60001538

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-91-94
AUTHOR	C. Winchester; C. Muerhoff; S. Fairchild
DATE OF DOC(S)	1994
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Hecla Mining Co., South Zone
COMMODITY If not obvious	gold silver
NOTES	Drill log; geology; assay; total depth 989' handwritten notes; downhole survey NOTE: Scan notes on front of folder 54p.

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: MAG
Initials Date
SCANNED: NV Blue
Initials Date

Revised: 1/22/08

W35W
SW dip 80-70°

4.9 x Y + 0.1 x Z = .02

900-1100' depth

RL-106C

TCS

5' @ .108
5' @ .031
5' @ .125

JTRa

35' 5' .127 6.84
5' .017 7.76
15' .042 5.61
10' .127 10.20

D-91-94

00015358 4610

Hecla
MINING COMPANY

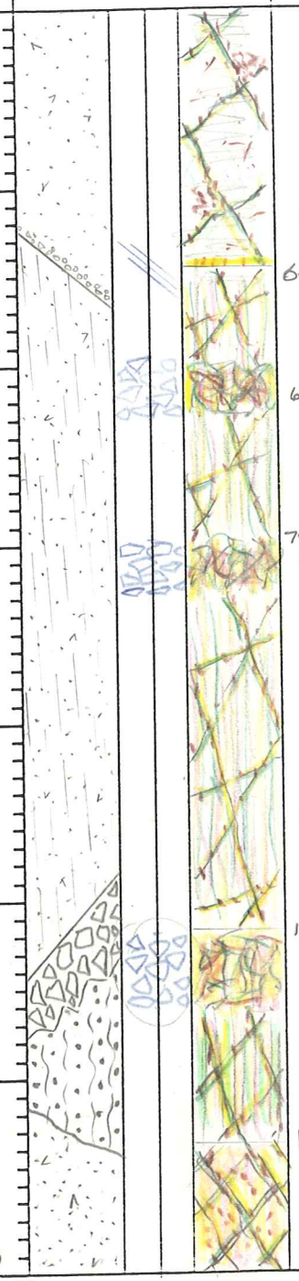
ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	D-91-94	LOCATION	South Zone	REMARKS	ORIEN. STATED AS ∡ TO
PAGE 1 OF	16	NORTHING	2204006.7		CORE AXIS; CORE PHOTO'D, WHOLE
DATE	10-21-94	EASTING	481817.7		CORE ASSAY SAMPLES; CORE LOGGED
LOGGED BY	CB WINETEER	ELEVATION	4657.8		ASAP FOR RESERVE DATA; COLLAR
SCALE	1"=10'	AZIMUTH	53.0		LOC. DDS #19; N55°E
TOTAL DEPTH	989'	INCLINATION	-19°		NQ CORE

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		0-16' Fine-grained, massive bedded airfall(?) tephra ? tephra lithic breccia, matrix-supported, vitroclastic fragments (argillized ? chloritized) in a siliceous - alunitic - tuffaceous matrix.				0-25' wk silic + mod. arg-T + wk alun + tr - 1% py-T + patchy chl-T; min stx's 2-4/ft @ 45° & 80° 0.05-0.10" w/ py ± ser ± ill ± ? $CaCO_3$ + marc 5-25'
		16-23' Weakly silicified + alunitic f.g. massive-bedded airfall tephra, as below.	10		16' Bx'iated contact @ ~25°	
		23-64.7' Pale green, very fine-grained, clayey vitroclastic airfall tephra w/ strong argillization ? stockwork chlorite micro-veinlets.	20		23' gradational alteration contact	
			30		27.5-32' chl-T crackle bx clast-supported stkwk chl. ± Q-sulf.	25-37' wk silic + mod int. arg-T + chl-stkwk + tr - 1% f.g. diss py/chl + min stx's 2-3/ft. .05-.15" chl-f.g.Q-ill-py ft marc. (27.5-32' s.a.a. bx'iated ∡ silic, blk & blue tarnish to marc. tr.)
					37-39' silic. crackle bx	37-39' same
			40			39-64.7' wk silic + loc. clotts of int. silic + py-T adj to stx's ∡ mod arg-T. w/ stkwk chl + 2-3% diss marc py-T min stx's 3-8/ft @ 25' & 50' 0.05-.10" w/ Q-py ft marc + py + ill (sulf. tarnished); 0.75" Q-marc-ill vnlt @ contact 64.7'
			50			

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
0	5	5.0'	.001	.05		
5	10	5.0'	.002	.04		
10	15	5.0'	<.001	.04		
15	20	5.0'	.002	.07		
20	25	5.0'	.001	.06		
25	27.5	2.5'	.004	.06		
27.5	32.0	4.5'	.112	.26	.099 (g)	
32	37	5.0'	.129	.20	.147 (g)	
37	39	2.0'	.264	.32	.206 (g)	
39	45	6.0'	.018	.08		
45	50	5.0'	.084	.15	.060 .104 (g)	

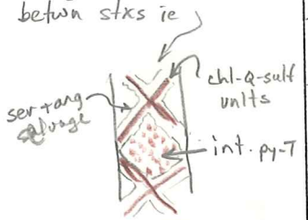
HOLE NUMBER D-91-94 PAGE 2 OF 16

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		64.7–101.7' Fine-grained, well-sorted, planar laminated, thin-bedded tephra w/ occ. isolated 0.25"–0.10" pumice lapilli; intervals of silic. crackle breccia as at right. pink & pale green, moderate hardness. Laminations 0–15°	60 70 80 90		64.7' sharp bdd unid contact @ 50° assoc. slicks w/ R&G str's @ 45–50° 69.4–73' silic clast-supported crackle bx 79.5–82.5' silic. clast-supported bedded crackle bx princ. str's @ 80–90°	64.7–101.7 strongly banded mod. silic + chl + mod ang-T + mod. alun. + loc. clotts of strong py-T + silic + diss chl-T + 1/4" ser-T salvage on chl-rc min str's; min str's 2-4/ft. @ 20° opp. 30° & 70° ~ 0.05–.20" ser/chl/Q/marc/ill/+cpy+ spl + py & marc + tr ss + tr xln v.f.g. v.G. ↳ silic crackle bx zones w/ silica-ser matrix & clasts of alt/min sim to above
		101.7–106' Silicified, clast-supported crackle breccia w/in medium-coarse grained moderately sorted pumice lapilli airfall tephra w/ wavy-lamination & spotted texture. Pale pink & green, moderate hardness. 106–113' Medium to coarse grained pumice lapilli tephra. laminations subpar. to c.a.	100 110 120		101.7' sharp contact 40° into silic. crackle bx contact betw. f.g. & med. g. tephra. 113' bdd. cont. at 50°	101.7–113.8' banded & brecciated mod. int. silic/alun/ang-T/ser-T/chl-T/wk py-T. silic. bx of same. min str's chl-Q-ill-w/ py & marc ± tr cpy 113.8–151' mod. int silic mod to wk alun — x-cut by chl-Q-sulf vnlts w/ ser-T ± ang-T salvages py-T int @ str conjuncts &

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
50	55	5.0'	.003	.04		
55	60	5.0'	.001	.05		
60	64.7	4.7'	.040	.08		
*+ 64.7	69.4	4.7'	.128	.13	.113 (2)	
69.4	73	3.6'	.029	.08		
73	76	3.0'	.001	.03		
76	79.5	3.5	.001	.03		
79.5	82.5	3.0'	.033	.11	.024	
82.5	87	4.5	<.001	.02		
87	92	5.0'	<.001	<.02		
92	97	5.0'	.202	.09	.249	
97	101.7	4.7'	.047	.07		
101.7	106	4.3'	.025	.17		
106	110	4.0'	.030	.14		
110	113	3.0'	.029	.23		
113	118	5.0'	.094	.10	.110 (2)	

HOLE NUMBER D-91-94 PAGE 3 OF 16

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		113-151' Fine-grained, well-sorted, siliceous tephra: slightly porphyritic - f.g. diss. py & chl., massive to crudely wavy laminated. Pale cream, green, pink. moderately hard.	130, 140		122-127' silic. vn-crackle bx on 40-50° stx's	along stx's & internal betwn stxs ie  min stx's 5-20/ft @ 40'-50' & opp. 30' .10-.15" chl-Q-ill-py ft marc
		151-211' Clast-supported, homolithic tuff breccia w/ angular to sub rounded fragments of fine-grained tephra above in a siliceous-alunitic-chloritic-sericitic-pyritic matrix. Poorly-sorted, chaotic-bedded. Pale green, pink. Mod. hardness. - 205-208' matrix-supported - 208-211' incr. clast size - gradational contact back into tephra	150, 160, 170, 180, 190		151' gradational contact CaCO3 c.xln clotts (relic)	151-192' clasts - mod. arg-T + ser-T + wk to mod py-T - faint 1st order RR's g/m consisting of SiO2-alun + chl relic clts/strgs py; min stx's 2-4/ft @ 30° & 75° & 5° .001-.05" Q-ser-py ft marc (± blk carbon (?) coatings) ± ill ± tr celestite py-T blotchy 1-3% w/ clotts > 25%

