60001111

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-231-98
AUTHOR	S. King; K. Allen
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 300' receipt; handwritten notes; downhole camera images 36p. 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 5/13/08
Initials Date
DB: mah
Initials Date
SCANNED:
Initials Date

Revised: 1/22/08

D-231-98

60001111 4010

(6600 1111)

Hecla MINING COMPANY

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

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-231-98	LOCATION	STOPE 43 ACCESS, EAST
PAGE	1 OF 5	NORTHING	
DATE	06/05/98	EASTING	
LOGGED BY	HJM	ELEVATION	
SCALE	1"=10'	AZIMUTH	N60°W
TOTAL DEPTH	300'	INCLINATION	-40°

REMARKS

ITH.	OX / RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
0.0-102.5 DOZER		0.0'-~33' : LIGHT GRY, MODERATELY TO WKLY AUTO-BRECCIATED DOZER. OVERPRINTED WITH SILICA CEMENTED VEIN BRECCIA, TO ~11.0'.	0			0.0-11.0': SILICA +/- MARC/PYRITE CEMENTED CRACKLE BRECCIA VEINING = STRONG TRACE RUDDY MOTTLING HI-LIGHTS AUTOBRECCIA. TR. WALLRK ARGILLIZATN.	0.0	5.6					
			10				5.6	11.2					
						11.0-34.8': MOD. FINE PYRITE +/- QUARTZ VNLTS & MOD. PYRITIC BLEBS IN WALLRK. CONTINUED TRACE TO ABSENT WALLRK ARGILLIZATN. WK TO MODERATE WHT CLAY INFILL IN QUARTZ+MARC VNS.	11.2	16.6					
			20				16.6	21.3					
							21.3	26.6					
		~33'-~85' : MOTTLED LT. GRY FAINTLY BANDED & DOMINANTLY UNBRECCIATED DOZER. RUDDY MOTTLING PICKS OUT FAINT IRREGULAR BANDING.	30				26.6	31.4					
					36.5'-36.8': HEALED, DK TO MED. GRY SULFIDIC MYLONITE/VN BXA ~1".	34.8'-36.8': WKLY BLCHED MOD'LY ARGILLIZED PONKY' ZONE BELOW FAULT VN.	31.4	34.5					
							34.5	36.9					
			40			36.8'-58.2': WK TO MOD. QZ+MARC/PY VNING, & PYRITIC BLEBBING IN WALLRK. TRACE WALLROCK ARGILLIZATION.	36.9	42.0					
						45': SPARRY CALCITE IN VUG	42.0	47.0					
			50										

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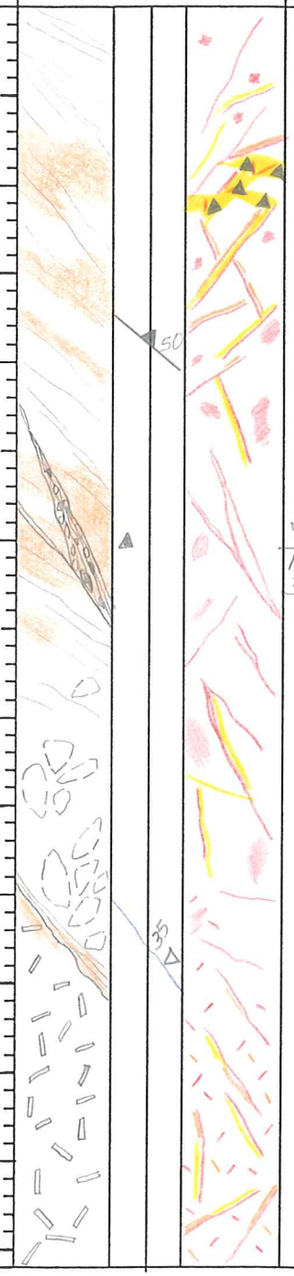
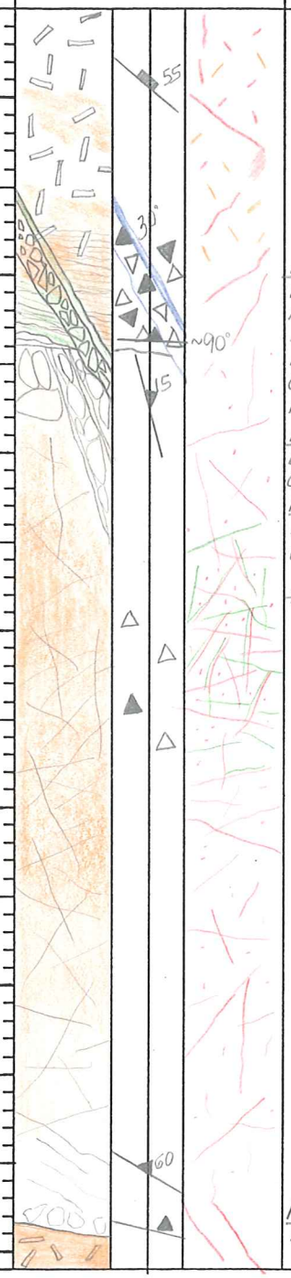
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
0.0'-102.5' DOZER			50, 60, 70, 80, 90, 100, 110, 120			
		~85'-102.5': WK GHOST BRECCIA (AUTOBRECCIA?) TEXTURE PICKS UP JUST BELOW DIKE CONTACT.				58.2-61.1': SILICA +/- MARC CEMENTED CRACKLE BRECCIA VNING = STR.; WITH MOD/STR. WALLRK ARGILLIZATN OUTBOARD OF THE SILICA-RICH ZONE.
		102.5': WEAK SHEAR FABRIC AT DIKE MARGIN			78': 1-3" WIDE SEMI-HEALED MYLONITE @ 15°-30° TO C/A.	61.1-~78': MOD/WK MARC/PY VNLTS +/- QZ & WHT CLAY. MODERATE PYRITIC BLEBS IN WALLRK. INTERMITTENT STRONG WALLRK ARGILLIZATN WITH TRACE BLCHING.
						78.0': WKLY SLICKED GRN CLAY COATED GRY VN/MYLONITE
						~78'-102.5': WK WISPY PY/MARC VNLTS, MOD. PY BLEBS IN
						102.5': MOD. WHT ARGILLIZATION A/O GOUGE AT DIKE MARGIN.
102.5'-138.2' PORPHYRY DIKE		102.5'-135.0': LT. GRY APHANITIC GROUNDMASS WITH 2 PHENOCRYST TYPES: 1) SHAGGY WHT GLOMEROPORPHYRITIC PLAG CLUSTERS AND 2) RESORBED/OVAL SINGLE XTL FELDSPARS REPLACED WITH PYRITE. GROUNDMASS DIFFICULT TO DISTINGUISH FROM DOZER.				102.5-~117': MODERATE MARC/PY + WHT CLAY +/- QZ VNING. WHT CLAY IN PLAG CLUSTERS. MARC/PY +/- WHT CLAY & QUARTZ IN SINGLE XTL PHENOCRYSTS. TRACE WALLRK ARGILLIZATN.

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
47.0	51.9				
51.9	55.0				
55.0	58.2				
58.2	61.1				
61.1	65.0				
65.0	70.0				
70.0	75.0				
75.0	80.0				
80.0	85.0				
85.0	90.0				
90.0	95.0				
95.0	100.0				
100.0	102.5				
102.5	105.0				
105.0	110.0				
110.0	115.0				
115.0	120.0				

