60001530

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-82-94
AUTHOR	C. Muerhoff; S. Fadelotl
DATE OF DOC(S)	1994
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 275' handwritten notes 11p.

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: MAG
Initials Date
SCANNED: NV Blue
Initials Date

Revised: 1/22/08

D-82-94

6000 1530 4010

6001530

Hecla MINING COMPANY

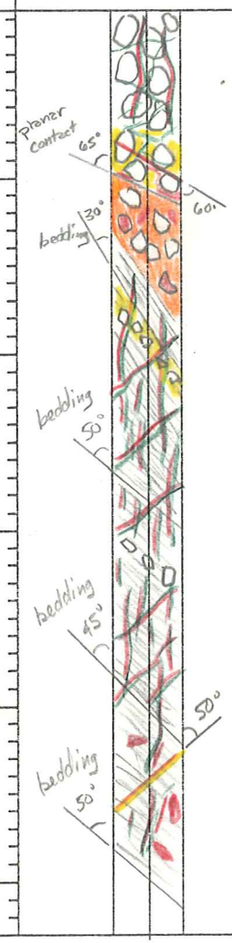
- sulfide
- chlorite
- calcite/carbonate
- qtz/chalcedony
- structure

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-82-94	LOCATION	South Zone	REMARKS	
PAGE 1 OF	5	NORTHING	2203996.4	Drilled from decline drill station # 19	
DATE	Sept. 22, 1994	EASTING	481822.4	Hagby Onram-1000 - NQ core	
LOGGED BY	C. Muenhoff	ELEVATION	4650.5	Core was photographed - whole core	
SCALE	1" = 10'	AZIMUTH	126.5°	assay. *'s are stated relative	
TOTAL DEPTH	275'	INCLINATION	0°	to core axis.	

%REC	DRILL RUN ~~RQD~~	LITHOLOGY	FT	STRUCTURE	ALTERATION AND MINERALIZATION
93%	0'	0'-8.5' Light green fg tuff breccia with well-rounded, slightly bleached lithic-tuff clasts. 8.5'-10.0' breccia continues, but is pervasively silicified w/ black chalcedony + med-grain pyrite comprising breccia matrix + pyrite ± illite clays stringers @ 60° to core axis.			0'-8.5' breccia is cut by thin hairline chlorite stringers @ no preferential orientation; in turn x-cut by pyrite > chlorite stringers @ sub-parallel to core axis. 8.5'-10.0' see lithology comments.
94%	10'	10.0'-13.8' Tuff breccia with strongly argillized, sub-angular tuffaceous clasts & tan fg sub-angular tuff clasts. Cemented by calcite. Clast-supported 13.8'-51.4' Thinly-bedded, vfg, waterlain tuff/tephra planar-laminated & weakly brecciated. Green to tan in color. 17'-19' occassional small intervals of strong brecciation with SiO_2 cement. @31' - 8" brecciated interval is healed by illitic clays.	10	13.8'-39' tuff is very broken up & brecciated. No fracture orientation per se. ↓ waning with depth. ↓ tuff becoming more competent w/ depth.	10'-13.8' Calcite matrix + calcite stringers. Pyrite replacing some of the argillized clasts & occuring as open-space filling. 13.8'-39' Bedded tuff is highly stockworked by chlorite + pyrite stringers @ 30° & sub-parallel to core axis (cuts bedding) & chlorite + pyrite ± marcasite ± carbon(?) ± FeOx. Occassional massive pyrite + illitic clays where tuffs are brecciated. ↓ all waning with depth.
89%	20'		20		
92%	28'		30		
76%	38'	41.3' 1" qtz + pyrite vein @ 50° cuts opposite to bedding direction.	40		
100%	43'				
100%	45'				
	50'		50		

