60001216

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-316-98
AUTHOR	S. King; K. Allen; D. Mackerron
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 281' receipt; handwritten notes; downhole camera images 37p. 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: DP 5/14/08
Initials Date
DB: mah
Initials Date
SCANNED: NB
Initials Date

Revised: 1/22/08

D-316-98

6000 1216 4010

60001216

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

Hecla MINING COMPANY

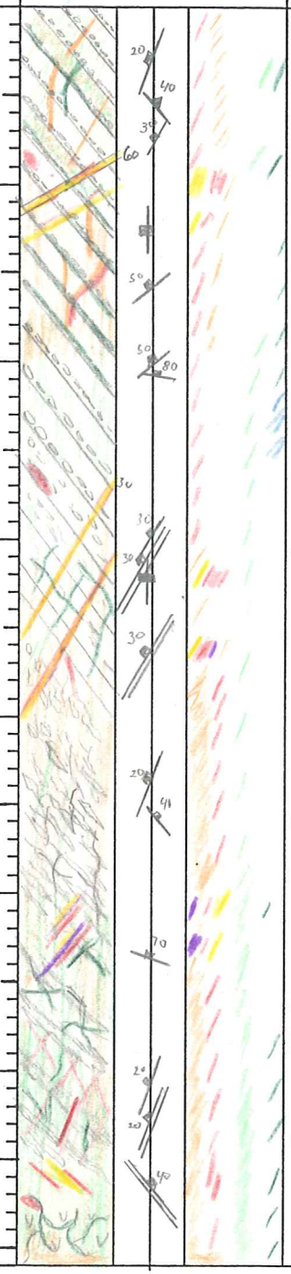
ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-316-98	LOCATION	Stope 50 Section 1675	REMARKS	
PAGE 1 OF	5	NORTHING		completed drilling 9/22/98	
DATE	11-2-98	EASTING			
LOGGED BY	D.G. Mackerron	ELEVATION			
SCALE	1" = 10'	AZIMUTH	125		
TOTAL DEPTH	281	INCLINATION	+25		

LITH	OX/RE	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
SPLAT ↓	Red ↑	SLIGHTLY PLANAR LAMINAR Fine To medium textured flow. Weak Foliation to the flow, Greengraycolor, Vesicuals orient themselves with the foliation. Calcite is present in the first 8' of the hole as fracture continues. Disseminated Py increases from 25-33 in Fault Zone 3-5% From 39'-48.3 Veins of Quartz, marcasite and clay thicken and increase in number QTZ has been hydrothermally leached forming open space for marcasite blades, Marcasite content of veins is moderate to heavy 48.3 - 59 Decreased fracture density and veining. 50 - 68.4 Argillization is increased to a steady moderate level	10 20 30 40 50	Pinup 32	Numerous narrow Auto bxx present Drag folding of the foliation of the flow associated with the fault starting at 16', upper surface destroyed by drilling Breccia begining at 16 ft has had the upper contact lost to drilling Internal foliation at 18' is at 20° TCA Matrix of milled bxx is volcanic clay to 24' then remaining bxx has kaolinite clay matrix to 33.8' Bxx is clast supported Mosaic bxx from 25 to 33.8' * Fault at 16-33.8' was seen in D-317-98 and D-315-98 by mach. 59-68.4 fracture density increase	Disseminated Py ≤ 1% Pyrite found in veins, veinlets, fracture coating and aggregation around fractures that can reach concentrations of ≤ 50% py. chlorite is found on fractures. Argillization has overprinted a general propylization of the rocks 18.6' to 21.8 quartz, marcasite vein, 1 major vein at 19-19.5' 25-33.8 disseminate py and white clay matrix Mosaic Bxx. Small Barite crystal also present 33.8-37.7 Hydrothermally altered clay fracture filling with qtz and marcasite 39-48.3 Hydrothermally leach QTZ veins with marcasite blades ½" clay filled fractures

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
0	4					
4	9					
9	11.8					
11.8	16					
16	18.6					
18.6	21.8					
21.8	24.7					
core loss 50%						
24.7	30					
30	33.8					
33.8	35.8					
35.8	37.7					
37.7	40.4					
40.4	44.7					
44.7	48.3					
48.3	51					
51	54					

HOLE NUMBER D-316-98 PAGE 2 OF 5

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
S.P.L.A.T. ↓		0-115 SLIGHTLY PLANAR LAMINAR 50-68.4 moderately argillized fine grained flow. Fractures have decreased in number below 48.3. Remaining fractures contain white clay and pyrite. 70.5-85.8 Texture is approaching 'wormy' S.P.L.A.T but lacks the level of argillization. Vesicular textures are less distinct from 75.3-81.6' 85.8-115 WORMY SPLAT Fine grained S.P.L.A.T with alteration causing surface to look like worm tracks in mud. Rock is bleached and argillized. Tracks have a fine silica core. This could be all devitrification textures. Rock is becoming more chloritic and turning green gray to pale green in color. 101.4-115 Rock grades between wormy S.P.L.A.T and fine grained massive.	50 60 70 80 90 100 110 120		QTZ VEIN from 59-63.5 are 60° TCA They have been cut by 30° TCA fractures 59-68.4 moderate fractureing with clay, chlorite, pyrite QTZ marcasite vein at 86.1' 30° TCA Fracture increase 103.3 to 108 115.4-116 contact clay filled fractures almost expand to crackle brecciation 113' ¼" py marcasite VN	59-63.5 QTZ VEINS Largest vein from 59.7 to 61.4' This is a drazy qtz VN with Py and marc. Pyrite is the shiny fresh type 63.5-68.4 white clay on high angle fractures with pyrite and marcasite 71.5-75.3 calcareous reaction 81.6-85.8 1" thick qtz VN at 82' with marcasite. Chlorite bleeds from fractures 85.8-89 1" qtz vein with black marcasite blebs in open hydrothermal vugs. Marcasite is coated with a oxidize botryoidal rind of former py? Fine barite is also present in vein 99.5-104.5 Two narrow barite marc. and QTZ VNS of ≤ ½" at 101.5 & 103.3. 107-112 moderate pyrite marcasite veinlets 116 - 1" qtz py marc. vein 115-117.2 clay and pyrite/marcasite veins 50° TCA 117.1 ½" dia marcasite mass
F.G.M.		115-117.2 FINE GRAINED MASSIVE				
VIT.		117.2 VITROPHYRE				