HOLE NUMBER D-231-98 PAGE 3 OF 5

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
102.5 - 138.2 PORPHYRY DIKE			120			~117.0 - 124.5': MOD. PYRITIC BLEBS IN WALLRK. PY VNLTS REDUCED TO TRACE. MARC/PY + WHT CLAY IN PHENOCRYSTS. TR WALLRK ARGILLIZATN	120.0	125.0				
			130			124.5' - 135': SPORADIC WALLRK ARGILLIZATION INCREASING DOWNHOLE TO MOD/STR. CONT'D WK PY/MARC +/- QZ & WHT CLAY VNLTS; STRONG WHT CLAY + PY/MARC IN PHENOCRYSTS.	125.0	130.0				
		134.0 - 135.0': WKLY BLCHED, FINER-GRAINED, INTERNAL DIKE MARGIN BRECCIA.			134.0 - 135.0': INTRUSIVE MARGIN BRECCIA? ENDS AT SHARP, GRN GOUGEY SHEAR.		130.0	135.0				
138.2' - 188.6' DOZER		135.0' - 135.3': SEMI-HEALED FAULT. WAXY LIGHT GRN GOUGE ~ 7-8 mm FOLLOWED BY LT. GRY HEALED MYLONITIC BRECCIA VN.	140		135.0 - 135.3': GRN WAXY CLAY SHEAR GRADES DOWNHOLE INTO MILLED VN BXA.	135.0 - 135.3': MOD. GRN CLAY, MOD. SULFIDES(?) IN THE MYLONITE.	135.0	138.2				
		135.3 - 136.5': VERY APHANITIC BRECCIATED & WKLY BLCHED DIKE MATERIAL.			135.3 - 136.5': WKER, WKLY SHEARED TIGHT CRACKLE BXA.	135.3 - 138.2': MOD., WKLY GRN ARGILLIZATION. WHT CLAY + PY IN PHENOCRYSTS. WK/MOD. DISS'D PY + WISPY VNLTS.	138.2	140.0				
		136.5' - 138.2': WKLY SHEARED, LT. GRNISH, VERY APHANITIC DIKE MATERIAL. SHEARS ⊥ TO C/A AND ∥ TO THE SHARP IRREGULAR UPPER CONTACT.			136.5 - 138.2': BXA GRADES INTO SHEARED PORPHYRY, W/ FABRIC ⊥ TO C/A.		140.0	145.0				
		138.2' - ~143': CONT'D WK BLCHING IN TIGHT WALLRK DOZER BRECCIA. BXA FABRIC AT ~15° TO C/A. THE DOZER APPEARS VERY APHANITIC BELOW THE DIKE THO THIS MAY BE DUE TO MOD/STR ~~WALLRK~~ ARGILLIZATN.	150		138.2': IRR. CONTACT, ⊥ TO C/A	138.2 - ~154': MOD/WK PERVASIVE WALLRK ARGILLIZATION. MOD/WK PY AS DISS'D FLECKS & VNLTS.	145.0	150.0				
		~143' - : MASSIVE APHANITIC DOZER, WKLY BLCHED AND LACED WITH FINE PYRITE +/- SILICA CRACKLE BRECCIA THRU OUT.	160			~154' - 160.0': DULL PY VNLT STKWK INCREASED TO CRACKLE BRECCIA. +/- DARK GRN CLAY VNLTS. CONT'D MOD. PERVASIVE ARGILLIZATION INCREASING TO STR. ~~STR.~~ DISS'D PY FLECKS.	154.0	160.0				
							160.0	164.8				
			170			160.0' - 185' = WK DULL PY VNLT STKWK, WK/MOD. DISS'D PY VNLTS. MOD/STR. PERVASIVE ARGILLIZATN & MOD. BLCHING.	SILICA 164.8	170.2				
						185.0' - 188.6': ARGILLIZATN, BLCHING DECREASED TO WK TR/WK DISS'D PY & FINE VNLTS.	170.2	175.0				
		~185' - 188.6': POSSIBLE BAKED ZONE IN DOZER. HARD, MED. GRY WITH FAINT FLOW(?) BANDING VISIBLE.	180				175.0	180.0				
		188.0' - 188.6': FAINT MARGIN BRECCIA HEALED.			188.0 - 188.6': POSS. VERY FAINT INTRUSION BXA.	188.6 - 201.0': MODERATE BLCHING & ARGILLIZATN; MOD. SILICA + PY VNLTS & SILICA + PY REPLACEMT OF SINGLE XTL PHENOS. PLAG CLUSTERS TO WHT CLAY +/- GRN CLAY & PY.	180.0	185.0				
188.6 - 201.0 PORPHYRY DIKE		188.6' - 201.0': WHT/GRY APHANITIC GROUNDMASS SIMILAR IN APPEARANCE TO DOZER IS FLECKED WITH CLEAR HARD SINGLE XTL RESORBED OVOID PHENOCRYSTS & GLOMERO PORPHYRITIC PLAG CLUSTERS, NOW PLUCKED & PUNKY. ~6-10/SQUARE INCH.	190				185.0	188.6				



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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
188.6'-201.0 PORPHYRY DIKE			190			191.5': TAN VN MAT'L! POSS. FeOX-STAINED SILICA.	188.6	191.3				
							191.3	196.0				
		201.0-206.7': LT. GRY, APHANITIC APHYRIC WITH FAINT FLDD BANDING // TO C/A; AND WK FAINT MYLONITIC BRECCIA TEXTURE ⊥ TO THE DIKE CONTACTS FROM 205' TO 206.7'.	200			201.0-206.7': CONT'D WK FG PY VNLTS & DISS'D PY. TRACE WHT CLAY & CALCITE WITH VNLTS. TRACE ARGILLIZATION.	196.0	201.0				
201.0'-206.7' DOZER							201.0	206.7				
206.7'-212.3' PORPHYRY DIKE		206.7'-212.3': SAME DIKE MATERIAL AS ABOVE. BLCHED WHT/GRY, WITH A FAINT DISS'D RUST STAIN FROM 208' TO 212.3'. ~6-10 PHENOCRYSTS/SQ.IN. 1) MORE PROMINENT SINGLE XTL FSPS & 2) SHAGGY PLAG CLUSTER. GROUNDMASS IS APHANITIC & INDISTINGUISHABLE FROM DOZER EXCEPT FOR GREATER ALTERATN.	210			206.7-212.3': MOD. PERVASIVE BLCHING AND ARGILLIZATION. MOD. FINE PY+/- WHT CLAY VNLTS AT 40° TO C/A. TR. SILICA IN VNLTS. PHENOCRYSTS PARTIALLY ALTERED TO WHT CLAY & PY +/- SILICA.	206.7	212.3				
212.3-239.0' DOZER		212.3-218.5': LT. GRNISH GRY-WHT PUNKY BRECCIATED TO PERLITICALLY CRACKLED APHANITIC ~~TO~~ AND APHYRIC MATERIAL. PROBABLE DOZER.	220			212.3-218.5': V. STR. PUNKY CLAYSHOT, STRLY BLCHED DOZER OR APHYRIC DIKE. MOD/STR. DISS'D PYRITE & PY VNLTS. NO CALCITE.	212.3	215.3				
							215.3	218.5				
		218.5-220.4': LT GRY, MASSIVE, HARD, APHANITIC, APHYRIC DOZER.					218.5	220.4				
		220.4-224.5': AS FROM 212.3-218.5', GRNISH-GRY/WHT PUNKY DOZER WITH A FAINT CRACKLED OR PERLITIC BRECCIA TEXTURE PICKED OUT BY TR. SILICA.				218.5-220.4': TR ALT'N ONLY MOD. PYRITIC BLEBS IN WALLRK. MOD. TO WK QZ+PY VNLTS + CALCITE.	220.4	224.5				
		~225'-239': LT. GRY, MASSIVE, HARD, APHANITIC, APHYRIC DOZER. NO WELL-DEFINED BANDING.	230			220.4-224.5': STR. BLCHING & ARGILLIZATION. MOD. DISS'D PY & PY VNLTS. NO CALCITE. BLCHING & ARG. SPOTTY TO ~225.0'.	224.5	229.9				
							229.9	233.4				
							233.4	235.0				
						~225.0-239.0': WK PY+/- SILICA & L. CALCITE VNLTS EXCEPT FROM 233.5-235.0 WHERE VNING IS STR. TR. WALLRK ARGILLIZATN & TR. WHT CLAY ON VNLTS. WK/MOD. PYRITE BLEBS IN WALLRK.	235.0	239.0				
239.0'-270.6 PORPHYRY DIKE		239.0'-268.4': PORPHYRY DIKE AS ABOVE: APHANITIC GRY-WHT GROUNDMASS. 1) GLOMEROPORPHYRITIC PLAG PHENOS > 2) SLIGHTLY ROUNDED SINGLE XTL FSPS. ~10/SQ. INCH. BLCHING IS VARIABLY, WITH HARDER LESS ARGILLIZED GROUNDMASS RANGING TO MED. GRN-GRY.	240		239': 1-2 CM GOUGE AT ⊥ CONTACT.		239.0	244.0				
							244.0	249.0				
			250			239.0'-251.0': MOD. PERVASIVE ARGILLIZATION; MOD./WK SILICA + PY VNLTS. WHT CLAY + SILICA + PY/MARC IN PHENO SITES. MOD/WK CALCITE LATE IN VNLTS & FARTINGS.	249.0	254.0				
							254.0	259.0				
			260			251.0'-253.0': LESS BLCHED LESS ARGILLIZED, MORE PY						

