60001564

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-116-95
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 120' handwritten notes 4p.

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: mch
Initials Date
SCANNED: NV dve
Initials Date

Revised: 1/22/08

D-116-95 SOUTH ZONE / 800N

60001564 4010

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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-116-95	LOCATION	South Zone Station 15-800N
PAGE 1 OF 2		NORTHING	2,203,833.928
DATE	10/27/95	EASTING	481,713.841
LOGGED BY	KDA	ELEVATION	4651.964
SCALE	1" = 10'	AZIMUTH	collar: 124° (S56°E) 60': 124.5° (S55.5°E) 120': 125° (S55°E)
TOTAL DEPTH	120'	INCLINATION	collar: -21° 60': -22° 120': -22.5°

REMARKS

NW Drilling - Hagby On-ram 1000

NDBGM core (2.2" diameter)

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		0-120' - LBT. 0-4.5' - Moderately hard, fine-grained, slightly potassically altered, moderately planar flow laminated ash tuff. Lt pink in color. Could be a block sized clast w/in breccia described below. Flow laminations @ 10-20° to core axis. 4.5-11.5' - Moderately soft to moderately hard, potassically altered, lt pink, heterolithic, matrix supported volcanic breccia. Contact @ 4.5' is gradational. Clasts are sub-rounded and composed of 99% planar laminated? tuff (cream in color) and 1% dk brown fine-grained massive tuff. Lapilli in size. 11.5-18.3' - Moderately hard, potassically altered, massive, fine-grained tuff w/ up to 1% of the dk brown fine-grained massive tuff fragments or clasts up to 5mm in size. Contact @ 11.5' is gradational. This interval may be the matrix material to the breccia described @ 4.5-11.5'. 18.3-62.8' - Moderately soft to moderately hard, potassically altered to minor bleaching, lt pink to buff in color, heterolithic, matrix supported, volcanic breccia. Clasts are sub-rounded to sub-angular, 95% lapilli sized 5% block sized, and are composed of 2 different massive fine-grained ash tuffs, 1 planar (moderately) laminated ash-tuff, and up to 1% of the dk brown fine-grained massive tuff (lapilli size). The planar laminated clasts are common from 43-62.8'. They may be common between 18.3-43' and only appear common between 43-62.8' due to the bleaching of the 43-62.8' interval. Contact @ 18.3 & 43' are gradational.	10 20 30 40 50	CA UNK CA UNK CA UNK CA UNK	0-4.5' - Calcite + marcasite filled fractures @ ≈ 70° & 20° to CA. 70° ≈ 2/foot 20° 2/foot also contains a random stockwork. 4.5-11.5' - Marcasite + pyrite veinlets @ 1) 50° to CA ≈ 1/foot 2) 30° to CA ≈ 1/foot. 3) 80° to CA ≈ 0.5/foot 11.5-18.3' - CaCO3 + marcasite + pyrite fractures @ 1) 20° to CA ≈ 1/foot 2) 30° to CA ≈ 2-3/foot 3) 40-50° to CA ≈ .5/foot 4) 80° to CA ≈ .2/foot 18.3-43' - Marcasite ± CaCO3 ± pyrite ± barite ± quartz filled fractures common. 1) 0-20 to CA ≈ .5/foot 2) 30-40° to CA ≈ 4/foot 3) 60-80° to CA ≈ 3/foot 43-62.8' - Marcasite ± pyrite ± barite ± CaCO3 fractures very common. 1) 0-20° to CA 1/foot. Appears to cut other sets (sometimes). 2) 30-40° to CA 6/foot 3) 60-80° to CA 6-7/foot	0-4.5' - Potassically altered. Common CaCO3 and marcasite veinlets. Disseminated pyrite + marcasite up to 10%. 4.5-11.5' - Potassically altered. Minor CaCO3 veinlets w/ fine-grained sulfide? Marcasite + pyrite stockwork/veinlets common. Disseminated pyrite + marcasite up to 15%. 11.5-18.3' - Potassically altered w/ common CaCO3 + marcasite + pyrite fractures. Disseminated pyrite and marcasite to 15%. Trace amounts of white clay along fractures. 18.3-43' - Potassically altered w/ common CaCO3 + marcasite blades ± pyrite ± barite. Trace amounts of quartz. Disseminated pyrite + marcasite up to 15% lt pink in color. 43-62.8' - Bleaching over-print of potassic alteration w/ very minor silicification. Disseminated marcasite & pyrite up to 15+%. Minor amount of lt green (pale) chloritic clay. Very common marcasite ± pyrite ± barite ± CaCO3 filled fractures.