GRAPHIC LOG



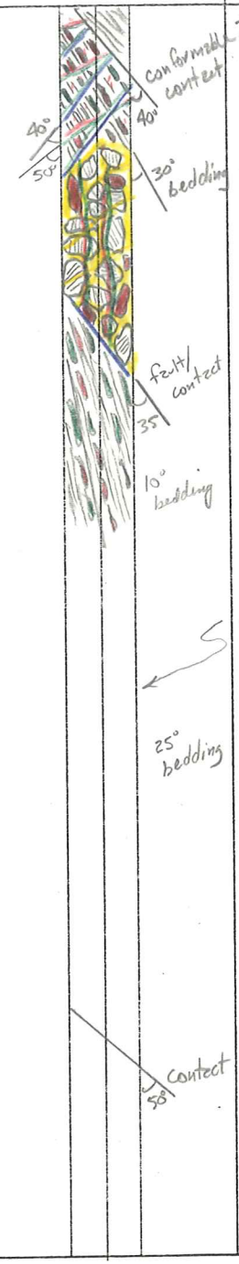
ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag2~~ Au (AA3)
0'	8.5'	8.5'	.006	.04		
8.5'	10'	1.5	.189	.34	.190 (g)	
10'	13.8'	3.8'	.043	.13		
13.8'	19'	5.2'	.061	.12	.056 (g)	
19'	24'	5'	.012	.10		
24'	29'	5'	.113	.19	.126 (g)	
29'	34'	5'	.347	2.01	.455 (g)	
34'	39'	5'	.075	.10		
39'	45'	6'	.015	.30		
45'	51.4'	6.4'	.038	<.02	.070	

HOLE NUMBER D-82-94 PAGE 2 OF 5

%REC	DRILL RUN ~~RQD~~	LITHOLOGY	FT
98%	50'	51.4' - 58.2' Bedded / flow-laminated coarse-grain "spotted" tuff. Alternating bands of white, illitic(?) clays & tan tuffaceous material. Elongated lithic fragments(?) which 90% are replaced by either oxidized sulfides, green glauconitic(?) clays, "fresh" fg pyrite, or dark green chloritic clays. Ore grades occurred in this material in the #17 x-cut	50
97%	60'		60
96%	70'	58.2' - 68.3' Unit above is intensely brecciated & healed by Quartz >> illitic clays. Also, all x-cut by chlorite + pyrite stringers @ sub-parallel to core axis. All cut by qtz + clay + pyrite stringers @ 20° to 60° to core axis	70
95%	80'	68.3' - 81.1' Identical to 51.4 - 58.2 becomes increasingly clay-rich w/ depth.	80
100%	90'	81.1' - 88' Clast-supported breccia with fragments of units above & below. Cemented by quartz + pyrite w/ minor white illitic clays. Coarse open-space pyrite ± marcasite.	90
93%	100'	88' - 108.9' Flow-laminated lithic tuff. Elongated lithic lithic fragments - 100% completely replaced by chlorite in bleached, strongly clay-altered tuffaceous material. Highly variable alteration as noted @ right.	100
83%	110'	108.9' - 117.4' Poly-lithologic tuff breccia. Clast-supported with rounded to subangular clasts of tan argillized tuff clasts, chloritized tuff clasts & illite-replaced clasts. Light green-tan fg groundmass.	110
	120'		120

GRAPHIC LOG



STRUCTURE	ALTERATION AND MINERALIZATION
51.4' - 58.2' few fractures with light green clays @ 40° to core axis (cuts opposite to bedding). Also light yellow clays on some fractures. (ducks butter)	51.4' - 58.2' In addition to alt/min described in lithology comments, ±1-2% vfg pyrite disseminated throughout interval + large (≤ 1/2") fg "clots" of pyrite. Thin chlorite + pyrite stringers cut across bedding @ 50°
58.2' - 68.3' Illitic clays on fractures. NO preferential orientation. Also large pseudo-hexagonal marcasite.	58.2' - 68.3' In addition to alt/min described in lithology comments, breccia clasts are occassionally completely replaced by pyrite.
first few feet strongly brecciated w/ sporadic brecciation downhole.	68.3' - 88' see lithology comments. 88' - 108.9' flow laminated tuff begins as extremely argillized & incompetent with thick (1/4") fg pyrite stringers + hairline chlorite stringers @ all orientations. ↓ grades into strongly propylitic & chloritic alteration (entire core is v. dark green) w/ ±2% fg diss. pyrite. 108.9' extreme chloritization & propylitization of entire rock mass continues ↓ + open-space marcasite & coarse-grain pyrite.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Au2~~ Au(AA3)
51.4'	58.2'	6.8'	.019	.08		
58.2'	63.2'	5'	.025	.06		
63.2'	68.3'	5.1'	.122	.14	.131 (2)	
68.3	73'	4.7'	.178	.12	.206 (2)	
73'	78'	5'	.013	.08		
78'	81.1'	3.1'	.011	.09		
81.1'	88'	6.9'	.010	.08		
88'	93'	5'	.006	.10		
93'	98'	5'	.016	.11		
98'	103'	5'	.040	.10	.015	.065
103'	108.9'	5.9'	.015	.09		
108.9'	113'	4.1'	.004	.05		
113'	117.4	4.4'	.006	.06		