HOLE NUMBER D-231-98 PAGE 5 OF 5

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
239.0'-270.6 PORPHYRY DIKE		268.4-270.6': BLCH'D GRY-WHT INCREASINGLY CLAY-ALTERED PORPHYRY DIKE. 270.6: LOST CONTACT	260 270			253.0-265.0': WK/TR ARGILLIZATN, WK/MOD. BLCHING, CONT'D WK SILICA+PY VNLTS & WHT CLAY+PY +/- SILICA IN PHENOCRYST SITES. 265.0'-268.4': INCREASE IN WALLRK BLCHING & ARG.	259.0 264.1 268.4	264.1 268.4 270.6				
					LOSS							
270.6'-301.0 DOZER		275.0'-279.0': LT. GRNISH-GRY, PUNKY, FEATURELESS APHANITIC WALLRK, LACED W/ FINE IRREGULAR WHT CLAY VNS. VERY ALTERED DOZER. NO SIGNS OF SHEARING. 279-281.2': GRY-WHT BLCHED, SOFT BUT NOT PUNKY, CRACKLE BRECCIATED APHANITIC DOZER. 281.2-301': MASSIVE APHANITIC GRY TO WHT-GRY DOZER. VARIABLY BLCH'D & ARGILLIZED. T.D. 301'	280 290 300			ILLIZATION TO MODERATE 268.4-270.6': MOD/STR. ARGILLIZATN & BLCHING CONT'D WK SILICA+PY VNLTS WITH GRN CLAY SELVAGES. ATTENDANT INCREASE IN INTENSITY OF PHENO ALTERATION. TR. CALCITE DYING OUT 275.0-279.0': V. STRLY ARGILLIZED MODLY BLCH'D STR. WHT CLAY VNLTS. STR. PY/MARC DISS'D & IN SPOTTY VNLTS. 279-281.2': ARG & BLCHING DECREASES TO MOD. MOD. DISS'D PYRITE.	275.0 279.0 281.2 285.0 289.7 295.3	279.0 281.2 285.0 289.7 295.3 301.0				

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-231-98 DATE: 06/05/98 LOGGED BY: HDM PAGE 1 OF 7

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	3.5	100.0	100.0	14.3										
3.5	8.5	90.0	90.0	46.0										
8.5	13.5	92.0	92.0	44.0										
13.5	18.5	110.0	110.0	100.0										
18.5	23.5	94.0	94.0	64.0										
23.5	28.5	104.0	104.0	86.0										
28.5	33.5	100.0	100.0	56.0										
33.5	38.5	100.0	100.0	56.0										
38.5	43.5	100.0	100.0	72.0										
43.5	47.0	99.0	99.0	68.6										
47.0	50.0	110.0	110.0	76.7										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-231-98 DATE: 06/05/98 LOGGED BY: ASM PAGE 2 OF 1

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)
50.0	55.0	100.0	100.0	80.0										
55.0	60.0	100.0	100.0	40.0										
60.0	65.0	100.0	100.0	38.0										
65.0	70.0	96.0	96.0	78.0										
70.0	75.0	104.0	104.0	66.0										
75.0	80.0	94.0	94.0	64.0										
80.0	85.0	100.0	100.0	30.0										
85.0	90.0	90.0	90.0	64.0										
90.0	95.0	102.0	102.0	98.0										
95.0	100.0	92.0	92.0	74.0										
100.0	103.5	97.1	97.1	42.9										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-231-98 DATE: 06/06/98 LOGGED BY: ABM PAGE 3 OF 7

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
103.5	107.0	94.1	94.1	77.1										
107.0	110.0	90.0	90.0	63.3										
110.0	115.0	108.0	108.0	76.0										
115.0	120.0	100.0	100.0	90.0										
120.0	125.0	100.0	100.0	78.0										
125.0	130.0	100.0	100.0	86.0										
130.0	135.0	92.0	92.0	52.0										
135.0	140.0	102.0	102.0	80.0										
140.0	145.0	98.0	98.0	84.0										
145.0	150.0	100.0	100.0	82.0										
150.0	155.0	100.0	100.0	90.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-231-98 DATE: 06/06/98 LOGGED BY: KBM PAGE 4 OF 7

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)
155.0	160.0	100.0	100.0	94.0										
160.0	164.0	97.5	97.5	82.5										
164.0	169.0	92.0	92.0	88.0										
169.0	174.0	100.0	100.0	74.0										
174.0	179.0	100.0	100.0	64.0										
179.0	180.0	100.0	100.0	100.0										
180.0	185.0	100.0	100.0	88.0										
185.0	190.0	100.0	100.0	100.0										
190.0	195.0	100.0	100.0	44.0										
195.0	200.0	100.0	100.0	32.0										
200.0	203.0	93.3	93.3	36.7										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-231-98 DATE: 06/07/98 LOGGED BY: KBM PAGE 5 OF 7

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
203.0	205.0	90.0	90.0	75.0										
205.0	210.0	102.0	102.0	66.0										
210.0	215.0	84.0	84.0	0										
215.0	220.0	110.0	110.0	24.0										
220.0	225.0	100.0	100.0	0										
225.0	228.5	85.7	85.7	42.9										
228.5	230.5	90.0	90.0	0										
230.5	235.0	93.3	93.3	55.6										
235.0	238.5	94.3	94.3	40.0										
238.5	239.0	180.0	180.0	0										
239.0	244.0	102.0	102.0	36.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-231-98 DATE: 06/07/98 LOGGED BY: KDM PAGE 6 OF 7

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)
244.0	249.0	90.0	90.0	34.0										
249.0	254.0	88.0	88.0	70.0										
254.0	259.0	98.0	98.0	98.0										
259.0	261.5	100.0	100.0	72.0										
261.5	265.0	111.4	111.4	54.3										
265.0	270.0	96.0	96.0	60.0										
270.0	275.0	12.0	12.0	0										
275.0	277.5	96.0	96.0	0										
277.5	279.0	33.3	33.3	0										
279.0	280.5	180.0	180.0	66.7										
280.5	282.5	90.0	90.0	30.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # D-231-98 DATE: 06/07/98 LOGGED BY: KDM PAGE 7 OF 7

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)
282.5	285.0	84.0	84.0	48.0										
285.0	290.0	96.0	96.0	52.0										
290.0	295.0	88.0	88.0	24.0										
295.0	296.0	120.0	120.0	66.7										
296.0	301	86.0	86.0	32.0										
	T.D.													

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP049153

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-231-98 RECEIVED : 15 JUN 1998

No. SAMPLES : 69 REPORTED : 24 JUN 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.

06/24/1998 12:09 7023561413 AMERICAN ASSAY LABS PAGE 01
7023561413

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP049153

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-231-98

REPORTED : 24 JUN 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)	
D-231-98 0.0-5.6	0.006			0.04	
D-231-98 5.6-11.2	0.007			0.07	
D-231-98 11.2-16.6	0.004			0.11	
D-231-98 16.6-21.3	0.003			0.03	
D-231-98 21.3-26.6	0.003	0.005		0.03	
D-231-98 26.6-31.4	0.009			0.04	
D-231-98 31.4-34.5	0.003			0.03	
D-231-98 34.5-36.9	0.011			0.08	
D-231-98 36.9-42.0	0.005			0.02	
D-231-98 42-47	0.008			0.02	
D-231-98 47.0-51.9	0.011			0.05	
D-231-98 51.9-55.0	0.027	0.038		0.06	
D-231-98 55.0-58.2	0.006			0.07	
D-231-98 58.2-61.1	0.016			0.14	
D-231-98 61.1-65.0	0.005			0.05	
D-231-98 65-70	0.011			0.58	
D-231-98 70-75	0.012			0.03	
D-231-98 75-80	0.006			0.06	
D-231-98 80-85	0.008			0.06	
D-231-98 85-90	0.004			0.02	
D-231-98 90-95	0.011			0.05	
D-231-98 95-100	0.014			0.03	102.5 - 120' =
D-231-98 100.0-102.5	0.010	0.008		0.02	17.5' @
D-231-98 102.5-105.0 2.5	0.344		0.373	0.22	0.741 Au
D-231-98 105-110 5	0.095		0.063	0.21	0.53 Ag

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP049153

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-231-98

REPORTED : 24 JUN 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-231-98 110-115 S	1.908		2.420	1.51
D-231-98 115-120 S	0.418		0.360	0.04
D-231-98 120-125	0.016			0.02
D-231-98 125-130	0.056		0.121	0.05
D-231-98 130-135	0.013			0.03
D-231-98 135.0-138.2	0.005			0.03
D-231-98 138.2-140.0	0.176		0.163	0.04
D-231-98 140-145	0.030			0.07
D-231-98 145-150	0.011			0.02
D-231-98 150.0-154.1	0.006			<0.02
D-231-98 154.1-160.0	0.010			0.02
D-231-98 160.0-164.8	0.007			<0.02
D-231-98 164.8-170.2	0.020	0.023		0.02
D-231-98 170.2-175.0	0.003			<0.02
D-231-98 175-180	0.003			<0.02
D-231-98 180-185	0.002			<0.02
D-231-98 185.0-188.6	0.001			<0.02
D-231-98 188.6-191.3	0.003			<0.02
D-231-98 191.3-196.0	0.030	0.044		<0.02
D-231-98 196-201	0.005			<0.02
D-231-98 201.0-206.7	0.014			0.03
D-231-98 206.7-212.3	0.006			0.09
D-231-98 212.3-215.3	0.005			0.08
D-231-98 215.3-218.5	0.015			0.07
D-231-98 218.5-220.4	0.002			0.03

