT.	144.2-150.2'- MODERATELY ARGILLIZED w/ Common WHITE CLAY FILLED FRACTURES, Quartz + WHITE CLAY w/MINOR $CaCO_3$ veinlets w/ MARCASITE + PYRITE. MINOR PROPYLITIZATION.
150.2-153.2'- MINOR MARCASITE + Quartz FRACTURES @ 40-50° to CA ≈ 1-2/FOOT @ 20-30° to CA ≈ 1-2/FOOT.	150.2-153.2'- PROPYLITIZED w/ MINOR MARCASITE + QUARTZ FRACTURES.
153.2-171.6'- $CaCO_3$ + SiO_2 + PYRITE + MARCASITE veinlets @ @ 0-20° to CA ≈ 1/FOOT @ 30-40° to CA ≈ 2-3/FOOT @ 50-60° to CA ≈ 2-3/FOOT @ 70-80° to CA ≈ 0.5/FOOT.	153.2-171.6'- POTASSICALLY ALTERED w/ MINOR PROPYLITIZATION, DISSEMINATED PYRITE up to 10%. Common $CaCO_3$ + SiO_2 veinlets up to 1/2" WIDE w/ PYRITE + MARCASITE
171.6-177.5'- CHALCEDONY + PYRITE + MARCASITE ± $CaCO_3$ veinlets @ 1) 50° to CA ≈ 2-2/FOOT 2) 30° to CA ≈ 2-3/FOOT 3) ≈ 10° to CA ≈ 1/FOOT - THIS CROSS cuts & offsets OTHER two sets.	171.6-177.5'- POTASSICALLY ALTERED w/ DISS PYRITE up to 2%, CHALCEDONY ± $CaCO_3$ + PYRITE & MARCASITE FILLED FRACTURES Common.
177.5-186'- CHALCEDONY + PYRITE + MARCASITE FRACTURES @ 30-40° to CA ≈ 1-2/FOOT @ 70-80° to CA ≈ 1/FOOT.	177.5-186'- MODERATELY PROPYLITIZED w/ DISSEMINATED PYRITE to 4%. Silica CHALCEDONY Stockwork & CRACKLE BX Common. MINOR OPEN SPACE. PYRITE & MARCASITE veinlets MODERATE

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag2~~ AuGrav
119.3	124.2	4.9'	0.193	0.33		0.193
124.2	126.6	2.4'	0.261	0.54		0.287
126.6	129.4	2.8'	0.904	1.35		0.943
129.4	131.6	2.2'	0.457	1.13		0.500
131.6	134	2.4'	2.070	4.44		2.040
134	137.2	3.2'	5.300	14.96		5.400
137.2	141	3.8'	0.486	1.44		0.535
141	144.2	3.2'	0.134	0.55		0.126
144.2	147	2.8'	1.540	2.64		1.620
147	150.2	3.2'	14.400	23.20		13.900
150.2	153.2	3'	0.093	0.30		
153.2	156	2.8'	0.527	1.26		0.622
156	161	5'	0.337	0.53		0.364
161	166	5'	0.267	0.56		0.294
166	171.6	5.6'	0.106	0.27		
171.6	177.5	5.9'	0.128	0.36		0.211
177.5	181	3.5'	0.181	0.40		
181	186	5'	0.032	0.17		
186	191	5'	0.020	0.16		

