60001485

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. 94-306C
AUTHOR	C. Winetraur; C Muerhoff; S. Fairclotl L. Bernard.
DATE OF DOC(S)	1994
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Hecla Mining Co., North Zone
COMMODITY If not obvious	gold silver
NOTES	Drill log; geology; assay; total depth 1204' handwritten notes 28p.

Keep docs at about 250 pages if no oversized maps attached
(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

SS: DD 5/29/08
Initials Date
DB: mah
Initials Date
SCANNED:
Initials Date

Revised: 1/22/08

94-306 c NORTH ZONE

60001485 4010

66001485

Hecla
MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	94-306A	LOCATION	NORTH ZONE	REMARKS	
PAGE 1 OF	4(15)	NORTHING	2,204,251.9	RC to 495	
DATE	12/2 / 11/17/94	EASTING	482,072.5	CORE from 495 to 1204	
LOGGED BY	LJB / CBW	ELEVATION	5388.0		
SCALE	RC 1"=20' CORE 1"=10'	AZIMUTH	296.5°		
TOTAL DEPTH	1204	INCLINATION	-89.0°		

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		0-125 Ashy Tan FeOx chips Ashy Tuff ?	20 40 60 80 100			0-125 Mod-wk FeOx wk sil fr chl chips Poss Alunite due to pinkish color of some chips 65-85 mod-str sil gte contings FeOx coated gte - pors ↓ Alunite

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
0	15	15	272 349			
15	25	10	118			
25	35	10	117			
35	45	10	72			
45	55	10	67			
55	65	10	44			
65	75	10	177			
75	85	10	1894 .059			
85	95	10	504 723			
95	105	10	70			

HOLE NUMBER 94-306A PAGE 2 OF 4(15)

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
			120			105-115 mod cream qtz vn
		125-185 Mixed green, TAN, + orange hem chips, fine to ashy heterolithic volcaniclastic w/ hem matrix	140			125-185 wk chl v. fine clay coatings
			160			
			180			
		185-240±5 lt+dk green ashy + fine grain clastic chips	200			185-240±5 wk-mod chl fine white chy coatings
			220			
			240			

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
105	115	10	101			
115	125	10	103			
125	135	10	86			
135	145	10	<5			
145	155	10	<5			
155	165	10	26			
165	175	10	22			
175	185	10	<5			
185	195	10	<5			
195	205	10	<5			
205	215	10	8			
215	225	10	18			
225	235	10	10			
235	245	10	24			

HOLE NUMBER 94-306A PAGE 3 OF 4(15)

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		240±5 - 345 Ashy white - lt gray Tuff w/ pass fine clastic components w/ wk py disseminations	260, 280, 300, 320, 340			240±5 - 345 wk sil vk
		345-435 Mixed lt green, Tan, + white chips fine py disseminations heterolithic volcaniclastics	360, 380			325 - 345 wk Fe ox on frac and as coatings; 345 - 435 wk sil fine clay coat pass v. wk sil

FROM	TO	W	Au	Ag	Au2	Ag2
245	255	10	38			
255	265	10	40			
265	275	10	<5			
275	285	10	<5			
285	295	10	35			
295	305	10	20			
305	315	10	6			
315	325	10	48			
325	335	10	50			
335	345	10	58			
345	355	10	218 112			
355	365	10	38			
365	375	10	190			
375	385	10	94			

HOLE NUMBER 94-306A PAGE 4 OF 4(15)

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
							385	395	10	169			
			400			blebs of py dissem	395	405	10	258 691			
							405	415	10	<5			
			420				415	425	10	<5			
							425	435	10	<5			
		435 – 445 Ashy lt green Tuff	440			435-445 wk chl	435	445	10	<5			
		455 – 495 lt + dk green chips w/ 1-2% brown chips Ashy to grainy Volcaniclastic	460			455 – 495 wk-mod chl	445	455	10	<5			
							455	465	10	96			
							465	475	10	74			
			480				475	485	10	180 330			
							485	495	10	<5			
			500										
		↓ SEE 1" = 10' CORE LOGS	520										

Hecla
MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	94-306	LOCATION	North Zone
PAGE 1 OF	CORE LOG II	NORTHING	2204251.9
DATE	11-17-94	EASTING	482072.5
LOGGED BY	CB WINETEER	ELEVATION	5388.0
SCALE	1" = 10'	AZIMUTH	296.5°
TOTAL DEPTH	1200'	INCLINATION	-89.0°

REMARKS: ORIENTATIONS STATED AS ∡ TO CORE AXIS; CORE PHOTO'D; GEOCHEM SAMPLING = 1" WHOLE CORE SAMPLE/FT.; WHOLE CORE SAMPLING W/IN NORTH ZONE & ↓; HQ CORE PRE-COLLAR RUC DRILLED TO 495'

NORTH ZONE

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		PRE-COLLAR RUC TO 495'				
100	60 / 504	495-516' "BUD TUFF" Flow-laminated, very coarse-grained, poorly-sorted, heterolithic apparent reverse-graded, clast-Δing ↓ to matrix-supported lithic-lapilli ash flow tuff. Med. grass green aphanitic waxy-fibrous (devitrified glass?) matrix w/ elongated, strechted slightly porphyritic pumice lapilli (10-25%) (fiamme) w/ flattening ratio's of 8:1 to 15:1; angular to rounded, fine-grained tuff lithic fragments (15-40%) are ash up to 5cm in diameter; crystal lithic fragments (3-5%) are subhedral chloritized-pyritized ferromag. minerals (pyx); sericitized biotite, argillized feldspar & accessional quartz eye phenocrysts. Flow-foliation @ 52°, coarser-grained & more massive (495-502') Lithic fragments are generally moderately silicified cream, tan to brown or moderately silicified-chloritized pale to med. grass green	500		495-516.5' partings on flow-foliation 1-8/ft. @ 50°	495-516.5' g/m mod. ser-chl-T, clasts mod. silic ± chl-ser-T; microhairline 0.001-0.03" $CaCO_3$ stockwork-discont. x-cutting g/m & clasts. (Silic limited to w/in lithic frags). Tr py-T assoc. w/ chl-T of ferromag crystal frags & minor yellow py w/ $CaCO_3$
95	77 / 514		510			
95	72 / 524		520		516.5-543' < 1/ft chl ± $CaCO_3$ micro coatings on joints at 45° & 10°	516.5-543' tr. silic ± alun + mod. ser-T + diss, micro-stkwk chl-T + micro stringer & loc. bx matrix clasts of $CaCO_3$ + chl ± loc. tr. FeOx
100	82 / 534	516-516.5' Interbedded (?) coarse-grained lithic tuff (as above) and greenish-grey fine-grained tuff (as below) or sharp depositional (?) contacts at 60°, 50° & 43° ↓.	530			
98	81	516.5-605' "LOWER BUD TUFF" Fine-grained, well to moderately-well sorted, generally massive, sugary texture, very fine-grained slightly porphyritic w/ disseminated dark green	540			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
GEOCHEM SAMPLING 495-633.7'						
495	505	10	<0.001	<0.02		
505	516.5	11.5	<0.001	<0.02		
516.5	525	8.5'	<0.001	<0.02		
525	535	10'	<0.001	<0.02	<0.001 Au(Rz)	
535	543	8.0	<0.001	<0.02		