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP049153

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-231-98

REPORTED : 24 JUN 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-231-98 220.4-224.5	0.004			0.07
D-231-98 224.5-229.9	0.002			0.03
D-231-98 229.9-233.4	0.002			0.02
D-231-98 233.4-235.0	0.003			0.07
D-231-98 235-239	0.002			0.03
D-231-98 239-244	0.001			0.02
D-231-98 244-249	0.005			0.04
D-231-98 249-254	0.002			0.03
D-231-98 254-259	0.005	0.005		0.03
D-231-98 259.0-264.1	0.001			<0.02
D-231-98 264.1-268.4	0.002			0.02
D-231-98 268.4-270.6	0.006			0.07
D-231-98 275-279	0.008			0.09
D-231-98 279.0-281.2	0.003			0.05
D-231-98 281.2-285.0	0.007			0.03
D-231-98 285.0-289.7	0.002			0.04
D-231-98 289.7-295.3	0.006			0.10
D-231-98 295.3-301.0	0.002			0.05
33776	0.545			4.82

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 0049153-IN
INVOICE DATE: 06/29/98

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-231-98	DEVELOPMENT	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
69	SAMPLES RECEIVED	.00	.00
68	DRYING	2.00	136.00
68	JAW CRUSHING CHARGE	2.60	176.80
68	COARSE MILLING CHARGE	9.00	612.00
68	SPLITTING CHARGE	2.40	163.20
68	RING MILLING CHARGE	2.00	136.00
69	Au (1 A.T. FIRE ASSAY)	8.00	552.00
6	Au ANALYSES/GRAVIMETRIC	8.75	52.50
69	HYDROCHLORIC/NITRIC DIGESTION	2.00	138.00
69	Ag ANALYSES	1.00	69.00

TWICE NORMAL

86-5110-477
KAA

NET INVOICE:	2,035.50
LESS DISCOUNT:	407.10
FREIGHT:	.00
INVOICE TOTAL:	1,628.40

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ANALYSIS REPORT SP049153

American Assay Laboratories

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

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

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CLIENT REFERENCE No: D-231-98 RECEIVED : 15 JUN 1998

No. SAMPLES : 69 REPORTED : 25 JUN 1998

MAIN SAMPLE TYPE : DRILL CORE

NEVADA LEGISLATIVE DISCLAIMER :-
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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 SP049153

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-231-98

REPORTED : 25 JUN 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-231-98 0.0-5.6	0.006			0.04
D-231-98 5.6-11.2	0.007			0.07
D-231-98 11.2-16.6	0.004			0.11
D-231-98 16.6-21.3	0.003			0.03
D-231-98 21.3-26.6	0.003	0.005		0.03
D-231-98 26.6-31.4	0.009			0.04
D-231-98 31.4-34.5	0.003			0.03
D-231-98 34.5-36.9	0.011			0.08
D-231-98 36.9-42.0	0.005			0.02
D-231-98 42-47	0.008			0.02
D-231-98 47.0-51.9	0.011			0.05
D-231-98 51.9-55.0	0.027	0.038		0.06
D-231-98 55.0-58.2	0.006			0.07
D-231-98 58.2-61.1	0.016			0.14
D-231-98 61.1-65.0	0.005			0.05
D-231-98 65-70	0.011			0.58
D-231-98 70-75	0.012			0.03
D-231-98 75-80	0.006			0.06
D-231-98 80-85	0.008			0.06
D-231-98 85-90	0.004			0.02
D-231-98 90-95	0.011			0.06
D-231-98 95-100	0.014			0.03
D-231-98 100.0-102.5	0.010	0.008		0.02
D-231-98 102.5-105.0	0.344		0.373	0.22
D-231-98 105-110	0.095		0.063	0.21

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ANALYSIS REPORT SP049153

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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-231-98 125-130	0.056		0.121	0.05
D-231-98 130-135	0.013			0.03
D-231-98 135.0-138.2	0.005			0.03
D-231-98 138.2-140.0	0.176		0.163	0.04
D-231-98 140-145	0.030			0.07
D-231-98 145-150	0.011			0.02
D-231-98 150.0-154.1	0.006			<0.02
D-231-98 154.1-160.0	0.010			0.02
D-231-98 160.0-164.8	0.007			<0.02
D-231-98 164.8-170.2	0.020	0.023		0.02
D-231-98 170.2-175.0	0.003			<0.02
D-231-98 175-180	0.003			<0.02
D-231-98 180-185	0.002			<0.02
D-231-98 185.0-188.6	0.001			<0.02
D-231-98 188.6-191.3	0.003			<0.02
D-231-98 191.3-196.0	0.030	0.044		<0.02
D-231-98 196-201	0.005			<0.02
D-231-98 201.0-206.7	0.014			0.03
D-231-98 206.7-212.3	0.006			0.09
D-231-98 212.3-215.3	0.005			0.08
D-231-98 215.3-218.5	0.015			0.07
D-231-98 218.5-220.4	0.002			0.03

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP049153

American Assay Laboratories

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SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-231-98 220.4-224.5	0.004			0.07
D-231-98 224.5-229.9	0.002			0.03
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D-231-98 233.4-235.0	0.003			0.07
D-231-98 235-239	0.002			0.03
D-231-98 239-244	0.001			0.02
D-231-98 244-249	0.005			0.04
D-231-98 249-254	0.002			0.03
D-231-98 254-259	0.005	0.005		0.03
D-231-98 259.0-264.1	0.001			<0.02
D-231-98 264.1-268.4	0.002			0.02
D-231-98 268.4-270.6	0.006			0.07
D-231-98 275-279	0.008			0.09
D-231-98 279.0-281.2	0.003			0.05
D-231-98 281.2-285.0	0.007			0.03
D-231-98 285.0-289.7	0.002			0.04
D-231-98 289.7-295.3	0.006			0.10
D-231-98 295.3-301.0	0.002			0.05
33776	0.545			4.82

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ANALYSIS REPORT SP049153

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HECLA MINING COMPANY

COPIES TO : KURT ALLEN
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CLIENT REFERENCE No: D-231-98 RECEIVED : 15 JUN 1998

No. SAMPLES : 69 REPORTED : 25 JUN 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

86-544-4

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP049153

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
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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-231-98 5.6-11.2	0.007			0.07
D-231-98 11.2-16.6	0.004			0.11
D-231-98 16.6-21.3	0.003			0.03
D-231-98 21.3-26.6	0.003	0.005		0.03
D-231-98 26.6-31.4	0.009			0.04
D-231-98 31.4-34.5	0.003			0.03
D-231-98 34.5-36.9	0.011			0.08
D-231-98 36.9-42.0	0.005			0.02
D-231-98 42-47	0.008			0.02
D-231-98 47.0-51.9	0.011			0.05
D-231-98 51.9-55.0	0.027	0.038		0.06
D-231-98 55.0-58.2	0.006			0.07
D-231-98 58.2-61.1	0.016			0.14
D-231-98 61.1-65.0	0.005			0.05
D-231-98 65-70	0.011			0.58
D-231-98 70-75	0.012			0.03
D-231-98 75-80	0.006			0.06
D-231-98 80-85	0.008			0.06
D-231-98 85-90	0.004			0.02
D-231-98 90-95	0.011			0.06
D-231-98 95-100	0.014			0.03
D-231-98 100.0-102.5	0.010	0.008		0.02
D-231-98 102.5-105.0	0.344		0.373	0.22
D-231-98 105-110	0.095		0.063	0.21

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP049153

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
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REFERENCE : D-231-98

REPORTED : 25 JUN 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-231-98 110-115	1.908		2.420	1.51
D-231-98 115-120	0.418		0.360	0.04
D-231-98 120-125	0.016			0.02
D-231-98 125-130	0.056		0.121	0.05
D-231-98 130-135	0.013			0.03
D-231-98 135.0-138.2	0.005			0.03
D-231-98 138.2-140.0	0.176		0.163	0.04
D-231-98 140-145	0.030			0.07
D-231-98 145-150	0.011			0.02
D-231-98 150.0-154.1	0.006			<0.02
D-231-98 154.1-160.0	0.010			0.02
D-231-98 160.0-164.8	0.007			<0.02
D-231-98 164.8-170.2	0.020	0.023		0.02
D-231-98 170.2-175.0	0.003			<0.02
D-231-98 175-180	0.003			<0.02
D-231-98 180-185	0.002			<0.02
D-231-98 185.0-188.6	0.001			<0.02
D-231-98 188.6-191.3	0.003			<0.02
D-231-98 191.3-196.0	0.030	0.044		<0.02
D-231-98 196-201	0.005			<0.02
D-231-98 201.0-206.7	0.014			0.03
D-231-98 206.7-212.3	0.006			0.09
D-231-98 212.3-215.3	0.005			0.08
D-231-98 215.3-218.5	0.015			0.07
D-231-98 218.5-220.4	0.002			0.03