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
118	122	4.0'	.013	.07		
* 122	127	5.0'	.111	.21	.110 (g)	
* 127	132	5.0'	.044	.18		
132	137	5.0'	.002	.06		
137	142	5.0	.003	.08		
142	147	5.0'	.008	.05	.011	
147	151	4.0'	.001	.03		
151	156	5.0'	.005	.08		
156	161	5.0'	.004	.06		
161	166	5.0'	<.001	.04		
166	171	5.0'	.001	.05		
171	176	5.0'	.005	.07		
176	181	5.0'	.001	.04		
181	186	5.0'	<.001	.04		
186	192	6.0'	.002	.05		

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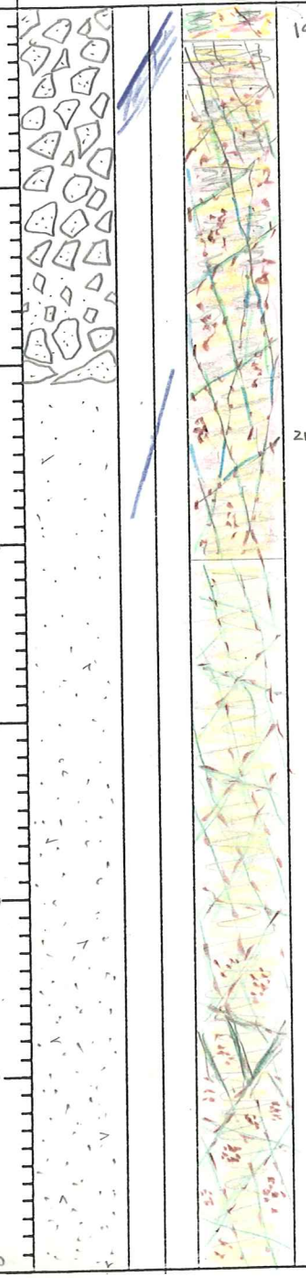
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		211-307' Fine to medium-grained & locally coarse-grained, massive-bedded, well-sorted tephra: generally increasing grain size ↓. Pale green ↓ to tan/cream. moderate hardness. Intervals of silicified crackle breccia-gen. correspond. to coarser grain size.	200 210 220 230 240 250 260		192.5'-194.5' silic. arg'd rubbly fault bx on 30° stx's 214-215' silic. un bx on 15° stx	192-221' mod. int. silic + alun + 2-4% py-T w/ clotts > 25% common + mod. arg-T ± ser-T; min stx's 4-8/ft @ 20; 60; 5° 0.005-.15" w/ ser-Q-ill-$CaCO_3$-py ft marc. + py strong arg-T ↓ 194.5 221-262.5' wk to mod silic + wk alun + mod. ser-T + tr py-T + diss chl; * w/ loc. +25% clotts min stx's >10/ft 0.005-.05" @ 5-30° + opp 40° + 60-80° w/ chl-Q (common ferrug. silica) - py ÷ py ft marc + ill (247-251') + silica/ser/py salvages

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
192	195	3.0'	.063	.14	.073 (g)	
195	200	5.0'	.034	.08		
200	205	5.0'	.023	.08		
205	210	5.0'	.072	.27	.072 (g)	
210	215	5.0'	.054	.11	.048 (g)	
215	221	6.0'	.025	.11		
221	226	5.0'	.040	.09		
226	231	5.0'	.007	.09		
231	236	5.0'	.007	.13		
236	241	5.0'	.107	.19	.109 (g)	
241	247	6.0'	.017	.10		
247	251	4.0'	.010	.11		
251	256	5.0'	.003	.05		
256	262.5	6.5'	.002	.05		

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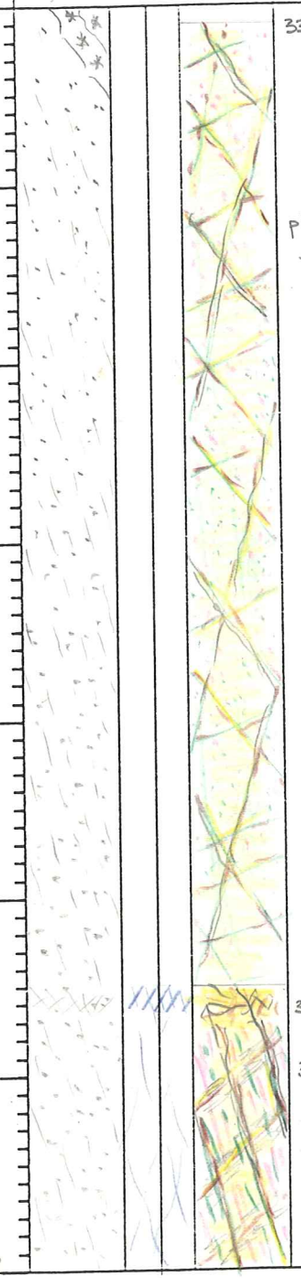
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		- medium to coarse-grained 248-270.5			262.5-279.5 silic. clast-supported crackle bx on 40° stx's	262.5'-279.5' incr. grain-size & corresp. incr ang-T + alun + silic - bx'iated & silic + ill + py + mare + mare (intergrown w/) access. bar ± tr. cpy
			270			
			280		Fe-SiO2	279.5-307' mod. silic, decr. + stkwk feurug. SiO2 + tr. py-T + diss chl. + mod ser-T; 7-10/ft SiO2-py-mare. @ 30' & 50'
		-287 & 307' incr. grain size, freq. & size of pumice "bomb" frags.; crude flow-lam. @ 30' ∆ + to 5°				
			290			
			300			
		307-331' Flow-laminated, fine-grained, leopard skin texture wavy-laminated ainfall (?) tephra. Lam's @ 30'			307' sulf unlt on 30° contact.	307-331' mod. to intense ang-T + spotted silic + alun w/ chl/ill coves + wk py-T (1-2%) min stx's 2-3/ft. qtz + ill + py ft mare ± bar @ 30' & 15' & 50'
			310			
			320			
			330			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
262.5	266.5	4.0'	.039			
266.5	271	4.5	.009			
271	274	3.0'	.012			
274	279.5	5.5'	.021			
279.5	285	5.5'	.008			
285	290	5.0'	.001			
290	295	5.0'	.003			
295	300	5.0'	.005			
300	304	4.0'	.005			
304	307	3.0'	.008		.009	
307	309	2.0'	.012			
309	314	5.0'	.009			
314	319	5.0'	.004			
319	324	5.0'	.004			
324	329	5.0'	.004			

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		331- Fine & medium grained, well-sorted, planar-laminated, thin to medium bedded, granular texture water-lain tuff.	340 350 360 370 380 390 400		331- gradational inter calated alteration contact @ 30' planar laminations generally @ 10-15° 385-386.5' int. silic. fault bx @ 30' 386.5-396' silic crackle bx	331-385' mod to wk silic + speckled pink alun + lam'd ser-T/chl-T + Tr to 1% py-T loc diss. chl; min stx's 65°, 40°, 15° @ 5-10/ft w/ ser/chl-Q + py/py & marc ± ill 385-423' mod. silic w/ overprinted arg-T + chl-T wk Tr-1% py-T & segmented chl vnlts + SiO_2 micro vnlt stk wk strong lam'd alun/ser/arg-T w/ alun mod ↓ 396'; min stx's 10-20° (lam. par.) & opp. 60-70° < 15° in opp. dir & offset by other stx's w/ chl + Q + bright py-ohedrons & marc + ill

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
329	335	6.0'	.029	.022		
335	340	5.0'	.005			
340	345		.006			
345	350		.006			
350	355		.003			
355	360		.001			
360	365		.004			
365	370		.006			
370	375		.002			
375	380		.002			
380	385		.002			
385	389	4.0'	.005			
389	394	5.0'	.012			
394	399	5.0'	.007			

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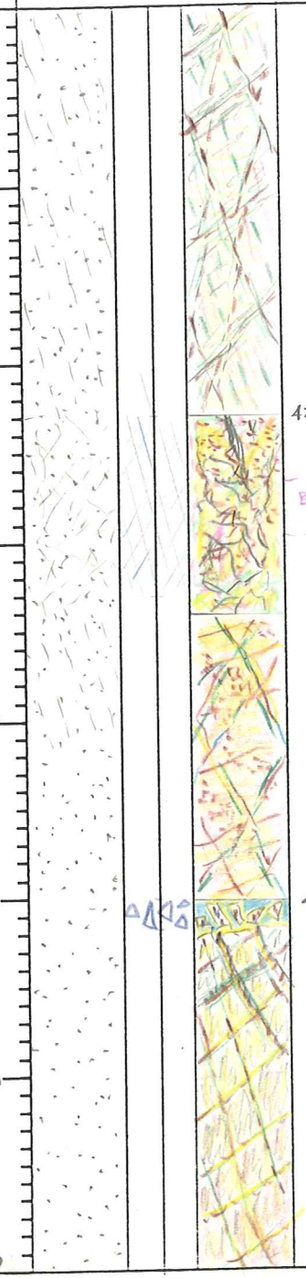
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
			410, 420, 430, 440, 450, 460, 470		423–434' silic + ill flooded crackle bx on 15° & 30° stx's. Bx–Tr 450–451.5' crackle–open-space bx w/ Q → CaCO3 matrix →	423–434' v.s/m mod int. arg-T + speckled alun. + granular silic. + v wk int & to py-T; x-cut by f.g. x/n Q + ill + py ↑ marc (c.g.) ± c.g. bar ± → py-ohedrons ↑ marc. 434–450' mod. silic + wk arg-T + banded & blotchy py-T.; stx's w/ ser + diss chl salvages x-cutting earlier wk alun, min stx's 10/ft .005–.10" @ 70°, 30° & opp. 30° w/ chl → py + py ↑ marc + Q + CaCO3 + minor ill. 450–489' wk silic + wk to mod alun + mod. ser-T + diss & frac chl + frac. controlled py-T; Min stx's 2-3/ft @ 10-15° & 2-4/ft @ 50-70° 0.05–.20" w/ chl → Q-py ↑ marc or pale yellow-green ser + py ↑ marc; C.g. cream clear CaCO3 + yellowish-cream morph. clay-carbonate 450–451.5' late-stage vug-fill w/ Q-lined frac's

