60001178

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-277-98
AUTHOR	S. King; K. Allen; A. Niles
DATE OF DOC(S)	1998
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Rosebud Mining Co. LLC Hecla Mining Co.
COMMODITY If not obvious	gold; silver
NOTES	Drill log; geology; assay; photographs; total depth 355 receipt; handwritten notes; downhole camera images 46 p. 3 down hole camera images

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 5/14/08
Initials Date
DB: mah
Initials Date
SCANNED: NB
Initials Date

Revised: 1/22/08

D-277-98

60001178 4010

6000 1178

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

Hecla
MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-277-98	LOCATION	STOPE 50, NORTH ZONE SEC 1400
PAGE 1 OF 6		NORTHING	
DATE	8/29 - 9/8/98	EASTING	
LOGGED BY	ALLYN WILES	ELEVATION	
SCALE	1" = 10'	AZIMUTH	125
TOTAL DEPTH	355'	INCLINATION	55

REMARKS

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
0.0 - 10.6 TOS		0.0 - 8.0 GREEN TO NEAR WHITE ANGULAR TO ROUND LAPILLIS IN A GREEN APHANITIC CLAY MATRIX. COLOR CHANGE TO PINK @ 9.0 8.0 - 10.6 SAME AS GREEN EXCEPT PINK COLOR	10	60, 64, 30, 47	8.0' CONTACT GRADATIONAL	0.0 - 8.0 MINOR CALCITE VEINS. 8.0 - 10.6 MOD. VUGS & OPEN FRACTURES LINED W/ DROZY QUARTZ & MARC.
10.6 - 23.8 LBT F.G. MASSIVE		10.6 - 23.8 LT. PINKISH GRAY, APHANITIC FLOW W/ VAGUE FLOW BANDS NEAR CONTACT W/ PLANAR FLOW.	20	25, 20, 50, 33	10.6 CONTACT IS AUTOBRECCIATED TO 11.6'	10.6 - 11.6 BXA CLASTS ARE STRONGLY SILICIFIED W/ QUARTZ VEINS & DROZY QUARTZ CEMENTING THE CLASTS, MINOR BLADED MARC. 11.8 - 23.8 PROPYLITIC CLAY AND VARIABLE SULFIDES FILLING FRACTS, BLEEDING OF COLOR INTO WALLROCK COMMON.
23.8 - 50.0 LBT PLANAR LAMINAR		23.8 - 50.0 LT. PINKISH GRAY TO LT. GRAY FLOW W/ PLANAR FLOW BANDS AND VARIABLE LAMINAR FRACTURES ALONG BANDING PLANES.	30	47, 50	23.8 CONTACT GRADATIONAL OVER 1.5' OR MORE. 23.8 - 50.0 YOUNGE FRACTURES COMMONLY AT 90° TO FLOW BANDS, 27.0 - 27.5 BXA HEALED	27.0 - 27.5 CEMENTED W/ QUARTZ & SULFIDES, BXA CLASTS STRONGLY SILICIFIED 20.0 - 66.0 WEAK → MOD CALCITE VEINING
			40	40, 55, 10		
			50	40, 28, 50	43.0 - 43.6 AUTOBRECCIA FLOW BASE?	48.0 - 169.4 MINOR SULFIDIC SELVAGES, ROUND TO IRREGULAR SHAPED USUALLY RELATED TO FRACTURES OR SULFIDE VEINS

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ac
0.0	5.0					
5.0	9.0					
9.0	10.6					
10.6	14.0					
14.0	19.0					
19.0	24.0					
24.0	29.0					
29.0	34.0					
34.0	39.0					
39.0	44.0					
44.0	49.0					
49.0	50.5					

HOLE NUMBER D-277-98 PAGE 2 OF 6

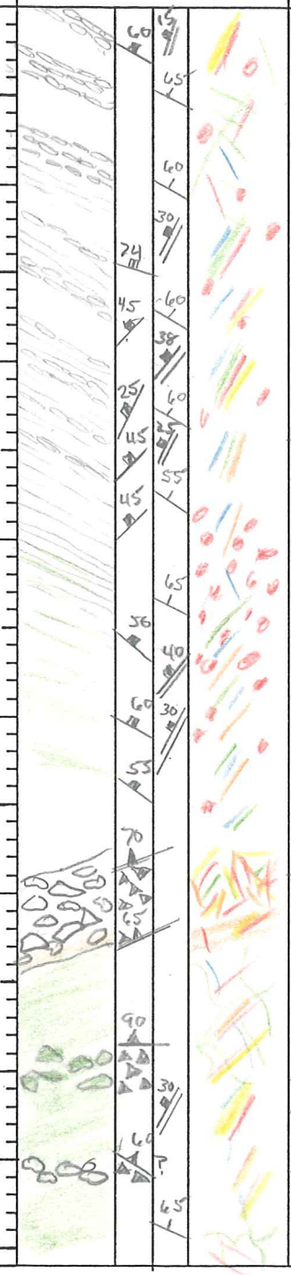
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
50.0 - 153.0		50.0 - 143.0			50.0-50.5 HEALED FAULT	50.0-50.5 SILICA FLOODED NO BXA CLASTS, VERY STRONG BLADED MARC, MINOR WHITE CLAY.
PLANAR LAMINAR?		PINK TO LT. GREEN-GRAY, FINE GRAIN VESICULAR W/ FLOW BAND/BED PLANES OUTLINED BY VESICLE ALIGNMENT & FAINT OUTLINES OF BANDS. POSSIBLE TUFFACEOUS INTERBEDS, ALSO VESICULAR, OR MAY ALL BE VERY COMPACTED TUFF.	60		63.0 3" BXA, HEALED, SUBANGULAR FRAGS	63.0 CEMENTED W/ WHITE CLAY, CALCITE, BLADED MARC.
			70		67.7 1" Ø BXA W/ ANGULAR FRAGS.	67.7 BXA CEMENTED W/ MARC, QUARTZ, PROPYLITIC CLAY
		79.0 - 84.0 SIGNIFICANT CORE LOSS, 3' RECOVERED FOR 5' DRILLED	80		77.0-90.0 STRONG VEINING, OPEN FRACTS, VUGS. 87.0-88.0 BXA W/ ANGULAR FRAGS	77.0-90.0 LINED/FILLED W/ BLUE-GREEN & WHITE CLAY, BLADED MARC, DRUZY QUARTZ. 87.0-88.0 BXA HEALED W/ DRUZY QUARTZ, BLADED MARC., BARITE
			90		90.0-97.0 MOD VEINING/FRACTURE FILLING.	92.0-104.0 MINOR CALCITE VEINING
			100		103.0-110.5 MOD. OPEN FRACTURES/VUGS THIN HEALED BXA W/ ANGULAR FRAGS @ 107.5	103.0-110.5 FRACTS/VUGS LINED W/ DRUZY QUARTZ, WHITE CLAY, BLADED MARC., PYRITE, BXA CEMENTED W/ DRUZY QUARTZ, MARC., LT. GREEN CLAY
			110		115.2-118.0 THIN BRECCIAS & OPEN SPACE FRACTURES	115.2-118.0 BXA'S & FRACTURES LINED/FILLED W/ DRUZY QUARTZ MARC, MINOR BLADED MARC. SOME WHITE CLAY
			120			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
50.5	54.0				
54.0	59.0				
59.0	64.0				
64.0	69.0				
69.0	72.6				
72.0	74.0				
74.0	76.2				
76.2	79.0				
79.0	84.0				
84.0	86.2				
86.2	89.0				
89.0	91.8				
91.8	94.0				
94.0	97.0				
97.0	99.0				
99.0	104.0				
104.0	107.5				
107.5	109.0				
109.0	111.0				
111.0	114.9				
114.9	119.0				

