60001579

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-131-95
AUTHOR	C. Muerhoff; SKing
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 246' handwritten notes 8p.

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: TMG
Initials Date
SCANNED: NV Blue
Initials Date

Revised: 1/22/08

D-131-95 SOUTH ZONE / 625 N

60001579 4010

60001579

Hecla
MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-131-95	LOCATION	South Zone / 625 N	REMARKS	
PAGE 1 OF 4		NORTHING	2,203,705.188	Drilled from decline @ station 11 1/2	
DATE	11/16/95	EASTING	481,586.321	NW Drilling - Hagby On-ram 1000	
LOGGED BY	C. Muehoff	ELEVATION	4683.902	NDBGM core (2.2" diameter)	
SCALE	1" = 10'	AZIMUTH	collar: 123° (S57°E)	120': 122.5° (S57.5°E)	240': 121.5° (S58.5°E)
TOTAL DEPTH	246'	INCLINATION	collar: +24°	120': +24°	240': +24°

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		0'-26.8' Very fine-grained, very thinly planar-laminated ash. Bedding @ 60°-70° to core axis. Weakly altered / alternating bands of moderate propylitization & K-alteration. Very occassional, discontinuous bands of argillized med-grained ash. Light green-gray in color.	10 20		0'-26.8' Abundant fracture sets @ 15°, 30°, & along bedding planes. Set @ 15° has slicks @ 30°. None are mineralized except set @ 15°; sulfide-poor calcite (not slicked). Remaining fractures are very clean - no clay or gouge.	0'-26.8' Weakly mineralized. hairline calcite + pyrite stringers along bedding planes (3-4/ft.) Also cross-cutting flow planes @ 20°-60° to c.a. (<1/ft.).
		26.8'-39.9' Tectonic breccia. First half of interval contains angular fragments (generally < 1/4") of previously described laminated ash flow; second half of interval contains angular frags of units above & below. All are clast-supported in grey rock flour which has been carbonate flooded & healed. Both FW & HW are gradational. Large concentration of irregular, rough-surfaced fractures around 42'-44' @ ±70° to c.a. Breccia is cut by later calcite ± pyrite stringers @ ±30° to c.a. (matrix of breccia only) - very erratic & discontinuous.	30		26.8-39.9 - See lithology comments.	
		39.9'-110'(±) Glassy flow / flow breccia. Heterolithic with sub-angular, light green, argillized fg ash frags + sub-rounded tan-brown aphanitic frags + occassional planar-laminated pyritic ash flow frags; all floating in a greenish-grey glassy/fragmental groundmass - not devitrified as normally observed.	40 50		39.9'-65' Distinct, sharp fracture sets @ 60° > 25° > 40° to c.a. Set @ 60° has slicks @ 0° in grey, pyritic clay + light green, carbonate-rich clay (~1/ft.). Set @ 25° have minor pyrite only (≤ 1/3 ft.). Set @ 40° has minor pyrite + calcite. (widely-spaced <1/5 ft.)	39.9'-65' flow is cut by v. thin stringers of pyrite ± calcite. Very randomly oriented. <1/ft.

ANALYTICAL DATA (opt)

FROM	TO	W	Au	Ag	Au2	~~Ag2~~ AuGrav
0'	5'	5'	<0.001	0.04		
5'	10'	5'	<0.001	0.03		
10'	15'	5'	<0.001	0.02		
15'	21'	6'	<0.001	<0.02		
21'	26.8'	5.8'	<0.001	0.02		
26.8'	33'	6.2'	0.001	0.02		
33'	39.9'	6.9'	0.002	0.12		
39.9'	45'	5.1'	0.003	0.07		
45'	50'	5'	0.003	0.05		

