60001551

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-103-95
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 155' handwritten notes 6p.

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-103-95 SOUTH ZONE / 900 N

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

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Hecla MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-103-95	LOCATION	South Zone / 900 N	REMARKS	
PAGE 1 OF 3		NORTHING	2,203,930.707	Drilled from decline @ cross-cut (station 17)	
DATE	10/16/95	EASTING	481,759.539	NW Drilling - Hagby On-ram 1000	
LOGGED BY	C. Muenhoff	ELEVATION	4654.577	NDBGM core (2.2" diameter)	
SCALE	1" = 10'	AZIMUTH	125° (S55°E)		
TOTAL DEPTH	155'	INCLINATION	+18° (downhole collar survey only)		

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		0'-155' LBT 0'-30.4' Matrix-supported heterolithic tuff breccia with sub-rounded K-altered to argillized "massive" fine-grained ash tuff frags (some fresh w/ argillic rims) > sub-angular finely bedded, planar-laminated ash tuff frags w/ alternating beds of K-alteration & argillization (also some fresh w/ argillic rims) in fg to fragmental flesh-pink (K-altered) groundmass.	10 20		0'-30.4' Distinct fracture set @ 50° to core axis w/ abundant white clay + marc blades + pyrite on surfaces. (~1/ft.) 10.5'-15.5 Zone of faulting & brecciation. Cannot determine ∡ to core axis, but looks ⊥ to core axis. Zone contains white clays with pyrite + marcasite. Partially healed by grey chalcedony. Lithology does not change across fault.	0'-30.4' pyritic & grey chalcedony + pyrite stringers @ 50-60° to core axis. (5-6/ft.) Groundmass of breccia weakly silica-flooded (?) -past 25', begin to pick up minor, thin grey chalcedony ± pyrite stringers parallel to core axis.
		30.4'-33.8' Argillized vfg ash fragments (sub-angular to angular) floating in dark brown silicified fragmental groundmass w/ sharp contacts. Fault zone? 33.8'-45' Pink, very-fine-grained laminated ash flow tuff @ ±60° to core axis. Minor zones of auto-brecciation	30 40	65 70	33.8'-45' V. competent w/ 5 fractures/joints per interval @ 35°-40° to core axis. Slicked pyrite & marc @ 60°.	33.8'-45' Minor, thin pyrite stringers along bedding planes. -past 40', begin to pick up pyrite + grey chalcedony ± white clay veinlets @ 35° to core axis.
		45'-67.9' Pink, very fine-grained ash flow continues, but now appears to be auto-brecciated. Few flow frags are propylitized to mildly argillized. A few "exotic" fragments of tan "massive" fg ash tuff. Often difficult to distinguish clasts from groundmass → same composition.	50		45' fault @ 60° to core axis w/ 2" rock frags in white clay, drusy qtz on surface. Doesn't look like much offset. 45'-67.9' see next page	45-67.9' see next page.

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
0'	5'	5'	0.005	0.10		
5'	10.5'	5.5'	0.005	0.11		
10.5'	15.5'	5'	0.011	0.12		
15.5'	20'	4.5'	0.011	0.13		
20'	25'	5'	0.007	0.10		
25'	30.4'	5.4'	0.012	0.11		
30.4'	33.8'	3.4'	0.010	0.11		
33.8'	39'	6.2'	0.006	0.05		
39'	45'	6'	0.010	0.07		
45'	50'	5'	0.013	0.10		

HOLE NUMBER D-103-95 PAGE 2 OF 3

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		- past 58.5' breccia becomes increasingly heterolithic w/ zones of rebrecciation → healed by grey, pyritic chalcedony. Random pyrite + chalcedony + white clay stockwork. Last 2 ft pervasively silicified.	60		45'-67.9' V. competent with fracture/joint sets @ 80° & 50° to core axis, (~1/ft) with minor chlorite + white clay ± pyrite on surfaces.	45'-67.9' Weakly mineralized with frequent (~5/ft) pyrite stringers @ 50° to c.a. Infrequent (<1/ft) pyrite stringers @ 30°-40° to c.a. past 58.5', see lithology comments.
		69.1'-74.8' Clast-supported heterolithic tuff breccia w/ propylitized → argillized sub-angular med-grained ash frags > tan vfg → aphanitic angular frags in K-altered to locally chloritized vfg groundmass.	70		67.9'-69.1' Fault @ 50° to core axis w/ carbonate (calcite + siderite?) vein followed by 3" rock flour gouge followed by sheared interval w/ competent loose blocks of following lithology.	69.1'-74.8' breccia vugs & veinlets filled w/ white clay + grey chalcedony + mare blades > pyrite. Groundmass & 50% frags pervasively silicified.
		74.8'-86.1' Sharp slip, @ 45° to core axis w/ 1/4" calcite-chalcedony vein, into planar to convoluted laminated pumice ash tuff. Bedding @ ±70° to core axis. Alternating bands of K-alt, propylitization/chloritization & argillization; all overprinted by pervasive silica-flooding. Strongly brecciated by grey chalcedony + chlorite + pyrite + marcasite ± white clay. Last couple of feet contain large fragments of LST.	80		74.8'-86.1' Fractures @ 55° >> 10° to core axis w/ chlorite + white clay ± pyrite ± mare.	74.8'-86.1' See lithology comments. Also vugy with large mare blades ± chalcopyrite ± pyrite packed in white clay. Everything cut by random "spiderweb" of chlorite stockwork.
		86.1'-111.0' "Leopard-skin tuff." Flow-foliated, pumice-rich tuff @ 55°-60° to core axis. 86.1'-91.1' extremely altered with pumice fiamme K-altered to chloritized in light green, silicified med-grain groundmass. Past 91.1 silicification diminishes rapidly & alteration loses its' intensity.	90		86.1'-111.0' Fractures along "bedding" planes & @ 0° & 30° to core axis. Bedding plane & 0° fracture sets contain chlorite + white clay + pyrite ± mare ± chalcopyrite.	86.1'-91.1' Extremely vugy w/ drusy qtz + white clay + black "sooty" mare blades.
		@ 106'-111' LST becomes vugy again (but not silicified) w/ marcasite blades ↔ pyrite ± chalcopyrite packed in white clay.	100			86.1'-111.0' Entire LST unit stockworked w/ random chlorite stringers & pyrite ± grey chalcedony stringers.
		111.0' See next page.	110			
			120			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag2~~
50'	54'	4'	0.005	0.08	0.003	AuGrav
54'	58.5'	4.5'	0.016	0.33		
58.5'	63'	4.5'	0.076	0.40		
63'	67.9'	4.9'	0.842	3.82		0.782
67.9'	69.1'	1.2'	0.101	0.16		
69.1'	74.8'	5.7'	0.316	0.63		0.313
74.8'	80'	5.2'	0.138	0.30		0.136
80'	86.1'	6.1'	0.939	3.17		1.108
86.1'	91.1'	5'	1.320	1.82		1.128
91.1'	96'	4.9'	0.074	0.19		
96'	101'	5'	0.204	0.27		0.210
101'	106'	5'	0.349	1.21		0.295
106'	111'	5'	0.155	0.42		0.130
111'	116'	5'	0.008	0.09		
116'	121'	5'	0.006	0.09		