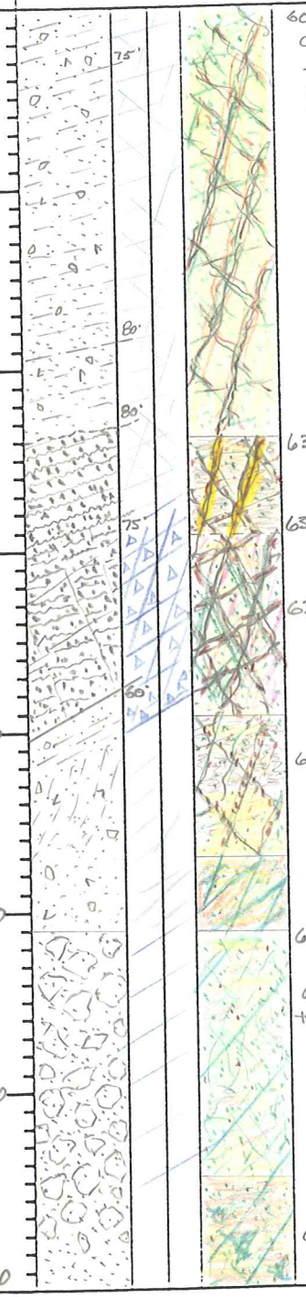
HOLE NUMBER 94-306 PAGE 2 OF 11

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
	544	516.5-605' (cont.) chlorite; local intervals of auto-breccia (homolithic) as a result of fracturing + chloritization-calcitation ± alunite / FeOx & thin intervals of vitroclastic-glass very fine-grained tuff. Occassional rounded isolated grey, greenish-grey & pinkish grey pumice lapilli.			543-569.5' 1-2/ft 50° & 30° joints w/ $CaCO_3$ ± FeOx micro coatings	543-569.5' s.a.a. w/mod. int. to mod. FeOx stn mod. calcification of glm, patchy clotted $CaCO_3$-FeOx (hem) 2nd to 4th order RR's w/ bx zones w/ FeOx → ser → FeOx → ser-arg (cores)
99	88		550			
	554					
101	77		560			
	564				567-568' FeOx (hem) stnd fragments w/ wk calcification in a ser-chl matrix	
100	74		570		569.5-605' 1-3/ft frac's loc. w/slicks: micro R & G's @ 75°, 50-55° & <5°	569.5-605' tr. silic ± alun + mod. ser-T + diss/micro stkwk chl-T ↓ decr. FeOx stn & assoc. $CaCO_3$ c.g. clotts - mossaic patch-work. - high % 10' $CaCO_3$ micro vnlts ± ill (tr), & <syn 50° (bdd-plane?)
	574					
98	77		580			
	584					
100	64		590			
	594					
98	79		600			
	604	605-633.7' Medium-grained, moderately-sorted, crudely planar to wavy laminated, f. to m.g. porphyritic ash flow tuff: 1% rounded to elongate-contorted medium-greenish-grey		45°	605' Bedded conformable contact @ 45°	
98	36		610			

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
543	550	7.0'	<0.001	<0.02		
550	560	10'	<0.001	<0.02		
560	569.5	9.5'	<0.001	<0.02		
569.5	580	10.5'	<0.001	<0.02		
580	590	10.0'	<0.001	<0.02		
590	598	8.0'	<0.001	<0.02		
598	605	7.0'	<0.001	<0.02		

HOLE NUMBER 94-306 PAGE 3 OF "

REC	RQD	LITHOLOGY	FT	STRUCTURE	ALTERATION AND MINERALIZATION
	614	605-633.7' (cont.) non-foliated, devitrified pumice or lithic fragments (up to 1.15 cm in length). Foliation is accented by chlorite-sulfide lamalli as depicted; disseminated fine-grained chlorite; pumice/lithic fragments pref. replaced by silic. + py-T.		605-633.7' 5-10/ft. chl ± $CaCO_3$ ± sulf-coated frac's on bdding/foliation & x-cutting fol. @ 20° & 50°	605-633.7' mod silic + diss & stkwk chl-T (± $CaCO_3$ ± sulf) tr to ↓ incr. arg-T + tr. v.f.g. py-T w/ chl repl. of pheno's; min stx's 2-4/ft @ 30° & 5° 0.01-0.05" incr. ↓ to 0.10" w/ chl → $CaCO_3$ → ill → py & marc ± FeOx stn as halo's/salvages
100	62		620		
	624				
98	47		630		
	634	633.7-649' Wavy-laminated medium-grained to coarse-grained (sand size) moderately well-sorted rounded to eliptical shaped argillized pumice lapilli in a fine-grained argillic-siliceous-alunite groundmass, foliation at 75° ↓ 639'. Crackle-fractured breccia in-bx ↓ 649'		633.7' conformable to bedding-alteration contact @ 80°. 633.7-639' frac'd @ 20°, 40°, 55° & parallel to fol. 70-80 w/ chl-ill-sulf frac-fill. 639-649' silic. & min. (ill-marc-bar) tectonic crackle to fault bx on 60° & 20-30° stx's - minor clast-rotation w/in crackle bx	633.7-639' weak silic + tan alun. + mod. arg-T + tr to 2% v.f.g. diss. py-T; min stx's 5/ft 0.01-0.20" @ 75° (par. to lam's) & 10-15° & 45° w/ Q ± chl ± ill + py + py & marc w/ 1/16-1/2" py-silica salvages
100	56		640		
20	638 00 639				
85	30				
	644				
93	49	649-661' Fine-grained, moderately well sorted wavy to planar-laminated tuff, fine-grained porphyritic w/ diss. chlorite & ferromags; flow-lam or bdding @ 70° Δ ing ↓ to 20° Δ ing ↓ to more massive. occassional isolated rounded pale green pumice/lithic fragments.	650	649-661' 2-3/ft. frac's @ 40-50° undulating to arcuate w/ chl-ill-sulf. fill.	639-649' similar to above w/ much stronger chl-T & frac-fill & silic + alun; min stx's >10/ft @ s.a.a. w/ chl-Q → ill → marc/py → bar
	654				
100	68	661-678' Fine-grained, sugary texture. massive-bedded airfall tephra/tuff-auto brecciated: occassional rounded pumice lapilli/lithic fragments; fragments are rounded to angular rotated, in a matrix of similar composition.	660	661' contact ∡ & type unknown - drill break. 661-674.5' <1/ft. ser-frac's to slicks @ 60° -	649-657' ↓ incr. silic & decr. arg-T & alun. + mod. ser-T diss & stkwk chl-T + loc. patches of int. py-T; min stx's 3-5/ft. 0.01-0.10" @ 40°, 20°, 70° w/ chl → ill → marc/py & marc.
	664				
100	87		670	674.5-685' s.a.a. w/ mod. int. FeOx (hem) stn & loc. irreg. discont c, xln $CaCO_3$ clotts w/ FeOx salvages	657-661' s.a.a. w/ dark brown-green chl-FeOx stn. & wht. barren $CaCO_3$ stringers @ 40° & 20°
	674				
97	85		680	678' gradational contact	661-674.5' wk silic + mod. ser-T + diss & stkwk chl-T tr v.f.g. py-T + Tr alun; min stx's: <1/ft. 0.05" barren wht $CaCO_3$ @ 40°



ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
605	615	10.0'	<0.001	<0.02		
615	625	10.0'	0.002	<0.02		
625	633.7	8.7'	<0.001	<0.02	<0.001 Au (Rz)	
WHOLE	CORE	ASSAY	SAMPLES	633.7-661'		
633.7	639	5.3'	0.074	0.10	0.065 (g)	
639	644.5	5.5'	0.010	0.19		
644.5	649	4.5'	0.008	0.15		
649	653	4.0'	0.002	0.04		
653	657	3.0'	0.001	0.04		
657	661	4.0	<0.001	<0.02		
GEOCHEM	ASSAY	SAMPLING	661-904			
661	674.5	13.5'	<0.001	<0.02		
674.5	685	10.5'	<0.001	<0.02		

HOLE NUMBER 94-306 PAGE 4 OF "