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	
48.3	51					
51	54					
54	59					
59	63.5					
63.5	68.4					
68.4	71.5					
71.5	75.3					
75.3	79					
79	81.6					
81.6	85.8					
85.8	89					
89	94					
94	99					
99	104.5					
104.5	108					
108	112.5					
112.5	115					
115	117.2					
117.2	120.1					

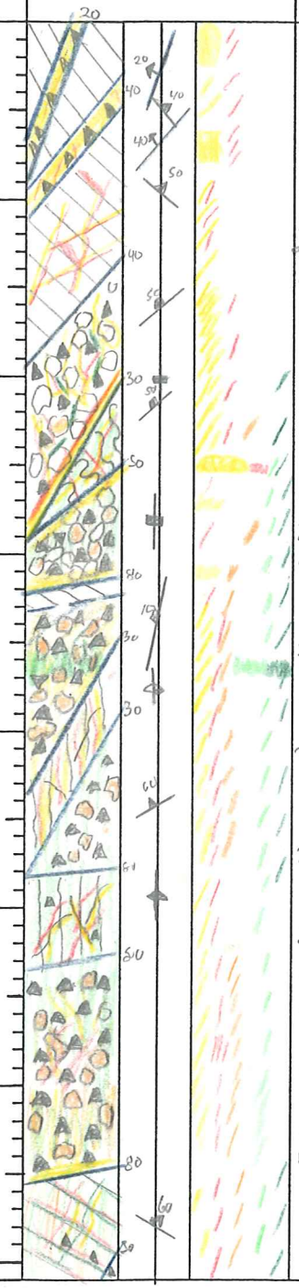
HOLE NUMBER D-316-98 PAGE 3 OF 5

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
VIT	Red	117.2-126.9 VITROPHYRE Very fine grained welded Flow/tuff. Pale green color with dark green chlorite filled concoidal fractures. Locally extremelly argillized forming a swelling clay. Clay is also soapy to touch	120 130		125.4 QTZ CLAY MARC. ±PY Vein ¼" thick AT 30° TCA Contact with SPLAT Has ¼" qtz VEININ ASSOCIATED with it at 30° TCA 138-139 vitrophyre like fracturing Partial qtz VEIN filled at 140 the is 0° TCA ≥ ½" thick	120.1-121.3 Extreme argillization Swelling clay 131-134 Highangle py marcasite 136.6-139. Highangle 0° TCA QTZ marc. Py and clay veins 139-140.8 QTZ VEIN with marcasite highangle & core 0° TCA 140.8-141.8 QTZ PY Marc Veins 30-40° TCA
FGm		126.9-160 FINE GRAINED MASSIVE Fine grain flow with minor internal features Green gray in color. White clay on fractures 140.18-150 moderate argillization with sulfide veinlets. Orientation of veilets was 0-50° TCA 150-160 very fine textured. with no argillization.	Ping 138 140 150 160		150-152 Fracture Intersection 20° & 30° TCA 156 3 parrallel QTZ/marc Vein cut core ⅛" thick only	140.8-152 moderate argillization 141.8-146 Dirty QTZ Py, marc. & clay 0° TCA 150-152 clay coated fractures with QTZ and marc. and Py
SPLAT		160-178.5 SLIGHTLY PLANAR LAMINAR Fine to moderate flow/tuff. Weak to non existant foliation. General propylitic alteration with subsequent over print of argillization and or silicification. Breck with planar laminar is sharp and there is an alteration breck.	170		Autobxa 160-176.5 argillized clast of SPLAT. Matrix of volcanic clay. CLAST ARE SURROUNDED AND MATRIX SUPPORTD Matrix of breccia becomes Pinkish for 174 to	162' open vug at fracture intersection with course shiny Py 168-171 Silicification of Bxa matrix and QTZ PY MARC VEINS 178'-178.5 small individual blades of marcasite
PL		178.5-279.1 PLANAR LAMINAR Distinctively foliated flow/tuff. Chloritic/Propylitic alteration dramatically decreases. Silicified shutter breccias begin to appear as hole approaches S.R.F.	180 190		QTZ is calcedonic from 182-187 189.6-192.6 silica healed mosaic Bxa	178.5-181.5 Minor qtz and marc. 181.5-185 QTZ stockwork with py and marcasite 185-186.5 silicified mosaic Bxa with marcasite 186.5-189.6 QTZ VN AND MARCASITE

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
120.1	122				
122	126.9				
126.9	131				
131	134				
134	136.6				
136.6	139				
139	140.8				
140.8	141.8				
141.8	146				
146	150				
150	153.6				
153.6	155.7				
155.7	160				
160	165				
165	168				
168	171				
171	175				
175	178.5				
178.5	181.5				
181.5	185				
185	186.3				
186.3	189.6				
189.6	192.6				

HOLE NUMBER D-316-98 PAGE 4 OF 5

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
PL. ↓		178.5 -279.1 PLANAR LAMINAR Laminated fine to medium grained flow. Hole is approaching the S.R.F. and is increasing in brecciation 206.5- 215.4 Brecciated zone with variable expansion and rotation. Most clast are angular but milling has occurred along favored silica pathways. 206.5-208 Partial argillization of clast has taken place Very chloritic Bxa matrix 225 - 226.6 ELEVATED CHLORITIC Alteration Observable foliation in non breccia area appears to be 0° TCA but these could be rotated blocks. Foliation flattens to 50° TCA by 259 255.3 to 279.1 General decrease in silicification and increase in argillization, QTZ VEINS with Py and marcasite are Present. Core is leached from 275- 281.	190 200 210 220 230 240 250 260		189.6- 192.6 mosaic Bxa healed by qtz. Bxa is clast supported with Angular fragments 206.5 - 211.1 Silica healed Mosaic Breccia. 211.1 -212 silica healed Crackle Bxa 212 - 215.4 silica healed mosaic Bxa 216.8-222 MOSAIC Bxa Argillized clast in silica matrix 222- 223 Foliation of 70° TCA Low contact structure grades into next Bxa 222-225 0° TCA and 10° TCA Fractures w/ 233.7- 238 Healed mosaic Bxa 238- 243 QTZ and Py/marcasite veins approaching Crackle Bxa 243 -255.4 Mosaic Bxa Silica healed with sulfide veinlets in matrix argillized clast	189.6- 192.6 QTZ Healed Breccia with py and marc crystals in open space! 195- 196.5 INCREASING QTZ stock work 196.5- 198.1 Heavy qtz stockwork mosaic Bxa EXPANSION, marcasite + Py and Drozy qtz in vug! 181.5 - 206.5 Bleaching lightens core color 214.8 - 215.4 Heavy silica with 1" thick qtz vein at Base of Bxa. Fine disseminated sulfide in silica 215.4 - 219.1 silica healed mosaic Bxa Marc. and Py in QTZ veinlets 219.1 - 222 Dark Fine Disseminated sulfide in matrix of Bxa 222-225 Fracture contain shiny Py and clay 229.5 - 233.7 QTZ VEINING with Py and marcasite but below stockwork INTENSITY 233.7 - 238 Argillized Breccia clast in silica matrix. Vug with clay, Py, and marcasite 247.2 - 250 Fine sulfide veinlet swarm