HOLE NUMBER D-103-95 PAGE 3 OF 3

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		111'-144.8' Very gradationally, LST grades into med-grained flow-foliated ash tuff which grades into vfg planar-laminated (w/ stretched pumice-fiamme) to massive ashtuff. "Bedding" changes gradually downhole from 60° → 40° → ±25° to core axis. - rapid gradational, conformable contact - 144.8'-155' Devitrified auto-brecciated aphanitic flow. Looks glassy, but actually soft & argillized. V. light green in color. From 144.8' to ~150', crackle-brecciated by dense, "spiderweb" stockwork of thin chlorite which cuts earlier pyrite + chalcedony ± white clay veinlets @ ± 40° to core axis. Past 150', short interval of matrix-supported breccia w/ devitrified frags floating in silicified pinkish-tan fragmental groundmass.	130 140 150	T.D. 155	111'-144.8' V. competent w/ widely-spaced (1-2/5ft) "clean" fracture/joints @ 70°-80° to core axis. 144.8'-155' V. competent w/ only 2 fractures/joints over entire interval. @ 65° to core axis. Minor chlorite ± pyrite on surfaces.	111'-144.8' LST & med-grain ash propylitized w/ argillized & chloritized pumice fiamme. Vfg ash tuff is tan in color with propylitic/chloritic selvages along fractures. Entire interval cut by infrequent open space veinlets of white clay + drusy qtz + marcasite + pyrite @ ± 40° to core axis. Vfg ash tuff also cut by random chlorite + pyrite stringers. 144.8'-155' see lithology comments.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
121'	125.9'	4.9'	0.018	0.07		
125.9'	127.1'	1.2'	0.008	0.07		
127.1'	131.6'	4.5'	0.004	0.07		
131.6'	135'	3.4'	0.004	0.06		
135'	139.1'	4.1'	0.002	0.05		
139.1'	144.8'	5.7'	0.009	0.05		
144.8'	150'	5.2'	0.005	0.06		
150'	156'	6'	0.005	0.03		

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP036161

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-103-95 RECEIVED : 24 OCT 1995

No. SAMPLES : 33 REPORTED : 3 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 SP036161

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-103-95

REPORTED : 3 NOV 1995

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-103-95 0-5	0.005			0.10
D-103-95 5-10.5	0.005			0.11
D-103-95 10.5-15.5	0.011			0.12
D-103-95 15.5-20	0.011			0.13
D-103-95 20-25	0.007			0.10
D-103-95 25-30.4	0.012			0.11
D-103-95 30.4-33.8	0.010			0.11
D-103-95 33.8-39	0.006			0.05
D-103-95 39-45	0.010			0.07
D-103-95 45-50	0.013			0.10
D-103-95 50-54	0.005	0.003		0.08
D-103-95 54-58.5	0.016			0.33
D-103-95 58.5-63	0.076			0.40
D-103-95 63-67.9	0.842		0.782	3.82
D-103-95 67.9-69.1	0.101			0.16
D-103-95 69.1-74.8	0.316		0.313	0.63
D-103-95 74.8-80	0.138		0.136	0.30
D-103-95 80-86.1	0.939		1.108	3.17
D-103-95 86.1-91.1	1.320		1.128	1.82
D-103-95 91.1-96	0.074			0.19
D-103-95 96-101	0.204		0.210	0.27
D-103-95 101-106	0.349		0.295	1.21
D-103-95 106-111	0.155		0.130	0.42
D-103-95 111-116	0.008			0.09
D-103-95 116-121	0.006			0.07

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SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-103-95 121-125.9	0.018			0.07
D-103-95 125.9-127.1	0.008			0.07
D-103-95 127.1-131.6	0.004			0.07
D-103-95 131.6-135	0.004			0.06
D-103-95 135-139.1	0.002			0.05
D-103-95 139.1-144.8	0.009			0.05
D-103-95 144.8-150	0.005			0.06
D-103-95 150-156	0.005			0.03