60001533

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-85-94
AUTHOR	C. Winchester; C. Muechoff; S. Fairchild
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 210' handwritten notes 11 p.

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: NBlue
Initials Date

Revised: 1/22/08

D-85-94

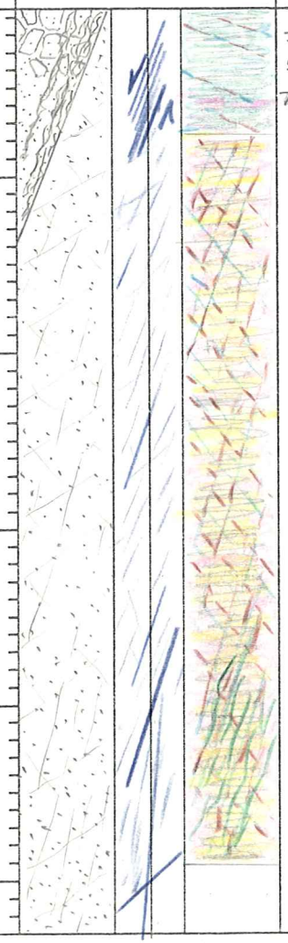
60001537 4010

6006 1533

Hecla
MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-85-94	LOCATION	South Zone	REMARKS	ORIENTATIONS STATED
PAGE 1 OF 4		NORTHING	2204000.2		AS ∡ TO CORE AXIS; CORE PHOTO'D;
DATE	10-6-94	EASTING	481819.8		WHOLE CORE ASSAY SAMPLES; COLLAR
LOGGED BY	CB WINETEER	ELEVATION	4643.9		LOC. DDS #19; 90° AZ BEARING;
SCALE	1" = 10'	AZIMUTH	77.0°		NQ CORE
TOTAL DEPTH	210'	INCLINATION	-71°		

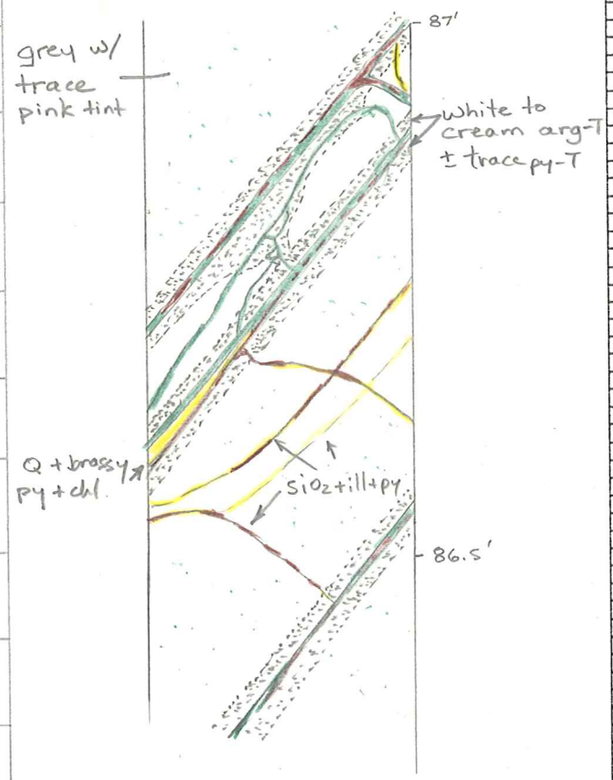
%REC	RQD	SOLID CORE REC	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
5			0-7.5' vitropheric airfall tephra; v.f.g. well-sorted, massive-bedded, argillic & chloritic altered, minor crackle breccia			3-4.5' fault bx & slicks @ 20° 5.5-6.5' s.a.a.	0-7.5' v. wk silic + Tr alun + mod int. arg-T & chl-T, Tr-1.5% py-T; $CaCO_3$ fldd; min stx's discont. 2-3/ft $CaCO_3$ + marc 0.005" @ 70°
10 79	.34	63	7.5-53' Crackle breccia w/in massive-bedded airfall (?) tephra; very slightly porphyritic, fine-grained, well-sorted. Variety of alteration as described at right. Clast-supported angular fragments in siliceous matrix.	10		7.5-50' healed crackle bx w/ principal stx @ 20° w/ $CaCO_3$ + ser	7.5-49' wk silic + mod. alun + mod. arg-T + wk relic chl-T + 1-2% py-T as both cubic & bladed sulf min stx's 7-20/ft $CaCO_3$ ± chl + v.sill marc/py ± Tr ss/V.G. discont. at 40° + late-stage @ 20° 0.005 to 0.015" 37.5-49' incr. chl-T & py-T on 20° stx's.
15							
20 88	.79	87		20			
25							
30 100	.86	99		30			
35							
40 100	.74	95		40			
43.5							
48.5							
50 97	.88	96		50			