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
399	404	5.0'	.013			
404	409	5.0'	.019			
409	414	5.0'	.101			
414	419	5.0'	.011			
419	423	4.0'	.090			
423	427	4.0'	.632			
427	430	3.0'	.132			
430	434	4.0'	.158			
434	439	5.0'	.042			
439	444	5.0'	.033			
444	449	5.0'	.025			
449	452	3.0'	.155			
452	455	3.0'	.018			
455	460	5.0'	.004			
460	465	5.0'	.013			
465	470	5.0'	.015			

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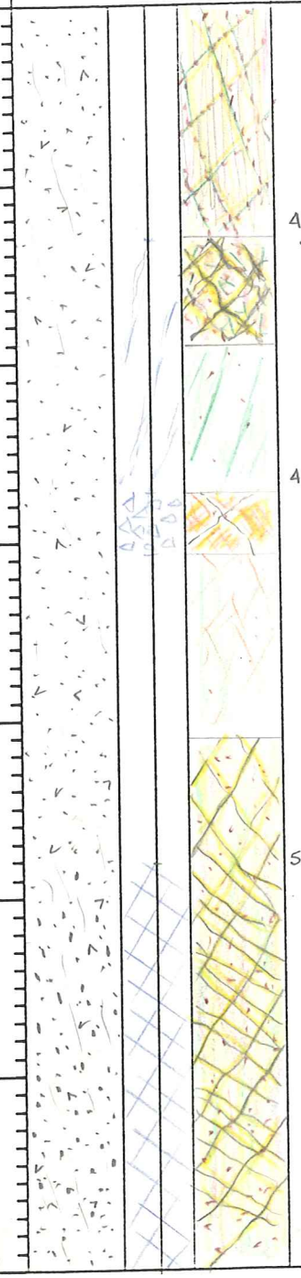
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		- 495.5 – 518' f.g. siliceous compact speckled chlorite - slightly porphyritic massive – crudely laminated	480, 490, 500, 510, 520, 530, 540		483 – 497' crackle-vn bx silic. 497 – 500.5 silic crackle bx clast-supported ferrug. SiO_2 matrix	Q-ill-py + py ft more ± cpy ± spl. 483-489' stkwk micro SiO_2 ± ill stringers w/ incr. arg-T + incr. alun + incr py-T 489 – 511' wk silic + wk arg-T + wk py-T + wk to mod. ser-T / chl-T w/ FeO_x - SiO_2 stkwk – w/in crackle bx & cut by occ. ill-Q-sulf stringers @ 30' 511-569' sugary to granular mod. silic + alunite + sericite + pyrite alt. X-cut by f.g. x/n Q + yellowish cream smec & white ill clay ± py ft more + py – in crackle bx w/ >> 20 to 5-10/ft. strong pelletal Q + minor exsolved tarnished py 539-545 - weaker alt.
		518 – 568' Medium-grained slightly granular well-sorted, planar laminated, medium bedded.			518 – 569' silic. crackle bx (post-ill ← cream color) but w/ wht ill-Q matrix, post-chl-sulf mlts; silic. on 55° & 30° stx's.	

FROM	TO	W	Au	Ag	Au2	Ag2
470	475	5.0	.044			
475	480	5.0'	.008			
480	483	3.0'	.017			
483	489	6.0'	.039			
489	493	4.0'	.009			
493	497	4.0'	.008			
497	500.5	3.5'	<.001			
500.5	505	4.5'	<.001			
505	511	6.0'	<.001			
511	515	4.0'	<.001			
515	518	3.0'	.005			
518	523	5.0'	.023			
523	528	5.0'	.028			
528	533	5.0'	.137			
533	539	6.0'	.236			

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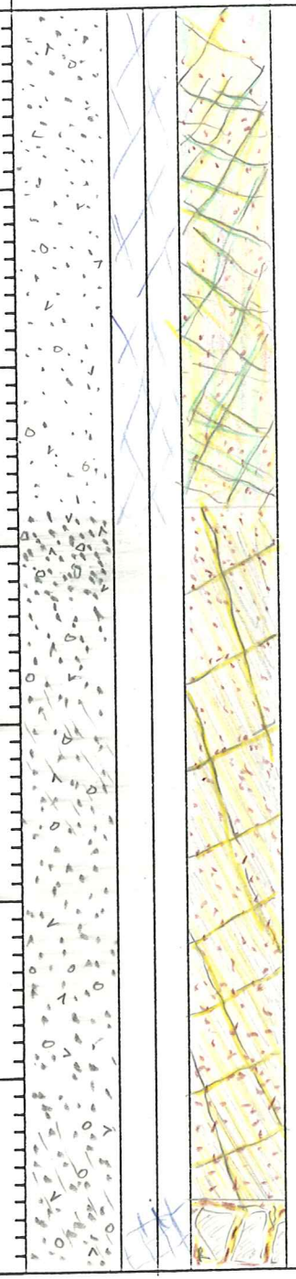
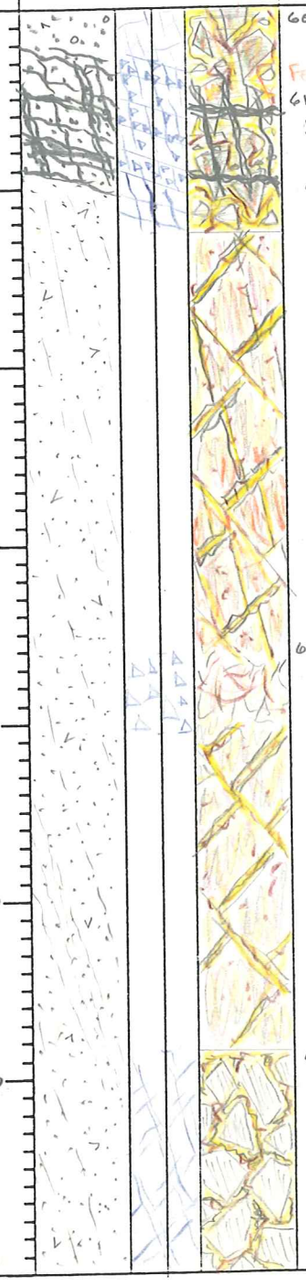
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		- 568 – 619.5' granular, coarse-grained moderately-sorted, massive-bedded air-fall (?) tephra. Local thin to med. bedded planar-laminated. Anhedral to subhedral fine-to medium grained quartz grains. - Quartz latite to rhyolitic ash-flow tuff.	550, 560, 570, 580, 590, 600, 610			545 – 554' incr. chl-T + stk chl -> Q – ill – py & marc. 568 – 607' granular silic. + mod. int. arg-T (+ v. wk alun) + granular spedded chl + 3-5% py-T + mod & wking ser-T; min stx's 5-10/ft. micro hairline to 0.05" SiO2 + py + py & marc + ill + tr ss, & incr. chl ?/or pale yellowish-grn sericitic slicks, 15' ? 70° stx

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
539	545	6.0'	.064			
545	550	5.0'	.335			
550	555	5.0'	.098			
555	560	5.0'	.029			
560	564	4.0	.040			
564	568	4.0'	.068			
568	573	5.0'	.059			
573	578		DTF			
578	583		.098			
583	588		.013			
588	593		.036			
593	598		.038			
598	603		.013			
603	607	4.0'	.010			
607	613	6.0'	.070			