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
100	684 / 87 / 694	678–704' Sugary texture, fine to medium-grained, massive to banded-bedded, moderately well-sorted tuff w/ occassional isolated rounded pumice lapilli or lithic fragments. Sericitized w/ moderate-intense hematitic FeOx stain, crudely banded @ 30'	690		685–704' ≪ 1/ft. 40-45° $CaCO_3$ + pale green (sage) ser 0.005" coatings	685–729' wk silic + mod. ser-T + mod. int Calcification + mod. int. FeOx (hem) stn min stx's, 2-7/ft chl-$CaCO_3$ + FeOx salvages 0.005–0.08
98	83 / 704		700	40°		
100	39 / 714	704–784.5' Medium to coarse-grained (sand size), planar to wavy-laminated, thin-bedded, moderate-sorted tuff w/ occassional to common rounded devitrified pumice lapilli or lithic fragments – pref. silic. ? /or pyritized. Variable color-alteration from wavy-laminated, vesicular – leopard skin texture to planar laminated.	710	30°	704' undulating uneven frac ⊥ to lam below @ 40° frac'd contact. 704–714' 2-4/ft $CaCO_3$-FeOx coated frac's on lam's @ 30-35° ? ⊥ to lam's @ 40°	
100	44 / 724	704–714' thin-bedded, planar-laminated @ 30° sandy med. g. strong hem. FeOx stn	720	70°	714–722' 4-10/ft chl-ser-$CaCO_3$-FeOx coated frac's @ 5°, 20°, ? 70°	
98	76 / 734	714–736.2' thin-to med. bdd., planar to wavy-lam'd @ 70° loc. vesicular w/ flow-aligned scattered $CaCO_3$-filled vesicles. Strong FeOx stn x-cut by chl-ser-arg-bleaching 736.2–746' c.g. closely-spaced, flow-aligned eliptical vesicles (?), devitrified pumice lapilli; cream to pinkish tan x-cut by $CaCO_3$-chl-ser-sulf. vesicles ? – filled by pale green waxy clay/ $CaCO_3$/or chloritic clay. 70-75° flow-lam	730		722–760' 1-4/ft. chl parting on lam's @ 70-75° ? ≪ 5-20° $CaCO_3$ ± chl ± sulf coated frac's	729–736.2' s.a.a. lam par. Chl-$CaCO_3$ w/ ser-arg-T bleaching (salvages)
100	83 / 744	746–760' medium to f. g. mod.-sorted, planar-wavy-lam'd, dense, siliceous, hard greenish-grey, 70° lam. med. bdd.	740	70-75°		736.2–746' mod silic + wk-mod calcification + pink alun. + wk ser-T; vesicles w/ ser/chl clay or $CaCO_3$; min stx's w/ 15°/40° ser-$CaCO_3$ ± chl ± sulf
98	59		750	70°		

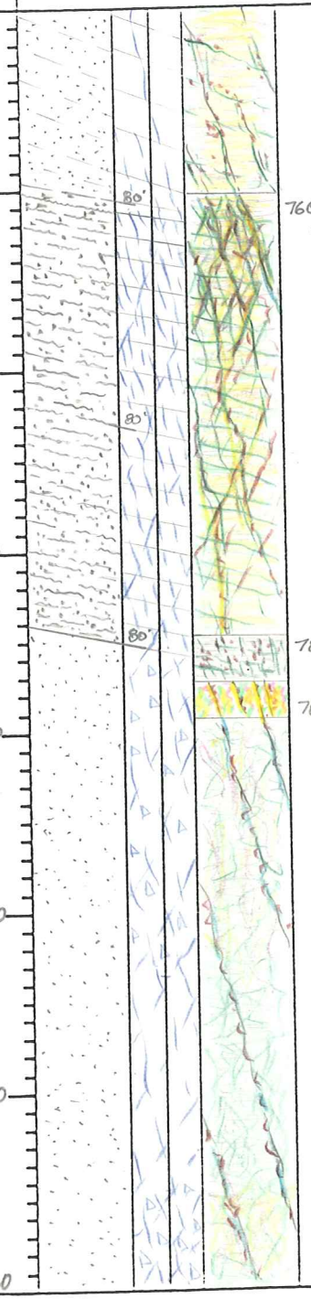
ANALYTICAL DATA

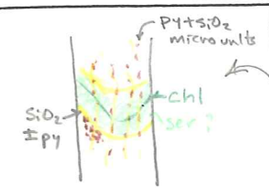
FROM	TO	W	Au	Ag	Au2	Ag2
685	695	10.0'	<0.001	<0.02		
695	705	10.0'	<0.001	<0.02		
705	715	10.0'	<0.001	<0.02	<0.001 Au (RZ)	
715	724	9.0'	<0.001	<0.02		
724	729	5.0'	<0.001	<0.02		
729	736.2	7.2'	<0.001	<0.02		
736.2	746	9.8'	<0.001	<0.02		

HOLE NUMBER 94-306 PAGE 5 OF 11

REC	RQD	LITHOLOGY	FT
	754		
100	55	760-784.5' med. to c. g. (sand size) wavy-planar-lam'd, thin-bedded, moderately well-sorted; cream to pink x-cut by chl/sulf w/ ser-arg-T halo's.	760
	764		
98	64		770
	774		
95	56		780
	784	784.5-888' Fine-grained, vitropheric airfall (?) tuff, well-sorted, massive-bedded, auto brecciated and fractured w/ spheroidal texture (chloritized-argillized), auto bx matrix sugary-texture pink-siliceous-alunitic. Pale sage green (ser-T) to light grey (arg-T) w/ dark grass green micro. frac. stockwork (chl)	
100	79		790
	794		
100	93	784.5-786.5' frac'd wkly arg-T.	800
	804	786.5-803.5' auto bx'idted w/ clast-supported angular frags in siliceous sugary pink matrix on 20° stx's	
		803.5-815.5' frac'd	
100	95	815.5-824.5' auto bx'iated as above	810
		824.5-853.5' frac'd w/ spheroidal chl-arg-T text.	
	814	853.5-856' tectonic bx on 20° stx's w/ SiO_2/$CaCO_3$/sulf matrix ± clay gouge	
100	93	856- frac'd & veined auto bx on 10° & 40° stx's	820

GRAPHIC LOG



STRUCTURE	ALTERATION AND MINERALIZATION
	746-760' wk silic + wk arg-T + mod. ser-T of pumice lapilli + tr alun of g/m.; min stx's incr. ↓ w/ chl-steely grey py ft marc ± ill
760-784.5' intensely frac'd >20/ft, lamination partings + 5-20/ft. 5-20° chl-ser-sulf.-ill frac-fill.	760-784.5' wk silic + wk to tr. alun + mod ∆ing + to wk arg-T + mod. ser-T of pumice lapilli + intensely frac'd; min stx's 0.01-0.10" chl → or ser → Q-ill ± $CaCO_3$ + cubic/dimorphic/py-ohedron/& distorted py + steel grey to slightly ~~sooty~~ py ft marc.
784.5' sharp conformable bedded contact @ 80°	784.5-786.5' v. wk silic + mod. arg-T + stkwk chl + 1-% diss. bladed sulf. + micro vnlt py-chl.
784.5-853.5 intensely frac'd to bx'iated (auto-homolithic bx) stkwk w/ variety of frac-fill (as at right.)	786.5-789' mod patchy silic + tr. alun. w/ frags of below & min stx's of Q-py ± ill
	789-853' wk silic + mod. int. ser-T + wk to mod. arg-T + chl micro stkwk + incr. silic + alun? in bx zones; min stx's 1-3/ft. $CaCO_3$ + marc ± py ft marc ± ill 0.05-0.10" ± ↓ incr Q & amber to red spl.