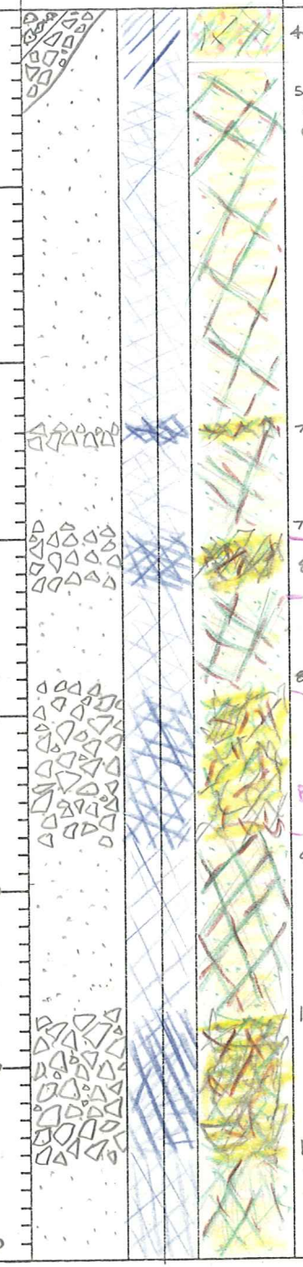
ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
0	4.0	4.0'	.002	.02		
4	7.5	3.5'	<.001	<.02		
7.5	12	4.5'	<.001	.03		
12	17	5.0'	.003	.10		
17	22	5.0'	.003	.07		
22	27	5.0'	.009	.12		
27	32	5.0'	.003	.08		
32	37	5.0'	.033	.30		
37	42	5.0'	.165	.21	.151 (g)	
42	46	4.0'	.010	.05		
46	49	3.0'	.032	.13	.021	

HOLE NUMBER D-85-94 PAGE 2 OF 4

%REC	RQD	LITHOLOGY
		53–210' Fine-grained tephra: massive to medium-bedded, fine microphenocrysts of chlorite, small 0.25 cm pumice fragments, speckled – rounded devitrified pumice lapilli ↓; well to mod. well-sorted; crackle to fault breccia thru-out most, as described at right.
97	.45	91
92	.52	89
87	.42	85
95	.52	80
86	.45	75
94	.70	85
83	.50	75





STRUCTURE	ALTERATION AND MINERALIZATION
49–53' silica-flooded fault bx on 40–45° stx's	49–53' silica + ser + py flooded matrix w/ rounded tectonically milled fragments: mod to mod. int. silic + mod to wk arg-T + 2–4% py-T + mod chl-T + mod. alun in frags; discont min stx w/ f.g. Q + ferrug SiO_2 + marc/py ± ill
53–74' frac'd @ 70°, 40° ± 35° ± 5° w/ chl + $CaCO_3$ + py ± ill @ 15–25/ft.	53–146' wkly to mod. silic + wk arg-T (except adj to 40° chl → Q → marc vnlts w/ mod to mod. intense arg-T) + Tr to 2% py-T (prim. adj. to vnlts) + wk alun + strong chl + Q on frac's w/ dense fracing; silic. bx zones of s.a.a. (including arg-T salvages); min stx > 10°/ft @ orientations stated at left w/ chl → Q → brassy marc/cubic to py-ohedron py ± ill ± Tr ss, ± v.g.
74–75' Tectonic bx w/ angular rotated clasts in a silic + chl + ser ± ill matrix	
79–83' s.a.a.	
Bq 83–88' frac'd as above 53–74'	
88–97.5' Crackle to fault bx w/ minor rotation of angular clasts in a silica-chl-ser-ill matrix	angular frags w/in fault-crackle bx w/ arg-T rims (bx'iation post alt/min?)
Bq 97.5–107' frac'd w/ microbx vnlts syn 25°; 40 ± 60° stx's w/ ser-chl-marc-ill-Q	
107–115.5' silica-flooded fault to crackle bx on 25° stx's.	
115.5–138.5' frac'd on 5°, 30° ± 50° w/ chl + ser + ill ± Q	