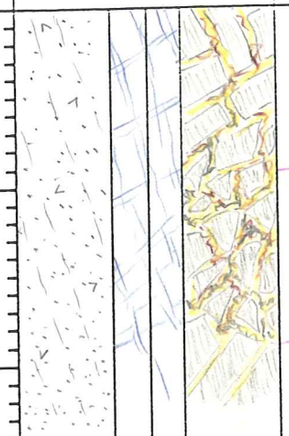
HOLE NUMBER D-91-94 PAGE 10 OF 16

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		-619.5-703.5' Fine to medium grained, well to moderately well-sorted, planar and waby-laminated, thin-bedded, waterlain (?) ash flow tuff or airfall teplira. LBT. Laminations at 0 to 20°; numerous intervals of brecciation, silicification (± illitic clay ± barite ± marcasite / pyrite pseudomorphs after marc.) and post-silicification faulting.	620 630 640 650 660 670 680		607-613' silic-ill filled crackle bx FeOx-SiO2 613-619.5' s.a.a. w/ later fault bx - angular silic frags in clay (grn-gry) gouge on 15° & 70° stx's. 646-650.5' silica-ill-sulf flooded crackle-bx 668.5-700' silica-ill-sulf-bar flooded crackle bx slightly rotated frags, clast-supported, princ. stx's @ 10-15° & 70°	607-622.5' int. arg-T + lam-banded-granular SiO2 ± alun ± chl-post chl-SiO2 bx'iation, ferrug. SiO2 + py micro hairline stkwk + 2-3% py-T + int. arg-T + mod to wk sev-T. Min frac-fill Q → ill → py & marc + Tr ss. 622.5-668.5' mod + incr. silic + banded FeOx & alun/sev-T wk py-T w/ bedded & stx controlled clotts +25% + mod to mod. int. arg-T; chl-on frac'd is segmented fragmental; Min stx's 5-8/ft @ 10-20° offset by 50° opposite offset by 40° 0.05-0.90" (1.1") w/ Q-ill-py-py & marc + marc ± + tr cpy ± tr ss. (f.g.) 668.5-703' s.a.a. w/ late-stage Q-ill filled crackle bx + ↓ 689 bar + tr Ruby Ag.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
						Au
613	619	6.0'	.093	.91	.124	.109
619	622.5	3.5'	.101	.20	.117	.109
622.5	628	5.5	.168	.23	.247	.208
628	633	5.0'	.398	.26	.401	.400
633	638	5.0'	.017	.12		
638	643	5.0'	.122	.35	.173	.148
643	646	3.0'	.169	.34	.149	.159
646	650.5	4.5'	.242	.39	.273	.258
650.5	655	4.5'	.131	.16	.165	.148
655	660	5.0'	.275	.33	.302	.289
660	665	5.0'	.012	.10		
665	668.5	3.5'	.046	.12		
668.5	673	4.5'	.426	1.78	.298	.362
673	678	5.0'	.502	.49	.361	.432

HOLE NUMBER D-91-94 PAGE 11 OF 16

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
			690, 700		Ba ± Py ± Ag	

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
678	683	5.0'	.365	.69	.292	.329
683	688	5.0'	.401	.81	.449	.425
688	693	5.0'	1.843	1.60	1.400	1.622
693	698	5.0'	1.513	4.39	1.306	1.410
698	703.5	5.5'	.683	.25	.360	.522

HOLE NUMBER D-91-94 N55E -18° DDS#19 PAGE 12 OF 16

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		703.5 – 754' Silicified fault breccia: – 703.5 – 709.1' – silic. f.g. tuff fragments clast-supported angular LBT ? dom. – 709.1 – 717' hetrolithic & polylithic angular clast to matrix-supported fragments w/ 2-3% black graphitic JTra frags (.025-.10") – 717-730' brecciated & silicified epiclastic sediments comprised of reworked pyroclastic rocks & roughly 5% dark grey to black subangular to subrounded graphitic/Wollanstonite-bearing JTra metasediments. (0.025-0.75")	710 720 730 740 750 760 770		703.5's sharp-planar slick contact @ 30° 703-772' clay gouge-lined slicks/frac's @ 30-40° 0.005" - 0.5' 730' black post-sulf. slick w/ grey gouge @ 35° 730-731' clay gouge w/ rounded argillized f.g. tuff frags (Dozer) 754' Intensely silic & partly fragm. contact @ 25-35'	703.5'-709.1' SiO_2 matrix w/ mod. silic + mod. arg-T clasts. 1-2% diss. py-T vuggy op. sp. Q + yellow py/marc on 40° stx's ± tr. sooty dark grey py & marc w/ yellow py coating 709.1-717 s.a.a. w/ decr. + min stx's; chalc. SiO_2 wht + ill + marc. 716-717' in stkwk 717-720' silica matrix (micro stk) w/ silic. & arg clasts wk 720-725' wk stkwk chalc. & f.g. xln SiO_2 matrix w/ mod. int. arg-T ± chl-T clasts. 725-730' mod int. to int. silic g/m & clasts w/ loc. mod. py-T wht. chalc. SiO_2 + ill + marc units @ 30-40' 730-731 clay gouge 731-754' INT. SILIC. w/ silic clasts & SiO_2 + c.g. to massive bar (749.5-752') ± ↓ incr. ill + marc. + phram. py bar - @ 35° 754-767' Mod. to mod. int. silic + Tr-1% py-T; min stx's >10/ft .05" SiO_2 + ill + bar + framb py @ 50° & 20° 767-777' INT. SILIC w/ stkwk 30° & 50° c.g. bar (w/ zoned overgrowth grey to black w/ Sb inclusions) + ill + framb. py + Sb + Ss
719 729 739 743 749 769		754-781.5' Fine-grained, well-sorted, siliceous, slightly porphyritic ash flow-tuff w/ Tr-1% clay + sulfide altered tabular subhedral feldspar microphenocrysts. Intensely silicified brecciated intervals as described to right.		Bx Sb + Bx + SS		

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
703.5	709.1	5.6'	.008	.08		
709.1	713	3.9'	.006	.02		
713	717	4.0'	.015	.04		
717	720	3.0'	.002	.04		
720	725	5.0'	.004	.10		
725	730	5.0'	.009	.32		
730	735	5.0'	.132	1.19	.107 (g)	Au .1195
735	740	5.0'	.298	1.55	.597 .420 (g)	.438
740	745	5.0'	.571	.40	.639 .817 (g)	.676
745	749	4.0'	.411	.30	.334 (g)	.3725
749	754	5.0'	.504	.93	.430 (g)	.467
754	760	6.0'	.070	.26	.069 (g)	.070
760	767	7.0'	.142	.77	.114 (g)	.128
767	771	4.0'	.326	1.29	.292 (g)	.309

HOLE NUMBER D-91-94 PAGE 13 OF 16

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		Petro →			767–772' fault bx w/ DOZER Frags in a SiO_2 matrix	
		781.5–848.1' Tcs				777–781.5' Mod. silic + mod to wk arg-T + Tr-1% f.g. py-T; micro stk wk SiO_2 + bar + ill + stib. + marc, + framb. py ± euhed to sub. hed f.g. ss.
	779	Ts ↓ Coarsing upward, carbonaceous-epiclastic sediments.				
		781.5–793' silicified epiclastic pebble conglomerate consisting largely of silic./ser. ash flow. tuffs & lessor graphitic ↓Tra lithics.	780		781.5' silic. bedded? contact @ 25'	781.5–793' mod. to int. silic + mod. int. py-T (br'iated) + Q → bar–stib–marc–framb. py – ss vnlts 3-5/ft.
	789					
		793–798.6' silicified pebble conglomerate: rounded clasts of reworked pyroclastics & ↓Tra graphitic slate, clast-support to matrix-supported (hydrothermal silica). Petro →	790		793' Silic. bedded, frac'd contact @ 45-50'	* black to grey, zoned overgrowth on bar w/ stib incl. 793–798.6' mod. int. silic hydrothermal matrix in pebble congl. consisting of SiO_2 + bar + ill + stib + ss/Ruby Ag; clasts silic + pref. py-T (>50% loc. w/ yellowish py + marc)
	799				796 + 811' Silic. frac'd – crackle bx on 20-25° stx's	
		798.6–808' Medium to coarse-grained, carbonaceous sandstone: 798.6–802' – consisting largely of reworked green prop. + silic. tuff. incr. Q grains ↓. Petro →	800		798.6' bedded sharp contact @ 25'	
					802' bedded sharp contact @ 35'	798.6–808.2' s.a.a. w/ decr. py-T/silic/bar/stib/ss incr. marc.
	809				Baf + Sb 808' – frac'd – displaced bedded contact @ 35-40'	
		808–831.5' Fine-grained carbonaceous sandstone and siltstone; ripple-cross-laminations.	810			808.2–834' wk to mod. silic (incr. adj. to vnlts) + wk arg-T + Tr to 2% py-T; min stx's 4-8/ft @ 20', 5', 40' 0.005 – 0.5" Q – marc – ill
	819	Tcs				
			820 Petro →			8082–839 30.8' @ .501 Au
	829					
		831.5–832' Coarse-grained sandstone:	830		831.5' bedded sharp contact @ 30' same at 832'	
			Petro →			834–848' Wk silic + wk arg-T – grains of feldspar & pyrod. + tr py-T; min stx's decr. ↓ 7-2/ft @ 20', 5', 40' 0.001–0.25" Q – marc – ill
	839		840			

