60001545

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-97-95
AUTHOR	C. Muerhoff; S. King
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: MGH
Initials Date
SCANNED: MBlue
Initials Date

Revised: 1/22/08

D-97-95 south zone - 975 N

60001545 4010

6000 1545

Hecla MINING COMPANY

- faults, fractures
- FeOx
- sulfide
- qtz, silicification
- calcite, carbonate
- argillization / white clays
- propylitization
- potassic alteration
- chlorite, chloritic clays

ROSEBUD PROJECT
DIAMOND DRILL LOG

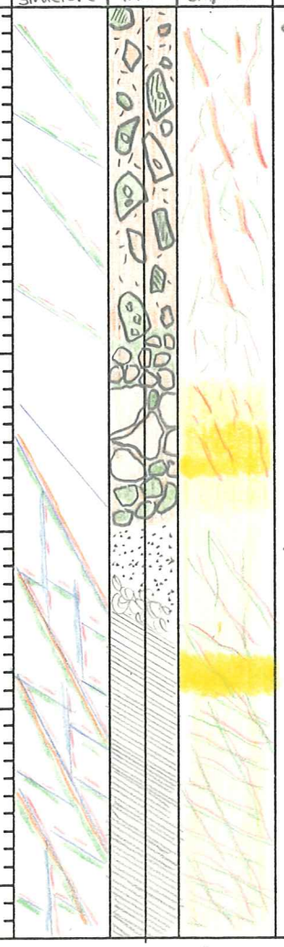
HOLE NUMBER	D-97-95	LOCATION	South Zone Chimney Area
PAGE 1 OF	2	NORTHING	2,203,980.905
DATE	10/8/95	EASTING	481,797.427
LOGGED BY	C. Muenhoff	ELEVATION	4656.468
SCALE	1" = 10'	AZIMUTH	124° (S56°E)
TOTAL DEPTH	120'	INCLINATION	+42° (downhole collar survey only)

REMARKS

Drilled from decline @ 975 N (station 18½)

NW Drilling ; Hagby On-Ram 1000

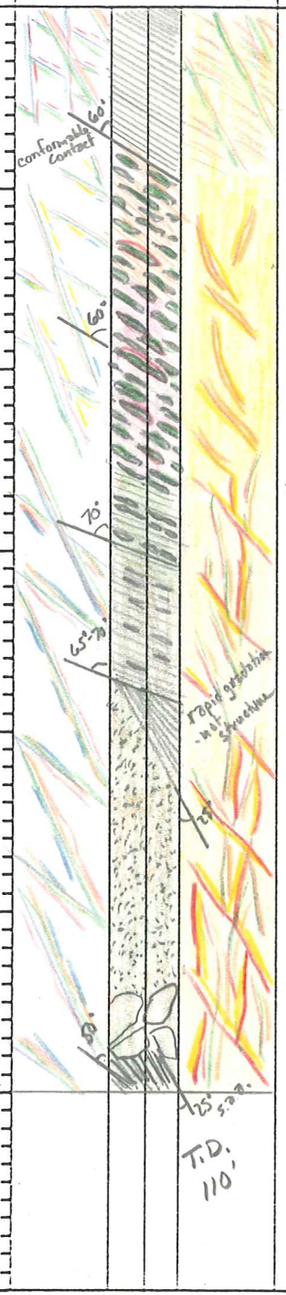
NBDGM core (2.2" diameter)

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG (structure / lith / alt/min)	STRUCTURE	ALTERATION AND MINERALIZATION
		0'-120' LBT 0'-19.4' Heterolithic volcanic breccia. Clast > matrix supported w/ variable sized clasts (mm → > core diameter) of strongly propylitized planar laminated ash flow, tan to grey massive ash & propylitized to argillized fragments of tuff breccia in brownish-red medium-grained to fragmental groundmass. 19.4'-21.2' Rapid, conformable gradation into strongly propylitized flow breccia w/ argillized clasts. This is the same unit as fragments in bxa above 21.2'-27.1' Rapid, conformable gradation into brecciated tan, massive ash flow. Contains a few fragments of unit described above. Breccia clasts & groundmass are of same composition. 27.1'-29' Rapid, conformable gradation into short interval of bxa contain fragments of flow breccia (described above) in brown ash (unit above). Clast-supported. 29'-58.7' Conformable contact → into massive to finely bedded (planar) fine to medium-grained ash flow tuff. Dark green @ beginning of interval, but rapidly grades to tan/light brown in color. Minor zone of auto brecciation @ 34'. Bedding planes @ 60° to core axis.	10 20 30 40 50		0'-21.2' Very competent with only a few fractures @ 40° & 60° ± to core axis. Surfaces coated with chlorite + diss. pyrite + pyrite → marc. blades. 21.2'-27.1' Interval contains no fractures. 29'-58.7' Distinct fracture sets @ 25°-30° (FeOx + pyrite + chlorite + white clay), parallel to core axis (minor calcite ± pyrite) & along bedding planes (chlorite + calcite ± pyrite).	0'-19.4' Groundmass of bxa is FeOx stained w/ minor overprinting by SiO2. Discontinuous "spider-web" of chlorite ± pyrite stringers & pyrite ± white clay stringers @ 0°-30° to core axis. White qtz/chalcedony >> calcite filling in breccia matrix @ 15' 19.4'-21.2' see lith comments. minor discontinuous pyrite stringers 21.2'-27.1' Interval begins with few pyrite + white clay stringers @ ± 30° to core axis, but becomes pervasively silicified & wavy; filled with drusy qtz & white clays 27.1'-29' minor SiO2 in matrix 34.3'-38.8' ash tuff is pervasively silicified ; due to 1" black chalcedony + massive pyrite vein @ 38.6'. 70° to core axis. Entire interval cut by chlorite + pyrite stringer @ parallel to bedding & @ 0°-30° to core axis.