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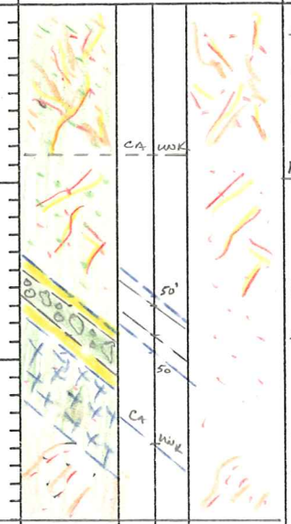
%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		206.6-207' - Silicified Fault 207-208.7' - moderately hard, propylitized, lt green, heterolithic conglomerate. Looks like TDS. Clasts are rounded to sub-rounded and composed of fine-grained, aphanitic ash tuffs & black metasedS "Auld Lang Syne"? 208.7-209.9' - Silicified South-Ridge-Fault. Fault @ 209.9'. 209.9-219' TD - Dozer tuff? Fine-grained almost aphanitic probably rhyolitic in composition.	200 210 219 TD.		186-198.5' - Chalcedony ± white clay + pyrite + marcasite veinlets & fractures ⇒ 1) Random stockwork 2) @ 60° to CA (probably lamination) @ ≈ 2-5/foot. 198.5-206.6' - Chalcedonic silica w/pyrite + marcasite @ 30-40° to CA ≈ 3-4/foot @ 50-60° to CA ≈ 3/foot @ 0-20° to CA ≈ 1-2/foot. 206.6-207' - Silicified fault. 207-208.7' - No fractures. 208.7-209.9' - South-Ridge Fault. 909.9-214.8' - Rubble zone 214.8-219' - White clay & marcasite fractures @ 40-50° to CA ≈ 1-2/foot.	186-198.5' - Propylitized w/ abundant chalcedonic quartz stockworks w/ white clay. Diss pyrite up to 7%. 198.5-206.6' - Moderately propylitized. Common chalcedonic quartz w/ trace amounts of white clay. Chalcedonic quartz veinlets contain common pyrite + marcasite. 206.6-207' - White to bk. grey quartz w/ minor diss pyrite. S.R.F. 207-208.7' - Propylitized w/ silica flooding. 208.7-209.9' - Massive silica & silica breccia. Minor diss pyrite. 1" clay gouge @ 909.7-909.8'. 209.8-214.8' - Rubble zone w/chalcedonic stockwork & pyrite + marcasite up to 2%. 214.8-219' - Bleached w/ minor silica veining, clay + marcasite filled fractures moderate.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag~~ AuGrav
191	195	4'	0.089	0.39		
195	198.5	3.5'	0.284	0.88		0.325
198.5	202	3.5'	0.123	0.32		
202	206.6	4.6'	0.100	0.22		
206.6	207	0.4'	0.016	0.87		
207	208.7	1.7'	0.017	0.56		
208.7	209.9	1.2'	0.023	0.08		
209.9	214.8	4.9'	0.006	0.06		
214	219 TD	5'	0.003	0.08		

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP036550

American Assay Laboratories

P.O. BOX 11530
RENO, NV,,USA
Ph.1-702-356-0606, Fax.1-702-356-1413

HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF
:
:
:

CLIENT REFERENCE No: D-113-95 RECEIVED : 20 NOV 1995

No. SAMPLES : 61 REPORTED : 8 DEC 1995

MAIN SAMPLE TYPE : DRILL CORE

NEVADA LEGISLATIVE DISCLAIMER :-
The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him and based on an evaluation of all engineering data which is available concerning any proposed project.

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA60	15%	OPT	0.001
Au(RZ)	FA60	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Sue King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP036550

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-113-95

REPORTED : 8 DEC 1995

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-113-95 00-05	0.033			0.17
D-113-95 05-10	0.210		0.238	0.44
D-113-95 10-14.3	0.079			0.16
D-113-95 14.3-18	0.353		0.318	0.77
D-113-95 18-20.7	0.438		0.506	10.00
D-113-95 20.7-21	0.765		0.792	1.95
D-113-95 21-25	7.210		8.480	26.80
D-113-95 25-30	0.271		0.320	1.91
D-113-95 30-35	0.198		0.198	0.25
D-113-95 35-40	0.066			1.04
D-113-95 40-42.4	0.028			0.26
D-113-95 42.4-45	0.865		0.940	1.53
D-113-95 45-48.4	2.110		2.170	3.20
D-113-95 48.4-52.1	0.178		0.208	0.62
D-113-95 52.1-56.4	0.028			0.28
D-113-95 56.4-61.4	0.026			0.16
D-113-95 61.4-66.4	0.226		0.280	0.88
D-113-95 66.4-69.2	1.500		1.470	2.30
D-113-95 69.2-73.6	0.034			0.14
D-113-95 73.6-77.2	0.058	0.066		0.65
D-113-95 77.2-77.8	0.842		0.802	1.24
D-113-95 77.8-82.6	0.383		0.348	0.59
D-113-95 82.6-84.2	0.028			1.92
D-113-95 84-84.2	0.085			0.34
D-113-95 84.2-85.6	0.206		0.220	0.36