HOLE NUMBER D-277-98 PAGE 3 OF 6

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
50.0	153.0	50.0 - 143.0 SEE DESCRIPTION PAGE 2			118.0 - 154.0 FRACTURES & VEINS COMMONLY AT 90° TO FABRIC ALIGNMENT/BEDDING.		119.0	124.0				
PLANAR LAMINAR?			130			127.0 - 169.4 WEAK CALCITE VEINING, OFTEN W/ GREEN OR WHITE CLAY.	124.0	129.0				
							129.0	134.0				
			140				134.0	139.0				
		143.0 - 153.0 GRADING INTO FINE GRAIN, PLANAR LAMINAR FLOW, LT. GREENISH-GRAY W/ VERY RARE VESICLE TRAINS.			143.0 GRADATIONAL CONTACT		139.0	143.5				
			150			148.0 - 161.0 ROUND TO IRREGULAR SHAPED SULFIDIC SELVAGES. MORE NUMBEROUS THAN OTHER AREAS.	143.5	148.5				
153.0 -	173.4	153.0 - 173.4			153.0 GRADATIONAL CONTACT.		148.5	153.0				
FINE GRAIN MASSIVE		GRAY → GREEN, EXTREMLY FINE GRAIN MASSIVE FLOW, OCCASIONAL ISOLATED VESICLES UP TO 1/2" DIA., USUALLY OVAL, RARELY IRREGULAR SHAPED, FILLED W/ RED, GREEN, PINK CLAY AND/OR SULFIDES, FRACTURE PATTERNS & GENERAL APPEARENCE RESEMBLE VITROPHYRE	160				153.0	158.0				
							158.0	163.0				
169.4 -	173.5				169.4 - 173.5 BRECCIA/FAULT ZONE	169.4 - 173.5 ISOLATED SILICA REP. FRAGS, CEMENTED W/ DROZY QUARTZ, BLADED QUARTZ, WHITE CLAY, SULFIDES 30%-40%	163.0	168.0				
BRECCIA		HETEROLITHIC BRECCIA W/ ROUND → SUBANGULAR FRAGS OF F.G. MASSIVE, PLANAR FLOW & VITROPHYRE, MOSTLY CLAST SUPPORTED.	170				168.0	169.4				
							169.4	171.5				
							171.5	173.5				
173.5 -	178.5	173.5 - 178.5 LT. GREEN, EXTREMLY F.G. → GLASSY, DEVITRIFICATION FRACTURES.										
VITROPHYRE						173.5 - 175.0 WEAK ARGILLIC ALT.	173.5	178.0				
178.5 -	180.5	CHAOTIC MELANGE, MOSTLY FINE GRAIN MASSIVE CLASTS IN A GREEN HARD CLAY MATRIX.	180		178.5 - 180.5 MAYBE OLDER FAULT. RARE SULFIDES/QUARTZ.							
180.5 -	188.5					173.5 - 195.0 WEAK CALCITE VEINING	178.0	183.5				
FINE GRAIN MASSIVE					185.0 - 186.2 HETEROLITHIC HEALED BXA, COULD BE FLOW BASE	185.0 - 187.0 BXA CEMENTED W/ GREEN CLAY. ASSOC.? OPEN FRACTS. W/ DROZY QUARTZ, BLADED QUARTZ, MINOR QUARTZ.						
188.5 -	196.3	188.5 - 196.3 VITROPHYRE	190		188.5 GRADATIONAL CONTACT		183.5	188.5				



HOLE NUMBER D-277-98 PAGE 4 OF 6

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
188.5 - 196.3 VITROPHYRE		188.5 - 196.3 GREEN, EXTREEMLY FINE GRAIN TO GLASSY W/ DEVITRIFICATION. FRACTURES FILLED BY GREEN CLAY.			188.5 - 196.3 MOD. SULFIDE VEINING AS FRACTURE FILLINGS. 196.3 CONTACT SHARP	
196.3 - 220.5 PLANAR LAMINAR		196.3 - 220.5 ALTERNATING LAMINAR PINK & GREEN. LAMINAR FEATURES PRONOUNCED, WELL DEFINED. FINEGRAIN → APHANITIC. OCCASIONAL VESICLE TRAINS ALONG LAMINAR/PLANAR FEATURES.	200 210 220		199.8 - 207.0 MOD. VEINING W/ PROPYLITIC CLAY & SULFIDES FILLING FRACTURES AT LOW ANGLE TO CORE. 208.0 - 214.0 MOD VEINING & FRACTURE FILLING. 212.8 - 214.0 FAULT BXA, HEALED, HOMOLITHIC ANGULAR FRAGS. 220.5 GRADATIONAL CONTACT	197.0 - 253.0 IRREGULAR; FEW ROUNDED SULFIDIC SELVAGES. OFTEN ASSOC. W/ FRACTURES OR FABRIC ALIGNMENT. 208.0 - 214.0 VEINS/FRACTS LINED/FILLED W/ WHITE CLAY, SOME DRUZY QUARTZ BLADED MARC. 212.8 - 214.0 CEMENTED W/ QUARTZ, DRUZY QTZ, BLADED MARC.
220.5 - 224.7		220.5 - 224.7 SPOTTED TUFF - PINKISH TUFF FRAGS IN LT. GREEN VOLCANIC CLAY.				
224.7 - 257.5 PLANAR LAMINAR		224.7 - 257.5 GREENISH-GRAY TO DK. PINKISH GRAY. APHANITIC W/ FLOW BANDS, SCATTERED VESICLES TO 1/2" DIA., MOSTLY IRREGULAR SHAPED, FILLED W/ GREEN, YELLOW, RED CLAYS AND/OR SULFIDES.	230 240 250 260		233.6 - 233.8 1" Ø BXA ALONG BED PLANE. 257.5 VERY GRADATIONAL CONTACT	225.7 - 257.5 MINOR → MOD. CALCITE VEINS. 233.6 - 233.8 RED QUARTZ VEINS AS MATRIX FOR BXA. MINOR SULFIDES, MOD. CALCITE. 257.5 - 259.5 STRONG SILICA FLOODING. & CHILLED MARGIN?
257.5 - 291.1 FINE GRAIN MASSIVE		257.5 - 291.1				