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
189.6	192.6				
192.6	195				
195	196.5				
196.5	198.1				
198.1	201.3				
201.3	204.5				
204.5	206.5				
206.5	209.8				
209.8	212.1				
212.1	215.4				
215.4	219.1				
219.1	222				
222	225				
225	229.5				
229.5	233.7				
233.7	238				
238	243				
243	247.2				
247.2	250				
250	255.3				
255.3	260				

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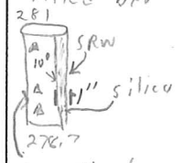
HOLE NUMBER D-316-98 PAGE 5 OF 5

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
PL ↓		PLANAR LAMINAR Fine grained flow/tuff Continued from page 4	260 270		Breccia from 263.3 continues to 281	260-263.3 veinlets of qtz and or py/marc.	260	263.3				
							263.3	267.4				
							267.4	270.3				
							270.3	275				
							275	278.7				
SRF		279.1 - 281 SOUTH RIDGE FAULT Silica flooded contact with S.R.F. Very high angle to core axis. Hanging wall is argillized	280 290		278.7 - 281 Core has SRF shear at 10° TCA 1/3 of core is silicified milled bxa  Argillized	SRF silica flooded medium gray in color First silica encountered at 279.1 in hole but some is suspected to be ground by drill between 278.7 to 279.1 277 to 281 small marcasite blades	278.7	281				

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-316-98 DATE: 11-2-98 LOGGED BY: D. MacHerrow PAGE 1 OF 4

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	1.5	0	66	0										
1.5	2.0	0	100	0										
2.0	6.0	37	100	32										
6.0	9.0	66	100	17										
9.0	16	62	100	41										
16	24	67	100	48										
24	30	0	50	22										
30	39	50	100	18										
39	49	45	100	7										
49	54	84	100	62										
54	63.5	67	100	49										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-316-98 DATE: 11-2-98 LOGGED BY: D. Mackerrow PAGE 2 OF 4

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)
63.5	71.5	43	100	26										
71.5	79	100	100	96										
79	89	100	100	39										
89	99	100	100	80										
99	108	74	100	35										
108	115	84	100	87										
115	124	60	100	87										
124	133	75	100	44										
133	140	87	100	67										
140	150	61	100	74										
150	160	69	100	37										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-316-98 DATE: 11-3-98 LOGGED BY: D.G. MacKerron PAGE 3 OF 4

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)
160	170	67	100	51										
170	175	82	100	70										
175	185	100	100	62										
185	195	100	100	67										
195	205	92	100	69										
205	215	100	100	78										
215	225	99	100	66										
225	235	96	100	70										
235	245	100	100	81										
245	255	100	100	79										
255	265	100	100	82										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-316-98 DATE: 11-3-98 LOGGED BY: D.G. Mackerrow PAGE 4 OF 4

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)
265	275	100	100	82										
275	281	100	100	78										

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP051505

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

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

NSI

CLIENT REFERENCE No: D-316-98 RECEIVED : 10 NOV 1998

No. SAMPLES : 83 REPORTED : 25 NOV 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 SP051505

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-316-98

REPORTED : 25 NOV 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-316-98 0-4	<0.001			0.03
D-316-98 4-9	<0.001			<0.02
D-316-98 9.0-11.8	<0.001			<0.02
D-316-98 11.8-16.0	0.044	0.058		0.05
D-316-98 16.0-18.6	<0.001			0.02
D-316-98 18.6-21.8	0.003			0.08
D-316-98 21.8-24.7	0.003			0.02
D-316-98 24.7-30.0	0.012	0.011		0.11
D-316-98 30.0-33.8	0.005			0.14
D-316-98 33.8-35.8	0.003			0.04
D-316-98 35.8-37.7	0.005			0.65
D-316-98 37.7-40.4	0.002			0.06
D-316-98 40.4-44.7	0.003			0.21
D-316-98 44.7-48.3	0.074		0.111	0.23
D-316-98 48.3-51.0	0.001			0.03
D-316-98 51-54	<0.001			0.02
D-316-98 54-59	0.006			0.06
D-316-98 59.0-63.5	0.016			0.07
D-316-98 63.5-68.4	0.003			0.07
D-316-98 68.4-71.5	0.003			0.04
D-316-98 71.5-75.3	0.011			0.02
D-316-98 75.3-79.0	0.004			0.02
D-316-98 79.0-81.6	0.001			<0.02
D-316-98 81.6-85.8	0.003			0.05
D-316-98 85.8-89.0	0.004			0.09

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP051505

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-316-98

REPORTED : 25 NOV 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-316-98 89-94	0.002			0.11
D-316-98 94-99	0.001			0.03
D-316-98 99.0-104.5	0.004			0.03
D-316-98 104.5-108.0	0.008			0.03
D-316-98 108.0-112.5	0.003			0.11
D-316-98 112.5-115.0	0.006			0.29
D-316-98 115.0-117.2	0.003			0.10
D-316-98 117.2-120.1	0.003			0.17
D-316-98 120.1-122.0	0.004	0.004		2.33
D-316-98 122.0-126.9	0.002			0.19
D-316-98 126.9-131.0	0.001			0.16
D-316-98 131-134	0.002			0.08
D-316-98 134.0-136.6	0.019			0.07
D-316-98 136.6-139.0	0.005			0.13
D-316-98 139.0-140.8	0.006			1.44
D-316-98 140.8-141.8	0.030	0.043		0.27
D-316-98 141.8-146.0	0.010			0.10
D-316-98 146-150	0.003	0.003		0.06
D-316-98 150.0-153.6	0.004			0.06
D-316-98 153.6-155.7	0.003			0.06
D-316-98 155.7-160.0	0.010			0.10
D-316-98 160-165	0.005	0.023		0.08
D-316-98 165-168	0.002			0.09
D-316-98 168-171	0.005			0.19
D-316-98 171-175	0.001			0.03