HOLE NUMBER D-82-94 PAGE 3 OF

%REC	DRILL RUN ~~RQD~~	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
100%	120'	117.4'-130.2' flow-laminated lithic tuff. Identical to interval 88'-108.9', except appears to be slightly auto-brecciated.	120'	50° bedding		117.4-124 6.6 124-130.2 6.2
98%	130'	130.2'-231.6' Very monotonous, extremely fine-grained ash tuff. Dark green in color. Can't pick out bedding/individual beds, but lineation of chloritized fragments (also rfq) is very prominent. Entire unit is very weakly brecciated. Variations as noted:	130	contact w/ minor chloritic-illitic clays.	130.2' Core is very competent. Chlorite on fracture surfaces.	130.2' strongly propylitic/chloritic w/ ± 1-2% completely chlorite-replaced fragments.
90%	140'		140	35° lineation		134.3' - 4" interval of brecciation healed by quartz w/ open-space, coarse-grain subhedral pyrite.
100%	150'		150		past 150', fracture density increases dramatically. Chlorite ± pyrite persists on fracture surfaces. 55° ± 30° to core axis. minor illite.	Two prominent stockwork orientations: 1. pyrite ± chlorite @ 35° to core axis. 2. hairline chlorite @ bedding plane angles.
93%	160'		160			past 141', frequent, short (1"-2") intervals of quartz stringers/breccia cement with coarse open-space pyrite and/or marcasite. *
73%	166'					
94%	170'	past 170, bedding/flow foliation becomes much more apparent due to preferential propylitization/chloritization of individual beds.	170	35° lineation		
95%	180'		180	bedding 30°		past 180' - the prominent orientation of fg pyrite stringers is along bedding/flow planes.
	190'		190			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Au Age~~ (AAS)
117.4'	124'	6.6'	.002	.04		
124'	130.2'	6.2'	.001	.03		
130.2'	135'	4.8'	.002	.04		
135'	140'	5'	.014	.05		
140'	145'	5'	.005	.07		
145'	150'	5'	.004	.07		
150'	155'	5'	.002	.03		
155'	160'	5'	.003	.04	.002	
160'	165'	5'	.006	.04		
165'	170'	5'	.001	.03		
170'	175'	5'	<.001	.02		
175'	180'	5'	.001	.04		
180'	185'	5'	.004	.05		
185'	190'	5'	.004	.09		