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
188.5	192.0				
192.0	196.3				
196.3	199.0				
199.0	204.0				
204.0	209.0				
209.0	211.5				
211.5	214.0				
214.0	219.0				
219.0	220.5				
220.5	224.7				
224.7	229.0				
229.0	233.0				
233.0	234.0				
234.0	238.0				
238.0	243.0				
243.0	248.0				
248.0	253.0				
253.0	257.5				
257.5	260.0				

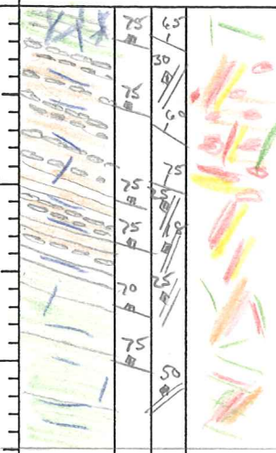
HOLE NUMBER D-277-98 PAGE 5 OF 6

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
257.5 - 291.1 FINE GRAIN MASSIVE		257.5 - 291.1 GREEN → LT. GREEN, WELL DEFINED PLANAR FEATURES TO 264.0', ALSO FINE GRAIN TO THAT POINT. EXTEEMLY FINE GRAIN AFTER 264.0' W/ FRACTURE PATTERN RESEMBLING VITROPHYRE. COMMON BXA ZONES UP TO 1' Ø, MOSTLY 3"-4" Ø W/ ANGULAR FRAGS IN A GREEN TO PINKISH-GREEN APHANITIC VOLCANIC CLAY. MOST BXA'S ARE 50°-70° TO CORE AXIS AND MOST LIKELY ARE OF AN AUTOBRECCIA TYPE DERIVATION.	270 280 290		262.5 - 283.5 INCREASE VEININ	263.0 - 285.0 WEAK → MOD. ARGILLIC ALT. INCREASED SULFIDE VEINING DUE TO ARGILLIC ALT.? 257.5 - 291.1 MINOR CALCITE VEINING W/ SULFIDES
291.1 - 355.0 PLANAR SLIGHTHLY LAMINAR		291.1 - 332.5 GREEN TO LT. GREEN, FINE GRAIN W/ PLANAR FEATURES IE. VESICLE TRAINS, FLOW BANDS. VARIABLE LAMINAR FRACTURES PARALLEL TO FABRIC ALIGNMENT/BEDDING. 306.0 - 309.0 SIGNIFICANT CORE LOSS, MISMATCH. 1' REC. FOR 3' DRILLED. 329.5 - 332.5 SIGNIFICANT CORE LOSS, MISMATCH	300 310 320 330		291.1 ROUND CLASTS IN A VOLCANIC CLAY MATRIX IS PROBABLE FLOW BASE CONTACT. 294.0 - 300.3 LOW ANGLE STRUCTURE NEAR = TO CORE AXIS. 301.5 - 310.0 INCREASED VEINING ASSOC. W/ ARG. ALT. 326.0 - 332.5 HIGH FRACTURE DENSITY	294.0 - 300.3 FRACTURES/BXA'S LINED/FILLED W/ WHITE/GREEN CLAY, MINOR SULFIDES 299.0 - 301.5 MOD. ARGILLIC ALT. 301.5 - 310.0. STRONG ARGILLIC ALT. QUARTZ/MARC./DRUZY QUARTZ VNS. 294.0 - 355.0 ROUND TO VERY IRREGULAR SHAPED SULFIDIC SELVAGES OFTEN ASSOC. W/ SULFIDIC VEINS OR FRACTURE FILLING. 314.0 - 314.5 1" Ø VN W/ BARITE, MARC.,

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
260.0	262.5				
262.5	267.5				
267.5	272.5				
272.5	277.5				
277.5	282.5				
282.5	287.5				
287.5	291.1				
291.1	294.0				
294.0	299.0				
299.0	301.5				
301.5	304.0				
304.0	306.0				
306.0	309.0				
309.0	314.0				
314.0	316.0				
316.0	319.0				
319.0	324.0				
324.0	328.0				

HOLE NUMBER D-277-98 PAGE 6 OF 6

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
291.1 - 355 PLANAR SLIGHLY LAMINAR		332.5 - 344.5 LT. GRAY, FINE GRAIN, VESICULAR W/ VESICLES COMMONLY ALIGNED W/ FLOW FEATURES & BANDS. PLANAR & LAMINAR FLOW & FRACTURE PATTERNS INTACT. 344.5 - 355.0 GREEN, FINE GRAIN, WEAK PLANAR FEATURES BUT LAMINAR FRACTURES ARE COMMON. 346.0 - 349.0 SIGNIFICANT CORE LOSS, MISLATCH, 2' REC., 3' DRILLED	340 350		332.5 - 343.5 INCREASE SULFIDE VEINS AT OBLIQUE ∡ TO CORE	332.5 - 343.5 WEAK ARGILLIC ALT. W/ ASSOC. INCREASED QUARTZ/SULFIDE VEINING. INCREASED SULFIDIC SELVAGES.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
328.0	332.5				
332.5	337.5				
337.5	341.5				
341.5	343.5				
343.5	346.0				
346.0	349.0				
349.0	351.0				
351.0	355.0				

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-277-98 DATE: 8/29/98 LOGGED BY: ALLYN NILES PAGE 1 OF 8

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
0.0	5.0	92.0	92.0	50.0										
5.0	9.0	68.0	72.0	50.0										
9.0	14.0	90.0	96.0	36.0										
14.0	19.0	74.0	100.0	32.0										
19.0	24.0	100.0	100.0	64.0										
24.0	29.0	100.0	100.0	70.0										
29.0	34.0	100.0	100.0	56.0										
34.0	39.0	100.0	100.0	84.0										
39.0	44.0	100.0	100.0	100.0										
44.0	49.0	100.0	100.0	84.0										
49.0	54.0	100.0	100.0	74.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-277-98 DATE: LOGGED BY: PAGE 2 OF 8

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
54.0	59.0	100.0	100.0	88.0										
59.0	64.0	100.0	100.0	96.0										
64.0	69.0	98.0	100.0	66.0										
69.0	74.0	100.0	100.0	62.0										
74.0	79.0	98.0	98.0	54.0										
79.0	84.0	20.0	60.0	0										
84.0	89.0	90.0	100.0	50.0										
89.0	94.0	100.0	100.0	92.0										
94.0	99.0	100.0	100.0	96.0										
99.0	104.0	100.0	100.0	86.0										
104.0	109.0	92.0	92.0	50.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-277-98 DATE: 8/31/98 LOGGED BY: _____ PAGE 3 OF 8

