60601563

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-115-95
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 5p.

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-115-95

SOUTH ZONE / 825 N

6 6001563 4010

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

6000 1563

Hecla MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-115-95	LOCATION	South Zone / 825N	REMARKS			
PAGE 1 OF 3		NORTHING	2,203,862.026	Drilled from decline @ station 15 1/2			
DATE	10/25/95	EASTING	481,708.526	NW Drilling - Hagby On-ran 1000			
LOGGED BY	C. Muerhoff	ELEVATION	4659.497	NQBGM core (2.2" diameter)			
SCALE	1" = 10'	AZIMUTH	collar: 122° (S58°E)	75': 124° (S56°E)	150': 123° (S57°E)		
TOTAL DEPTH	155'	INCLINATION	collar: +35°	75': +35°	150': +35°		

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		0'-155' LBT 0'-22.8' Strongly K-altered (pink color) vfg ash flow with large (±1") argillized (completely altered to clay) elongated pumice fiamme(?). Highly variable flow foliations (as noted @ right). groundmass/fiamme ≈ 90/10. -becomes more massive past 15' downhole (no 'bedding' & lose altered pumice frags).	10	50 25 50	0'-22.8' V. competent w/ occassional fractures (±1/5 ft.) @ ±50° to c.a. No mineralization on surfaces. 12.8' Grey chalcedony + pyrite vein @ 25° to c.a displays prominent slicks 35° to c.a. w/ no apparent offset.	0'-22.8' drusy qtz + grey chalcedony + pyrite ± calcite veinlets/stringers generally @ ± 30° to c.a. (3-4/ft.) Also diss. pyrite replacing roughly 10% of altered pumice frags & occurring along subtle flow bands. Minor silicification overprinting K-alteration? Stockwork density increases past 15' downhole.
		22.8'-82.3' Rapid, gradational, conformable contact into matrix-supported (barely), monolithic, tuff breccia; with sub-angular to locally sub-rounded, bleached, strongly argillized vfg ash(?) frags (alteration has destroyed any textural features) in a mildly K-altered vfg groundmass. Groundmass looks identical to unit at 0'-22.8'. Clast size rarely exceeds 1/2"; majority < 1/4" in diameter. Groundmass/clast ≈ 60/40. -past 35', breccia becomes clast-supported w/ clast size increasing up to 2" in diameter. ~45', back to matrix-supported (to 82.3')	20 30 40 50		22.8'-45' still very competent with occassional unmineralized fractures/joints @ ±45° to c.a. - rough surfaces. ~45'-65.8' Occassion fractures continue @ ±30° to c.a., w/ thick (up to 2") white clay + calcite + grey chalcedony + pyrite ⇔ minor + Ag-salts(?).	22.8'-41.4' Stockwork described above continues, but much less intense. Stringers @ 30°, 50° & 10° to c.a. Roughly 10% of breccia clasts contain med-gr. diss pyrite. K-alt. waning ↓ @41.4', breccia is rebrecciated & cemented by black chalcedony to ~45'. ~45'-65.8' breccia groundmass moderately silicified / clasts extremely argillized. breccia is cut by open, vugy veinlets of drusy qtz + grey chalcedony +

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Au Grav ~~Ag2~~
0'	5'	5'	0.327	0.81		0.330
5'	10'	5'	0.044	0.28		
10'	15'	5'	0.381	0.87		0.428
15'	20'	5'	0.661	0.86		0.655
20'	25'	5'	0.600	0.82		0.603
25'	30'	5'	0.007	0.14		
30'	35'	5'	0.020	0.10		
35'	41.4'	6.4'	0.001	0.06	0.001	
41.4'	45'	3.6'	0.011	0.40		
45'	49.2'	4.2'	0.039	0.33		
49.2'	51'	1.8'	0.045	0.47		

(continued)