ANALYTICAL DATA

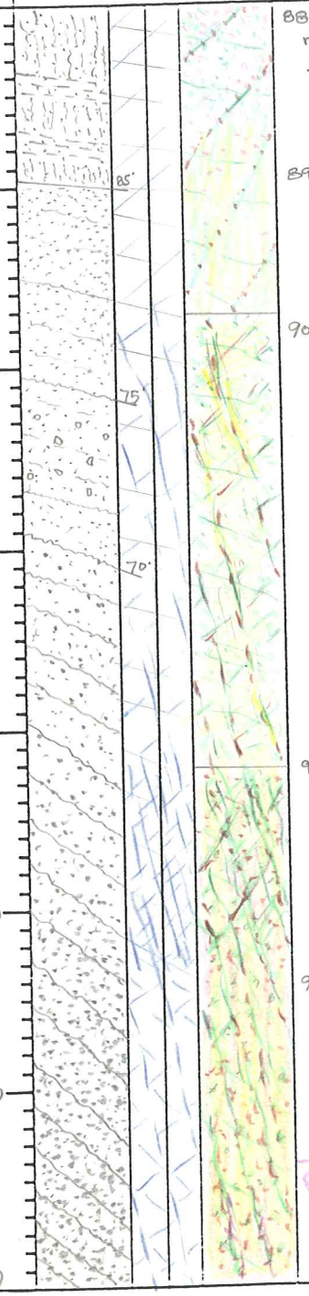
FROM	TO	W	Au	Ag	Au2	Ag2
746	755	9.0'	<0.001	<0.02		
755	760	5.0'	<0.001	0.03		
760	765	5.0'	0.005	0.09		
765	770	5.0'	0.011	0.11		
770	775	5.0'	0.087	0.11	0.035 (g)	
775	780	5.0'	0.014	0.06		
780	784	4.0'	<0.001	<0.02		
784	789	5.0'	0.048	0.14	0.053 (g)	
789	794	5.0'	0.003	0.07		
794	804	10.0'	<0.001	<0.02		
804	814	10.0'	<0.001	<0.02		
814	824	10.0'	<0.001	<0.02		

HOLE NUMBER 94-306 PAGE 6 OF 11

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
	824					
100	77		830			
	834					
100	88		840			
	844					
98	77		850		853.5-856' tectonic bx on 20° stx's w/ micro post sulf-silic-$CaCO_3$ gouge bx.	853.5-856' + med. g. pyrr.
	854					
99	82		860		856- less intense frac'ing w/ chl micro stk wk & occ. 10°-60° $CaCO_3$ ± marc filled frac's	856-888' wk-to wk-mod. silic + mod. ser-Ty stkwk chl microsults + wk vn'd alun-bx + wk arg-T min stx's 1-2/ft. 0.05-0.15" $CaCO_3$ + f. to m. g. euhedral pyrr ± tr adhered f. g. marc.
	864					
100	79	Petro Sample	870			
	874					
100	75		880			879-888' incr. ill w/ chl filled frac's
	884					
100	85		890	75°	888' frac'd conformable bdd contact @ ~75°	

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
824	834	10.0'	<0.001	0.03		
834	844	10.0'	0.003	0.06		
844	853.5	9.5'	0.001	0.03		
853.5	856	2.5'	0.001	0.02		
856	864	8.0'	<0.001	<0.02		
864	874	10.0'	<0.001	<0.02		
874	884	10.0'	<0.001	0.02		
884	894	10.0'	<0.001	<0.02		

HOLE NUMBER 94-306 PAGE 7 OF 11

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
100	73	888-899.5' Interbedded fine-grained, dense siliceous, crudely laminated tuff & mottled to leopard skin texture pale green & pinkish-tan vesicular? tuff. Elongated vesicles orientated roughly ⊥ to apparent lamination & jointing (partings).	900		888-907' 2-4/ft. chl-marc-brassy py coated frac's @ 50°, 80° (partings)	888-907' wk silic + 895' + mottled mod. ser-T & alun. + grey calcif. clotts. 895+ s.a.a. interbedded w/ wk-mod. silic decr. alun. & ser-T; min stx's 1/ft. @ 50°/80° w/ 0.01-0.05" chl ± $CaCO_3$ ± sulf.
100	64	899.5-917.5' f.g., med. bdd, wavy lam'd w/ occ. rounded to elongated med dark grass green lithic frag's toward base pale grn-gry 75°.	910		899.5' chlorite parting @ 85°	907-932' mod. frac'd w/ mod. silic + frac-controlled wk ang-T + wk to mod. ser-T of pumice lap's, & as salvage on stx's + tr. alun. + wk diss chl; min stx's > 5/ft. chl + py ± Q ± bar (m.g. open-space 910-912')
100	82	917.5-979' m. to c.g. (sand size), med. bdd, wavy-lam'd, mod.-sorted, mod. alt loc. frac-bx'iation, pale grn, tan-to pink granular to sugary texture 70° lam's/bdd. 979-990' m.g., med. bdd. wavy to planar lam'd mod. well-sorted pale pinkish tan to greenish grey - chl. dk grn rounded, elong. lithic frags common 80° lam's	920		907-932' 1-2/ft partings @ 70-80°; 1-3/ft. chl-Q-sulf filled frac's @ 5-25° - loc. wk crackle bx @ intersection w/ 40-50° stx's	
98	87	990-1012' c.g. (sand size) granular, mod. sorted med. bdd, wavy lam'd. pinkish tan 80° lam's.	930		932-943.4' ser-Q-sulf 5-10/ft. 5-15° stx's + 1-3/ft 65-80° ser-partings + 2-5/ft. chl-sulf 40-50° stx's.	932-979' mod to mod. intense frac'd + mod. silic. + mod. ser-T/ang-T of pumice lap's + wk alunite; min stx's 3-10/ft w/ chl → ser → Q → ill → py ft marc + py ± mod to c. g. bar. 1-3% py-T.
100	79		940		943.4-979' 1-3/ft. ser-Q sulf-ill @ 5-10° + 1-3/ft. 30-40° chl → ser → Q-sulf + 1-3/ft. 60-80° partings. chl ± ser ± sulf.	
100	80		950			
100	75		960			

ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
894	904	10.0'	0.008	<0.02		
WHOLE CORE ASSAY SAMPLING					904-	
904	909	5.0'	0.003	0.04		
909	914	5.0'	0.004	0.04		
914	919	5.0'	<0.001	<0.02		
919	924	5.0'	<0.001	<0.02		
924	929	5.0'	<0.001	<0.02		
929	932	3.0	0.001	0.04		
932	937	5.0'	0.031	0.13		
937	942	5.0'	0.017	0.05		
942	947	5.0'	0.001	0.04		
947	952	5.0'	0.001	0.03		
952	957	5.0'	0.004	0.06		
957	962	5.0'	0.015	0.08		

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
	964					
98	53		970			
	974					
100	84		980	80°	979–989' minor fracing w/ 1-2/ft. 80° chl pentings + 1-2/ft. 0.01" chl-Q @ 10-15'	979–989' mod. int. silic + tr alun. + v. wk arg-T + mod. stx-controlled ser-T + tr py-T: 1-3/ft hairline Q → chl → w/ser-T salvages.
	984					
98	76		990	80°	989'–1012' 1-2/ft. v. pale sage green ser ± micro bx on 40° stx's + 1-2 5-15° Q-ill-sulf-frac's + ser/chl-sulf pentings 80°	989–1012' mod. silic + wk to mod. arg-T + mod ser-T of pumice lap's + wk alun. + 1-2% f.g. py-T: min stx's 2-4/ft. w/ chl → ser → c.g. py → ill → Q → py ft manc.
	994					
100	90		1000			
	1004					
98	90		1010	80°	1012–1032' minor chl micro frac-fill w/ ser-T salvages @ 25'	1012–1036.5' wk to mod. silic + ↓ decr. wk alun + wk arg-T + py-T clotts adj. to stx's only + mottled ser-T (w/ alun): min stx's <1/ft. @ 25' & 80° (lam's) w/ chl ± Q ± FeOx ± py
	1014	1012–1035.5' Medium-grained grading downward into fine-grained, planar-laminated w/ loc. cross-lamination and contorted flow-shear lamination, pink & sugary + 1019' pink, pale green, tan, grn-gry siliceous, dense & hard + 1035.5: 1023–1035.5' massive & aphanitic. Laminations gen. @ 65-85' Waterlain tephra/tuff. w/in LBT				
100	88		1020			
	1024					
98	65		1030			