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
109.0	114.0	86.0	100.0	60.0										
114.0	119.0	100.0	100.0	76.0										
119.0	124.0	100.0	100.0	74.0										
124.0	129.0	100.0	100.0	94.0										
129.0	134.0	98.0	98.0	94.0										
134.0	139.0	100.0	100.0	96.0										
139.0	143.5	100.0	100.0	54.0										
143.5	148.5	100.0	100.0	62.0										
148.5	153.0	111.1	111.1	64.0										
153.0	163.0	98.0	98.0	70.0										
163.0	168.0	100.0	100.0	80.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-277-98 DATE: LOGGED BY: PAGE 4 OF 8

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
168.0	173.0	96.0	100.0	50.0										
173.0	178.0	100.0	100.0	66.0										
178.0	183.5	100.0	100.0	90.0										
183.5	189.0	94.5	94.5	64.0										
189.0	194.0	100.0	100.0	100.0										
194.0	199.0	100.0	100.0	72.0										
199.0	204.0	100.0	100.0	36.0										
204.0	209.0	100.0	100.0	50.0										
209.0	214.0	100.0	100.0	70.0										
214.0	219.0	100.0	100.0	36.0										
219.0	224.0	100.0	100.0	52.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-277-98 DATE: 9-1-98 LOGGED BY: _____ PAGE 5 OF 8

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
224.0	229.0	100.0	100.0	98.0										
229.0	234.0	100.0	100.0	56.0										
234.0	238.0	67.5	80.0	25.0										
238.0	243.0	60.0	100.0	34.0										
243.0	248.0	60	76.0	40.0										
248.0	253.0	100.0	100.0	52.0										
253.0	255.5	92.0	92.0	80.0										
255.5	257.5	0	70.0	0										
257.5	262.5	102.0	102.0	66.0										
262.5	267.5	102.0	102.0	100.0										
267.5	272.5	0	98.0	62.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-277-98 DATE: LOGGED BY: PAGE 6 OF 8

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)
272.5	277.5	98.0	100.0	80.0										
277.5	282.5	98.0	100.0	90.0										
282.5	287.5	102.0	102.0	90.0										
287.5	294.0	68.0	72.3	53.8										
294.0	299.0	24.0	100.0	14.0										
299.0	304.0	34.0	84.0	16.0										
304.0	306.0	60.0	95.0	25.0										
306.0	309.0	23.0	30.0	0										
309.0	314.0	70.0	96.0	70.0										
314.0	319.0	78.0	94.0	50.0										
319.0	322.0	96.0	100.0	60.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-277-98 DATE: LOGGED BY: PAGE 7 OF 8

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)
322.0	324.0	0	85.0	0										
324.0	325.0	0	100.0	0										
325.0	326.0	80.0	100.0	40.0										
326.0	327.5	0	80.0	0										
327.5	328.0	0	100.0	0										
328.0	329.0	0	50.0	0										
329.0	329.5	0	140.0	0										
329.5	332.5	0	23.3	0										
332.5	337.5	106.0	106.0	50.0										
337.5	342.0	95.0	97.7	40.0										
342.0	346.0	75.0	75.0	35.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-277-98 DATE: 9-1-98 LOGGED BY: ALLYN NILES PAGE 8 OF 8

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
346.0	349.0	0	66.6	0										
349.0	353.0	60.0	100.0	32.5										
353.0	355.0	70.0	90.0	40.0										

American Assay Laboratories

INVOICE

Remit To: P.O. Box11530
Reno, Nevada 89510
Phone NO.: 702-356-0606
Fax No.: 702-356-1413

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431-5902

(702) 356-0606

INVOICE NO: SP 0050566-IN
INVOICE DATE: 10/01/98

INVOICE TO:
THE ROSEBUD MINING CO., LLC
HECLA MINING COMPANY, OPERATOR
P.O. BOX 2610
WINNEMUCCA NV 89446

THE ROSEBUD MINING CO., LLC
HECLA MINING COMPANY, OPERATOR
P.O. BOX 2610
WINNEMUCCA NV 89446

CUSTOMER P.O.	PROJECT	TERMS
D-27/-98	DEVELOPMENT	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
95	SAMPLES RECEIVED	.00	.00
94	DRYING	1.00	94.00
94	JAW CRUSHING CHARGE	1.30	122.20
94	COARSE MILLING CHARGE	4.50	423.00
94	SPLITTING CHARGE	2.40	225.60
94	RING MILLING CHARGE	2.00	188.00
95	Au (1 A.T. FIRE ASSAY)	8.00	/60.00
15	Au ANALYSES/GRAVIMETRIC	8./5	131.25
95	HYDROCHLORIC/NITRIC DIGESTION	2.00	190.00
95	Ag ANALYSES	1.00	95.00

86-5110-477
KA

NET INVOICE:	2,229.05
LESS DISCOUNT:	445.81
FREIGHT:	.00
INVOICE TOTAL:	1,/83.24

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP050566

American Assay Laboratories

PO BOX 11530
RENO NV,USA
Ph.(702) 356-0606, Fax.(702) 356-1413

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

CLIENT REFERENCE No: D-277-98 RECEIVED : 11 SEP 1998

No. SAMPLES : 95 REPORTED : 11 SEP 1998

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)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP050566

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-277-98

REPORTED : 11 SEP 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-277-98 0-5	0.002			0.04
D-277-98 5-9	0.031			0.07
D-277-98 9.0-10.6	0.026			0.04
D-277-98 10.6-14.0	0.263		0.232	0.08
D-277-98 14-19	0.004			0.03
D-277-98 19-24	0.001			0.03
D-277-98 24-29	0.001			0.06
D-277-98 29-34	<0.001			<0.02
D-277-98 34-39	<0.001			<0.02
D-277-98 39-44	0.002			0.05
D-277-98 44-49	0.003			0.05
D-277-98 49.0-50.5	0.020			0.50
D-277-98 50.5-54.0	0.004			0.09
D-277-98 54-59	0.004			0.07
D-277-98 59-64	0.005			0.08
D-277-98 64-69	0.004			0.05
D-277-98 69-72	0.003			0.05
D-277-98 72-74	0.013			0.13
D-277-98 74.0-76.2	0.041			0.07
D-277-98 76.2-79.0	0.030			0.09
D-277-98 79-84	0.039			0.09
D-277-98 84.0-86.2	0.049			0.13
D-277-98 86.2-89.0	0.030			0.19
D-277-98 89.0-91.8	0.054		0.089	0.10
D-277-98 91.8-94.0	0.159		0.176	0.10