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP049153

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REFERENCE : D-231-98

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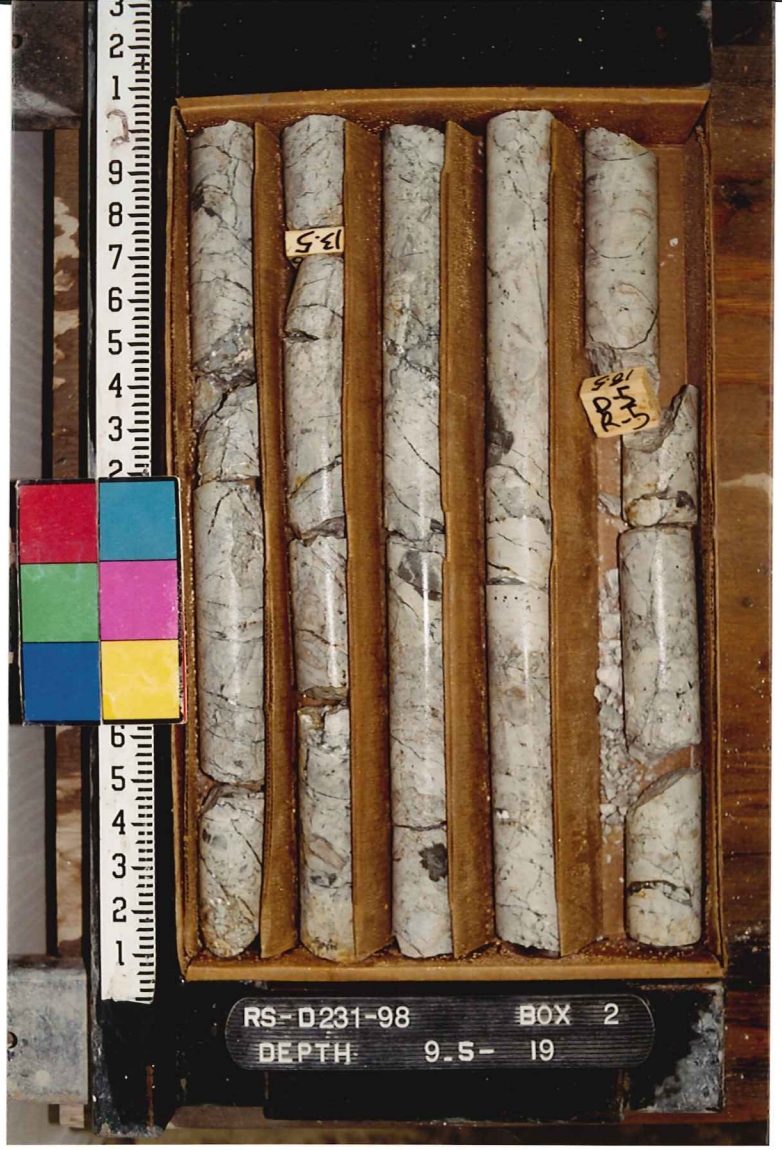
SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-231-98 220.4-224.5	0.004			0.07
D-231-98 224.5-229.9	0.002			0.03
D-231-98 229.9-233.4	0.002			0.02
D-231-98 233.4-235.0	0.003			0.07
D-231-98 235-239	0.002			0.03
D-231-98 239-244	0.001			0.02
D-231-98 244-249	0.005			0.04
D-231-98 249-254	0.002			0.03
D-231-98 254-259	0.005	0.005		0.03
D-231-98 259.0-264.1	0.001			<0.02
D-231-98 264.1-268.4	0.002			0.02
D-231-98 268.4-270.6	0.006			0.07
D-231-98 275-279	0.008			0.09
D-231-98 279.0-281.2	0.003			0.05
D-231-98 281.2-285.0	0.007			0.03
D-231-98 285.0-289.7	0.002			0.04
D-231-98 289.7-295.3	0.006			0.10
D-231-98 295.3-301.0	0.002			0.05
33776	0.545			4.82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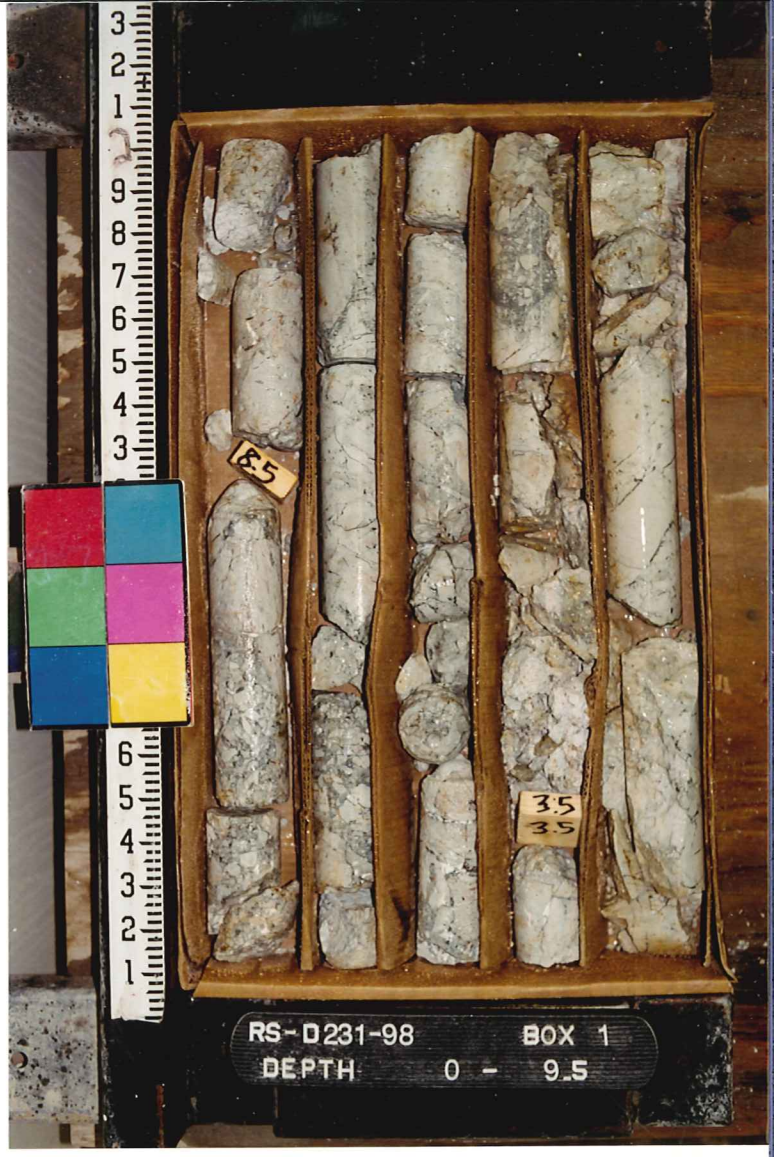
RS-D231-98 BOX 2
DEPTH 9.5- 19