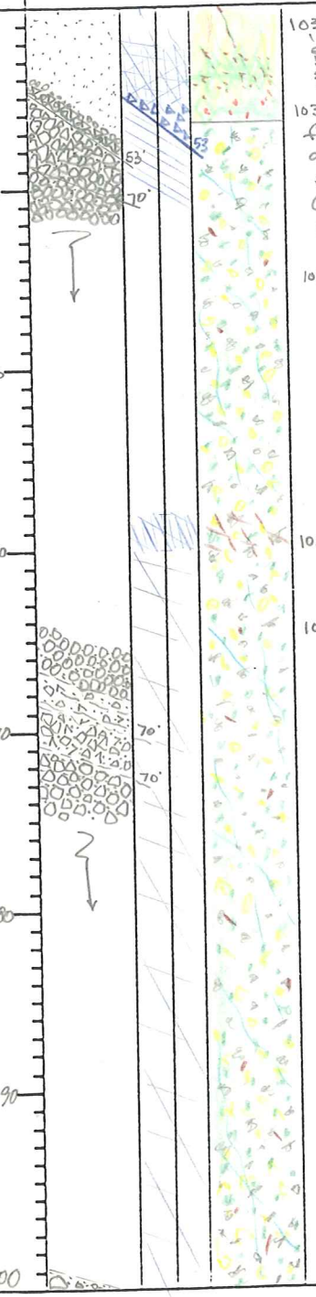
ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
962	967	5.0'	0.014	0.09		
967	972	5.0'	0.007	0.07		
973	976	3.0'	0.002	0.04		
976	979	3.0'	<0.001	<0.02		
979	984	5.0'	<0.001	<0.02		
984	989	5.0'	<0.001	<0.02		
989	994	5.0'	0.004	0.03		
994	999	5.0'	0.002	0.04		
999	1004	5.0'	0.004	0.05		
1004	1008	4.0'	0.012	0.07		
1008	1012	4.0'	0.009	0.08		
1012	1017	5.0'	0.001	0.03		
1017	1022	5.0'	0.002	0.04		
1022	1027	5.0'	<0.001	<0.02		
1027	1032	5.0'	<0.001	<0.02		

REC	RQD	LITHOLOGY
	1034	1035.5–1036.5' clast-supported, heterolithic fault breccia on basal 53° stx w/ clay–sulf gouge.
100	74	1036.5–1132.5' Ts V Medium grass-green, coarse-grained (pebble conglomerate), moderately-poor-sorted, clast-supported, rounded to angular heterolithic lithic clasts, crude bedding evident from imbricated elongated prop. alt. ash flow tuff fragments @ 70°.
	1044	
100	87	1067.5–1069' conform. interbdd. matrix-supported crudely flow-laminated, lithic latite lapilli dsh flow tuff.
	1054	
100	67	1069–1071.5' clast-supported lithic latite tuff breccia 1099.8–1102.5' Conformably-interbedded @70' clast-supported coarse-grained conglomerate heterolithic poorly-sorted, rounded volc. frags
	1064	1102.5–1111' interbedded c.g. sandstone, pebble congl. & c.g. cong. w/m' thick c.g. cong. beds @ 65-70°
100	75	1111–1129.1' c.g. congl. poorly-sorted, clast-supported heterolithic rounded to subang. volc. frags up to 5.0 cm in diameter. 1129.1–1132.5' tectonically sheared matrix-rich (med. green ser-chl) pebbles congl. & poss. (prob.) ash flow tuff.
	1074	
97	89	
	1084	
99	88	
	1094	
100	85	

FT

GRAPHIC LOG



STRUCTURE

1032–1035.5' silic. brittle & shattered on 5°, 30°, 60° & 80° ser-py joints.

1035.5–1036.5' post-sulf fault bx; clast-supported angular Δ ↓ to rounded silic. tuff frags in a $CaCO_3$ + ser + sulf matrix

1036.5' 1" slick (ser) + microbx gougl @ 55°

1036.5–1040' 1-3/ft ser-slicks ± microbx @ 60° ± f.g. py

1058–1060' 3-4/ft slicks ± grey sulf.-rich clay gouge @ 25°, 40°, 60°, 5°

1060–1129' 1-2/ft. ser ± chl ± py frac's & partings @ 30° & 70-80°

ALTERATION AND MINERALIZATION

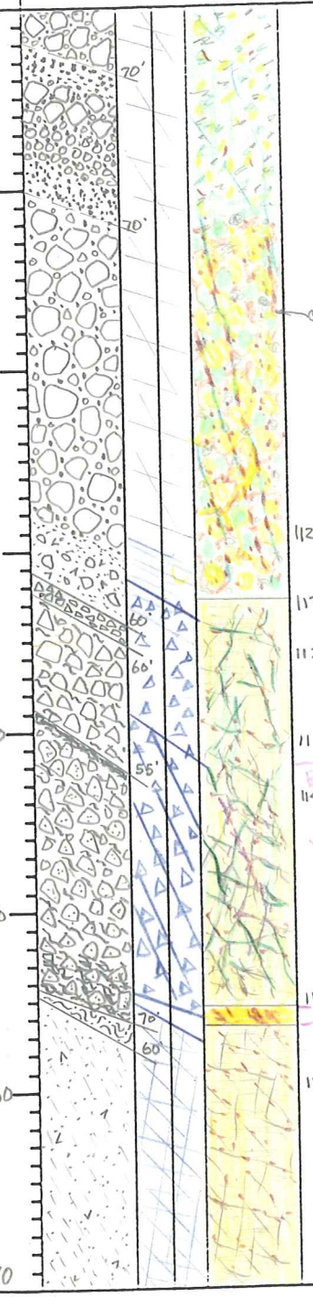
1036.5–1132.5' mod. ser-T of lapilli frags & g/m + mod. silic / chl / arg / or ser-T of clasts + tr bladed diss. py-T: min stx's <1/ft. barren wht c.g. $CaCO_3$ @ 5°, 40, 70° 0.01-0.5" & 80° sulf-rich clay gouge <1/ft, & <1/ft. incr. ↓ chl + py

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
1032	1036.5	4.5'	<0.001	0.03		
1036.5	1042	5.5'	0.002	0.02		
1042	1048	6.0'	<0.001	0.02		
1048	1054	6.0'	<0.001	<0.02		
1054	1060	6.0'	<0.001	0.02		
1060	1065	5.0'	0.018	0.13		
1065	1070	5.0'	0.005	0.02		
1070	1075	5.0'	<0.001	<0.02		
1075	1080	5.0'	<0.001	<0.02		
1080	1085	5.0'	<0.001	0.02		
1085	1090	5.0'	0.001	0.02		
1090	1095	5.0'	0.002	<0.02		
1095	1100	5.0'	0.002	<0.02		