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ANALYSIS REPORT SP050566

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-277-98

REPORTED : 11 SEP 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-277-98 94-97	0.047			0.07
D-277-98 97-99	0.002			0.05
D-277-98 99-104	0.111		0.143	0.08
D-277-98 104.0-107.5	0.486		0.551	0.21
D-277-98 107.5-109.0	0.002			0.04
D-277-98 109-111	0.029			0.10
D-277-98 111.0-114.9	0.030			0.05
D-277-98 114.9-119.0	0.020			0.06
D-277-98 119-124	0.004			0.05
D-277-98 124-129	0.003			0.05
D-277-98 129-134	0.018			0.03
D-277-98 134-139	<0.001			0.04
D-277-98 139.0-143.5	0.009			0.03
D-277-98 143.5-148.5	<0.001			<0.02
D-277-98 148.5-153.0	<0.001			<0.02
D-277-98 153-158	0.002			0.05
D-277-98 158-163	0.086		0.071	0.02
D-277-98 163-168	0.003			0.02
D-277-98 168.0-169.4	<0.001			0.05
D-277-98 169.4-171.5	0.007			0.07
D-277-98 171.5-173.5	0.012			0.04
D-277-98 173.5-178.0	0.006			0.02
D-277-98 178.0-183.5	<0.001			0.02
D-277-98 183.5-188.5	0.019			0.06
D-277-98 188.5-192.0	0.076		0.084	0.09

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ANALYSIS REPORT SP050566

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REFERENCE : D-277-98

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SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-277-98 192.0-196.3	0.118		0.177	0.14
D-277-98 196.3-199.0	0.021			0.20
D-277-98 199-204	0.017			0.08
D-277-98 204-209	0.044			0.16
D-277-98 209.0-211.5	0.132		0.186	1.17
D-277-98 211.5-214.0	0.326		0.400	0.42
D-277-98 214-219	0.047			0.13
D-277-98 219.0-220.5	0.277		0.251	0.20
D-277-98 220.5-224.7	0.090		0.126	0.08
D-277-98 224.7-229.0	0.009			<0.02
D-277-98 229-233	<0.001			<0.02
D-277-98 233-234	<0.001			<0.02
D-277-98 234-238	0.020			<0.02
D-277-98 238-243	0.001			0.02
D-277-98 243-248	0.006			0.06
D-277-98 248-253	0.002			<0.02
D-277-98 253.0-257.5	0.008			0.06
D-277-98 257.5-260.0	<0.001			<0.02
D-277-98 260.0-262.5	0.002			0.02
D-277-98 262.5-267.5	0.010			0.08
D-277-98 267.5-272.5	0.060		0.050	0.09
D-277-98 272.5-277.5	0.065		0.100	0.10
D-277-98 277.5-282.5	0.007			0.10
D-277-98 282.5-287.5	0.005			0.10
D-277-98 287.5-291.1	<0.001			0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP050566

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-277-98

REPORTED : 11 SEP 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-277-98 291.1-294.0	<0.001			0.03
D-277-98 294-299	<0.001			<0.02
D-277-98 299.0-301.5	0.003			0.06
D-277-98 301.5-304.0	0.008			0.07
D-277-98 304-306	0.012			0.08
D-277-98 306-309	0.007			0.05
D-277-98 309-314	0.005			0.04
D-277-98 314-316	0.219		0.176	0.84
D-277-98 316-319	0.004			0.12
D-277-98 319-324	0.004			0.06
D-277-98 324-328	<0.001			<0.02
D-277-98 328.0-332.5	<0.001			<0.02
D-277-98 332.5-337.5	0.007			0.09
D-277-98 337.5-341.5	0.002			0.06
D-277-98 341.5-343.5	0.010			0.16
D-277-98 343.5-346.0	0.003			0.06
D-277-98 346-349	<0.001			0.02
D-277-98 349-351	0.005			0.07
D-277-98 351-355	0.015			0.09
40509	0.539			2.93

xAMERICAN ASSAY LABORATORIES
ANALYSIS REPORT SP050566

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CLIENT REFERENCE No: D-277-98 RECEIVED : 11 SEP 1998

No. SAMPLES : 95 REPORTED : 11 SEP 1998

MAIN SAMPLE TYPE : DRILL CORE

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ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP050566

American Assay Laboratories

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PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-277-98

REPORTED : 11 SEP 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-277-98 0-5	0.002			0.04
D-277-98 5-9	0.031			0.07
D-277-98 9.0-10.6	0.026			0.04
D-277-98 10.6-14.0	0.263		0.232	0.08
D-277-98 14-19	0.004			0.03
D-277-98 19-24	0.001			0.03
D-277-98 24-29	0.001			0.06
D-277-98 29-34	<0.001			<0.02
D-277-98 34-39	<0.001			<0.02
D-277-98 39-44	0.002			0.05
D-277-98 44-49	0.003			0.05
D-277-98 49.0-50.5	0.020			0.50
D-277-98 50.5-54.0	0.004			0.09
D-277-98 54-59	0.004			0.07
D-277-98 59-64	0.005			0.08
D-277-98 64-69	0.004			0.05
D-277-98 69-72	0.003			0.05
D-277-98 72-74	0.013			0.13
D-277-98 74.0-76.2	0.041			0.07
D-277-98 76.2-79.0	0.030			0.09
D-277-98 79-84	0.039			0.09
D-277-98 84.0-86.2	0.049			0.13
D-277-98 86.2-89.0	0.030			0.19
D-277-98 89.0-91.8	0.054		0.089	0.10
D-277-98 91.8-94.0	0.159		0.176	0.10

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP050566

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-277-98

REPORTED : 11 SEP 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-277-98 94-97	0.047			0.07
D-277-98 97-99	0.002			0.05
D-277-98 99-104	0.111		0.143	0.08
D-277-98 104.0-107.5	0.486		0.551	0.21
D-277-98 107.5-109.0	0.002			0.04
D-277-98 109-111	0.029			0.10
D-277-98 111.0-114.9	0.030			0.05
D-277-98 114.9-119.0	0.020			0.06
D-277-98 119-124	0.004			0.05
D-277-98 124-129	0.003			0.05
D-277-98 129-134	0.018			0.03
D-277-98 134-139	<0.001			0.04
D-277-98 139.0-143.5	0.009			0.03
D-277-98 143.5-148.5	<0.001			<0.02
D-277-98 148.5-153.0	<0.001			<0.02
D-277-98 153-158	0.002			0.05
D-277-98 158-163	0.086		0.071	0.02
D-277-98 163-168	0.003			0.02
D-277-98 168.0-169.4	<0.001			0.05
D-277-98 169.4-171.5	0.007			0.07
D-277-98 171.5-173.5	0.012			0.04
D-277-98 173.5-178.0	0.006			0.02
D-277-98 178.0-183.5	<0.001			0.02
D-277-98 183.5-188.5	0.019			0.06
D-277-98 188.5-192.0	0.076		0.084	0.09