ANALYTICAL DATA

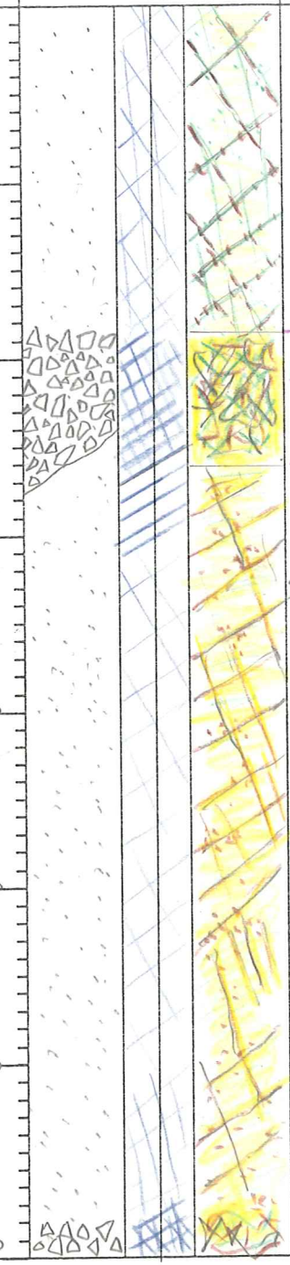
FROM	TO	W	Au	Ag	Au2	Ag2
49	53	4.0'	.104	.25	.120 (Q)	
53	58	5.0'	.027	.10		
58	63	5.0'	.007	.07		
63	68	5.0'	.009	.09		
68	73	5.0'	.005	.09		
73	75	2.0'	.006	.09		
75	79	4.0'	.005	.07		
79	83	4.0'	.011	.07		
83	88	5.0'	.005	.06		
88	93	5.0'	.007	.06		
93	97.5	4.5'	.008	.07		
97.5	102	4.5'	.011	.09	.012	
102	107	5.0'	.007	.07		
107	112	5.0'	.020	.08		
112	115.5	3.5'	.006	.06		
115.5	120	4.5'	.006	.05		

HOLE NUMBER D-85-94 PAGE 3 OF 4

%REC	RQD	LITHOLOGY
94	.55	88
93	.65	90
97	.54	91
87	.53	86
93	.67	92
81	.32	68
89	.32	77

FT

GRAPHIC LOG



STRUCTURE

138.5-146' silic-flooded crackle to fault bx w/ 60° & 20° stx's.

Ba

146-150' sericitic slicks @60°

150-181' frac'd w/ 3-6/ft ser-chl-py slicks @ 30°; 60°

181-189' pale greenish yellow sericite slicks @ 10° & 70°

189-193' silica flooded ser-fault bx

ALTERATION AND MINERALIZATION

147-193 mod. to mod. int. silic + Tr alun + 2-3% patchy py-T + decr. + chl-T + wk arg-T; min stx's 5-10/ft as noted to left w/ py + Q ± marc ± ill

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
120	125	5.0'	.005	.10		
125	130	5.0'	.006	.07		
130	134.5	4.5	.012	.08		
134.5	138.5	4.0	.011	.08		
138.5	142.5	4.0'	.011	.07		
142.5	~~146~~ 147	3.5'	.005	.08	.007	
~~146~~ 147	150	4.0'	.006			
150	155	5.0'	.113	.11	.090 (?)	
155	160	5.0'	.003	.05		
160	165	5.0'	.003	.06		
165	170	5.0'	.003	.03		
170	175	5.0'	.003	.02		
175	180	5.0'	.111	.08	.161 (?)	
180	185	5.0'	.155	.11	.173 (?)	
185	189	4.0'	.050	.12	.035	

HOLE NUMBER D-85-94 PAGE 4 OF 4

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
195					193–210' frac'd w/ chl-ser-$CaCO_3$ ± ill slicks @ 30', 15', 60-70' w/5/10/ft.	193-210' mod. silic + ND alun + v. wk ang-T + chl-T salvages on chl-ic stx's & ser-T salvages on $CaCO_3$ chl-py stx's; Tr-loc. 5% py-T min stx's 10-15/ft .001-0.10" Chl → $CaCO_3$ → marc/py	189	193	4.0'	.010	.06		
97	.26	77					193	199	6.0'	.011	.63		
200			200										
205							199	205	6.0'	.041	.08		
95	.62	90					205	210	5.0'	.043	.05		
210			210										
		END OF HOLE @ 210'											

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-85-94 DATE: 10-6-94 LOGGED BY: CBW/RK

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
0	5	SEE	GEO	LOG										
5	10	↓	↓	↓	5	55	2.4	35°	K	micro bx Δing + to ser-chl-py slicks	5	305	130	2.35
10	15													
15	20				15	55	0.0	NA	NA	NA	15	242.5	102	2.38
20	25													
25	30				25	55	0.2	80°	R	.005" py	25	369.2	160	2.31
30	35													
35	40				35	55	1.8	40°	R	.005" ser-py	35	306.7	128	2.40
40	43.5													
43.5	48.5													
48.5	50				45	R2	0.2	40°	R	.005" py	45	288.1	120	2.4

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-85-94 DATE: 10-6-94 LOGGED BY: RK PAGE 2 OF 4