HOLE NUMBER D-131-95 PAGE 2 OF 4

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		glassy flow / flow breccia continues ↓				@50'-52' glassy groundmass is nearly totally replaced by massive sulfide-poor calcite
		@ 65'-75'(±) flow has been (tectonically?) rebrecciated or sheared (@ 10°-20° to c.a.) & healed by carbonate-rich light green rock flour or sulfide-poor calcite. Vugy in places; packed by white clays.	60		65'-75' see lithology comments.	65'-75' carbonate-flooded breccia is cut by later calcite ± pyrite ± marcasite stringers, generally steep to c.a.; 10°-30°. Variable thickness along stringers from <1/8" up to 1/2". 2-3/ft.
		-past 75'-90'(±) flow becomes clast-poor (<10% of rock mass). Very subtle flow foliation @ ± 60° to c.a. loses the vitrophyric texture - moderately to locally intensely silicified.	70 80		75'-100' Extremely competent. Widely-spaced fractures @ 60° & 40° to c.a. (<1/2 ft) both sets with only minor pyrite on very planar surfaces.	75'-100' Strong stockwork veining of sulfide-poor calcite. Veins up to 1" thick w/ pyrite along selvages @ 10°-20° to c.a. Also minor pyrite ± calcite hairline stringers @ random orientations - cut by larger calcite veins.
		@ 105', flow begins to lose it's glassy texture ↓	90 100		100'-110' Strong shear set @ ±10° to c.a. w/ grey, pyritic clay + green-waxy clay ± calcite. Strong slicks @ ±50°	100'-110' Calcite veining @ 10°-20° to c.a. continues & increases in intensity. As groundmass loses it's glassy texture - becomes replaced by sulfide-poor calcite. Minor, irregular, discontinuous stringers of chlorite + pyrite + calcite.
		110'-139.0' glassy flow breccia grades into matrix-supported monolithic breccia with sub-rounded, med-green, propylitized vfg ash fragments (generally ≤ 1/2") floating in a reddish-brown (strong FeO_x) med-grained fragmental groundmass.	110 120		110'-139' Fractures @ ±50° (~1/ft.) & ±25° (~1/5 ft.) to c.a. Both sets have waxy green clay ± calcite ± white clays ± minor fg diss. pyrite. It appears the set @ 25° post-dates the set @ 50°.	110'-139.0' breccia is weakly mineralized with pyrite ± calcite stringers; generally @ ±50° to c.a. & sub-parallel to c.a.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag2~~ AuGrav
50'	55'	5'	0.002	0.06		
55'	60'	5'	0.001	0.04		
60'	65'	5'	0.005	0.08		
65'	70'	5'	0.151	1.90		0.148
70'	75'	5'	0.806	5.35		0.875
75'	80'	5'	0.355	0.69		0.326
80'	85'	5'	0.137	0.33		0.149
85'	90'	5'	0.021	0.07		
90'	95'	5'	0.037	0.10		
95'	100'	5'	0.145	0.58		0.165
100'	105'	5'	0.131	0.44		0.169
105'	110'	5'	0.039	0.12		
110'	115'	5'	0.003	0.05		
115'	120'	5'	0.001	0.02		

HOLE NUMBER D-131-95 PAGE 3 OF 4

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		monolithic, matrix-supported breccia continues.				
		breccia gradually becoming softer (argillized) with depth ↓	130			
		139.0' - 176.5' Nearly planar-laminated fg ash flow (bedding is very weakly convoluted/wavy) w/ flow laminations @ ±55°. Variable degrees (mod to intens) of propylitization & k-alteration along laminations. Laminations are extremely thin, with an occassional med-grained ashy bed which is preferentially argillized. Occassional zones (±2') where ash appears massive (maybe due to no variability in alteration; obscures flow planes).	140 150		139.0' - 157'(±) strong fracture set @ 20°-30° to c.a. (~1/ft.) with v. dark green-black massive pyritic chlorite + carbonate-rich white clays ± marcasite blades ↔ pyrite ± crystalline calcite.	139.0' - 176.5' Moderate (6-10/ft.) thin stockwork of pyrite + calcite ± marcasite ± white clay ± chlorite nearly parallel to c.a. & @ ± 30° ⊥ to flow planes & along flow planes. Increases in intensity past 155'
			160		157' - 165'(±) fracture set @ 20°-30° persists, but increases in frequency to ~2/ft. Mineralization as described above becomes more abundant. Strong shearing along flow planes w/ slicked (@20°) light green waxy clay + pyritic chlorite + calcite on surfaces.	
		- rapid, gradational contact -	170		165' - 176.5' Shearing along flow planes subsides. Set @20°-30° persists → now slicked @ ±30° to c.a.	~170' - 179.5' pick up another white clay/carbonate-rich stringer set @ ±50° to c.a. (~2/ft).
		176.5' - 185.9' Brecciated "leopard-skin tuff" Strongly k-altered, etched pumice fiamme in strongly propylitized/argillized vfg groundmass. Moderately brecciated & healed by sulfide-poor calcite. First couple of feet are pervasively silicified (also re-brecciated & healed by calcite.) Flow-banding/lineation @ 50° to c.a.? May be some slight rotation.	180		176.5' - 185.9' post-breccia fractures @ 30° to c.a. (~1/ft.) w/ pyritic white clay + light green waxy clay. No carbonate.	176.5' - 185.9' V. strong stockwork of pyrite + calcite ± marcasite ± chlorite w/ late white clay - contemporaneous with calcite cementing breccia? Generally @ 30°-60° to c.a. & nearly parallel to c.a. (>10/ft.). Veinlets are often vuggy w/ pyrite ↔ marc blades + no drusy qtz or calcite.
		185.9' — see next page.	190			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag2~~ AuGrav
120'	125'	5'	0.001	0.02		
125'	130'	5'	0.005	0.04		
130'	135'	5'	0.001	0.03		
135'	139'	4'	0.002	0.04		
139'	145'	6'	0.003	0.11		
145'	151'	6'	0.003	0.18		
151'	157'	6'	0.005	0.17		
157'	161'	4'	0.002	0.15		
161'	165'	4'	0.010	0.91		
165'	170'	5'	0.307	6.92		0.362
170'	176.5'	6.5'	0.184	7.87		0.224
176.5'	181'	4.5'	0.379	1.84		0.438
181'	185.9'	4.9'	0.449	2.77		0.474
185.9'	192.5'	6.6'	0.144	1.77		