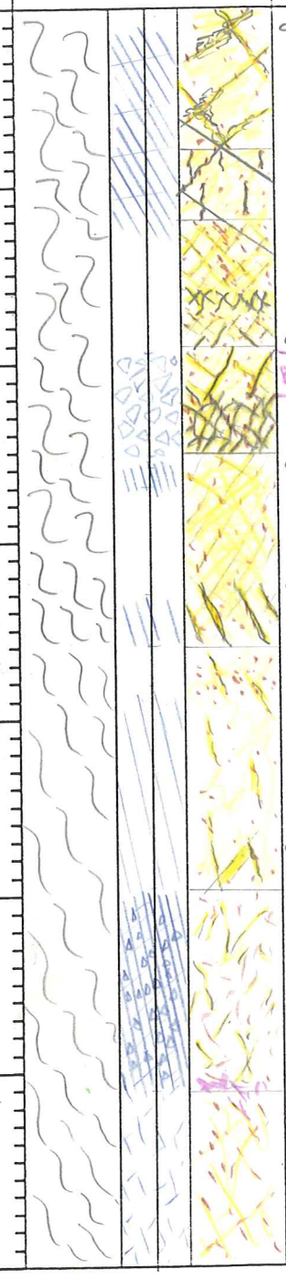
ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
* 771	777	6.0'	.026	1.45		
* 777	781.5	4.5'	.048	.67		
781.5	785	3.5'	.036	.29		
785	789	4.0'	.093	.46	.072 (g)	.083
789	793	4.0'	.044	.37		
793	798.6	5.6'	.023	.52		
798.6	802	3.4'	.046	.60		
802	808.2'	6.2'	.086	.57	.085 (g)	.086
808.2	813	4.8	.225	.48	.444 .331 (g)	
813	818	5.0'	.740	.88	.822 (g)	
818	823	5.0'	.341	.35	.359 (g)	
823	828	5.0'	.680	.86	.710 (g)	
828	831.5	3.5'	.289	.38	.268 (g)	
831.5	834	2.5'	.490	.55	.510 (g)	
834	839	5.0'	.664	.31	.556 (g)	

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
	849	832-848.1 Medium & fine-grained carbonaceous sandstone: soft-sediment deformation - evident from carbonaceous planar, wavy & ripple cross-lam.; conglomeratic at base w/ underlying 0.75' of granular coarse-grained quartz wacke. Petro →	850			
	859	848.1-989' JTea Black graphitic slate & phylite w/ folded, contorted and brecciated laminations (planar, wavy & cross). Laminations evident from bedded elongate disseminated sulfide & fine to medium grained light grey wollastonite (platey, waxy, mod. hard). Moderate to moderately hard (hard where silicified). Petro →	860		848.1-848.6 banded, silic. bx'iated contact @ 25°. T-JTea erosional unconf.? 852-870.5' fault bx w/ abund slicks @ 45, 55, 75° & 15° that are concave/convex-arcuate w/ rounded to angular frags. w/ bull Q &/or woll.	848-852' int. silic + bx'iation + 2% diss. cubic py + diss. wo? ; micro SiO_2 stockwk, plotchy vuggy-ill-Q-sulf (marc) ± Tr spl ± ss. - silica bands at 30° weak fetid smell tomid. 852-870.5' w/k'silic g/m w/ fragmented (rolled) wht. Q; fragmented micro stringers of wht ill + py + Acc. spl.
	869	hard (hard where silicified).	870		870.5-876' folded, fragmented lam's.	870.5-892' c.g. fragmental wht. Q w/ minor marc. assoc. white ill; fragmented off white woll; mod. silic to mod. int silic, late-stage vuggy vnlts w/ Q → stib. needles → marc. - ill ± Tr ss, + abund. v.f.g. phramb. py; coarse clotts of fragmented Q vnlts 870-875; 877.5-878 + wo clotts; 887-888.7' 881-883' stibnite needles common on f.g. xln Q into ill.
	879	Petro →	880		@0-50' 876-950'+ planar & wavy finely lam. w/ loc. cross-lam. - all are locally folded, fragmented &/or bx'iated. Sb	
	889				884.5' graphitic slick @ 50' 888.7' s.a.a. @ 40° par. to lam's 889' s.a.a. & wht Q micro vnlts @ 80'	
		Petro →	890		Sb	892-896' lighter grey color from f. to med. g. laminated wo.; mod silic + SiO_2 micro vnlt stkwk; No earlier c.g. clotts of Q; 1-3% c.g. diss. cubic py; min stx's 2-3/ft @ 30° & <60° 0.05-.25" w/ f.g. xln Q intergrown w/ ill + marc + sb needles + f. to m.g. Ruby Ag → partly to totally dissolved m.g. bar. 896-901.3' s.a.a. - bx'iated & cemented w/ f.g. xln Q - ill - bar - Sb - Ruby Ag - marc - phramb. py - Tr cpy & spl.
	899	901.3-918' decr. ↓ diss. & lam. wo. incr. black color mod. int silic w/ f.g. xln Q microvnlts stkwork, f.g. diss. 1-2% py; min stx's 2-3/ft. @ 30-45° irreg. & 50° .05-.20 f.g. xln Q → ill-Q intergrowths w/ marc. corroded bar + acc. Ruby Ag. - f. to med. grd. euh. Subhed.	900 *Petro*		896-897.5' Silic. tectonic bx - matrix-supported 899-901.3' s.a.a	
	909		910		909-910' graphitic slick parallel to lam's @ 60°	

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
839	844	5.0'	.013	.15		
844	848	4.0'	.031	.25		
848	852	4.0'	.011	.38		
852	857	5.0'	.003	.19		
857	862	5.0'	.005	.21		
862	867	5.0'	.002	.17		
867	870	3.0'	.002	.20		
870	875	5.0'	.003	.27		
875	880	5.0'	.008	1.58		
880	884.5	4.5'	.004	.36		
884.5	889	4.5'	.007	.24		
889	892	3.0'	.004	.26		
** Ag 892	896	4.0'	.035	2.34		
* Ag 896	901.5	5.5'	.045	4.29		
* Ag 901.5	907	5.5'	.014	1.15		
907	912	5.0'	.004	.32		

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		JTRa continued			911-923.5' graphitic slicks par. to lam's. @ 30° 2-5/ft. post-sulf. w/ ∠ @ 80°	918-922' lighter-grey color from incr. bedded-lam. wo, mod. silic-SiO2 microstkwk; 1-2% f. to m. g. diss. py lower & upper contacts-bedded @ 55°; min stx's 1-2/ft. @ 0° & 30° discont. .005-.05" Q → ill-marc-py; bedded l.gry Q partly frag. by slicks.
	919		920			
	929		930		929.4-935' silic-ill matrix w/ tectonic bx Ba	922-929' mod. int. silic. + 2% f.g. cubic to phramb py w/ 0.5" prefer. int. py-T lam's-fragmented; SiO2 + marc + tr ill stkwk ↓ 926 - w/ incr. freq. + incr ill: minor wo incr. ↓
	939		940		936-937 graphitic slicks par. to lam's @ 15°	929-935' incr. bdd & fragm. wo incr. solution collapse bx (931.5-935'); min stx's controlled by 25° Q-bar-marc-ill-Ruby-ss-cpy mod. int to int. silic + 2-3% diss. py-T.
					943-946' slicks w/ microbx gouge - wollastonitic @ 15°	935-946' strongly bedded/laminated silic/py-T/wo highly fragmented w/ minor offset SiO2/wo/py-T SiO2
			950		948-959.5' slicks w/ microbx gouge @ 15-20° 2-3/ft.	x-cut by 15-20° stx's w/ Q-ill-py-sulfate
					958' 2.5" + L.grey SiO2 vn; bxd @ top; @ 40° base	946-959.5' mod. silic. + 2-3% (947-48') diss py-T marked decr. in SiO2 microvnlt stkwk ↓; min stx's 1-2/ft discont. @ 15-20° w/ 0.005-0.05" f.g. xln Q-ill-marc ± Ruby
			960		959.5-971' Dense frac'ing-tectonic bx 5-20/ft graphitic slicks + bx'iated "bull" Q vns. & grey wo bds. & ill micro vnlts (frags)	
			970		971-989' frac'd w/ open-space f.g. xln Q lined open-frac's. @ 15-20 & 40-50° Ba	959.5-971' wk to mod. silic. bx'iated-fragmented Q-ill-marc microvnlts fragmented earlier
			980			

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
912	918	6.0'	.007	1.29		
918	922	4.0'	.007	.17		
922	926	4.0'	.005	.32		
926	929	3.0'	.008	.65		
* Ag 929	931.5	2.5'	.015	1.41		
** Ag 931.5	935	3.5'	.020	9.53		
935	939	4.0'	.012	.49		
939	943	4.0'	.011	.96		
943	946	3.0'	.006	.81		
946	950	4.0'	.008	.75		
950	955	5.0'	.005	.17		
955	959.5	4.5'	.007	.43		
959.5	965	5.5'	.003	.11		
965	971	6.0'	.004	.08		
971	975	4.0'	.007	.09		
975	980	5.0'	.007	.12		

wht "Bull" Q vnlts w/ boudnage margins.

HOLE NUMBER D-91-94 PAGE 16 OF 16

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
		Jka continued			986.8' slick & bx on 25' stx	971–980' Mod. silic + 2-3% yellow phramboidal? dimorphic py; f.g. xln Q lined frac's w/ minor ill-monc-ss.	980	983	3.0'	.007	.09		
							983	986.8	3.8'	.008	.35		
							986.8	989	2.2'	.007	.12		
		END OF HOLE @ 989'	990			980-989' crackle bx s.a.a. w/ incr. ill filled frac's (below 986.8 – min stx @ 25° w/ minor v.f.g. xln Q + c.g. euhed. bar ± ill ± tr ss. + common v.f.g. phramb. py.							