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP050566

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-277-98

REPORTED : 11 SEP 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-277-98 192.0-196.3	0.118		0.177	0.14
D-277-98 196.3-199.0	0.021			0.20
D-277-98 199-204	0.017			0.08
D-277-98 204-209	0.044			0.16
D-277-98 209.0-211.5	0.132		0.186	1.17
D-277-98 211.5-214.0	0.326		0.400	0.42
D-277-98 214-219	0.047			0.13
D-277-98 219.0-220.5	0.277		0.251	0.20
D-277-98 220.5-224.7	0.090		0.126	0.08
D-277-98 224.7-229.0	0.009			<0.02
D-277-98 229-233	<0.001			<0.02
D-277-98 233-234	<0.001			<0.02
D-277-98 234-238	0.020			<0.02
D-277-98 238-243	0.001			0.02
D-277-98 243-248	0.006			0.06
D-277-98 248-253	0.002			<0.02
D-277-98 253.0-257.5	0.008			0.06
D-277-98 257.5-260.0	<0.001			<0.02
D-277-98 260.0-262.5	0.002			0.02
D-277-98 262.5-267.5	0.010			0.08
D-277-98 267.5-272.5	0.060		0.050	0.09
D-277-98 272.5-277.5	0.065		0.100	0.10
D-277-98 277.5-282.5	0.007			0.10
D-277-98 282.5-287.5	0.005			0.10
D-277-98 287.5-291.1	<0.001			0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP050566

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-277-98

REPORTED : 11 SEP 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-277-98 291.1-294.0	<0.001			0.03
D-277-98 294-299	<0.001			<0.02
D-277-98 299.0-301.5	0.003			0.06
D-277-98 301.5-304.0	0.008			0.07
D-277-98 304-306	0.012			0.08
D-277-98 306-309	0.007			0.05
D-277-98 309-314	0.005			0.04
D-277-98 314-316	0.219		0.176	0.84
D-277-98 316-319	0.004			0.12
D-277-98 319-324	0.004			0.06
D-277-98 324-328	<0.001			<0.02
D-277-98 328.0-332.5	<0.001			<0.02
D-277-98 332.5-337.5	0.007			0.09
D-277-98 337.5-341.5	0.002			0.06
D-277-98 341.5-343.5	0.010			0.16
D-277-98 343.5-346.0	0.003			0.06
D-277-98 346-349	<0.001			0.02
D-277-98 349-351	0.005			0.07
D-277-98 351-355	0.015			0.09
40509	0.539			2.93

SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 11530
Reno, NV 89510
Telephone
(702) 356-0606
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2775 E. Ganley
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(520) 294-6352

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

Mazatlan Office
Telephone/Fax
011-52-69-170035

Other Offices
Lima, Peru
Santiago, Chile
Mendoza, Argentina

Company: ROSEBUD MINING LLC

Address: P.O. BOX 2610

City: WINNEMUCCA State: NV Zip: 89445

Telephone Number: (702) 623-6912 Fax Number: (702) 623-6967

Project Name: DEVELOPMENT Purchase Order Number:

Date Submitted: 9/9/98 Number of Samples: 94

RESULTS REPORTED IN: ppm [ ] ppb [ ] opt [ ]

AU-AG ACCORDING TO ROSEBUD MINE PROTOCOL

D-277-98 SAMPLE IDENTIFICATION				TYPE	ELEMENTS REQUIRED		
0-5	64-69	109-111	171.5-173.5		229-233	291.1-294	343.5-346
5-9	69-72	111-114.9	173.5-178		233-234	294-299	346-349
9-10.6	72-74	114.9-119	178-183.5		234-238	299-301.5	349-351
10.6-14	74-76.2	119-124	183.5-188.5		238-243	301.5-304	351-355
14-19	76.2-79	124-129	188.5-192		243-248	304-306	
19-24	79-84	129-134	192-196.3		248-253	306-309	
24-29	84-86.2	134-139	196.3-199		253-257.5	309-314	
29-34	86.2-89	139-143.5	199-204		257.5-260	314-316	
34-39	89-91.8	143.5-148.5	204-209		260-262.5	316-319	
39-44	91.8-94	148.5-153	209-211.5		262.5-267.5	319-324	
44-49	94-97	153-158	211.5-214		267.5-272.5	324-328	
49-50.5	97-99	158-163	214-219		272.5-277.5	328-332.5	
50.5-54	99-104	163-168	219-220.5		277.5-282.5	332.5-337.5	
54-59	104-107.5	168-169.4	220.5-224.7		282.5-287.5	332.5-341.5	
59-64	107.5-109	169.4-171.5	224.7-229		287.5-291.1	341.5-343.5	

COARSE REJECTS (Normally Discarded After 60 Days)

[ ] Return COD after analysis complete

PULPS (Normally Stored Free For One Month)

[ ] Discard after one month

[ ] Return COD after one month

RESULTS AND INVOICES TO BE SENT TO:

Invoice to:

KURT ALLEN

Results to:

KURT ALLEN

Comments:

CLIENT FILE COPY

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP050566

PO BOX 11530
RENO NV,USA
Ph.(702) 356-0606, Fax.(702) 356-1413

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

CLIENT REFERENCE No: D-277-98 RECEIVED : 11 SEP 1998

No. SAMPLES : 95 REPORTED : 11 SEP 1998

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)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP050566

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-277-98

REPORTED : 11 SEP 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-277-98 0-5	0.002			0.04
D-277-98 5-9	0.031			0.07
D-277-98 9.0-10.6	0.026			0.04
D-277-98 10.6-14.0	0.263		0.232	0.08
D-277-98 14-19	0.004			0.03
D-277-98 19-24	0.001			0.03
D-277-98 24-29	0.001			0.06
D-277-98 29-34	<0.001			<0.02
D-277-98 34-39	<0.001			<0.02
D-277-98 39-44	0.002			0.05
D-277-98 44-49	0.003			0.05
D-277-98 49.0-50.5	0.020			0.50
D-277-98 50.5-54.0	0.004			0.09
D-277-98 54-59	0.004			0.07
D-277-98 59-64	0.005			0.08
D-277-98 64-69	0.004			0.05
D-277-98 69-72	0.003			0.05
D-277-98 72-74	0.013			0.13
D-277-98 74.0-76.2	0.041			0.07
D-277-98 76.2-79.0	0.030			0.09
D-277-98 79-84	0.039			0.09
D-277-98 84.0-86.2	0.049			0.13
D-277-98 86.2-89.0	0.030			0.19
D-277-98 89.0-91.8	0.054		0.089	0.10
D-277-98 91.8-94.0	0.159		0.176	0.10