HOLE NUMBER D-131-95 PAGE 4 OF 4

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		185.9'-211'(±) fine-grained, mottled-textured ash flow w/ very subtle flow foliation @ ±55° to core axis. Speckled coloration of light green & pinkish-brown (propylitic alt vs K-alteration). @ 190', about 3-4% of particles are chloritized. Becoming slightly more coarse down hole, with ~5% totally chloritized, slightly elongated ash frags. Foliation become mildly convoluted & more distinct w/ depth.	200		185.9'-211' Consistent fracture set @ 60° to c.a. (~1/ft). Unmineralized until ~201', then abundant grey pyritic clay ± marcasite. @192.5'-196' Strong fracture zone @ 20°-30° to c.a. 7 individual fractures with abundant fg pyrite + calcite + carbonate-rich white clay. The fractures @ 60° within this interval also mineralized with the same.	185.9'-211' Stock work of calcite, strongly oriented @ ±30° to c.a. (1-2/ft.); some with sulfide (pyrite ± marc ± chalcopyrite) that looks like it's been "ripped up" & remobilized & incorporated into the calcite veins. Calcite clearly x-cuts pyrite ± calcite stringers @ 10°-20° to c.a. 209' 2" coarsely-crystalline calcite vein @ 40° to c.a. w/ pyrite + marc + chalcopyrite incorporated along selvages.
		211'-233.5'(±) fine-grained ash flow continues, but now light green to bleached with moderate to locally strong argillization. Dark green chloritized ash fiamme very abundant (≤ 10% of rockmass). Flow lineation @ ± 65° to c.a. Local zones of auto-brecciation; healed by chloritized, dark green clay. Calcite locally replaces breccia groundmass.	210 220		211'-233.5' Very competent (but soft) w/ occassional fractures @ 50°-60° to c.a. Irregular, unmineralized surfaces.	211'-233.5' Very strong stock-work of pyrite + chlorite ± calcite @ v. random x's to c.a. (>10/ft.) Also occassional grey chalcedony stringers @ ±20° to c.a.
		233.5'-238.7' Tectonic breccia. Unit above is v. strongly brecciated (nearly matrix-supported) & healed by mixed light grey chalcedony & calcite + pyrite. Majority of breccia clasts are pervasively silicified. 237.9'-238.3' fault breccia with strongly argillized, angular fg ash frags floating in silicified rock flour. 238.3'-238.7' black & brown mottled chalcedony vein @ 50° to c.a.; incorporated silica-replaced ash fragments. V. sharp contact.	230 240		233.5'-238.7' → See Lithology comments.	
		238.7'-246' pervasively silicified, light to medium green vfg ash flow w/ subtle flow foliation @ ±40° to c.a.		T.D., 246	238.7'-246' fractures confined to flow planes (~1/ft.) w/ calcite + chlorite + pyrite + white clays on surfaces.	238.7'-246' Chlorite + pyrite hairline stringers along flow planes (>>20/ft.) cut by pyrite + grey chalcedony stringers @ ±65° to c.a. (1-2/ft) cut by calcite + pyrite ± marc(?) ± white clay veinlets @ 50°-90° to c.a. (5-6/ft.). Local zones of calcite replacement of ash tuff. (Should have kept the hole going.)