HOLE NUMBER D-82-94 PAGE 4 OF 5

%REC	DRILL RUN ~~RQD~~	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
72%	190' – 195'		190		@191, begin to see prominent, frequent bedding plane slips w/ pyrite + illite ± chlorite	
94%	195' – 205'		200	bedding/flow foliation 25° 30°		194.4 - 194.9 black chalcedony breccia vein + medium-grain pyrite. 50° to core axis.
93%	205' – 214.5'	past 205', ash tuff flow loses the distinctive green chloritic color. Now v. light tan (bleached) & frags are completely altered to illite/smectite. Chloritic/pyritic stockwork stringers are now 0°-20° to core axis, generally.	210		205' 3" fault gouge zone - chloritic + illitic clays + minor pyrite + rock frags. 30° to core axis.	206' 3" black vugy chalcedony breccia vein w/ open-space quartz + pyrite. 55° to core axis.
91%	214.5' – 225'		220		218.2' fault/breccia w/ black chalcedony + minor pyrite + abundant illitic clay. 30° to core axis - cuts "bedding"	@221', ash tuff is mosaic breccia → spider-web chloritic stringers w/ 1/8" alteration into rock mass.
99%	225' – 235'	233.8'- 255.2' very fine ash flow continues with bleached appearance + chloritized fragments. same unit as above(?). flow foliation @ ±20° to core axis. Strongly stockworked with pyrite stringers (locally up to 1/4" thick) @ ± 40° x-cutting foliation	230		231.6'- 233.8' Strong fault/shear nearly complete clay alteration of residual ash tuff(?). Looks like post-faulting pyrite stringers & chlorite stringers 70° to core axis.	
94%	235' – 245		240			236.1'- 241.8' ash flow is strongly brecciated & cemented with quartz + pyrite. Also silica flooding of 50% of ash flow breccia frags.
100%	245 – 255'	255.2'- 275' Sheared and/or altered breccia zone. Poly-lithologic with light green oblong clasts (looks like celadonite), dark grey rounded fg tuff (?) clasts, rounded chloritized clasts, & intensely argillized (totally clay altered) ash(?) clasts in light green ground mass which is either clay or pervasively silicified (intermittent zones of each). (con't)	250	fault 55	255.2 - EOH see lithology comments	255.2 - EOH see lithology comments.
			260			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	~~Ag2~~ Au(AAS)
190'	195'	5'	.005	.09		
195'	200'	5'	.002	.06		
200'	205'	5'	.002	.07		
205'	210'	5'	.004	.08		
210'	215'	5'	.002	.02		
215'	220'	5'	.215	.16		
220'	225'	5'	.004	.11		
225'	231.6'	6.6'	.007	.11		
231.6'	233.8'	2.2'	.006	.10		
233.8'	236.1	2.3'	.007	.12		
236.1	241.8	5.7'	.008	.08		
241.8'	246'	4.2'	.003	.09		
246'	251'	5'	.005	.07		
251'	255.2'	4.2'	.004	.10		
255.2'	260'	4.8'	.004	.06		

HOLE NUMBER D-82-94 PAGE 5 OF 5

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
97%		(con't)					260'	265'	5	.002	.03		
	265'	where silicified, very vugy with open-space quartz. Preferential silicification of grey tuff clasts. Grey chalcedony + coarse pyrite stringers (infrequent) @ ± 40° to core axis.					265'	270	5	.002	<.02		
100%		breccia fragments are also crudely aligned @ ± 40° to core axis. Occassional replacement of chloritic fragments by coarse-grained pyrite. Coarse pyrite & marcasite occurs in vugs. Maybe should have taken this hole a little deeper.					270'	275'	5	.003	.04		
	275'	also saw a couple of rounded, extremely thinly-laminated fragments.											
		T.D. 275' BuD w/ lapilli cBuTos?											

ANALYSIS REPORT

American Assay Laboratories

P.O. BOX 71060
RENO, NV,,U.S.A.,
Ph.1-702-356-0606, Fax.1-702-356-1413
Telex:

HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF

:

:

:

CLIENT REFERENCE No: D-82-94

LABORATORY JOB No. : SP031050

SAMPLE TYPE :

RECEIVED : 27 SEP 1994

REPORTED : 10 OCT 1994

No. SAMPLES : 58

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA60	15%	OPT	0.001
Au(RZ)	FA60	15%	OPT	0.001
Au RZ2	FA60	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Sue Faircloth M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-82-94
JOB NUMBER : SP031050
REPORTED : 10 OCT 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	Au RZ2 FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-82-94 000-8.5	0.006				0.04
D-82-94 8.5-10	0.189			0.190	0.34
D-82-94 10-13.8	0.043				0.13
D-82-94 13.8-19	0.061			0.056	0.12
D-82-94 19-24	0.012				0.10
D-82-94 24-29	0.113			0.126	0.19
D-82-94 29-34	0.347			0.455	2.01
D-82-94 34-39	0.075				0.10
D-82-94 39-45	0.015				0.30
D-82-94 45-51.4	0.038	0.070			<0.02
D-82-94 51.4-58.2	0.019				0.08
D-82-94 58.2-63.2	0.025				0.06
D-82-94 63.2-68.3	0.122			0.131	0.14
D-82-94 68.3-73	0.178			0.206	0.12
D-82-94 73-78	0.013				0.08
D-82-94 78-81.1	0.011				0.09
D-82-94 81.1-88	0.010				0.08
D-82-94 88-93	0.006				0.10
D-82-94 93-98	0.016				0.11
D-82-94 98-103	0.040	0.015	0.065		0.10
D-82-94 103-108.9	0.015				0.09
D-82-94 108.9-113	0.004				0.05
D-82-94 113-117.4	0.006				0.06
D-82-94 117.4-124	0.002				0.04
D-82-94 124-130.2	0.001				0.03