ANALYTICAL DATA (opt)

FROM	TO	W	Au	Ag	Au2	AuGrav ~~Ag2~~
0	4.5'	4.5'	0.040	0.20		
4.5'	11.5'	7'	0.207	0.27		0.204
11.5'	18.3'	6.8'	0.155	0.32		0.169
18.3'	23'	4.7'	0.298	0.74		0.220
23'	28'	5'	0.296	0.70		0.350
28'	33'	5'	0.181	0.80		0.180
33'	38'	5'	0.074	0.86		
38'	43'	5'	0.022	0.14		
43'	48'	5'	0.023	0.20		
48'	53'	5'	0.028	0.97		

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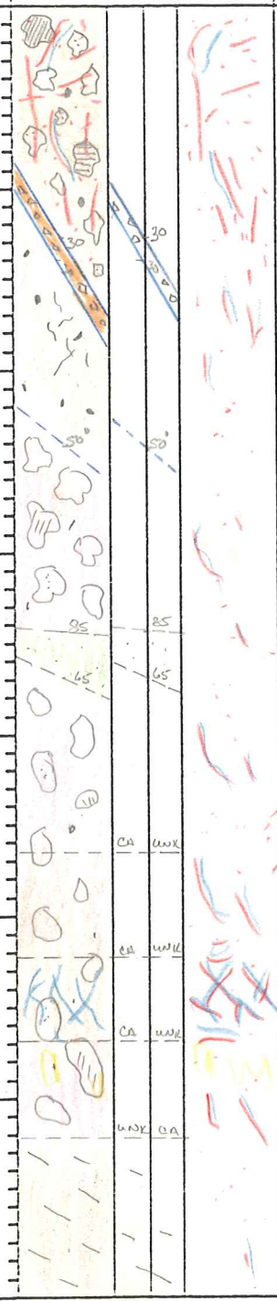
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		64-74.2' - MODERATELY HARD to MODERATELY SOFT, FINE-GRAINED, LT to PALE GREENISH GREY, POSSIBLY MINOR PLANAR LAMINATED, ASH TUFF. Contains <1% of the DK-BROWN, FINE-GRAINED MASSIVE TUFF (LAPILLI IN SIZE). MAY BE SIMILAR to THAT @ 11.5-18.3' IN THAT IT COULD BE THE MATRIX MATERIAL OF THE BRECCIA UNIT ABOVE. PORTIONS of THIS INTERVAL HAS A "CRACKLE BRECCIA" TEXTURE. 74.2-84.3' - HARD to MODERATELY SOFT, POTASSICALLY ALTERED, LT PINK MATRIX AND CREAM to LT GREEN CLASTS, HETEROLITHIC, MATRIX SUPPORTED VOLCANIC BRECCIA. CLASTS ARE SUB-ROUNDED to SUB-ANGULAR, LAPILLI (98%) AND BLOCK (2%) IN SIZE, AND ARE COMPOSED OF MASSIVE to POSSIBLY VERY MINOR PLANAR LAMINATED ASH TUFFS. Contains ≈ 1% of the LAPILLI SIZED DK BROWN FINE-GRAINED MASSIVE ASH TUFF CLASTS. (PINK MATRIX BRECCIA) 84.3-87' - LT GREEN, FINE-GRAINED ASH tuff. PROBABLY BLOCK SIZED CLAST W/IN BRECCIA DESCRIBED @ 74.2-84.3'. MODERATELY SOFT. Contains up to 3% LT GREEN to LT BROWN ROUNDED CLASTS SIMILAR to the DK BROWN CLASTS DESCRIBED @ 64-74.2'. 87-112.1' - SAME VOLCANIC BRECCIA AS DESCRIBED @ 74.2-84.3'. CLASTS APPEAR to BE MORE SUB-ROUNDED to ROUNDED. 112.1-120' - MODERATELY SOFT to MODERATELY HARD, PROPYLITIZED, LT PINK, FINE-GRAINED, MODERATELY to STRONGLY PLANAR LAMINATED ASH Tuff. PLANAR LAMINATIONS @ ≈ 65° to CA. THIS INTERVAL CONTAINS THOSE SAME DK BROWN, MASSIVE ASH TUFF CLASTS, LAPILLI IN SIZE up to 1%. Contact @ 112.1 APPEARS to BE GRADATIONAL. SOME OF THESE PLANAR LAMINATIONS COULD POSSIBLY BE FIAMME. TD = 120'	60 70 80 90 100 110 120		62.8-64' - FAULT ZONE @ ≈ 30° to CA. CLAY (LT PALE GREEN) MATRIX BRECCIA. 