HOLE NUMBER 94-306 PAGE 10 OF 11

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
	1104					
98	68		1110			1111-1129.1 tr incr. silic. of gm. + py-T + silic of clasts. minor CaCO3 + pyrr @ 5-20'
	1114				chalc. SiO2 w/in matrix	
100	71		1120			
	1124	PETRO SAMPLE				
97	50		1130		1129-1132' sheared w/ chl-ic slicks @ 60-70°	
	1134	1132.5-1133.5' Fault breccia, heterolithic, clast-supported, sericite-pyrite matrix moderately silicified. Angular ash to 2.0 cm fragments of pale green lithic ash flow tuff & cream siliceous aphanitic tuff (as below). (SRF)			1132.5' fault-slick (post-sulf.) contact @ 60° 1132.5-1155' fault bx w/ internal slicks as descr.	1132.5-1155' mod. silic + wk to mod. arg-T + py-T adj. to stx's + mod. ser-T min stx's incr. + w/ 0.005-0.10" chl → Q → ill → py → bar
100	61		1140		1140.2' 1/2" sulf-rich fault gouge @ 55' 1140.2-1155' secondary slicks & frac's @ 25°	
	1144	1133.5-1155' Fault breccia w/in offwhite to pale green aphanitic very fine-grained tuff (DOZER TUFF) (SRF). Clast-supported angular fragments in a sericitic ± silica matrix.				
96	36		1150			
	1154	1155-1156' Fault sliver of J Ka black, medium grey & white graphitic slate, phyllite & quartz microveinlets. bounding structures @ 70° & 60°. (SRF)			1155' planar graphitic slick @ 70° same @ 60° @ 1156'	1155-1156' mod. int. silic + >10/ft. 0.01-0.10" SiO2 + fragmented py ± m.g. bar. mod. fetted
95	33		1160		1156-1180' mod. intense frac'ing 20-30/ft. w/ smec-ill clay ± sulf. frac-fill @ 45-50°, 65-80° & ⊥ 10°	1156-1180' mod silic + wk arg-T + tr spotty py-T clotts int. arg-T 1177-1180' min stx's >10/ft. @ ¼ @ left w/ waxy-greasy wtd smec-ill + f.g. py
	1164	1156-1180' Densely fractured, locally fault brecciated, siliceous, very fine-grained aphanitic, crudely flow-laminated tuff. (DOZER TUFF). Light grey. Flow-lam's gen. @ 30°				
98	55		1170			



ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
1100	1105	5.0'	0.002	0.02		
1105	1110	5.0'	0.007	0.02		
1110	1115	5.0'	0.002	<0.02		
1115	1120	5.0'	<0.001	<0.02		
1120	1125	5.0'	<0.001	<0.02		
1125	1129	4.0'	<0.001	<0.02		
1129	1132.5	3.5'	0.004	<0.02		
1132.5	1138	5.5'	0.003	0.03		
1138	1143	5.0'	0.003	0.04		
1143	1148	5.0'	0.003	0.07		
1148	1151.5	3.5'	0.002	0.11		
1151.5	1155	3.5'	0.004	0.02		
1155	1156	1.0'	0.044	0.09		
1156	1161	5.0'	0.004	0.07		
1161	1166	5.0'	0.003	0.02		
1166	1171	5.0'	0.007	<0.02		

HOLE NUMBER 94-306 PAGE 11 OF 11

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
	1174				1173 - 1180' frac'ing incr. to fault bx ↓	
96	31	1180-1204' JTa Black, grey & white graphitic slate, lessor calcareous (altered to wollastonite) phyllite, and "Bull Quartz" sweat veins. Planar & cross-planar laminated generally at 60-80°, but highly contorted locally.	1180	75°	1180' undulating fault contact @ 75° 1180-1192' soft slightly clayey brecciated w/ prim. slicks @ 45°, 65°, 80°, & 30°	1180-1192' silic v.wk w/ Q limited to "Bull Qtz" sweat veins - fragmented contorted loc. frac'd w/ open-space dog's tooth $CaCO_3$
	1184					
93	15	1200-1201' fault sliver of off white, bx'iated wkly silic. & wkly arg. f.g. aphanitic tuff (DOZER TUFF) w/ bounding slick-enside stx's @ 65° & 90°	1190		1192-1204' bx'iated as above w/ wk to mod. silic ± sulf. ± barite	1192-1204' (except 1200-1201') wk to mod. silic w/ hairline SiO_2 microvults - stkwk to vugsy & f. platelets rb manc. patchy, discont. clotted c.g. $CaCO_3$, loc. lam'd w/ ↑ $CaCO_3$-rich bds. ± mod. int. py-T (v.f.g. py)
	1194					
97	31		1200	90° 65°		
	1204					

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
1171	1176	5.0'	0.001	0.02		
1176	1180	4.0'	0.002	0.02		
1180	1185	5.0'	0.003	0.12		
1185	1190	5.0'	0.002	0.05		
1190	1195	5.0'	0.001	0.02		
1195	1200	5.0'	0.001	0.04		
1200	1201	1.0'	<0.001	<0.02		
1201	1204	3.0'	<0.001	0.04		

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 94-306 DATE: 11-21-94 LOGGED BY: CBW PAGE 1 OF 2

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)
894	904	SEE GEO LOG	97	SEE GEO LOG	899'	R3-R4 closer to R4	1.2	55°	S	1/32" chl	899'	844.4	340	2.48
904	914		97		907'	R3-R4	0.8	70°/15°	S	1/32-1/16" chl ± py	907'	927.7	360	2.58 sulfides
914	924		100		917.5'	R3-R4	0.4	70°	S to R	1/32" chl	917.5'	894.0	350	2.55
924	934		98		929'	R3-R4	0.5	70°	S	1/32-1/16" ser-chl	929'	899.6	355	2.53
934	944		98		938'	R3-R4	0.7	65°	R	1/16-1/8" ser-chl-sulf.	938'	1287.2	502.5	2.56
944	954		98		948'	R3-R4 closer to R3	1.1	80°/40°/20°	R	s.a.a.	948'	1373.8	550	2.50
954	964		97		959'	R3	1.2	s.a.a.	R to S	1/16-1/4" ser-chl-ill-bar-sulf.	959'	1241.6	503	2.47 vuggy ± ill
964	974		96		970'	R3	1.5 > w/ parallel to core axis	5°/80°	R	1/16-3/8" s.a.a.	970'	1479.9	580	2.55
974	984		100		972'	R3 ↓ R4	1.4	80°/5°	R ↘ S	1/32-1/16" chl-ser-sulf	972'	1258.3	522.5	2.41
984	994		98		987'	R4	1.4	50°/80°/5°	S	1/64-1/16" chl-ser-sulf.	987'	1147.5	442.5	2.59
994	1004		100		999'	R3-R4	0.6	70°	R	1/64-1/16" s.a.a.	999'	1104.6	440	2.51

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 94-306 DATE: LOGGED BY: CBW PAGE 2 OF 3

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)
1004	1014	97	SEE GEO LOG	SEE GEO LOG	1009'	R3 ↓ R3-R4	0.6	5°/85°	R	1/16-1/4" chl-Q-sulf	1009'	988.4	400	2.47
1014	1024	100			1020'	R3-R4	1.2	80°/15°	S	1/16" ser-chl-sulf.	1020'	1132.6	440	2.57
1024	1034	94			1029'	R3-R4 ↓ Brittle R2	1.3	55°	S	1/64" ser	1029'	1348.1	522.5	2.58
1034	1044	100			1040'	R2-R3	0.9	60°	S-K	1/16-3/8" post-sulf microbx	1040'	1148.6	430	2.67
1044	1054	100			1050.5'	R3	0.6	80°	R	1/16-1/4" microbx	1050.5'	953.5	387.5	2.46
1054	1064	93			1058'	R3 + R1 + R3-R4	1.1	30°/80°/50°	S-K 80-90°	1/4-1.0' fault bx clay gouge	1058'	1222.7	495	2.47 w/ $CaCO_3$ veins
1064	1074	94			1068'	R2 -> R3	1.0	35°/60°	R	1/16-1/4" ser-$CaCO_3$-py	1068'	1347.7	560	2.41 latitic ash flow tuff
1074	1084	95				R3	0.3	40°	R	1/4" ser-$CaCO_3$-py-bx	1079	851.5	350	2.43
1084	1094	98				R3	0.4	70°	R	1/32" ser-chl pattress	1089	760.5	310	2.45
1094	1104	99				R3	0.7	45/80°	R	1/16-1/4" ser-bx	1099	840.2	345	2.44
1104	1114	94				R3	0.9	70°/45°	R→K	1/16-1/4" ser-bx	1109	806	325	2.48