8.5
3.5
RS-D231-98 BOX 1
DEPTH 0 - 9.5

RS-D231-98 BOX 3
DEPTH 19 - 28.5

RS-D231-98 BOX 5
DEPTH 38 - 47.5

RS-D231-98 BOX 4
DEPTH 28.5 - 38

RS-D231-98 BOX 6
DEPTH 47.5 - 56.5

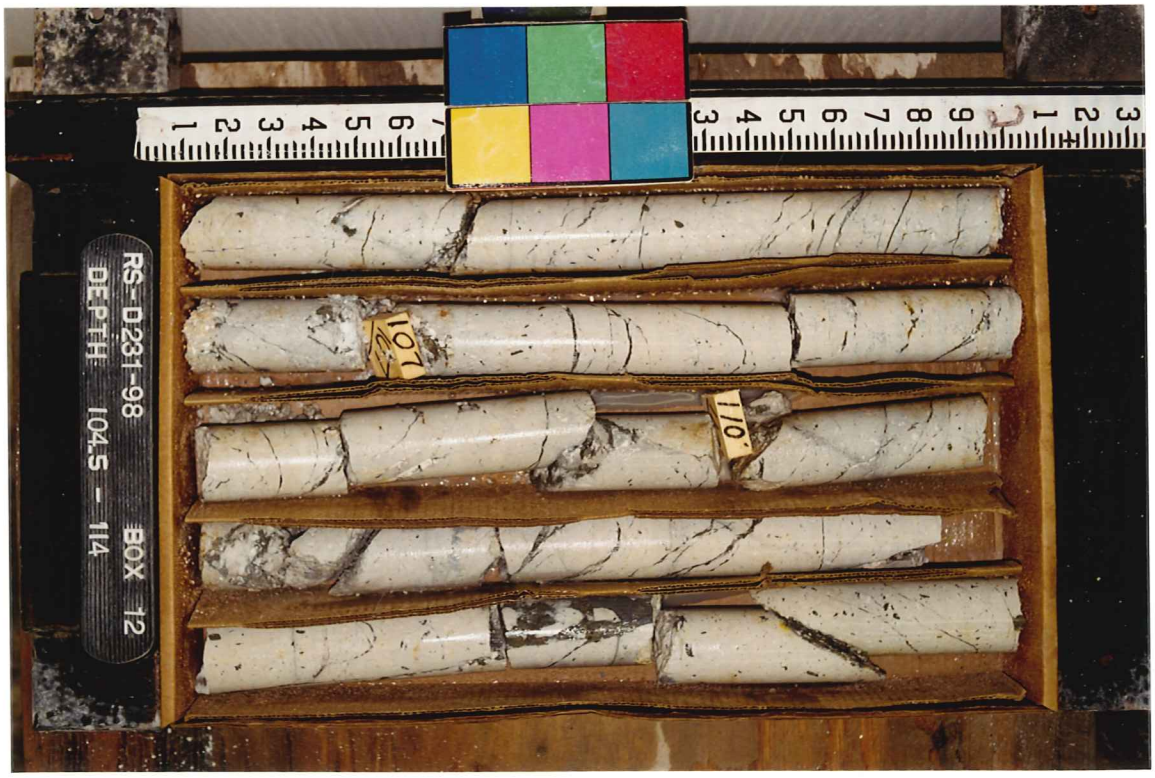
RS-D231-98 BOX 8
DEPTH 66 - 75.5

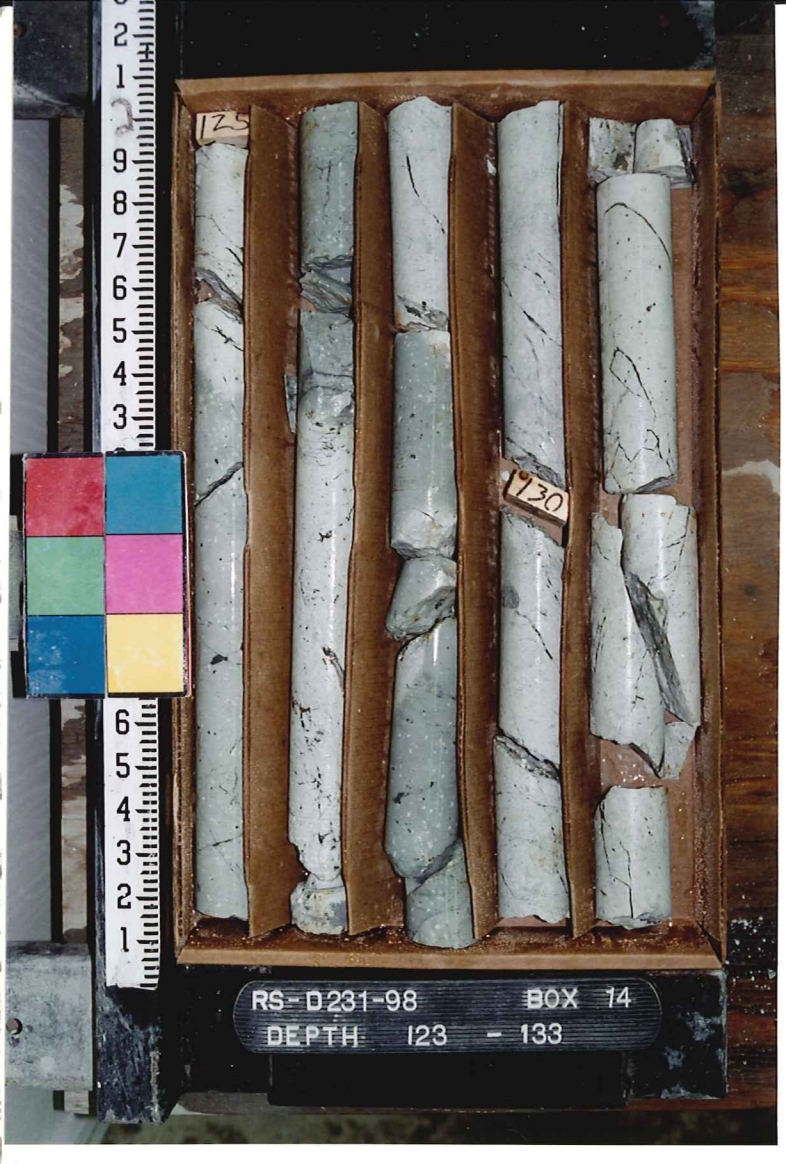
RS-D231-98 BOX 7
DEPTH 56.5 - 66

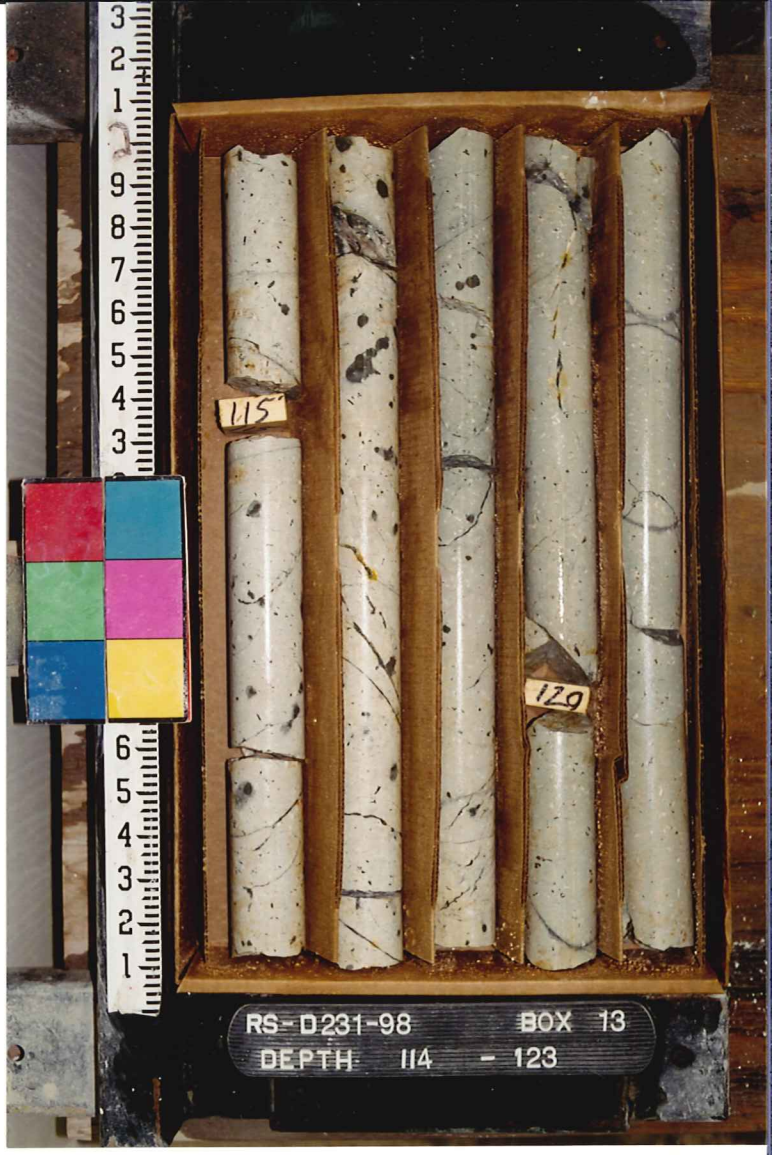
RS-D231-98 BOX 9
DEPTH 75.5 - 85.5

RS-D231-98 BOX 11
DEPTH 95 - 104.5
95'
103.5

RS-D231-98 BOX 10
DEPTH 85.5 - 95


RS-D231-98 BOX 12
DEPTH 104.5 - 114
107
110'