64-74.2' - MARCASITE ± CACO3 ± WHITE CLAY ± LT. GREEN CHLORITIC CLAY FRACTURES ⇒ 1) RANDOMLY ORIENTED SET 2) 30-40° to CA ≈ 4/FOOT 3) ≈ 60° to CA ≈ 3/FOOT 4) ≈ 10-20° to CA ≈ 1/FOOT 5) ≈ 80° to CA ≈ .25/FOOT. CROSS-CUTTING RELATIONSHIP CAN NOT BE WORKED OUT. 74.2-84.3' - MARCASITE ± PYRITE ± CACO3 FRACTURES ⇒ 3 sets ≈ 70° to CA ≈ 1-2/foot ≈ 50° to CA ≈ 1-2/foot ≈ 10-20° to CA. ≈ .5/foot 84.3-87' - MARCASITE ± CACO3 FRACTURES/VEINLETS ⇒ 1) ≈ 70° to CA ≈ 1-2/FOOT cuts ALL other sets 2) ≈ 50° to CA ≈ 1/FOOT 3) ≈ 0-20° to CA ≈ 1-2/foot. 87-96.7' - CACO3 + MARCASITE ± WHITE CLAY FRACTURES ⇒ 1) RANDOM STOCKWORK 2) 30-40° to CA ≈ 1-2/FOOT (cuts other sets) 3) ≈ 70° to CA. ≈ 1-2/FOOT 4) ≈ 50° to CA. ≈ 1-2/FOOT 96.7-102.2' - CALCITE + MARCASITE ± PYRITE ± Cpy FRACTURES COMMON. @ 30° to CA ≈ 3-4/FOOT @ ≈ 70° to CA ≈ 3-4/FOOT 102.2-106.9' - CACO3 + MARCASITE ~~ver~~ veinlets. 1) RANDOM "CRACKLE Bx?" 2) @ 80° to CA ≈ 3/foot 3) @ 30° to CA ≈ 3/FOOT (cuts 80° set). 106.9-112.1' - CACO3 ± MARC ± SIOR 1) ≈ 30° to CA ≈ 1-2/FOOT 2) ≈ 80° to CA ≈ 1-2/FOOT 3) RANDOM 112.1-120' - MARCASITE FRACTURES ± WHITE & GREEN CLAY ⇒ @ ≈ 65° ≈ 10/FOOT (LAMINATION PLANES) @ ≈ 0-20° ≈ 1-2/foot @ ≈ 30-40° ≈ 1-2/FOOT cuts other sets.	62.8-64' - MINOR MARCASITE ± BARITE ± PYRITE STRINGERS. MARC. + PYRITE DISSEMINATED up to 10%. MINOR WHITE CLAY w/ MODERATE LT GREEN (PALE) CLAY. 64-74.2' - INTERVAL IS VERY SLIGHTLY PROPYLITIZED AND MINOR to MODERATELY BLEACHED. Contains MINOR LT GREEN CHLORITIC CLAY, MINOR WHITE CLAY, AND MODERATE CACO3 veinlets & stockworks. COMMON MARCASITE ± PYRITE ± CACO3 ± LT GREEN CLAY ± WHITE CLAY FILLED FRACTURES & STOCKWORKS. 74.2-84.3' - POTASSICALLY ALTERED w/ MINOR to MODERATE MARCASITE ± CACO3 ± WHITE CLAY FRACTURES. DISSEMINATED MARCASITE ± PYRITE up to 10%. 84.3-87' - SLIGHTLY PROPYLITIZED. w/ MINOR CACO3 + MARCASITE FRACTURES. 87-96.7' - POTASSICALLY ALTERED MODERATE CaCO3 + MARCASITE ± WHITE CLAY FRACTURES. DISSEMINATED MARCASITE + PYRITE up to 15%. 96.7-102.2' - POTASSICALLY ALTERED w/ MINOR BLEACHING. MODERATELY STRONG CACO3 + MARCASITE veinlets & FRACTURES. DISSEMINATED MARCASITE & PYRITE up to 10%. 102.2-106.9' - MINOR POTASSIC ALTERATION w/ MODERATE BLEACHING. STRONG CaCO3 + MARCASITE veinlets & stockworks. MINOR POSSIBLE Cpy? 106.9-112.1' - MODERATELY POTASSIC ALT. MODERATE CACO3 w/ MINOR SILICA. 112.1-120' - Potassically Alt w/ MINOR PROPYLITIZATION. Common GREEN CHLORITIC CLAY. MARCASITE FRACTURES ± WHITE CLAY