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 94-306 DATE: 11-22-94 LOGGED BY: CBW

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)
1114	1124	95	SEE GEO LOG →			R3	0.8	60°	S→K	1/16-1/8" ser-bx	1119	727.4	300	2.43
1124	1134	91				R3 ↓ R2	1.4	60°/25°/5°	S→K	1/32-3/8" ser-sulf-bx	1129	835	330	2.53
1134	1144	96				R2 ↓ R1	1.6	60°/25°	S→K	1/8-1" ser-sulf-clay gouge bx	1139	677	270	2.51
1144	1154	35				S	2.5+	35°/5°	K	1/8-1" fault bx - clay gouge	1148	842	340	2.47
1154	1164	69				S ↓ R2 ↓ R3	2.8+	30-40°/70°	K→R	1'→1/16" fault bx → ill/smec clays	1157	1042	410	2.54
1164	1174	72				R3 ↓ R2	2.5+	30°/70°	K	1/32-1/8" waxy slicks	1169	910	360	2.53
1174	1184	19				R2 ↓ S2	3.7+	35°/70°	K	1/32-1/8" waxy slicks + sulf.	1179	780	320	2.44
1184	1194	30				mixed S2 & R2	3.9+	70°/30°	K	1/32-1/4" graphitic slicks	1189	715	285	2.51
1194	1204	65				R1 & R2	3.7	70°/30	K-S	s.a.a.	1199	1207.5	465	2.60

American Assay Laboratories

INVOICE

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AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431

(702) 356-0606

INVOICE NO: SP 0031142-IN
INVOICE DATE: 10/12/94

INVOICE TO:
HECLA MINING COMPANY
1225 UPPER VALLEY ROAD
P. O. BOX 1861
LOVELOCK NV 89419

HECLA MINING COMPANY
1225 UPPER VALLEY ROAD
P. O. BOX 1861
LOVELOCK NV 89419

CUSTOMER P.O.	PROJECT	TERMS
ROSEBUD	94-306	NET 30

QUANTITY	DESCRIPTION	PRICE	AMOUNT
49	SAMPLES RECEIVED	.05	2.45
49	DRYING	.80	39.20
49	EXCESSIVE WETNESS	.80	39.20
49	JAW CRUSHING CHARGE	1.20	58.80
49	SPLITTING CHARGE	1.00	49.00
49	KEEGOR MILLING CHARGE	2.00	98.00
49	Au (1 A.T. FIRE ASSAY)	7.25	355.25
49	HYDROCHLORIC/NITRIC DIGESTION	2.00	98.00
49	Ag ANALYSES	.80	39.20

OK to pay
140195-477
Charles V. Muenhoff

NET INVOICE:	776.65
LESS DISCOUNT:	233.00
FREIGHT:	.00
INVOICE TOTAL:	543.65

ANALYSIS REPORT

American Assay Laboratories

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

HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF

:

:

:

CLIENT REFERENCE No: 94-306

LABORATORY JOB No. : SP031142

SAMPLE TYPE :

RECEIVED : 3 OCT 1994

REPORTED : 12 OCT 1994

No. SAMPLES : 49

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

SIGNATORY : Sue Faircloth M.S.

AMERICAN ASSAY LABORATORIES
ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-306
JOB NUMBER : SP031142
REPORTED : 12 OCT 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-306 00-15	0.002		<0.02
94-306 15-25	<0.001		<0.02
94-306 25-35	0.001	0.001	0.26
94-306 35-45	0.002		0.09
94-306 45-55	0.002		0.02
94-306 55-65	0.002		0.02
94-306 65-75	0.001		0.02
94-306 75-85	0.002		0.03
94-306 85-95	0.004		0.09
94-306 95-105	0.002		0.02
94-306 105-115	0.001	0.001	0.06
94-306 115-125	0.001		0.03
94-306 125-135	<0.001		0.02
94-306 135-145	<0.001		0.02
94-306 145-155	0.005		0.22
94-306 155-165	0.001		0.03
94-306 165-175	<0.001		0.02
94-306 175-185	<0.001		<0.02
94-306 185-195	<0.001		<0.02
94-306 195-205	<0.001		<0.02
94-306 205-215	<0.001		0.02
94-306 215-225	0.002		0.05
94-306 225-235	0.005		0.07
94-306 235-245	0.005	0.005	0.03
94-306 245-255	0.010	0.013	0.11

AMERICAN ASSAY LABORATORIES
ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-306
JOB NUMBER : SP031142
REPORTED : 12 OCT 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-306 255-265	0.002		0.05
94-306 265-275	0.003		0.03
94-306 275-285	0.002		0.02
94-306 285-295	<0.001		0.02
94-306 295-305	<0.001		<0.02
94-306 305-315	<0.001		<0.02
94-306 315-325	<0.001		<0.02
94-306 325-335	<0.001		<0.02
94-306 335-345	<0.001		<0.02
94-306 345-355	0.001		<0.02
94-306 355-365	<0.001		<0.02
94-306 365-375	0.002		0.02
94-306 375-385	<0.001		<0.02
94-306 385-395	<0.001		<0.02
94-306 395-405	<0.001		<0.02
94-306 405-415	0.045		0.10
94-306 415-425	<0.001		<0.02
94-306 425-435	<0.001		<0.02
94-306 435-445	0.002		<0.02
94-306 445-455	<0.001		<0.02
94-306 455-465	<0.001		<0.02
94-306 465-475	<0.001		<0.02
94-306 475-485	<0.001		<0.02
94-306 485-495	0.021		0.27

ANALYSIS REPORT

American Assay Laboratories

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Ph.1-702-356-0606, Fax.1-702-356-1413
Telex:

HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF

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CLIENT REFERENCE No: 94-306

LABORATORY JOB No. : SP031142

SAMPLE TYPE :

RECEIVED : 3 OCT 1994

REPORTED : 12 OCT 1994

No. SAMPLES : 49

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

SIGNATORY : Sue Faircloth M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-306
JOB NUMBER : SP031142
REPORTED : 12 OCT 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-306 00-15	0.002		<0.02
94-306 15-25	<0.001		<0.02
94-306 25-35	0.001	0.001	0.26
94-306 35-45	0.002		0.09
94-306 45-55	0.002		0.02
94-306 55-65	0.002		0.02
94-306 65-75	0.001		0.02
94-306 75-85	0.002		0.03
94-306 85-95	0.004		0.09
94-306 95-105	0.002		0.02
94-306 105-115	0.001	0.001	0.06
94-306 115-125	0.001		0.03
94-306 125-135	<0.001		0.02
94-306 135-145	<0.001		0.02
94-306 145-155	0.005		0.22
94-306 155-165	0.001		0.03
94-306 165-175	<0.001		0.02
94-306 175-185	<0.001		<0.02
94-306 185-195	<0.001		<0.02
94-306 195-205	<0.001		<0.02
94-306 205-215	<0.001		0.02
94-306 215-225	0.002		0.05
94-306 225-235	0.005		0.07
94-306 235-245	0.005	0.005	0.03
94-306 245-255	0.010	0.013	0.11