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: D-91-94

LABORATORY JOB No. : SP031458

SAMPLE TYPE :

RECEIVED : 28 OCT 1994

REPORTED : 4 NOV 1994

No. SAMPLES : 56

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA60	15%	OPT	0.001
Au(RZ)	FA60	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Sue Faircloth M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031458
REPORTED : 4 NOV 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-91-94 00-05	0.001			0.05
D-91-94 05-10	0.002			0.04
D-91-94 10-15	<0.001			0.04
D-91-94 15-20	0.002			0.07
D-91-94 20-25	0.001			0.06
D-91-94 25-27.5	0.004			0.06
D-91-94 27.5-32	0.112		0.099	0.26
D-91-94 32-37	0.129		0.147	0.20
D-91-94 37-39	0.264		0.206	0.32
D-91-94 39-45	0.018			0.08
D-91-94 45-50	0.084	0.060	0.104	0.15
D-91-94 50-55	0.003			0.04
D-91-94 55-60	0.001			0.05
D-91-94 60-64.7	0.040			0.08
D-91-94 64.7-69.4	0.128		0.113	0.13
D-91-94 69.4-73	0.029			0.08
D-91-94 73-76	0.001			0.03
D-91-94 76-79.5	0.001			0.03
D-91-94 79.5-82.5	0.033	0.024		0.11
D-91-94 82.5-87	<0.001			0.02
D-91-94 87-92	<0.001			<0.02
D-91-94 92-97	0.202		0.249	0.09
D-91-94 97-101.7	0.047			0.07
D-91-94 101.7-106	0.025			0.17
D-91-94 106-110	0.030			0.14

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031458
REPORTED : 4 NOV 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-91-94 110-113	0.029			0.23
D-91-94 113-118	0.094		0.110	0.10
D-91-94 118-122	0.013			0.07
D-91-94 122-127	0.111		0.110	0.21
D-91-94 127-132	0.044			0.18
D-91-94 132-137	0.002			0.06
D-91-94 137-142	0.003			0.08
D-91-94 142-147	0.008	0.011		0.05
D-91-94 147-151	0.001			0.03
D-91-94 151-156	0.005			0.08
D-91-94 156-161	0.004			0.06
D-91-94 161-166	<0.001			0.04
D-91-94 166-171	0.001			0.05
D-91-94 171-176	0.005			0.07
D-91-94 176-181	0.001			0.04
D-91-94 181-186	<0.001			0.04
D-91-94 186-192	0.002			0.05
D-91-94 192-195	0.063		0.073	0.14
D-91-94 195-200	0.034			0.08
D-91-94 200-205	0.023			0.08
D-91-94 205-210	0.072		0.072	0.27
D-91-94 210-215	0.054		0.048	0.11
D-91-94 215-221	0.025			0.11
D-91-94 221-226	0.040			0.09
D-91-94 226-231	0.007			0.09

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031458
REPORTED : 4 NOV 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-91-94 231-236	0.007			0.13
D-91-94 236-241	0.107		0.109	0.19
D-91-94 241-247	0.017			0.10
D-91-94 247-251	0.010			0.11
D-91-94 251-256	0.003			0.05
D-91-94 256-262.5	0.002			0.05

hole_id	y	x	z	max_depth
D_91_94	2204006.694	481817.668	4657.820	989.000

Table: survey

hole_id	depth	dip	azimuth
D_91_94	0.00	-19.00	53.00
D_91_94	105.00	-19.00	53.00
D_91_94	300.00	-19.00	55.50
D_91_94	500.00	-19.50	55.00
D_91_94	700.00	-20.00	53.50
D_91_94	894.50	-20.00	53.50
D_91_94	989.00	-20.00	53.00

Table: assay

hole_id	depth_from	depth_to	au1	au2	au_avg2	ag1
D_91_94	0.00	5.00	0.001	-1.000	0.001	0.05
D_91_94	5.00	10.00	0.002	-1.000	0.002	0.04
D_91_94	10.00	15.00	0.000	-1.000	0.000	0.04
D_91_94	15.00	20.00	0.002	-1.000	0.002	0.07
D_91_94	20.00	25.00	0.001	-1.000	0.001	0.06
D_91_94	25.00	27.50	0.004	-1.000	0.004	0.06
D_91_94	27.50	32.00	0.112	-1.000	0.108	0.26
D_91_94	32.00	37.00	0.129	-1.000	0.133	0.20
D_91_94	37.00	39.00	0.264	-1.000	0.210	0.32
D_91_94	39.00	45.00	0.018	-1.000	0.018	0.08
D_91_94	45.00	50.00	0.084	0.060	0.083	0.15
D_91_94	50.00	55.00	0.003	-1.000	0.003	0.04
D_91_94	55.00	60.00	0.001	-1.000	0.001	0.05
D_91_94	60.00	64.70	0.040	-1.000	0.036	0.08
D_91_94	64.70	69.40	0.128	-1.000	0.117	0.13
D_91_94	69.40	73.00	0.029	-1.000	0.029	0.08
D_91_94	73.00	76.00	0.001	-1.000	0.001	0.03
D_91_94	76.00	79.50	0.001	-1.000	0.001	0.03
D_91_94	79.50	82.50	0.033	0.024	0.029	0.11
D_91_94	82.50	87.00	0.000	-1.000	0.000	0.02
D_91_94	87.00	92.00	0.000	-1.000	0.000	0.00
D_91_94	92.00	97.00	0.202	-1.000	0.186	0.09
D_91_94	97.00	101.70	0.047	-1.000	0.056	0.07
D_91_94	101.70	106.00	0.025	-1.000	0.025	0.17
D_91_94	106.00	110.00	0.030	-1.000	0.030	0.14
D_91_94	110.00	113.00	0.029	-1.000	0.029	0.23
D_91_94	113.00	118.00	0.094	-1.000	0.079	0.10
D_91_94	118.00	122.00	0.013	-1.000	0.017	0.07
D_91_94	122.00	127.00	0.111	-1.000	0.108	0.21
D_91_94	127.00	132.00	0.044	-1.000	0.045	0.18
D_91_94	132.00	137.00	0.002	-1.000	0.002	0.06
D_91_94	137.00	142.00	0.003	-1.000	0.003	0.08
D_91_94	142.00	147.00	0.008	0.011	0.010	0.05
D_91_94	147.00	151.00	0.001	-1.000	0.001	0.03
D_91_94	151.00	156.00	0.005	-1.000	0.005	0.08
D_91_94	156.00	161.00	0.004	-1.000	0.004	0.06
D_91_94	161.00	166.00	0.000	-1.000	0.000	0.04
D_91_94	166.00	171.00	0.001	-1.000	0.001	0.05
D_91_94	171.00	176.00	0.005	-1.000	0.005	0.07
D_91_94	176.00	181.00	0.001	-1.000	0.001	0.04
D_91_94	181.00	186.00	0.000	-1.000	0.000	0.04

D_91_94	186.00	192.00	0.002	-1.000	0.002	0.05
D_91_94	192.00	195.00	0.063	-1.000	0.068	0.14
D_91_94	195.00	200.00	0.034	-1.000	0.034	0.08
D_91_94	200.00	205.00	0.023	-1.000	0.023	0.08
D_91_94	205.00	210.00	0.072	-1.000	0.072	0.27
D_91_94	210.00	215.00	0.054	-1.000	0.051	0.11