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
50	55													
55	60				55	R1	3.1	60°	S	0.05" chl-Q-PY	55	338	140	2.41
60	65													
65	70				65	R1	3.9	65°	S	S.A.A.	65	355	140	2.53
70	75													
75	80				75	R1	3.5	65°	S	S.A.A. ±smec.	75	291.7	118	2.47
80	85													
85	90				85	R1	3.6	60°	S	S.A.A.	85	216.6	90	2.41
90	95													
95	100				95	R1	2.3	60°	S/R	S.A.A.	95	413.5	175	2.36
100	105													

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-85-94 DATE: 10-6-94 LOGGED BY: RK PAGE 3 OF 4

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
105	110				105	R3	2.2	50°	S	S.A.A.	105	274.3	115	2.39
110	115													
115	120				115	R3	2.1	55°	S	S.AA.	115	324	130	2.49
120	125													
125	130				125	R1	1.8	50°	R	Q-marc-chl	125	330.8	138	2.39
130	135													
135	140				135	R3	1.7	50°	R	S.A.A.	135	366.8	150	2.44
140	145													
145	150				145	R3	2.3	55°	S-K	0.1" ser-py	145	312	125	2.49
150	155													
155	160				155	R3	2.1	35°	S-K	0.05-0.1" ser-py	155	408	162	2.51

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-85-94 DATE: 10-6-94 LOGGED BY: RK PAGE 4 OF 4

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
160	165													
165	170				165	R3	1.2	30°	R	.005" Q+Py/marc	165	395.5	155	2.55
170	175													
175	180				175	R3	2.8	45°	S	.05" chl-ill-marc	175	379	150	2.52
180	185													
185	190				185	R3	4.1	40°	S	.05-.10" chl-ser-py	185	374	155	2.42
190	195													
195	200				195	R3	4.4	20°	S	S.A.A.	195	398.5	160	2.49
200	205													
205	210				205	R3	1.6	70°	S	.05" chl+Ca+Py	205	274.5	110	2.50

AMERICAN ASSAY LABORATORIES
ANALYSIS REPORT

American Assay Laboratories Inc.

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-85-94
JOB NUMBER : SP031231
REPORTED : 25 OCT 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-85-94 0-4	0.002			0.02
D-85-94 4-7.5	<0.001			<0.02
D-85-94 7.5-12	<0.001			0.03
D-85-94 12-17	0.003			0.10
D-85-94 17-22	0.003			0.07
D-85-94 22-27	0.009			0.12
D-85-94 27-32	0.003			0.08
D-85-94 32-37	0.033			0.30
D-85-94 37-42	0.165		0.151	0.21
D-85-94 42-46	0.010			0.05
D-85-94 46-49	0.032	0.021		0.13
D-85-94 49-53	0.104		0.120	0.25
D-85-94 53-58	0.027			0.10
D-85-94 58-63	0.007			0.07
D-85-94 63-68	0.009			0.09
D-85-94 68-73	0.005			0.09
D-85-94 73-75	0.006			0.09
D-85-94 75-79	0.005			0.07
D-85-94 79-83	0.011			0.07
D-85-94 83-88	0.005			0.06
D-85-94 88-93	0.007			0.06
D-85-94 93-97.5	0.008			0.07
D-85-94 97.5-102	0.011	0.012		0.09
D-85-94 102-107	0.007			0.07
D-85-94 107-112	0.020			0.08

ANALYSIS REPORT

American Assay Laboratories Inc.

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-85-94
LABORATORY JOB No. : SP031231
SAMPLE TYPE :

RECEIVED : 10 OCT 1994
REPORTED : 25 OCT 1994
No. SAMPLES : 46

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 Faircloth M.S.

AMERICAN ASSAY LABORATORIES
ANALYSIS REPORT

American Assay Laboratories Inc.

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-85-94
JOB NUMBER : SP031231
REPORTED : 25 OCT 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-85-94 112-115.5	0.006			0.06
D-85-94 115.5-120	0.006			0.05
D-85-94 120-125	0.005			0.10
D-85-94 125-130	0.006			0.07
D-85-94 130-134.5	0.012			0.08
D-85-94 134.5-138.5	0.011			0.08
D-85-94 138.5-142.5	0.011			0.07
D-85-94 142.5-147	0.005	0.007		0.08
D-85-94 147-150	0.006			0.07
D-85-94 150-155	0.113		0.090	0.11
D-85-94 155-160	0.003			0.05
D-85-94 160-165	0.003			0.06
D-85-94 165-170	0.003			0.03
D-85-94 170-175	0.003			0.02
D-85-94 175-180	0.111		0.161	0.08
D-85-94 180-185	0.155		0.173	0.11
D-85-94 185-189	0.050	0.035		0.12
D-85-94 189-193	0.010			0.06
D-85-94 193-199	0.011			0.63
D-85-94 199-205	0.041			0.08
D-85-94 205-210	0.043			0.05