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	AuGrav
53'	58'	5'	0.110	1.48		0.112
58'	62.8'	4.8'	0.037	0.26		
62.8'	64'	1.2'	0.051	0.17		
64'	69'	5'	0.018	2.35		
69'	74.2'	5.2'	0.021	0.94	0.023	
74.2'	79'	4.8'	0.040	0.25		
79'	84.3'	5.3'	0.128	0.67		0.124
84.3'	90'	5.7'	0.039	0.39		
90'	96.7'	6.7'	0.408	2.23		0.472
96.7'	102.2'	5.5'	1.650	5.79		1.570
102.2'	106.9'	4.7'	0.548	11.50		0.542
106.9'	112.1'	5.2'	0.274	6.04		0.309
112.1'	116'	3.9'	0.309	3.07		0.320
116'	120'	4'	0.134	5.09		0.134

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP036290

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
:
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CLIENT REFERENCE No: D-116-95 RECEIVED : 1 NOV 1995

No. SAMPLES : 24 REPORTED : 14 NOV 1995

MAIN SAMPLE TYPE : DRILL CORE

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 SP036290

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-116-95

REPORTED : 14 NOV 1995

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-116-95 0-4.5	0.040			0.20
D-116-95 4.5-11.5	0.207		0.204	0.27
D-116-95 11.5-18.3	0.155		0.169	0.32
D-116-95 18.3-23	0.298		0.220	0.74
D-116-95 23-28	0.296		0.350	0.70
D-116-95 28-33	0.181		0.180	0.80
D-116-95 33-38	0.074			0.86
D-116-95 38-43	0.022			0.14
D-116-95 43-48	0.023			0.20
D-116-95 48-53	0.028			0.97
D-116-95 53-58	0.110		0.112	1.48
D-116-95 58-62.8	0.037			0.26
D-116-95 62.8-64	0.051			0.17
D-116-95 64-69	0.018			2.35
D-116-95 69-74.2	0.021	0.023		0.94
D-116-95 74.2-79	0.040			0.25
D-116-95 79-84.3	0.128		0.124	0.67
D-116-95 84.3-90	0.039			0.39
D-116-95 90-96.7	0.408		0.472	2.23
D-116-95 96.7-102.2	1.650		1.570	5.79
D-116-95 102.2-106.9	0.548		0.542	11.50
D-116-95 106.9-112.1	0.274		0.309	6.04
D-116-95 112.1-116	0.309		0.320	3.07
D-116-95 116-120	0.134		0.134	5.09