ANALYTICAL DATA

FROM	TO	W	Au (opt)	Ag (opt)	Au2 (opt)	~~Ag2~~ Au Grav (opt)
0'	5'	5'	0.003	0.006		
5'	10'	5'	0.003	0.006		
10'	15'	5'	0.004	0.07		
15'	19.4'	4.4'	0.007	0.06		
19.4'	21.2'	1.8'	0.006	0.06		
21.2'	27.1'	5.9'	0.009	0.07		
27.1'	29'	1.9'	0.004	0.06		
29'	34.3'	5.3'	0.006	0.06		
34.3'	38.8'	4.5'	0.001	0.03		
38.8'	44'	5.2'	0.001	0.02		
44'	49'	5'	<0.001	<0.02		

HOLE NUMBER D-97-95 PAGE 2 OF 2

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		58.7'-75.7' conformable, planar contact into "Leopard-skin tuff". Large, flattened pumice fiamme replaced by light green clay & or chlorite & rimmed by chlorite + pyrite ± chalcopyrite w/ minor qtz & Ag-sulfosalts (?) occassionally. Remainder of rock mass is FeO_x-stained to Potassically altered. Flow foliations @ ±60° to core axis. 75.7'-120' Unit above continues, but grades from LST to medium-grained planar laminated tuff: 75.7'-80' alternating zones of LST (as described above) & medium-grained ash flow tuff. Flow foliations @ 70° to core axis. 80'-94.6' Mottled, spotted, medium-grained pumice-lapilli ash flow tuff. Flow foliation @ 65°-70° to core axis. 94.6'-105.8' One foot of planar-laminated tuff w/ rapid change in foliation angle from 65° to 20° to core axis → followed by massive medium-grained pumice lapilli tuff. Looks identical to previous interval, except now no flow foliation. 105.8'-110' Unit above becomes strongly brecciated & argillized with occassional spots of silicification-vugy. Last foot, back to planar-laminated medium-grained pumice-lapilli tuff. Foliation @ 25° to core axis @ 119' & 50° to core axis @ 120'. All contacts appear to be conformable	60 70 80 90 100 110		58.7-75.7' Core is extremely competent w/ only few fractures @ 20° & 50°-60° (bedding planes) to core axis. Chlorite + pyrite ± qtz + calcite + Ag-sulfosalts (?) on surfaces. 75.7'-110' Core is very competent; occassional fracture sets @ 20°-30° & 50° to core axis. Both sets w/ chlorite + clay + pyrite ± drusy qtz on surfaces.	58.7'-75.7' In addition to lith description, entire interval is moderately silicified (not replaced pumice) & cut by occassional qtz + clay + pyrite ± chalcopyrite stringers. 75.7'-110' Silicification decreases downhole, but still present. Entire interval cut by discontinuous (but usually steep) chlorite ± pyrite ± clay stringers which are cut by qtz + pyrite ("brassy"-colored) stringers up to 1/4" thick. One set @ 40°-60° & another @ 0°-10° to core axis. Overall alteration to rock mass is strongly propylitic to moderately argillic → overprinted by SiO_2. @78' vugy w/ barite crystals, marcasite/pyrite on drusy qtz

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	~~Ag2~~ AuGrav
49'	54'	5'	<0.001	<0.02		
54'	58.7'	4.7'	<0.001	<0.02		
58.7'	63'	4.3'	0.001	0.05		
63'	67'	4'	0.007	0.47		
67'	71'	4'	0.009	0.05		
71'	75.7'	4.7'	0.001	0.03		
75.7	80'	4.3'	0.003	0.03		
80'	85'	5'	0.001	0.03		
85'	90'	5'	0.008	0.06		
90'	94.6'	4.6'	0.193	0.18		0.188
94.6'	100'	5.4'	0.022	0.07		
100'	105.8'	5.8'	0.008	0.07		
105.8'	110'	4.2'	0.010	0.08		

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT : SP036055

P.O. BOX 11530
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American Assay Laboratories

HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF
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CLIENT REFERENCE No: D-97-95 RECEIVED : 18 OCT 1995

No. SAMPLES : 24 REPORTED : 26 OCT 1995

MAIN SAMPLE TYPE : DRILL CUTTINGS

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 : SP036055

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-97-95

REPORTED : 26 OCT 1995

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-97-95 00-05	0.003			0.06
D-97-95 05-10	0.003			0.06
D-97-95 10-15	0.004			0.07
D-97-95 15-19.4	0.007			0.06
D-97-95 19.4-21.2	0.006			0.06
D-97-95 21.2-27.1	0.009			0.07
D-97-95 27.1-29	0.004			0.06
D-97-95 29-34.3	0.006			0.06
D-97-95 34.3-38.8	0.001			0.03
D-97-95 38.8-44	0.001			0.02
D-97-95 44-49	<0.001			<0.02
D-97-95 49-54	<0.001			<0.02
D-97-95 54-58.7	<0.001			<0.02
D-97-95 58.7-63	0.001			0.05
D-97-95 63-67	0.007			0.47
D-97-95 67-71	0.009			0.05
D-97-95 71-75.7	0.001			0.03
D-97-95 75.7-80	0.003			0.03
D-97-95 80-85	0.001			0.03
D-97-95 85-90	0.008			0.06
D-97-95 90-94.6	0.193		0.188	0.18
D-97-95 94.6-100	0.022			0.07
D-97-95 100-105.8	0.008			0.07
D-97-95 105.8-110	0.010			0.08