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP051505

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-316-98

REPORTED : 25 NOV 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-316-98 175.0-178.5	0.007			0.07
D-316-98 178.5-181.5	0.009			0.08
D-316-98 181.5-185.0	0.010			0.12
D-316-98 185.0-186.3	0.014			0.28
D-316-98 186.3-189.6	0.004			0.09
D-316-98 189.6-192.6	0.148		0.153	0.38
D-316-98 192.6-195.0	0.020			0.08
D-316-98 195.0-196.5	0.019			0.12
D-316-98 196.5-198.1	0.075		0.053	0.25
D-316-98 198.1-201.3	0.016			0.03
D-316-98 201.3-204.5	0.016			0.05
D-316-98 204.5-206.5	0.004			0.04
D-316-98 206.5-209.8	0.002			0.08
D-316-98 209.8-212.1	0.003			0.11
D-316-98 212.1-215.4	0.002			0.08
D-316-98 215.4-219.1	0.003			0.06
D-316-98 219.1-222.0	0.003			0.06
D-316-98 222-225	0.005			0.09
D-316-98 225.0-229.5	0.021			0.19
D-316-98 229.5-233.7	0.003			0.10
D-316-98 233.7-238.0	0.002			0.06
D-316-98 238-243	0.008			0.07
D-316-98 243.0-247.2	0.002			0.04
D-316-98 247.2-250.0	0.003			0.05
D-316-98 250.0-255.3	0.001			0.06

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP051505

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-316-98

REPORTED : 25 NOV 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-316-98 255.3-260.0	0.006			0.05
D-316-98 260.0-263.3	0.003			0.08
D-316-98 263.3-267.4	0.005	0.006		0.15
D-316-98 267.4-270.3	0.002			0.04
D-316-98 270.3-275.0	0.003			0.06
D-316-98 275.0-278.7	0.004	0.005		0.06
D-316-98 278.7-281.0	0.003			0.05
46583	0.512			2.30

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 0051505-IN
INVOICE DATE: 11/25/98

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-316-98	DEVELOPMENT	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
83	SAMPLES RECEIVED	.00	.00
82	DRYING	1.00	82.00
82	JAW CRUSHING CHARGE	1.30	106.60
82	COARSE MILLING CHARGE	4.50	369.00
82	SPLITTING CHARGE	2.40	196.80
82	RING MILLING CHARGE	2.00	164.00
83	Au (1 A.T. FIRE ASSAY)	8.00	664.00
3	Au ANALYSES/GRAVIMETRIC	8.75	26.25
83	HYDROCHLORIC/NITRIC DIGESTION	2.00	166.00
83	Ag ANALYSES	1.00	83.00
1	Ag (ore grade) ANALYSES	5.00	5.00

86-5110-477
RAA

NET INVOICE:	1,862.65
LESS DISCOUNT:	372.53
FREIGHT:	.00
INVOICE TOTAL:	1,490.12

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP051505

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-316-98 RECEIVED : 10 NOV 1998

No. SAMPLES : 83 REPORTED : 25 NOV 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 SP051505

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-316-98

REPORTED : 25 NOV 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-316-98 0-4	<0.001			0.03
D-316-98 4-9	<0.001			<0.02
D-316-98 9.0-11.8	<0.001			<0.02
D-316-98 11.8-16.0	0.044	0.058		0.05
D-316-98 16.0-18.6	<0.001			0.02
D-316-98 18.6-21.8	0.003			0.08
D-316-98 21.8-24.7	0.003			0.02
D-316-98 24.7-30.0	0.012	0.011		0.11
D-316-98 30.0-33.8	0.005			0.14
D-316-98 33.8-35.8	0.003			0.04
D-316-98 35.8-37.7	0.005			0.65
D-316-98 37.7-40.4	0.002			0.06
D-316-98 40.4-44.7	0.003			0.21
D-316-98 44.7-48.3	0.074		0.111	0.23
D-316-98 48.3-51.0	0.001			0.03
D-316-98 51-54	<0.001			0.02
D-316-98 54-59	0.006			0.06
D-316-98 59.0-63.5	0.016			0.07
D-316-98 63.5-68.4	0.003			0.07
D-316-98 68.4-71.5	0.003			0.04
D-316-98 71.5-75.3	0.011			0.02
D-316-98 75.3-79.0	0.004			0.02
D-316-98 79.0-81.6	0.001			<0.02
D-316-98 81.6-85.8	0.003			0.05
D-316-98 85.8-89.0	0.004			0.09

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP051505

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-316-98

REPORTED : 25 NOV 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-316-98 89-94	0.002			0.11
D-316-98 94-99	0.001			0.03
D-316-98 99.0-104.5	0.004			0.03
D-316-98 104.5-108.0	0.008			0.03
D-316-98 108.0-112.5	0.003			0.11
D-316-98 112.5-115.0	0.006			0.29
D-316-98 115.0-117.2	0.003			0.10
D-316-98 117.2-120.1	0.003			0.17
D-316-98 120.1-122.0	0.004	0.004		2.33
D-316-98 122.0-126.9	0.002			0.19
D-316-98 126.9-131.0	0.001			0.16
D-316-98 131-134	0.002			0.08
D-316-98 134.0-136.6	0.019			0.07
D-316-98 136.6-139.0	0.005			0.13
D-316-98 139.0-140.8	0.006			1.44
D-316-98 140.8-141.8	0.030	0.043		0.27
D-316-98 141.8-146.0	0.010			0.10
D-316-98 146-150	0.003	0.003		0.06
D-316-98 150.0-153.6	0.004			0.06
D-316-98 153.6-155.7	0.003			0.06
D-316-98 155.7-160.0	0.010			0.10
D-316-98 160-165	0.005	0.023		0.08
D-316-98 165-168	0.002			0.09
D-316-98 168-171	0.005			0.19
D-316-98 171-175	0.001			0.03