SURPAC2000 DRILL HOLE LISTING
Database : rosebud_paradox

Table: assay

hole_id	depth_from	depth_to	au1	au2	au_avg2	ag1
D_91_94	215.00	221.00	0.025	-1.000	0.025	0.11
D_91_94	221.00	226.00	0.040	-1.000	0.040	0.09
D_91_94	226.00	231.00	0.007	-1.000	0.007	0.09
D_91_94	231.00	236.00	0.007	-1.000	0.007	0.13
D_91_94	236.00	241.00	0.107	-1.000	0.108	0.19
D_91_94	241.00	247.00	0.017	-1.000	0.017	0.10
D_91_94	247.00	251.00	0.010	-1.000	0.010	0.11
D_91_94	251.00	256.00	0.003	-1.000	0.003	0.05
D_91_94	256.00	262.50	0.002	-1.000	0.002	0.05
D_91_94	262.50	266.50	0.039	-1.000	0.039	0.11
D_91_94	266.50	271.00	0.009	-1.000	0.009	0.13
D_91_94	271.00	274.00	0.012	-1.000	0.012	0.06
D_91_94	274.00	279.50	0.021	-1.000	0.021	0.14
D_91_94	279.50	285.00	0.008	-1.000	0.008	0.07
D_91_94	285.00	290.00	0.001	-1.000	0.001	0.06
D_91_94	290.00	295.00	0.003	-1.000	0.003	0.06
D_91_94	295.00	300.00	0.005	-1.000	0.005	0.09
D_91_94	300.00	304.00	0.005	-1.000	0.005	0.07
D_91_94	304.00	307.00	0.008	0.009	0.009	0.08
D_91_94	307.00	309.00	0.012	-1.000	0.012	0.08
D_91_94	309.00	314.00	0.009	-1.000	0.009	0.11
D_91_94	314.00	319.00	0.004	-1.000	0.004	0.07
D_91_94	319.00	324.00	0.004	-1.000	0.004	0.07
D_91_94	324.00	329.00	0.004	-1.000	0.004	0.08
D_91_94	329.00	335.00	0.029	0.022	0.026	0.07
D_91_94	335.00	340.00	0.005	-1.000	0.005	0.05
D_91_94	340.00	345.00	0.006	-1.000	0.006	0.10
D_91_94	345.00	350.00	0.006	-1.000	0.006	0.08
D_91_94	350.00	355.00	0.003	-1.000	0.003	0.05
D_91_94	355.00	360.00	0.001	-1.000	0.001	0.00
D_91_94	360.00	365.00	0.004	-1.000	0.004	0.05
D_91_94	365.00	370.00	0.006	-1.000	0.006	0.09
D_91_94	370.00	375.00	0.002	-1.000	0.002	0.03
D_91_94	375.00	380.00	0.002	-1.000	0.002	0.04
D_91_94	380.00	385.00	0.002	-1.000	0.002	0.03
D_91_94	385.00	389.00	0.005	-1.000	0.005	0.06
D_91_94	389.00	394.00	0.012	-1.000	0.012	0.18
D_91_94	394.00	399.00	0.007	-1.000	0.007	0.10
D_91_94	399.00	404.00	0.013	-1.000	0.013	0.12
D_91_94	404.00	409.00	0.019	-1.000	0.019	0.09
D_91_94	409.00	414.00	0.101	-1.000	0.105	0.11
D_91_94	414.00	419.00	0.011	-1.000	0.011	0.09
D_91_94	419.00	423.00	0.090	-1.000	0.081	0.14
D_91_94	423.00	427.00	0.632	-1.000	0.624	0.55
D_91_94	427.00	430.00	0.132	-1.000	0.103	0.12
D_91_94	430.00	434.00	0.158	-1.000	0.154	0.16
D_91_94	434.00	439.00	0.042	-1.000	0.047	0.19
D_91_94	439.00	444.00	0.033	-1.000	0.033	0.11
D_91_94	444.00	449.00	0.025	-1.000	0.025	0.10
D_91_94	449.00	452.00	0.155	-1.000	0.145	0.22
D_91_94	452.00	455.00	0.018	-1.000	0.018	0.14
D_91_94	455.00	460.00	0.004	-1.000	0.004	0.05
D_91_94	460.00	465.00	0.013	-1.000	0.013	0.08
D_91_94	465.00	470.00	0.015	-1.000	0.015	0.11
D_91_94	470.00	475.00	0.044	-1.000	0.044	0.10

D_91_94	475.00	480.00	0.008	-1.000	0.008	0.09
D_91_94	480.00	483.00	0.017	-1.000	0.017	0.10
D_91_94	483.00	483.99	0.039	-1.000	0.039	0.13
D_91_94	483.99	489.00	0.039	-1.000	0.039	0.13
D_91_94	489.00	493.00	0.009	-1.000	0.009	0.08
D_91_94	493.00	497.00	0.008	-1.000	0.008	0.08

SURPAC2000 DRILL HOLE LISTING
Database : rosebud_paradox

Table: assay

hole_id	depth_from	depth_to	au1	au2	au_avg2	ag1
D_91_94	497.00	500.50	0.000	-1.000	0.000	0.00
D_91_94	500.50	505.00	0.000	-1.000	0.000	0.00
D_91_94	505.00	511.00	0.000	-1.000	0.000	0.00
D_91_94	511.00	515.00	0.000	-1.000	0.000	0.00
D_91_94	515.00	518.00	0.005	-1.000	0.005	0.06
D_91_94	518.00	523.00	0.023	-1.000	0.023	0.08
D_91_94	523.00	528.00	0.028	-1.000	0.028	0.07
D_91_94	528.00	533.00	0.137	-1.000	0.104	0.22
D_91_94	533.00	539.00	0.056	-1.000	0.045	0.18
D_91_94	539.00	545.00	0.064	-1.000	0.077	0.09
D_91_94	545.00	550.00	0.335	-1.000	0.298	2.56
D_91_94	550.00	555.00	0.098	-1.000	0.117	1.02
D_91_94	555.00	560.00	0.029	-1.000	0.030	0.11
D_91_94	560.00	564.00	0.040	-1.000	0.055	0.28
D_91_94	564.00	568.00	0.068	-1.000	0.064	0.17
D_91_94	568.00	573.00	0.059	-1.000	0.066	0.11
D_91_94	573.00	578.00	0.166	-1.000	0.129	0.14
D_91_94	578.00	583.00	0.098	-1.000	0.091	0.11
D_91_94	583.00	588.00	0.013	-1.000	0.013	0.10
D_91_94	588.00	593.00	0.036	-1.000	0.036	0.09
D_91_94	593.00	598.00	0.038	-1.000	0.038	0.29
D_91_94	598.00	603.00	0.013	-1.000	0.013	0.25
D_91_94	603.00	607.00	0.010	-1.000	0.010	0.10
D_91_94	607.00	613.00	0.070	-1.000	0.075	0.16
D_91_94	613.00	619.00	0.093	-1.000	0.103	0.91
D_91_94	619.00	622.50	0.101	-1.000	0.112	0.20
D_91_94	622.50	628.00	0.168	-1.000	0.185	0.23
D_91_94	628.00	633.00	0.398	-1.000	0.386	0.26
D_91_94	633.00	638.00	0.017	-1.000	0.026	0.12
D_91_94	638.00	643.00	0.122	-1.000	0.152	0.35
D_91_94	643.00	646.00	0.169	-1.000	0.162	0.34
D_91_94	646.00	650.50	0.242	-1.000	0.251	0.39
D_91_94	650.50	655.00	0.131	-1.000	0.148	0.16
D_91_94	655.00	660.00	0.275	-1.000	0.269	0.33
D_91_94	660.00	665.00	0.012	-1.000	0.013	0.10
D_91_94	665.00	668.50	0.046	-1.000	0.051	0.12
D_91_94	668.50	673.00	0.426	-1.000	0.373	1.78
D_91_94	673.00	678.00	0.502	-1.000	0.438	0.49
D_91_94	678.00	683.00	0.365	-1.000	0.291	0.69
D_91_94	683.00	688.00	0.401	-1.000	0.389	0.81
D_91_94	688.00	693.00	1.843	-1.000	1.568	1.60
D_91_94	693.00	698.00	1.513	-1.000	1.418	4.39
D_91_94	698.00	703.50	0.343	-1.000	0.338	0.25
D_91_94	703.50	709.10	0.008	-1.000	0.008	0.08
D_91_94	709.10	713.00	0.006	-1.000	0.006	0.02
D_91_94	713.00	717.00	0.015	-1.000	0.015	0.04
D_91_94	717.00	720.00	0.002	-1.000	0.002	0.04
D_91_94	720.00	725.00	0.004	-1.000	0.004	0.10
D_91_94	725.00	730.00	0.009	-1.000	0.009	0.32
D_91_94	730.00	735.00	0.132	-1.000	0.111	1.19
D_91_94	735.00	740.00	0.298	0.597	0.382	1.55
D_91_94	740.00	745.00	0.571	0.639	0.596	0.40
D_91_94	745.00	749.00	0.411	-1.000	0.324	0.30
D_91_94	749.00	754.00	0.504	-1.000	0.396	0.93
D_91_94	754.00	760.00	0.070	-1.000	0.070	0.26

D_91_94	760.00	767.00	0.142	-1.000	0.121	0.77
D_91_94	767.00	771.00	0.326	-1.000	0.264	1.29
D_91_94	771.00	777.00	0.026	-1.000	0.028	1.45
D_91_94	777.00	781.50	0.048	-1.000	0.048	0.67
D_91_94	781.50	785.00	0.036	-1.000	0.037	0.29
D_91_94	785.00	789.00	0.093	-1.000	0.080	0.46