HOLE NUMBER D-115-95 PAGE 2 OF 3

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		-past 55', breccia begins to incorporate angular fragments of v. argillized wavy-laminated ash tuff.	60		65.8'-82.3' v. occassional unmineralized fractures/joints @ ±60 to c.a. (±1/5ft.)	(con't) pyrite ↔ marcasite + white clay ± Ag-salts. Minor calcite? Veinlets generally oriented @ ±30° to c.a. Large vugs same mineralization as veinlets 'replacing' breccia groundmass. Stockwork density ± 10-12/ft. -past 65.8' K-alteration increases in intensity ↓ gray chalcedony + pyrite stringers lose orientation - now randomly oriented to c.a. Breccia groundmass locally intensely silicified.
		-past 75', breccia contains few large (±2") angular fragments of devitrified, argillized "glassy flow bxa".	70		stringers have chlorite along selvages ± calcite	
		82.3'-91.0' Dark green, devitrified, clay-altered "glassy flow bxa". Clast-supported with round dark green "spherical" clasts in "spider-web" of light-green vfg groundmass. First couple of feet cut by randomly oriented chalcedony + pyrite stringers. Local silicification of rock mass between 82.9' & 84'.	80		82.3'-82.9' Fault/shear. Irregular, rough surface @ 82.3' w/ minor light green clay gouge @ ±20° to c.a followed by 3" broken, clayey rock frags/rock flour, then 4 parallel fractures @ ±40° to c.a. w/ competent horse blocks of unit beginning @ 82.6'. Irregular surfaces w/ minor light green/grey clay gouge.	73.5' 3" white chalcedony vein @ 35° to c.a. 82.9'-91.0' random hairline stockwork of chlorite cut by strong veinlets of chlorite w/ pyrite at selvages @ ±0° to c.a.
		91'-111.2' vfg, planar to mildly convoluted laminated ash tuff @ 85°-80° to c.a. Flow-banding is extremely subtle - identifiable by preferential alteration & mineralization along flow planes. ~99'-104' zones of local flow brecciation. Ash tuff is v. light grey in color w/ thin argillized laminations & thin propylitized/chloritized laminations.	90		91.0'-111.2' fractures preferentially @30° to c.a. w/ chlorite + white clay ± pyrite + calcite. (~1/ft)	91.0'-111.2' Chlorite + pyrite + white clay along flow planes contemporaneous with randomly oriented stockwork of same - all clearly cut by chlorite + pyrite + white clay stringers @ ±0° to c.a.
		111.2'-155' vfg laminated tuff rapidly grades (conformably) into med-grain, pumice ash tuff. No distinct flow bands, but flow foliation very evident @ 75° to core axis. Flattened pumice/ash frags are either argillized or chloritized. Light grey fg matrix. Moderately-welded? v. hard, but I don't think it's silicification.	100		112.5'-155' fractures are generally along flow bands (±75° to c.a.) w/ occassional fractures @ 20°-30° to c.a. Chlorite + pyrite + calcite on surfaces.	111.2'~132' dense stockwork of pyrite + calcite stringers ~0°-30° to c.a. cut by chlorite ± pyrite ± calcite stringers @ random orientations to c.a.
			110			
			120			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag2~~ AuGrav
51'	56'	5'	0.008	0.13		
56'	61'	5'	0.011	0.08		
61'	65.8'	4.8'	0.090	1.81		
65.8'	71'	5.2'	0.010	0.08		
71'	76'	5'	0.218	0.53		0.250
76'	82.3'	6.3'	0.008	0.06	0.009	
82.3'	86'	3.7'	<0.001	<0.02		
86'	91'	5'	<0.001	<0.02		
91'	96'	5'	0.011	0.05		
96'	101'	5'	0.009	0.09		
101'	106'	5'	0.024	0.16		
106'	111.2'	5.2'	1.160	2.21		1.110
111.2'	115.7'	4.5'	0.230	0.72		0.250
115.7'	120'	4.3'	0.009	0.11		

HOLE NUMBER D-115-95 PAGE 3 OF 3

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		-past 150' argillized pumice/ash frags comprise 75% of rock mass.	130, 140, 150	T.D. 155'		-past 132', stockwork orientation continues, but diminishes in intensity downhole ↓ Dominant orientation @ 30°-40° to c.a.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
120'	125'	5'	0.002	0.11		
125'	130'	5'	0.016	0.12		
130'	135'	5'	0.003	0.08	0.003	
135'	140'	5'	0.018	0.20		
140'	145'	5'	0.003	0.06		
145'	150'	5'	0.003	0.06		
150'	155'	5'	0.014	0.06		

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP036265

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-115-95 RECEIVED : 1 NOV 1995

No. SAMPLES : 32 REPORTED : 13 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 SP036265

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-115-95

REPORTED : 13 NOV 1995

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-115-95 00-05	0.327		0.330	0.81
D-115-95 05-10	0.044			0.28
D-115-95 10-15	0.381		0.428	0.87
D-115-95 15-20	0.661		0.655	0.86
D-115-95 20-25	0.600		0.603	0.82
D-115-95 25-30	0.007			0.14
D-115-95 30-35	0.020			0.10
D-115-95 35-41.4	0.001	0.001		0.06
D-115-95 41.4-45	0.011			0.40
D-115-95 45-49.2	0.039			0.33
D-115-95 49.2-51	0.045			0.47
D-115-95 51-56	0.008			0.13
D-115-95 56-61	0.011			0.08
D-115-95 61-65.8	0.090			1.81
D-115-95 65.8-71	0.010			0.08
D-115-95 71-76	0.218		0.250	0.53
D-115-95 76-82.3	0.008	0.009		0.06
D-115-95 82.3-86	<0.001			<0.02
D-115-95 86-91	<0.001			<0.02
D-115-95 91-96	0.011			0.05
D-115-95 96-101	0.009			0.09
D-115-95 101-106	0.024			0.16
D-115-95 106-111.2	1.160		1.110	2.21
D-115-95 111.2-115.7	0.230		0.250	0.72
D-115-95 115.7-120	0.009			0.11

AMERICAN ASSAY LABORATORIES

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SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-115-95 120-125	0.002			0.11
D-115-95 125-130	0.016			0.12
D-115-95 130-135	0.003	0.003		0.08
D-115-95 135-140	0.018			0.20
D-115-95 140-145	0.003			0.06
D-115-95 145-150	0.003			0.06
D-115-95 150-155	0.014			0.06