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP051505

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-316-98

REPORTED : 25 NOV 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-316-98 175.0-178.5	0.007			0.07
D-316-98 178.5-181.5	0.009			0.08
D-316-98 181.5-185.0	0.010			0.12
D-316-98 185.0-186.3	0.014			0.28
D-316-98 186.3-189.6	0.004			0.09
D-316-98 189.6-192.6	0.148		0.153	0.38
D-316-98 192.6-195.0	0.020			0.08
D-316-98 195.0-196.5	0.019			0.12
D-316-98 196.5-198.1	0.075		0.053	0.25
D-316-98 198.1-201.3	0.016			0.03
D-316-98 201.3-204.5	0.016			0.05
D-316-98 204.5-206.5	0.004			0.04
D-316-98 206.5-209.8	0.002			0.08
D-316-98 209.8-212.1	0.003			0.11
D-316-98 212.1-215.4	0.002			0.08
D-316-98 215.4-219.1	0.003			0.06
D-316-98 219.1-222.0	0.003			0.06
D-316-98 222-225	0.005			0.09
D-316-98 225.0-229.5	0.021			0.19
D-316-98 229.5-233.7	0.003			0.10
D-316-98 233.7-238.0	0.002			0.06
D-316-98 238-243	0.008			0.07
D-316-98 243.0-247.2	0.002			0.04
D-316-98 247.2-250.0	0.003			0.05
D-316-98 250.0-255.3	0.001			0.06

AMERICAN ASSAY LABORATORIES

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SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-316-98 255.3-260.0	0.006			0.05
D-316-98 260.0-263.3	0.003			0.08
D-316-98 263.3-267.4	0.005	0.006		0.15
D-316-98 267.4-270.3	0.002			0.04
D-316-98 270.3-275.0	0.003			0.06
D-316-98 275.0-278.7	0.004	0.005		0.06
D-316-98 278.7-281.0	0.003			0.05
46583	0.512			2.30

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP051505

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PO BOX 11530
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HECLA MINING COMPANY

COPIES TO : KURT ALLEN
:
:
:

CLIENT REFERENCE No: D-316-98 RECEIVED : 10 NOV 1998

No. SAMPLES : 83 REPORTED : 25 NOV 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 SP051505

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-316-98

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SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-316-98 0-4	<0.001			0.03
D-316-98 4-9	<0.001			<0.02
D-316-98 9.0-11.8	<0.001			<0.02
D-316-98 11.8-16.0	0.044	0.058		0.05
D-316-98 16.0-18.6	<0.001			0.02
D-316-98 18.6-21.8	0.003			0.08
D-316-98 21.8-24.7	0.003			0.02
D-316-98 24.7-30.0	0.012	0.011		0.11
D-316-98 30.0-33.8	0.005			0.14
D-316-98 33.8-35.8	0.003			0.04
D-316-98 35.8-37.7	0.005			0.65
D-316-98 37.7-40.4	0.002			0.06
D-316-98 40.4-44.7	0.003			0.21
D-316-98 44.7-48.3	0.074		0.111	0.23
D-316-98 48.3-51.0	0.001			0.03
D-316-98 51-54	<0.001			0.02
D-316-98 54-59	0.006			0.06
D-316-98 59.0-63.5	0.016			0.07
D-316-98 63.5-68.4	0.003			0.07
D-316-98 68.4-71.5	0.003			0.04
D-316-98 71.5-75.3	0.011			0.02
D-316-98 75.3-79.0	0.004			0.02
D-316-98 79.0-81.6	0.001			<0.02
D-316-98 81.6-85.8	0.003			0.05
D-316-98 85.8-89.0	0.004			0.09

AMERICAN ASSAY LABORATORIES

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D-316-98 94-99	0.001			0.03
D-316-98 99.0-104.5	0.004			0.03
D-316-98 104.5-108.0	0.008			0.03
D-316-98 108.0-112.5	0.003			0.11
D-316-98 112.5-115.0	0.006			0.29
D-316-98 115.0-117.2	0.003			0.10
D-316-98 117.2-120.1	0.003			0.17
D-316-98 120.1-122.0	0.004	0.004		2.33
D-316-98 122.0-126.9	0.002			0.19
D-316-98 126.9-131.0	0.001			0.16
D-316-98 131-134	0.002			0.08
D-316-98 134.0-136.6	0.019			0.07
D-316-98 136.6-139.0	0.005			0.13
D-316-98 139.0-140.8	0.006			1.44
D-316-98 140.8-141.8	0.030	0.043		0.27
D-316-98 141.8-146.0	0.010			0.10
D-316-98 146-150	0.003	0.003		0.06
D-316-98 150.0-153.6	0.004			0.06
D-316-98 153.6-155.7	0.003			0.06
D-316-98 155.7-160.0	0.010			0.10
D-316-98 160-165	0.005	0.023		0.08
D-316-98 165-168	0.002			0.09
D-316-98 168-171	0.005			0.19
D-316-98 171-175	0.001			0.03

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP051505

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D-316-98 178.5-181.5	0.009			0.08
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D-316-98 185.0-186.3	0.014			0.28
D-316-98 186.3-189.6	0.004			0.09
D-316-98 189.6-192.6	0.148		0.153	0.38
D-316-98 192.6-195.0	0.020			0.08
D-316-98 195.0-196.5	0.019			0.12
D-316-98 196.5-198.1	0.075		0.053	0.25
D-316-98 198.1-201.3	0.016			0.03
D-316-98 201.3-204.5	0.016			0.05
D-316-98 204.5-206.5	0.004			0.04
D-316-98 206.5-209.8	0.002			0.08
D-316-98 209.8-212.1	0.003			0.11
D-316-98 212.1-215.4	0.002			0.08
D-316-98 215.4-219.1	0.003			0.06
D-316-98 219.1-222.0	0.003			0.06
D-316-98 222-225	0.005			0.09
D-316-98 225.0-229.5	0.021			0.19
D-316-98 229.5-233.7	0.003			0.10
D-316-98 233.7-238.0	0.002			0.06
D-316-98 238-243	0.008			0.07
D-316-98 243.0-247.2	0.002			0.04
D-316-98 247.2-250.0	0.003			0.05
D-316-98 250.0-255.3	0.001			0.06

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP051505

American Assay Laboratories

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REFERENCE : D-316-98

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SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
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D-316-98 260.0-263.3	0.003			0.08
D-316-98 263.3-267.4	0.005	0.006		0.15
D-316-98 267.4-270.3	0.002			0.04
D-316-98 270.3-275.0	0.003			0.06
D-316-98 275.0-278.7	0.004	0.005		0.06
D-316-98 278.7-281.0	0.003			0.05
46583	0.512			2.30

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
Fax
(702) 356-1413

Tucson Office
2775 E. Ganley
Tucson, AZ 85706
Telephone
(520) 294-8078
Fax
(520) 294-6352