AMERICAN ASSAY LABORATORIES

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SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-277-98 94-97	0.047			0.07
D-277-98 97-99	0.002			0.05
D-277-98 99-104	0.111		0.143	0.08
D-277-98 104.0-107.5	0.486		0.551	0.21
D-277-98 107.5-109.0	0.002			0.04
D-277-98 109-111	0.029			0.10
D-277-98 111.0-114.9	0.030			0.05
D-277-98 114.9-119.0	0.020			0.06
D-277-98 119-124	0.004			0.05
D-277-98 124-129	0.003			0.05
D-277-98 129-134	0.018			0.03
D-277-98 134-139	<0.001			0.04
D-277-98 139.0-143.5	0.009			0.03
D-277-98 143.5-148.5	<0.001			<0.02
D-277-98 148.5-153.0	<0.001			<0.02
D-277-98 153-158	0.002			0.05
D-277-98 158-163	0.086		0.071	0.02
D-277-98 163-168	0.003			0.02
D-277-98 168.0-169.4	<0.001			0.05
D-277-98 169.4-171.5	0.007			0.07
D-277-98 171.5-173.5	0.012			0.04
D-277-98 173.5-178.0	0.006			0.02
D-277-98 178.0-183.5	<0.001			0.02
D-277-98 183.5-188.5	0.019			0.06
D-277-98 188.5-192.0	0.076		0.084	0.09

AMERICAN ASSAY LABORATORIES

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REFERENCE : D-277-98

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SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)	
D-277-98 192.0-196.3	0.118		0.177	0.14	
D-277-98 196.3-199.0	0.021			0.20	
D-277-98 199-204	0.017			0.08	211.5-220.5
D-277-98 204-209	0.044			0.16	=9' @
D-277-98 209.0-211.5	0.132		0.186	1.17	
D-277-98 211.5-214.0 2.5	0.326		0.400	0.42	
D-277-98 214-219 5	0.047			0.13	0.163 Ag
D-277-98 219.0-220.5 1.5	0.277		0.251	0.20	0.22
D-277-98 220.5-224.7	0.090		0.126	0.08	
D-277-98 224.7-229.0	0.009			<0.02	
D-277-98 229-233	<0.001			<0.02	
D-277-98 233-234	<0.001			<0.02	
D-277-98 234-238	0.020			<0.02	
D-277-98 238-243	0.001			0.02	
D-277-98 243-248	0.006			0.06	
D-277-98 248-253	0.002			<0.02	
D-277-98 253.0-257.5	0.008			0.06	
D-277-98 257.5-260.0	<0.001			<0.02	
D-277-98 260.0-262.5	0.002			0.02	
D-277-98 262.5-267.5	0.010			0.08	
D-277-98 267.5-272.5	0.060		0.050	0.09	
D-277-98 272.5-277.5	0.065		0.100	0.10	
D-277-98 277.5-282.5	0.007			0.10	
D-277-98 282.5-287.5	0.005			0.10	
D-277-98 287.5-291.1	<0.001			0.02	

AMERICAN ASSAY LABORATORIES

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REFERENCE : D-277-98

REPORTED : 11 SEP 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-277-98 291.1-294.0	<0.001			0.03
D-277-98 294-299	<0.001			<0.02
D-277-98 299.0-301.5	0.003			0.06
D-277-98 301.5-304.0	0.008			0.07
D-277-98 304-306	0.012			0.08
D-277-98 306-309	0.007			0.05
D-277-98 309-314	0.005			0.04
D-277-98 314-316	0.219		0.176	0.84
D-277-98 316-319	0.004			0.12
D-277-98 319-324	0.004			0.06
D-277-98 324-328	<0.001			<0.02
D-277-98 328.0-332.5	<0.001			<0.02
D-277-98 332.5-337.5	0.007			0.09
D-277-98 337.5-341.5	0.002			0.06
D-277-98 341.5-343.5	0.010			0.16
D-277-98 343.5-346.0	0.003			0.06
D-277-98 346-349	<0.001			0.02
D-277-98 349-351	0.005			0.07
D-277-98 351-355	0.015			0.09
40509	0.539			2.93

D-277-98	0	55	127.7
	180	54	126.2
	353	53	125.2

D-277-98
DEPTH
BOX 2
10 - 19

D-277-98
DEPTH
BOX 1
0 - 10

D-277-98
DEPTH
BOX 3
19 - 28

37
44
D-277-98
DEPTH
BOX 5
37 - 46_5

29
34
D-277-98
DEPTH
BOX 4
28 -37

D-277-98
DEPTH
BOX 6
46_5 - 56

69
74
D-277-98
DEPTH
BOX 8
65_5 - 74_5

59
64
D-277-98
DEPTH
BOX 7
56 - 65_5

D-277-98
DEPTH
BOX 9
74_5 - 86
79
84

D-277-98
DEPTH
BOX 11
95 - 104_5
99
104

D-277-98
DEPTH
BOX 10
86 - 95
89
94

D-277-98
DEPTH
BOX 12
104_5 - 114
109
114

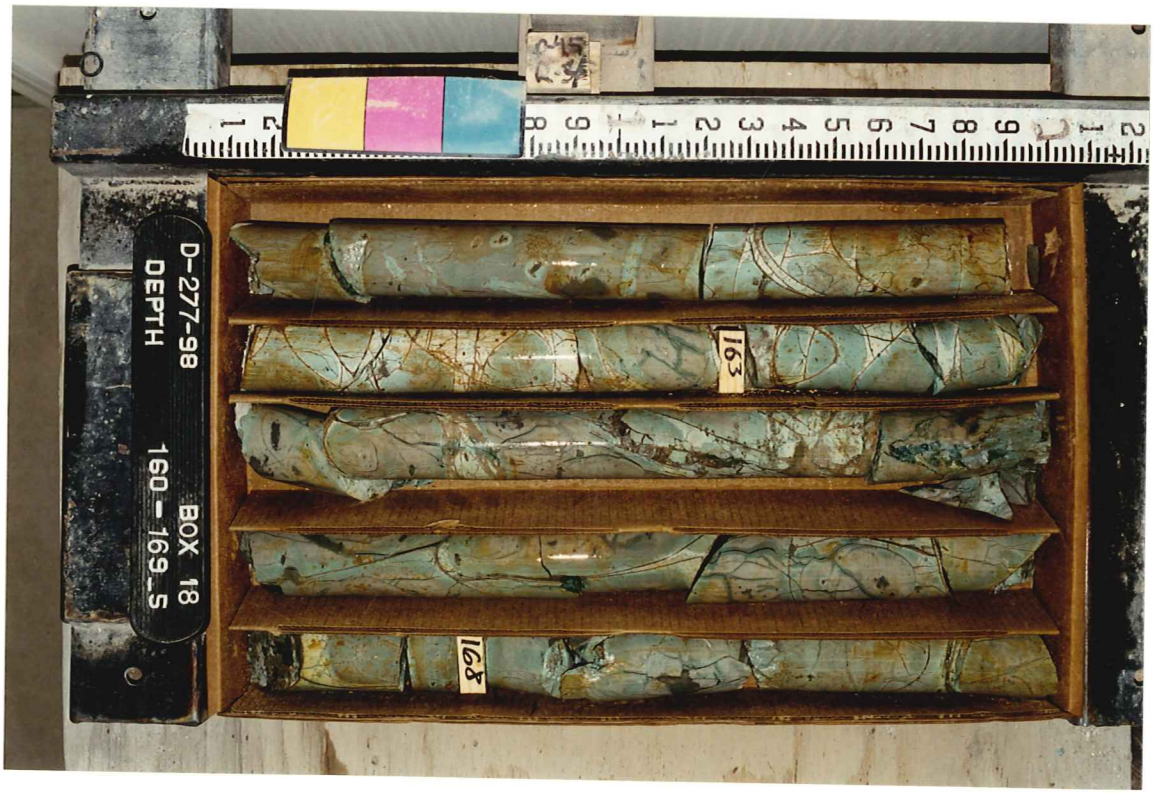
D-277-98
DEPTH
BOX 14
123_5 - 132_5
124
129