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SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-113-95 85.6-90	0.483		0.450	0.59
D-113-95 90-95	0.530		0.545	0.78
D-113-95 95-100	0.565		0.660	1.02
D-113-95 100-105	0.446		0.414	0.48
D-113-95 105-109.2	1.040		1.030	1.44
D-113-95 109.2-112.3	0.244		0.296	0.60
D-113-95 112.3-114.3	0.780		0.933	1.56
D-113-95 114.3-119.3	0.578		0.637	0.93
D-113-95 119.3-124.2	0.193		0.193	0.33
D-113-95 124.2-126.6	0.261		0.287	0.54
D-113-95 126.6-129.4	0.904		0.943	1.35
D-113-95 129.4-131.6	0.457		0.500	1.13
D-113-95 13.6-134	2.070		2.040	4.44
D-113-95 134-137.2	5.300		5.400	14.96
D-113-95 137.2-141	0.486		0.535	1.44
D-113-95 141-144.2	0.134		0.126	0.55
D-113-95 144.2-147	1.540		1.620	2.64
D-113-95 147-150.2	14.400		13.900	23.20
D-113-95 150.2-153.2	0.093			0.30
D-113-95 153.2-156	0.527		0.622	1.26
D-113-95 156-161	0.337		0.364	0.53
D-113-95 161-166	0.267		0.294	0.56
D-113-95 166-171.6	0.106			0.27
D-113-95 171.6-177.5	0.128			0.36
D-113-95 177.5-181	0.181		0.211	0.40

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SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-113-95 181-186	0.032			0.17
D-113-95 186-191	0.020			0.16
D-113-95 191-195	0.089			0.39
D-113-95 195-198.5	0.284		0.325	0.88
D-113-95 198.5-202	0.123			0.32
D-113-95 202-206.6	0.100			0.22
D-113-95 206.6-207	0.016			0.87
D-113-95 207-208.7	0.017			0.56
D-113-95 208.7-209.9	0.023			0.08
D-113-95 209.9-214.8	0.006			0.06
D-113-95 214.8-219	0.003			0.08

HECLA MINING COMPANY - ROSEBUD PROJECT
1995 SOUTH ZONE FILL-IN DRILLING PROGRAM

Date: 11/15/95

HOLE ID: D-113-95

By: KMA

Sample ID	Description	Mass (g)	H2O Level (cc) Beginning	H2O Level (cc) Ending	Displacement (cc)	Sp. Grav. (g/cc)
75'	MOD PLANAR LAMINATED ASH-TUFF	703	1160	1460	300	2.34
77.2-77.8	SILICIFIED CRACKLE BX W/OPEN SPACE.	785.5	1000	1315	315	2.49
84.6	ARGILIZED & POTASSICALLY ALT. BX	969.5	1020	1420	400	2.42
93	POTASSICALLY ALT. VOLC BX.	727.5	1120	1420	300	2.43
109	POTASSICALLY ALT MASSIVE TUFF.	761	980	1280	300	2.54
113	CALCITE PEBBLE DIKE?	839	980	1320	340	2.47
125.8	PROPYLITIZED & ARGILLIZED MASSIVE TUFF.	807.5	1010	1345	335	2.41
133.5	POTASSICALLY ALTERED MASSIVE TUFF W/ CLAY FRACTURES	760	960	1265	305	2.49
156.5	POTASSICALLY ALTERED MOTTLED ASH-TUFF.	983	1040	1430	390	2.52
176	POTASSICALLY ALTERED SLIGHTLY PLANAR LAMIN ASH TUFF.	700.5	1030	1320	290	2.42

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HECLA MINING COMPANY - ROSEBUD PROJECT
1995 SOUTH ZONE FILL-IN DRILLING PROGRAM

Date: 11/15/95

HOLE ID: D-113-95

By: [illegible]

Sample ID	Description	Mass (g)	H2O Level (cc) Beginning	H2O Level (cc) Ending	Displacement (cc)	Sp. Grav. (g/cc)
180'	PROPYLITIZED LST WANNABE W/ SILICA STOCKWORK.	877	1080	1435	355	2.47
196'	PROPYLITIZED LST WANNABE W/ SILICA & WHITE CLAY STOCKWORK	631	890	1140	250	2.52
206.8	SILICA	594.5	980	1200	220	2.70
207.5	TOS - SILICIFIED	708	1080	1360	280	2.53
218.5	FINE-GRAINED APHANITIC AUZER tuff.	1007.5	1075	1510	435	2.32