Elko Office
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 89446

Telephone Number: (702) 623-6412 Fax Number: (702) 623-6417

Project Name: Development Purchase Order Number:

Date Submitted: 11/5/98 Number of Samples: 82

RESULTS REPORTED IN: ppm [ ] ppb [ ] opt [ ] Au Ag according to Rosebud Mine Protocol

D-316-98 SAMPLE IDENTIFICATION				TYPE	ELEMENTS REQUIRED	
0-4	51-54	112.5-115	155.7-160		201.3-204.5	250-255.3
4-9	54-59	115-117.2	160-165		204.5-206.5	255.3-260
9-11.8	59-63.5	117.2-120.1	165-168		206.5-209.8	260-263.3
11.8-16	63.5-68.4	120.1-122	168-171		209.8-212.1	263.3-267.4
16-18.6	68.4-71.5	122-126.9	171-175		212.1-215.4	267.4-270.3
18.6-21.8	71.5-75.3	126.9-131	175-178.5		215.4-219.1	270.3-275
21.8-24.7	75.3-79	131-134	178.5-181.5		219.1-222	275-278.7
24.7-30	79-81.6	134-136.6	181.5-185		222-225	278.7-281 TD
30-33.8	81.6-85.8	136.6-139	185-186.3		225-229.5	
33.8-35.8	85.8-89	139-140.8	186.3-189.6		~~229.5-233.7~~	
35.8-37.7	89-94	140.8-141.8	189.6-192.6		229.5-233.7	
37.7-40.4	94-99	141.8-146	192.6-195		233.7-238	
40.4-44.7	99-104.5	146-150	195-196.5		238-243	
44.7-48.3	104.5-108	150-153.6	196.5-198.1		243-247.2	
48.3-51	108-112.5	153.6-155.7	198.1-201.3		247.2-250	