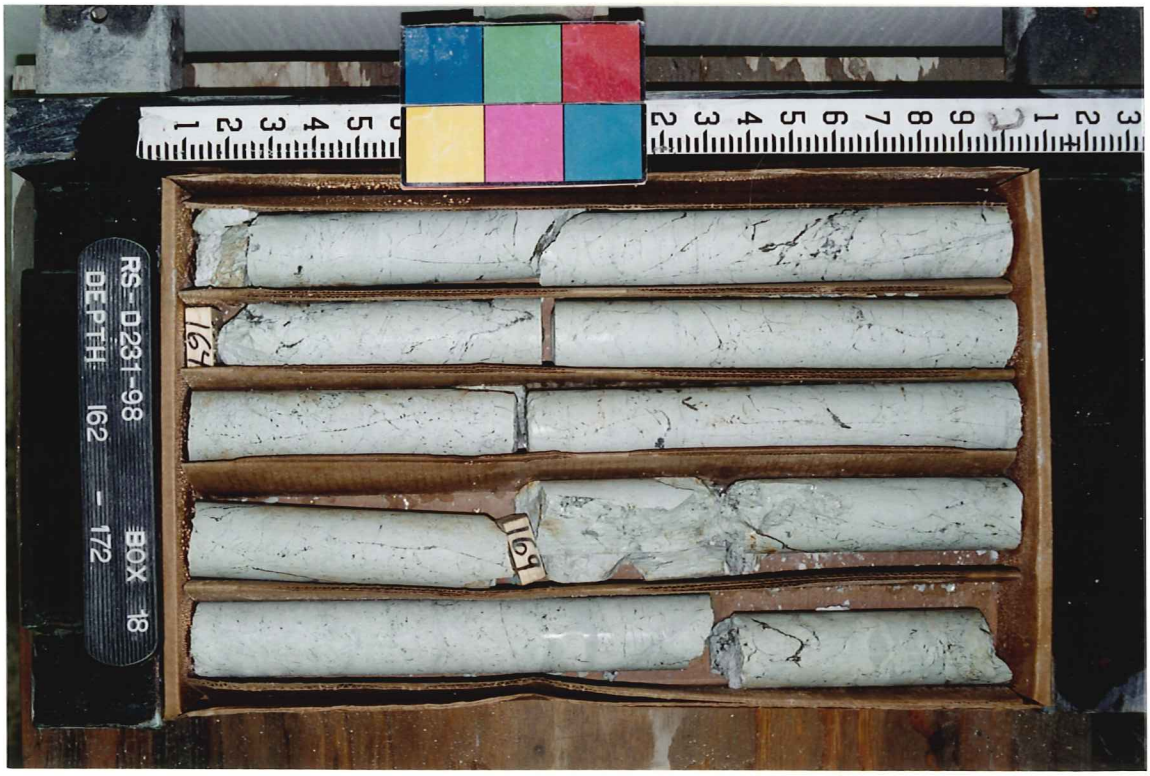

125
130
RS-D231-98 BOX 14
DEPTH 123 - 133

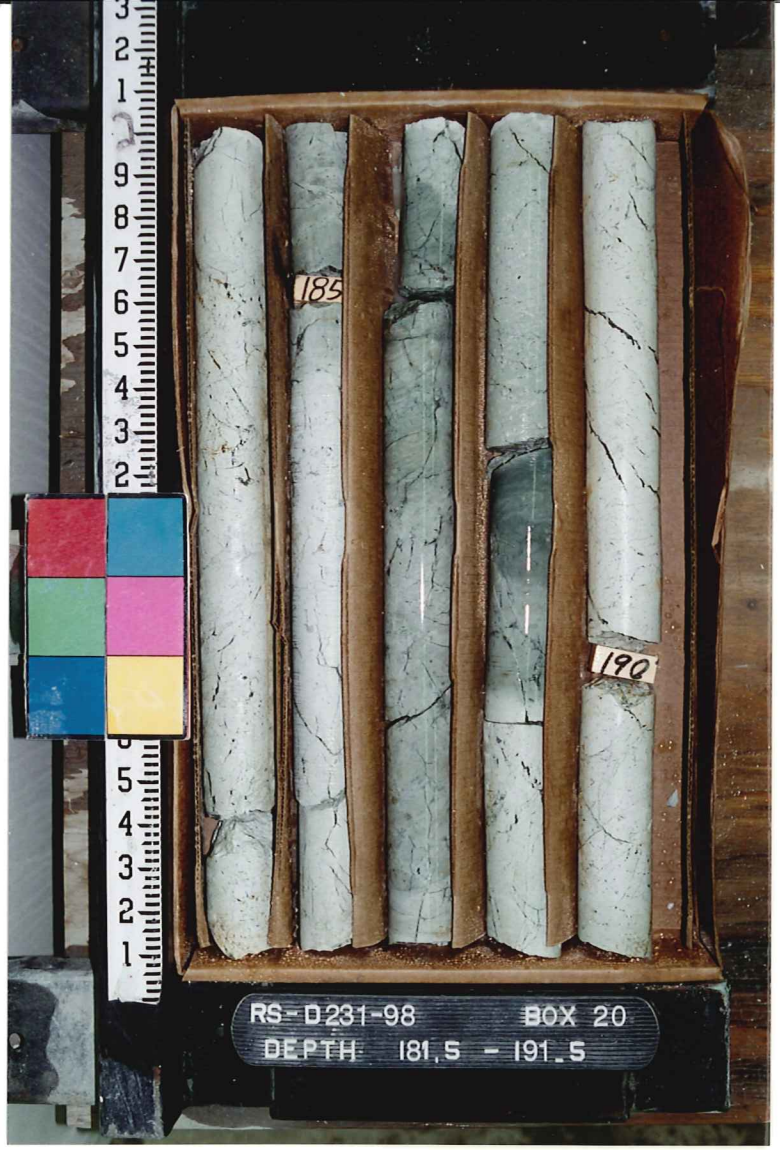

115
129
RS-D231-98 BOX 13
DEPTH 114 - 123

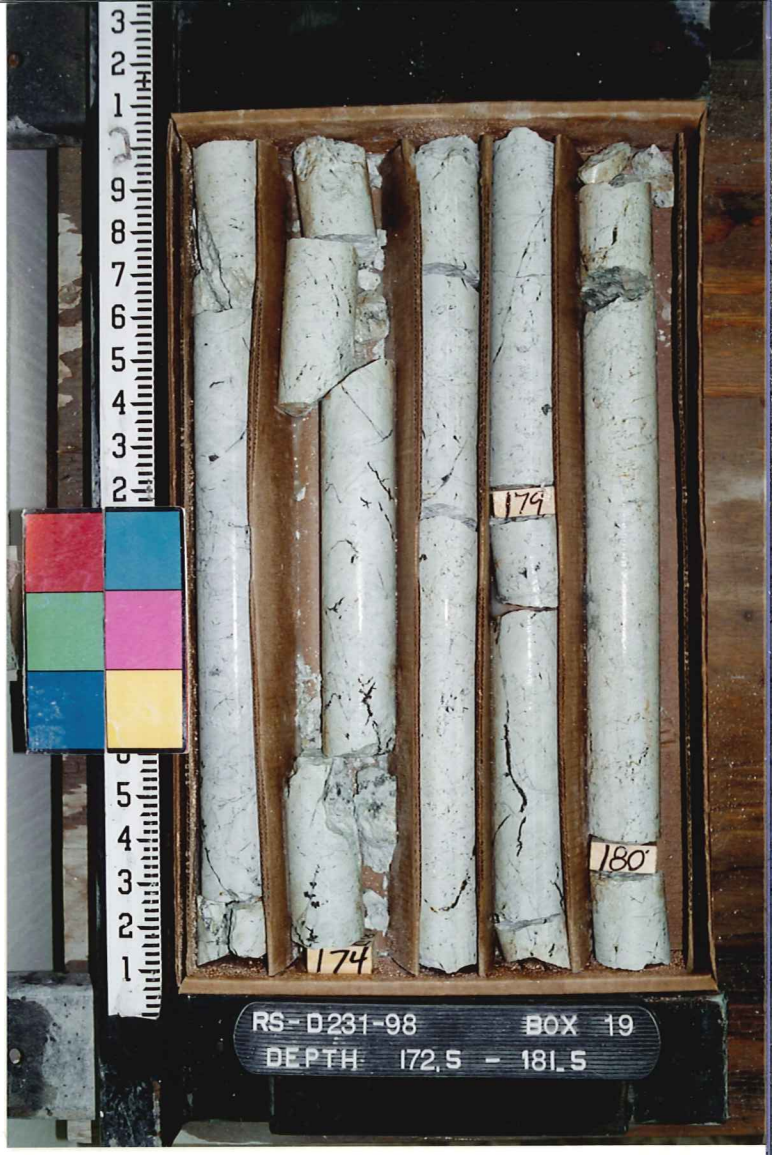
135
140
RS-D231-98 BOX 15
DEPTH 133 - 142.5