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-306
JOB NUMBER : SP031142
REPORTED : 12 OCT 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-306 255-265	0.002		0.05
94-306 265-275	0.003		0.03
94-306 275-285	0.002		0.02
94-306 285-295	<0.001		0.02
94-306 295-305	<0.001		<0.02
94-306 305-315	<0.001		<0.02
94-306 315-325	<0.001		<0.02
94-306 325-335	<0.001		<0.02
94-306 335-345	<0.001		<0.02
94-306 345-355	0.001		<0.02
94-306 355-365	<0.001		<0.02
94-306 365-375	0.002		0.02
94-306 375-385	<0.001		<0.02
94-306 385-395	<0.001		<0.02
94-306 395-405	<0.001		<0.02
94-306 405-415	0.045		0.10
94-306 415-425	<0.001		<0.02
94-306 425-435	<0.001		<0.02
94-306 435-445	0.002		<0.02
94-306 445-455	<0.001		<0.02
94-306 455-465	<0.001		<0.02
94-306 465-475	<0.001		<0.02
94-306 475-485	<0.001		<0.02
94-306 485-495	0.021		0.27

ANALYSIS REPORT

American Assay Laboratories

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Ph.1-702-356-0606, Fax.1-702-356-1413
Telex:

HECLA MINING CO.

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CLIENT REFERENCE No: 94-306

LABORATORY JOB No. : SP031826

SAMPLE TYPE :

RECEIVED : 2 DEC 1994

REPORTED : 13 DEC 1994

No. SAMPLES : 70

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

SIGNATORY : Sue Faircloth M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-306
JOB NUMBER : SP031826
REPORTED : 13 DEC 1994

SAMPLES	Au(OZ)] FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-306 633.7-639	0.074		0.065	0.10
94-306 639-644.5	0.010			0.19
94-306 644.5-649	0.008			0.15
94-306 649-653	0.002			0.04
94-306 653-657	0.001			0.04
94-306 657-661	<0.001			<0.02
94-306 904-909	0.003			0.04
94-306 909-914	0.004			0.04
94-306 914-919	<0.001			<0.02
94-306 919-924	<0.001			<0.02
94-306 924-929	<0.001			<0.02
94-306 929-932	0.001			0.04
94-306 932-937	0.031			0.13
94-306 937-942	0.017			0.05
94-306 942-947	0.001			0.04
94-306 947-952	0.001			0.03
94-306 952-957	0.004			0.06
94-306 957-962	0.015			0.08
94-306 962-967	0.014			0.09
94-306 967-972	0.007			0.07
94-306 972-976	0.002			0.04
94-306 976-979	<0.001			<0.02
94-306 979-984	<0.001			<0.02
94-306 984-989	<0.001			<0.02
94-306 989-994	0.004			0.03

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-306
JOB NUMBER : SP031826
REPORTED : 13 DEC 1994

SAMPLES	Au(OZ)] FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-306 994-999	0.002			0.04
94-306 999-1004	0.004			0.05
94-306 1004-1008	0.012			0.07
94-306 1008-1012	0.009			0.08
94-306 1012-1017	0.001			0.03
94-306 1017-1022	0.002			0.04
94-306 1022-1027	<0.001			<0.02
94-306 1027-1032	<0.001			<0.02
94-306 1032-1036.5	<0.001			0.03
94-306 1036.5-1042	0.002			0.02
94-306 1042-1048	<0.001			0.02
94-306 1048-1054	<0.001			<0.02
94-306 1054-1060	<0.001			0.02
94-306 1060-1065	0.018			0.13
94-306 1065-1070	0.005			0.02
94-306 1070-1075	<0.001			<0.02
94-306 1075-1080	<0.001			<0.02
94-306 1080-1085	<0.001			0.02
94-306 1085-1090	0.001			0.02
94-306 1090-1095	0.002			<0.02
94-306 1095-1100	0.002			<0.02
94-306 1100-1105	0.002			0.02
94-306 1105-1110	0.007			0.02
94-306 1110-1115	0.002			<0.02
94-306 1115-1120	<0.001			<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-306
JOB NUMBER : SP031826
REPORTED : 13 DEC 1994

SAMPLES	Au(OZ)] FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-306 1120-1125	<0.001			<0.02
94-306 1125-1129	<0.001			<0.02
94-306 1129-1132.5	0.004			<0.02
94-306 1132.5-1138	0.003			0.03
94-306 1138-1143	0.003			0.04
94-306 1143-1148	0.003			0.07
94-306 1148-1151.5	0.002			0.11
94-306 1151.5-1155	0.004			0.02
94-306 1155-1156	0.044			0.09
94-306 1156-1161	0.004			0.07
94-306 1161-1166	0.003			0.02
94-306 1166-1171	0.007			<0.02
94-306 1171-1176	0.001			0.02
94-306 1176-1180	0.002			0.02
94-306 1180-1185	0.003			0.12
94-306 1185-1190	0.002			0.05
94-306 1190-1195	0.001			0.02
94-306 1195-1200	0.001			0.04
94-306 1200-1201	<0.001			<0.02
94-306 1201-1204	<0.001			0.04

ANALYSIS REPORT

American Assay Laboratories

P.O. BOX 71060
RENO, NV,,U.S.A.,
Ph.1-702-356-0606, Fax.1-702-356-1413
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HECLA MINING CO.

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CLIENT REFERENCE No: 94-306
LABORATORY JOB No. : SP031831
SAMPLE TYPE :

RECEIVED : 2 DEC 1994
REPORTED : 13 DEC 1994
No. SAMPLES : 45

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 : Sue Faircloth M.S.

AMERICAN ASSAY LABORATORIES
ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-306
JOB NUMBER : SP031831
REPORTED : 13 DEC 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-306 495-505	<0.001			<0.02
94-306 505-516.5	<0.001			<0.02
94-306 516.5-525	<0.001			<0.02
94-306 525-535	<0.001	<0.001		<0.02
94-306 535-543	<0.001			<0.02
94-306 543-550	<0.001			<0.02
94-306 550-560	<0.001			<0.02
94-306 560-569.5	<0.001			<0.02
94-306 569.5-580	<0.001			<0.02
94-306 580-590	<0.001			<0.02
94-306 590-598	<0.001			<0.02
94-306 598-605	<0.001			<0.02
94-306 605-615	<0.001			<0.02
94-306 615-625	0.002			<0.02
94-306 625-633.7	<0.001	<0.001		<0.02
94-306 661-674.5	<0.001			<0.02
94-306 674.5-685	<0.001			<0.02
94-306 685-695	<0.001			<0.02
94-306 695-705	<0.001			<0.02
94-306 705-715	<0.001	<0.001		<0.02
94-306 715-724	<0.001			<0.02
94-306 724-729	<0.001			<0.02
94-306 729-736.2	<0.001			<0.02
94-306 736.2-746	<0.001			<0.02
94-306 746-755	<0.001			<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-306
JOB NUMBER : SP031831
REPORTED : 13 DEC 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-306 755-760	<0.001			0.03
94-306 760-765	0.005			0.09
94-306 765-770	0.011			0.11
94-306 770-775	0.087		0.035	0.11
94-306 775-780	0.014			0.06
94-306 780-784	<0.001			<0.02
94-306 784-789	0.048		0.053	0.14
94-306 789-794	0.003			0.07
94-306 794-804	<0.001			<0.02
94-306 804-814	<0.001			<0.02
94-306 814-824	<0.001			<0.02
94-306 824-834	<0.001			0.03
94-306 834-844	0.003			0.06
94-306 844-853.5	0.001			0.03
94-306 853.5-856	0.001			0.02
94-306 856-864	<0.001			<0.02
94-306 864-874	<0.001			<0.02
94-306 874-884	<0.001			0.02
94-306 884-894	<0.001			<0.02
94-306 894-904	0.008			<0.02