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-82-94
JOB NUMBER : SP031050
REPORTED : 10 OCT 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	Au RZ2 FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-82-94 130.2-135	0.002				0.04
D-82-94 135-140	0.014				0.05
D-82-94 140-145	0.005				0.07
D-82-94 145-150	0.004				0.07
D-82-94 150-155	0.002				0.03
D-82-94 155-160	0.003	0.002			0.04
D-82-94 160-165	0.006				0.04
D-82-94 165-170	0.001				0.03
D-82-94 170-175	<0.001				0.02
D-82-94 175-180	0.001				0.04
D-82-94 180-185	0.004				0.05
D-82-94 185-190	0.004				0.09
D-82-94 190-195	0.005				0.09
D-82-94 195-200	0.002				0.06
D-82-94 200-205	0.002				0.07
D-82-94 205-210	0.004				0.08
D-82-94 210-215	0.002				0.02
D-82-94 215-220	0.006				0.16
D-82-94 220-225	0.004				0.11
D-82-94 225-231.6	0.007				0.11
D-82-94 231.6-233.8	0.006				0.10
D-82-94 233.8-236.1	0.007				0.12
D-82-94 236.1-241.8	0.008				0.08
D-82-94 241.8-246	0.003				0.09
D-82-94 246-251	0.005				0.07

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-82-94
JOB NUMBER : SP031050
REPORTED : 10 OCT 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	Au RZ2 FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-82-94 251-255.2	0.004				0.10
D-82-94 255.2-260	0.004				0.06
D-82-94 260-265	0.002				0.03
D-82-94 265-270	0.002				<0.02
D-82-94 270-275	0.003				0.04

SAMPLE SUBMITTAL FORM

American Assay Laboratories Inc.

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 71060
Reno, NV. 89570
Telephone
(702) 356-0606
Fax
(702) 356-1413

Elko Office
2320 Last Chance Rd.
Nevada 89801
Box 2908
Elko, NV. 89801
Telephone
(702) 738-9100
Fax
(702) 738-2594

Company: HECLA MINING CO.

Address:

Telephone Number: ( ) Fax Number: ( )

Project Name: ROSEBUD Purchase Order Number:

Transport Company: Waybill Number:

Date Shipped: Number of Packages: 55 [ ] Prepaid [ ] Collect

9-22-94

ANALYSIS REQUIRED

SAMPLE			TYPE	ELEMENTS REQUIRED
D-82-94 0-8.5	78-81.1	155-160	CORE	2 AT FIRE ASSAY Au & Ag
8.5-	81.1-88	160-165	2	w/ HECLA ROSEBUD
10-13.8	88-93	165-170		CUSTOM PREP
13.8-19	93-98	170-175		
19-24	98-103	175-180		
24-29	103-108.9	180-185		* GRAV FINISH ON ALL
29-34	108.9-113	185-190		Au ≥ 0.05 opt
34-39	113-117.4	190-195		
39-45	117.4-124	195-200		
45-51.4	124-130.2	200-205		
51.4-58.2	130.2-135	205-210		
58.2-63.2	135-140	210-215		
63.2-68.3	140-145	215-220		
68.3-73	145-150	220-225		
73-78	150-155	225-231.6		
		231.6-233.8		
		233.8-236.1		
		236.1-241.8		
		241.8-246		
		246-251		
		251-255.2		
		255.2-260		
		260-265		
		265-270		
		270-275		

COARSE REJECTS (Normally Discarded)

[ ] Return COD after analysis complete
[ ] By prior arrangements

PULPS (Normally Stored Free For One Month)

[ ] Discard after one month
[ ] Return COD after one month
[ ] By prior arrangements

RESULTS AND INVOICES TO BE SENT TO:

Please mark invoice person and address [I]

(1) Charlie Muerhoff

(2)

(3)

Comments:

CLIENT FILE COPY