D-277-98
DEPTH
BOX 13
114 - 123_5
119

D-277-98
DEPTH
BOX 15
132_5 - 142
134
139

153
D-277-98
DEPTH
BOX 17
151 - 160

143.5
148.5
D-277-98
DEPTH
BOX 16
142 - 151


163
168
D-277-98
DEPTH
BOX 18
160 - 169.5

183.5
D-277-98
BOX 20
DEPTH
179 - 188_5

173
178
D-277-98
BOX 19
DEPTH
169_5 - 179

189
194
D-277-98
BOX 21
DEPTH
188_5 - 198

214
209
D-277-98
BOX 23
DEPTH
207-216_5

199
204
D-277-98
BOX 22
DEPTH
198 - 07

219
224
D-277-98
BOX 24
DEPTH
216_5 - 225_5

D-277-98
BOX 26
DEPTH 235-244
243
238
MIS-
LATCH

D-277-98
BOX 25
DEPTH 225.5 - 235
229
234

D-277-98
BOX 27
DEPTH 244 - 255
248
253

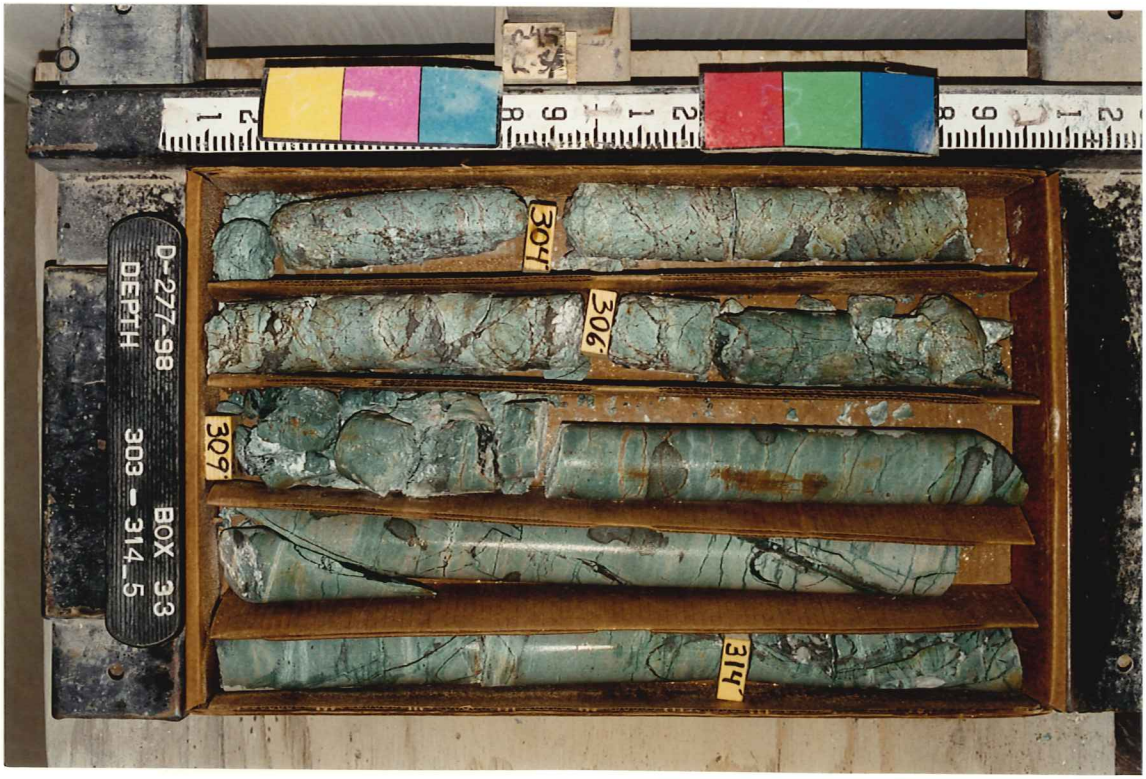
D-277-98
BOX 29
DEPTH
265 - 274
262.5
272.5

D-277-98
BOX 28
DEPTH
255 - 265
257.5
262.5
255.5

D-277-98
BOX 30
DEPTH
274 - 283
277.5
282.5

D-277-98
BOX 32
DEPTH
293_5 - 303
294
297

D-277-98
BOX 31
DEPTH
283 - 293_5
287.5


D-277-98
BOX 33
DEPTH
303 - 314_5
304
306
309
314

326
327.5
325
329
327.5
326
D-277-98
BOX 35
DEPTH
324 - 336

322
MIS LATCH
324
319
D-277-98
BOX 34
DEPTH
314_5 - 324

337.5
342
D-277-98
BOX 36
DEPTH
336 - 345_5

346
349
353
355
D-277-98
BOX 37
DEPTH
345.5 - 355 TD

SINGLE SHOT
PHOTO DISC RECORD

COMPANY Heda
WELL NAME D-277-98
LEASE
TAKEN BY Hunter
DEPTH Collar
DATE 7-3-98
DRIFT ANGLE
DIRECTION
TYPE
JOB NO. 1

HI-1408

40
NW
40
N
30
NW
30
N
20
20

SINGLE SHOT
PHOTO DISC RECORD

COMPANY Hecla D-277-98
WELL NAME
LEASE
TAKEN BY Hunter
DEPTH 353'
DATE 7-3-98
DRIFT ANGLE
DIRECTION
TYPE
JOB NO. 1

HI-1403

NW
40
NW
40
30
NW
30
NW
30

SINGLE SHOT
PHOTO DISC RECORD

COMPANY Hecla
WELL NAME 0-277-98
LEASE
TAKEN BY Hunter
DEPTH 180'
DATE 7-3-98
DRIFT ANGLE
DIRECTION
TYPE
JOB NO. 1

HI-1408