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag2~~
						AuGrav
192.5'	196'	3.5'	0.171			0.177
196'	201'	5'	0.076			
201'	206'	5'	0.048			
206'	211'	5'	0.043			
211'	216'	5'	0.017			
216'	221'	5'	0.006			
221'	227'	6'	0.037			
227'	233.5'	6.5'	0.049			
233.5'	238.7'	5.2'	0.183			0.185
238.7'	246	7.3'	0.377			0.406

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

Date: 11/16/95

HOLE ID: D-131-95

By: C. Muerhoff

Sample ID	Description	Mass (g)	H2O Level (cc)		Displacement (cc)	Sp. Grav. (g/cc)
			Beginning	Ending		
160.5' - 160.8'	planar-laminated ash flow (stockworked, vugy w/ white clay)	486.7	1080	1285	205	2.37
176.5' - 176.9'	silicified, brecciated, vugy LST	633.9	1285	1540	255	2.49
180.6' - 181.0'	calcite-rich stockworked, brecciated, vugy LST	748.7	1265	1580	315	2.38
195.5' - 195.9'	vfg ash flow w/ chloritized fiamme (vugy veins of calcite + sulfide + white clay)	743.2	1580	1880	300	2.48

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP036617

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-131-95 RECEIVED : 27 NOV 1995

No. SAMPLES : 47 REPORTED : 22 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 SP036617

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-131-95

REPORTED : 22 DEC 1995

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-131-95 00-05	<0.001			0.04
D-131-95 05-10	<0.001			0.03
D-131-95 10-15	<0.001			0.02
D-131-95 15-21	<0.001			<0.02
D-131-95 21-26.8	<0.001			0.02
D-131-95 26.8-33	0.001			0.02
D-131-95 33-39.9	0.002			0.12
D-131-95 39.9-45	0.003			0.07
D-131-95 45-50	0.003			0.05
D-131-95 50-55	0.002			0.06
D-131-95 55-60	0.001			0.04
D-131-95 60-65	0.005			0.08
D-131-95 65-70	0.151		0.148	1.90
D-131-95 70-75	0.806		0.875	5.35
D-131-95 75-80	0.355		0.326	0.69
D-131-95 80-85	0.137		0.149	0.33
D-131-95 85-90	0.021			0.07
D-131-95 90-95	0.037			0.10
D-131-95 95-100	0.145		0.165	0.58
D-131-95 100-105	0.131		0.169	0.44
D-131-95 105-110	0.039			0.12
D-131-95 110-115	0.003			0.05
D-131-95 115-120	0.001			0.02
D-131-95 120-125	0.001			0.02
D-131-95 125-130	0.005			0.04

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP036617

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-131-95

REPORTED : 22 DEC 1995

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-131-95 130-135	0.001			0.03
D-131-95 135-139	0.002			0.04
D-131-95 139-145	0.003			0.11
D-131-95 145-151	0.003			0.18
D-131-95 151-157	0.005			0.17
D-131-95 157-161	0.002			0.15
D-131-95 161-165	0.010			0.91
D-131-95 165-170	0.307		0.362	6.92
D-131-95 170-176.5	0.184		0.224	7.87
D-131-95 176.5-181	0.379		0.438	1.84
D-131-95 181-185.9	0.449		0.474	2.77
D-131-95 185.9-192.5	0.144			1.77
D-131-95 192.5-196	0.171		0.177	9.73
D-131-95 196-201	0.076			22.35
D-131-95 201-206	0.048			0.45
D-131-95 206-211	0.043			0.54
D-131-95 211-216	0.017			0.15
D-131-95 216-221	0.006			0.13
D-131-95 221-227	0.037			0.17
D-131-95 227-233.5	0.049			0.27
D-131-95 233.5-238.7	0.183		0.185	0.66
D-131-95 238.7-246	0.377		0.406	0.59