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

D-316-98	30	23	126.2
	140	23.5	127.7
	281	22.5	126.2

D-316-98 BOX 2
DEPTH 8_5 - 18

D-316-98 BOX 1
DEPTH 0 - 8_5

D-316-98 BOX 3
DEPTH 18 - 30

D-316-98 BOX 5
DEPTH 39 - 48_5

39
30
D-316-98 BOX 4
DEPTH 30 - 39

D-316-98 BOX 6
DEPTH 48_5 - 58
44
54

D-316-98 BOX 8
DEPTH 67_5 - 75_5

D-316-98 BOX 7
DEPTH 58 - 67_5

D-316-98 BOX 9
DEPTH 75_5 - 86

99
D-316-98
BOX 11
DEPTH
95_5 - 105_5

89
D-316-98
BOX 10
DEPTH
86 - 95_5

108
D-316-98
BOX 12
DEPTH
105_5 - 114_5

133
D-316-98 BOX 14
DEPTH 124 - 134

124
115
D-316-98 BOX 13
DEPTH 114_5 - 124

140
D-316-98 BOX 15
DEPTH 134 - 144

D-316-98 BOX 17
DEPTH 153_5 - 163
160

D-316-98 BOX 16
DEPTH 144 - 153_5
150

D-316-98 BOX 18
DEPTH 163 - 173
170

185
D-316-98 BOX 20
DEPTH 182 - 192

D-316-98 BOX 19
DEPTH 173 - 182

D-316-98 BOX 21
DEPTH 192 - 201
195

D-316-98 BOX 23
DEPTH 210 - 219_5

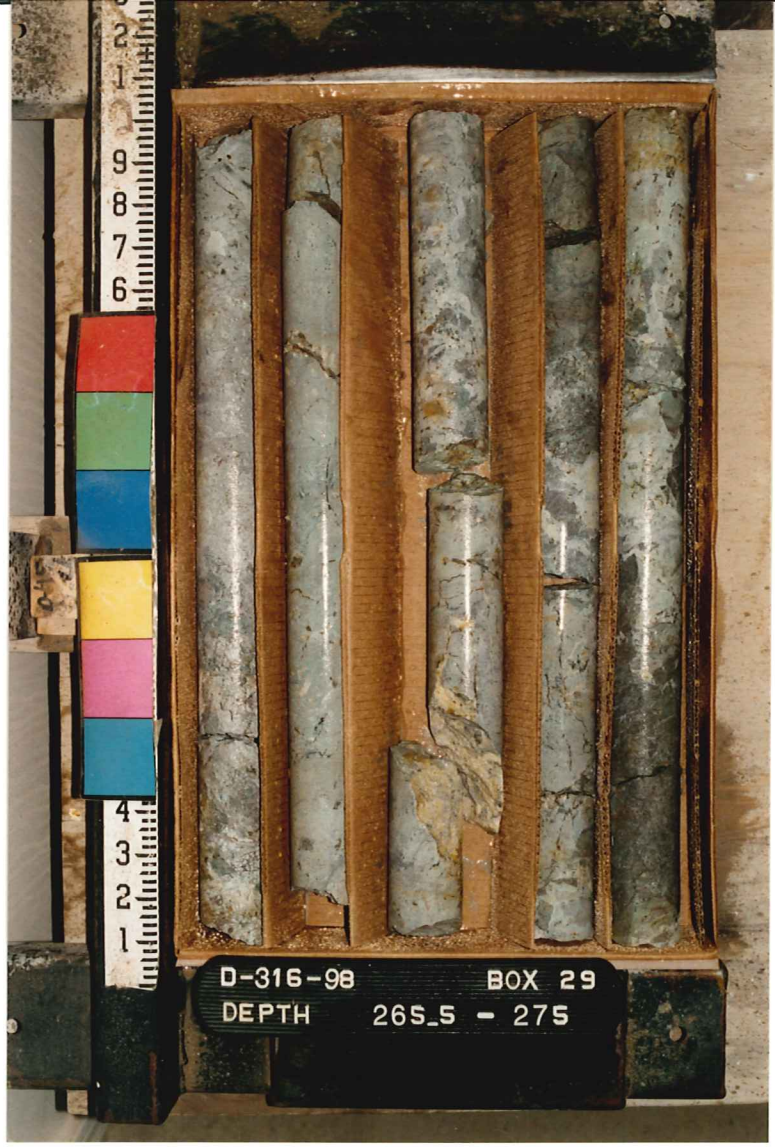
D-316-98 BOX 22
DEPTH 201 - 210

D-316-98 BOX 24
DEPTH 219_5 - 229

D-316-98 BOX 26
DEPTH 238 - 247
245

D-316-98 BOX 25
DEPTH 229 - 238
235

D-316-98 BOX 27
DEPTH 247 - 256
255

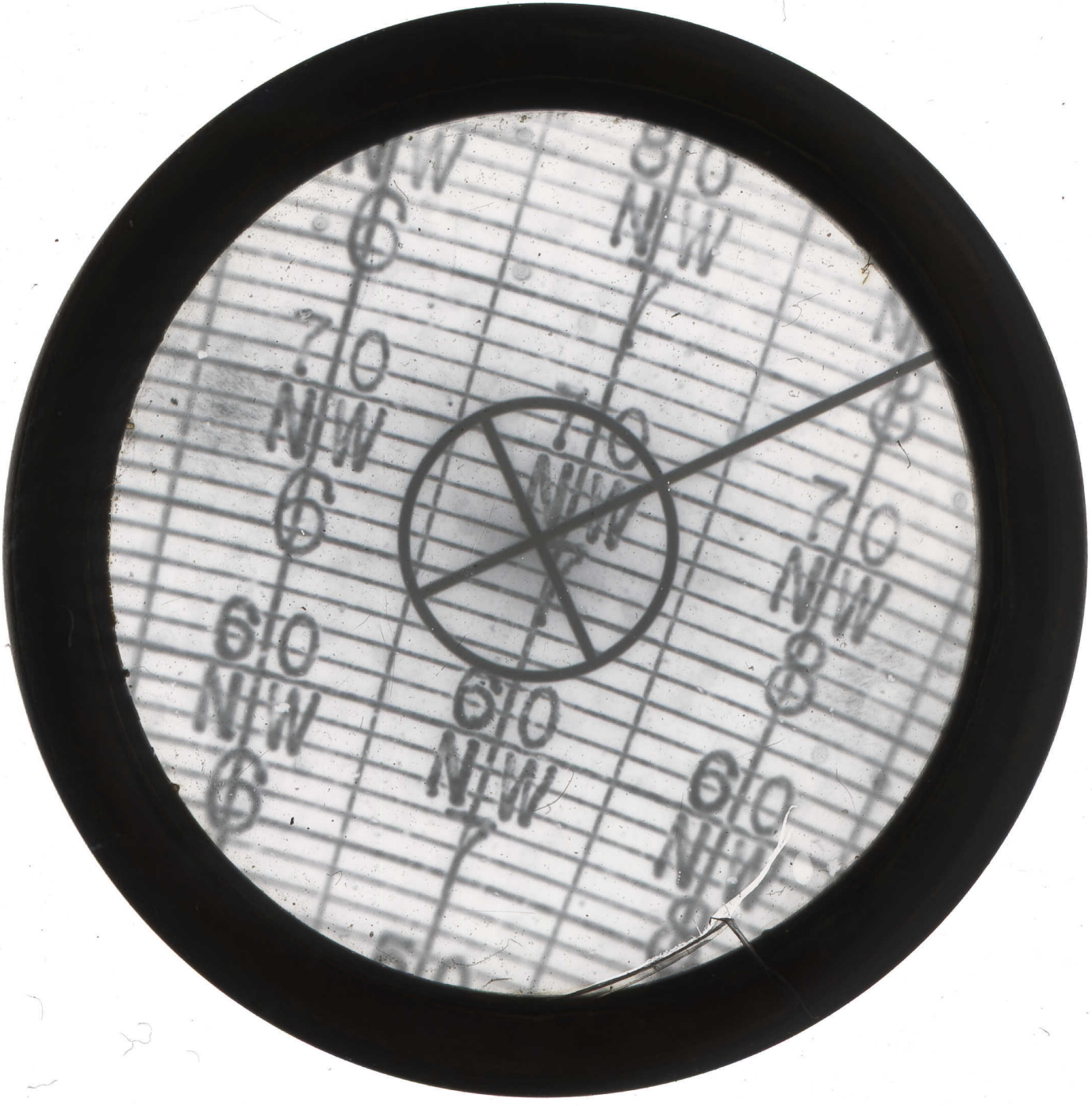

D-316-98 BOX 29
DEPTH 265_5 - 275

D-316-98 BOX 28
DEPTH 256 - 265_5

D-316-98 BOX 30
DEPTH 275 - 281 TD
275
TD

SINGLE SHOT
PHOTO DISC RECORD

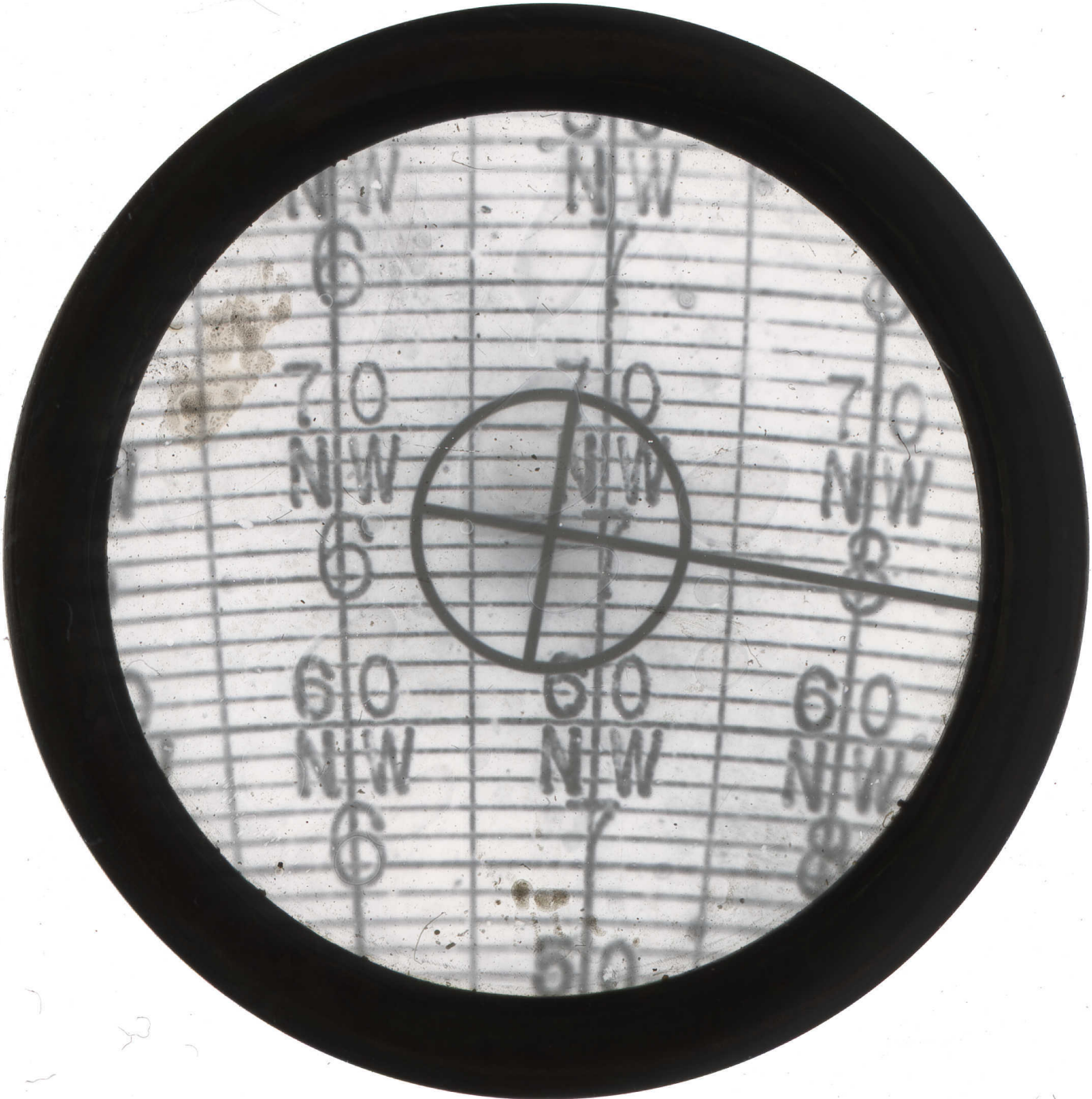
COMPANY Hecla
WELL NAME D-316-98
LEASE
TAKEN BY Jerome
DEPTH 30'
DATE 9-22-98
DRIFT ANGLE
DIRECTION
TYPE
JOB NO. 1
HI-1408