155
160
RS-D231-98 BOX 17
DEPTH 152.5 - 162

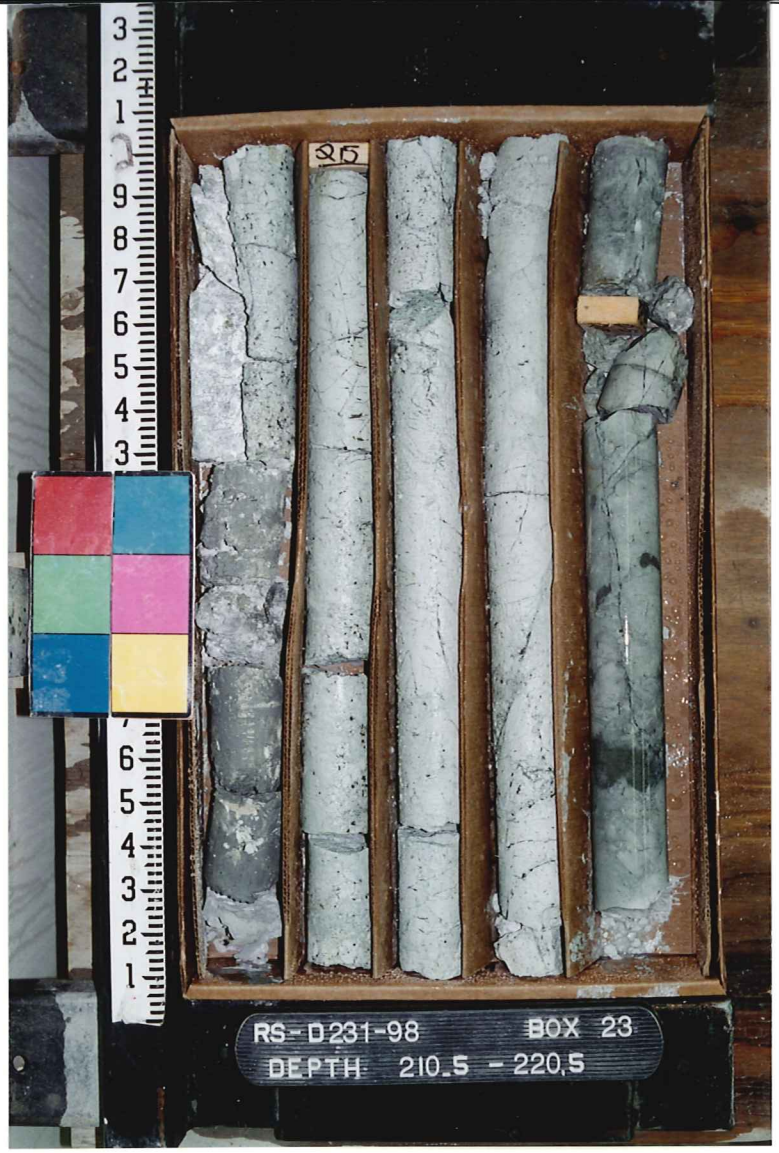
150
145
RS-D231-98 BOX 16
DEPTH 142.5 - 152.5


RS-D231-98 BOX 18
DEPTH 162 - 172
164
169


185
190
RS-D231-98 BOX 20
DEPTH 181.5 - 191.5


174
179
180
RS-D231-98 BOX 19
DEPTH 172.5 - 181.5

195
200
RS-D231-98 BOX 21
DEPTH 191.5 - 201


215
RS-D231-98 BOX 23
DEPTH 210.5 - 220.5

205
210
203
RS-D231-98 BOX 22
DEPTH 201 - 210.5

RS-D231-98 BOX 24
DEPTH 220.5 - 230.5
225
230.5
225.5

RS-D231-98 BOX 26
DEPTH 240 - 249.5

RS-D231-98 BOX 25
DEPTH 230.5 - 240

RS-D231-98 BOX 27
DEPTH 249.5 - 259.5

270
275
RS-D231-98 BOX 29
DEPTH 268.5 - 281.5

RS-D231-98 BOX 28
DEPTH 259.5 - 268.5

282.5
285
RS-D231-98 BOX 30
DEPTH 281.5 - 291

RS-D231-98
BOX 31
DEPTH 291-301 TD

SINGLE SHOT
PHOTO DISC RECORD

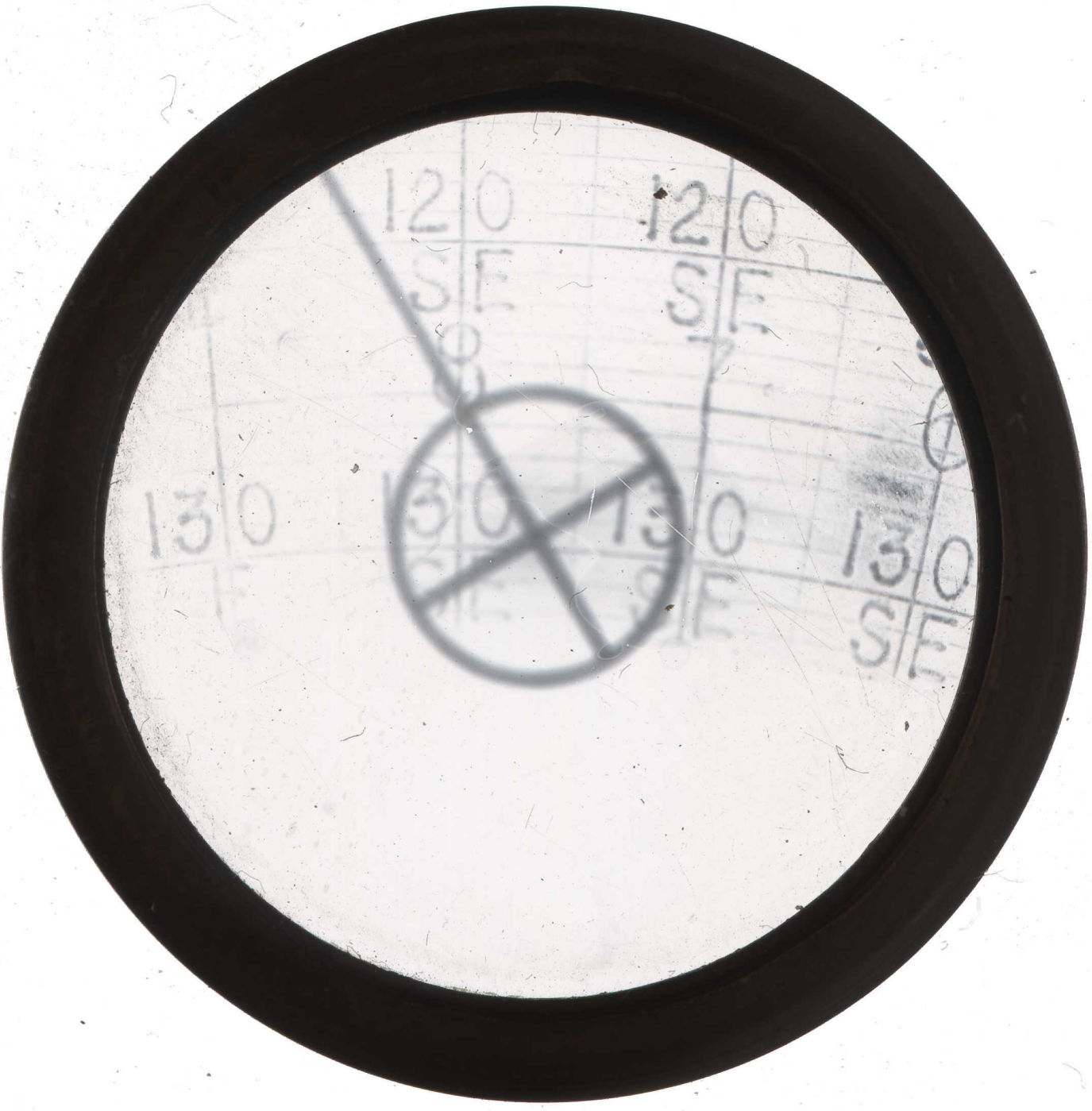
COMPANY ~~D-231~~ Hecla
WELL NAME D-231-98
LEASE
TAKEN BY Hunter
DEPTH 300
DATE 4-13-98
DRIFT ANGLE
DIRECTION
TYPE
JOB NO. 1
HI-1408

12 0
S E
12 0
S E
13 0
E
13 0
S E
13 0
S E
13 0
S E

SINGLE SHOT
PHOTO DISC RECORD

COMPANY Hecla
WELL NAME D-231-98
LEASE
TAKEN BY Hunter
DEPTH 150
DATE 4-18-98
DRIFT ANGLE
DIRECTION
TYPE
JOB NO. 1

HI-1408


12 0
S E
12 0
S E
13 0
13 0
13 0
13 0
S E

SINGLE SHOT
PHOTO DISC RECORD

COMPANY Hecla
WELL NAME D-231-98
LEASE
TAKEN BY Hunter
DEPTH Collar'
DATE 4-18-98
DRIFT ANGLE
DIRECTION
TYPE
JOB NO. 1

HI-1408

12 0
S E
12 0
S E
13 0
S E