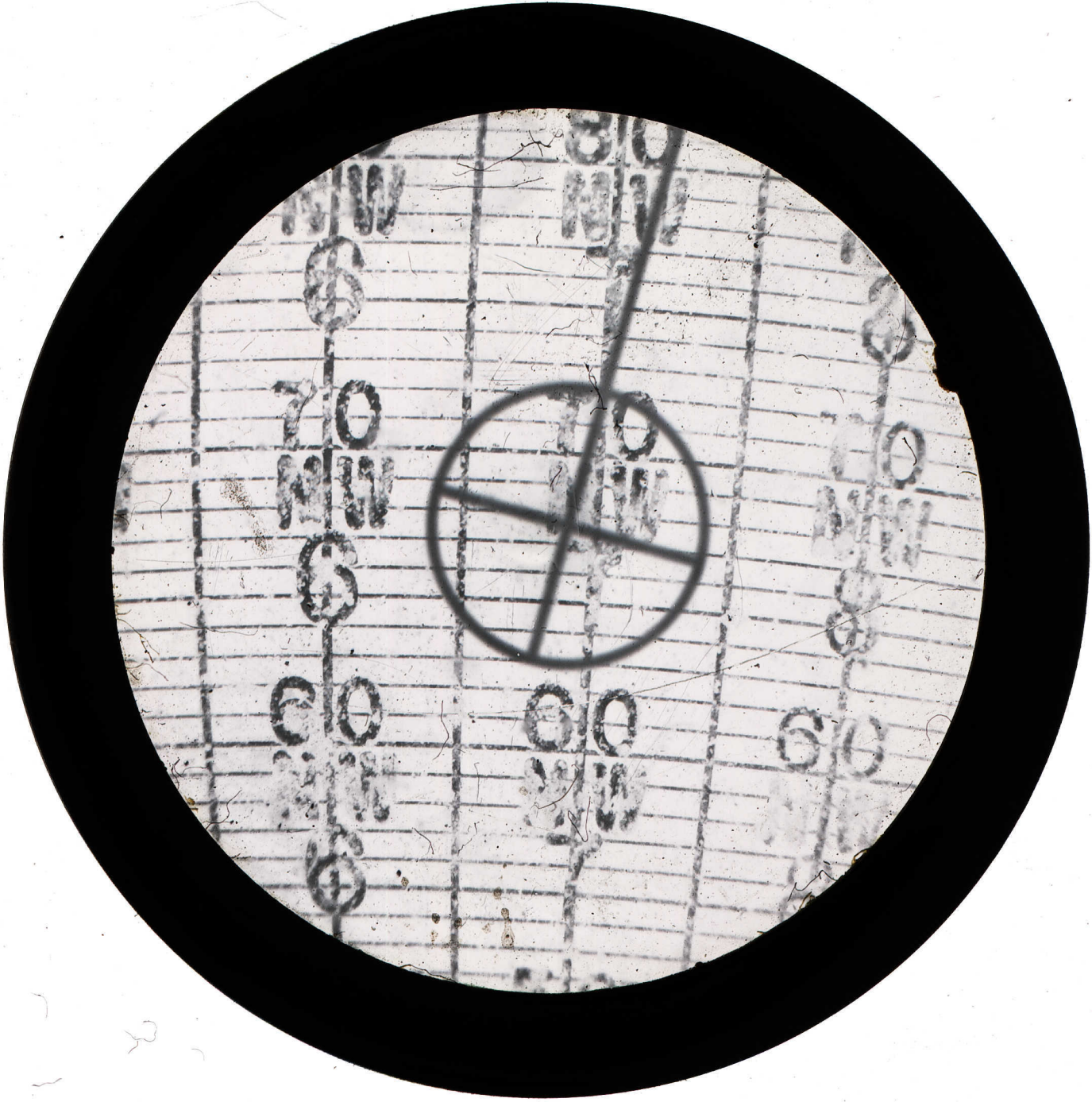


SINGLE SHOT
PHOTO DISC RECORD

COMPANY Hecla
WELL NAME D-316-98
LEASE
TAKEN BY Jerome
DEPTH 281'
DATE 9-22-98
DRIFT ANGLE
DIRECTION
TYPE
JOB NO. 1

HI-1408



SINGLE SHOT
PHOTO DISC RECORD

COMPANY Hecla
WELL NAME D-316-98
LEASE
TAKEN BY Jerome
DEPTH 140'
DATE 9-22-98
DRIFT ANGLE
DIRECTION
TYPE
JOB NO.
HI-1408