SURPAC2000 DRILL HOLE LISTING
Database : rosebud_paradox

Table: assay

hole_id	depth_from	depth_to	au1	au2	au_avg2	ag1
D_91_94	789.00	793.00	0.044	-1.000	0.043	0.37
D_91_94	793.00	798.60	0.023	-1.000	0.027	0.52
D_91_94	798.60	802.00	0.046	-1.000	0.046	0.60
D_91_94	802.00	808.20	0.086	-1.000	0.087	0.57
D_91_94	808.20	813.00	0.225	0.444	0.356	0.48
D_91_94	813.00	818.00	0.740	-1.000	0.745	0.88
D_91_94	818.00	823.00	0.341	-1.000	0.359	0.35
D_91_94	823.00	828.00	0.680	-1.000	0.627	0.86
D_91_94	828.00	831.50	0.289	-1.000	0.254	0.38
D_91_94	831.50	834.00	0.490	-1.000	0.474	0.55
D_91_94	834.00	839.00	0.664	-1.000	0.586	0.31
D_91_94	839.00	844.00	0.013	-1.000	0.013	0.15
D_91_94	844.00	848.00	0.031	-1.000	0.031	0.25
D_91_94	848.00	852.00	0.011	-1.000	0.011	0.38
D_91_94	852.00	857.00	0.003	-1.000	0.003	0.19
D_91_94	857.00	862.00	0.005	-1.000	0.005	0.21
D_91_94	862.00	867.00	0.002	-1.000	0.002	0.17
D_91_94	867.00	870.00	0.002	-1.000	0.002	0.20
D_91_94	870.00	875.00	0.003	-1.000	0.003	0.27
D_91_94	875.00	880.00	0.008	-1.000	0.008	1.58
D_91_94	880.00	884.50	0.004	-1.000	0.004	0.36
D_91_94	884.50	889.00	0.007	-1.000	0.007	0.24
D_91_94	889.00	892.00	0.004	-1.000	0.004	0.26
D_91_94	892.00	892.99	0.035	-1.000	0.035	2.34
D_91_94	896.00	901.50	0.045	-1.000	0.045	4.29
D_91_94	901.50	907.00	0.014	-1.000	0.014	1.15
D_91_94	907.00	912.00	0.004	-1.000	0.004	0.32
D_91_94	912.00	918.00	0.007	-1.000	0.007	1.29
D_91_94	918.00	922.00	0.007	-1.000	0.007	0.17
D_91_94	922.00	926.00	0.005	-1.000	0.005	0.32
D_91_94	926.00	929.00	0.008	-1.000	0.008	0.65
D_91_94	929.00	931.50	0.015	-1.000	0.015	1.41
D_91_94	931.50	935.00	0.020	-1.000	0.020	9.53
D_91_94	935.00	939.00	0.012	-1.000	0.012	0.49
D_91_94	939.00	943.00	0.011	-1.000	0.011	0.96
D_91_94	943.00	946.00	0.006	-1.000	0.006	0.89
D_91_94	946.00	950.00	0.008	-1.000	0.008	0.75
D_91_94	950.00	955.00	0.005	-1.000	0.005	0.17
D_91_94	955.00	959.50	0.007	-1.000	0.007	0.43
D_91_94	959.50	965.00	0.003	-1.000	0.003	0.11
D_91_94	965.00	971.00	0.004	-1.000	0.004	0.08
D_91_94	971.00	975.00	0.007	-1.000	0.007	0.09
D_91_94	975.00	980.00	0.007	-1.000	0.007	0.12
D_91_94	980.00	983.00	0.007	-1.000	0.007	0.09
D_91_94	983.00	986.80	0.008	-1.000	0.008	0.35
D_91_94	986.80	989.00	0.007	-1.000	0.007	0.12

Table: geology

hole_id	samp_id	depth_from	depth_to	formation	spec_grav
D_91_94	794	0.00	730.00	LBT	0
D_91_94	795	730.00	781.50	DOZER	0
D_91_94	796	781.50	848.00	TS	0
D_91_94	797	848.00	989.00	JTR	0

D-71-94 Slide projector Review

LBT To 717.5

SRF 717.5 - 769

717, 728.5 Bx may contain Tos Fragments Basal LBT ? Epiclast

Extreme silica flooding to 769

Dozer from 728.5 to 778.5

TCS 778.5 to 848

DBL 12-3-91

Collo. I35

Microscope review 1-10-00 DBL

709 Basal epiclastic

719 SRF silica front silica zone 719-762

762 DOZER IN FOOTWALL

781 TCS Epiclastic

809 TAN TCS sands

848.5 ALS.

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: D-91-94

LABORATORY JOB No. : SP031395

SAMPLE TYPE :

RECEIVED : 24 OCT 1994

REPORTED : 3 NOV 1994

No. SAMPLES : 64

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA60	15%	OPT	0.001
Au(RZ)	FA60	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Sue Faircloth M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031395
REPORTED : 3 NOV 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT	
D-91-94 703.5-709.1	0.008			0.08	
D-91-94 709.1-713	0.006			0.02	
D-91-94 713-717	0.015			0.04	
D-91-94 717-720	0.002			0.04	
D-91-94 720-725	0.004			0.10	
D-91-94 725-730	0.009			0.32	
D-91-94 730-735	0.132		0.107	1.19	
D-91-94 735-740	0.298	0.597	0.420	1.55	
D-91-94 740-745	0.571	0.639	0.817	0.40	
D-91-94 745-749	0.411		0.334	0.30	
D-91-94 749-754	0.504		0.430	0.93	
D-91-94 754-760	0.070		0.069	0.26	762 Footwall SRA silica
D-91-94 760-767	0.142		0.114	0.77	Td
D-91-94 767-771	0.326		0.292	1.29	
D-91-94 771-777	0.026			1.45	
D-91-94 777-781.5	0.048			0.67	TCS
D-91-94 781.5-785	0.036			0.29	TCS Eucalyptus
D-91-94 785-789	0.093		0.072	0.46	
D-91-94 789-793	0.044			0.37	
D-91-94 793-798.6	0.023			0.52	
D-91-94 798.6-802	0.046			0.60	
D-91-94 802-808.2	0.086		0.085	0.57	
D-91-94 808.2-813	0.225	0.444	0.331	0.48	
D-91-94 813-818	0.740		0.822	0.88	
D-91-94 818-823	0.341		0.359	0.35	

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031395
REPORTED : 3 NOV 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT	
D-91-94 823-828	0.680		0.710	0.86	
D-91-94 828-831.5	0.289		0.268	0.38	
D-91-94 831.5-834	0.490		0.510	0.55	
D-91-94 834-839	0.664		0.556	0.31	
D-91-94 839-844	0.013			0.15	
D-91-94 844-848	0.031			0.25	
D-91-94 848-852	0.011			0.38	
D-91-94 852-857	0.003			0.19	
D-91-94 857-862	0.005			0.21	
D-91-94 862-867	0.002			0.17	
D-91-94 867-870	0.002			0.20	
D-91-94 870-875	0.003			0.27	
D-91-94 875-880	0.008			1.58	762 Footwall SRF silicified T S
D-91-94 880-884.5	0.004			0.36	
D-91-94 884.5-889	0.007			0.24	
D-91-94 889-892	0.004			0.26	TCS C
D-91-94 892-896	0.035			2.34	TCS Concentrate
D-91-94 896-901.5	0.045			4.29	
D-91-94 901.5-907	0.014			1.15	
D-91-94 907-912	0.004			0.32	
D-91-94 912-918	0.007			1.29	
D-91-94 918-922	0.007			0.17	
D-91-94 922-926	0.005			0.32	
D-91-94 926-929	0.008			0.65	
D-91-94 929-931.5	0.015			1.41	

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031395
REPORTED : 3 NOV 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-91-94 931.5-935	0.020			9.53
D-91-94 935-939	0.012			0.49
D-91-94 939-943	0.011			0.96
D-91-94 943-946	0.006			0.89
D-91-94 946-950	0.008			0.75
D-91-94 950-955	0.005			0.17
D-91-94 955-959.5	0.007			0.43
D-91-94 959.5-965	0.003			0.11
D-91-94 965-971	0.004			0.08
D-91-94 971-975	0.007			0.09
D-91-94 975-980	0.007			0.12
D-91-94 980-983	0.007			0.09
D-91-94 983-986.8	0.008			0.35
D-91-94 986.8-989	0.007			0.12

SAMPLE SUBMITTAL FORM

American Assay Laboratories Inc.

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 71060
Reno, NV. 89570
Telephone
(702) 356-0606
Fax
(702) 356-1413

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

Company: HECLA MINING CO.

Address:

Telephone Number: ( ) Fax Number: ( )

Project Name: ROSEBUD Purchase Order Number:

Transport Company: Waybill Number:

Date Shipped: Number of Packages: 33 [ ] Prepaid [ ] Collect

ANALYSIS REQUIRED 10-20-94

SAMPLE		TYPE	ELEMENTS REQUIRED
D-91-94 848-852	918-922	CORE	2 AT FIRE ASSAY Au & Ag
852-857	922-926		w/ HECLA ROSEBUD
857-862	926-929		CUSTOM PREP
862-867	929-931.5		
867-870	931.5-935		
870-875	935-939		
875-880	939-943		* GRAV FINISH ON
880-884.5	943-946		ALL Au ≥ 0.05 opt
884.5-889	946-950		
889-892	950-955		
892-896	955-959.5		* NQ CORE
896-901.5	959.5-965		
901.5-907	965-971		
907-912	971-975		
912-918	975-980		

COARSE REJECTS (Normally Discarded)

980-983
983-986.8
986.8-989

[ ] Return COD after analysis complete
[ ] By prior arrangements

PULPS (Normally Stored Free For One Month)

[ ] Discard after one month
[ ] Return COD after one month
[ ] By prior arrangements

RESULTS AND INVOICES TO BE SENT TO:

Please mark invoice person and address [I]

(1) Charlie Muerhoff

(2)

(3)

Comments:

CLIENT FILE COPY

SAMPLE SUBMITTAL FORM

American Assay Laboratories Inc.

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 71060
Reno, NV. 89570
Telephone
(702) 356-0606
Fax
(702) 356-1413

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

Company: HECLA MINING CO.

Address:

Telephone Number: ( ) Fax Number: ( )

Project Name: ROSEBUD Purchase Order Number:

Transport Company: Waybill Number:

Date Shipped: Number of Packages: 94 [ ] Prepaid [ ] Collect

ANALYSIS REQUIRED 10-23-94

D-91-94 SAMPLE				TYPE	ELEMENTS REQUIRED
262.5-266.5	329-335	404-409	475-480	CORE	2 AT FIRE ASSAY Au & Ag
266.5-271	335-340	409-414	480-483		w/ HECLA ROSEBUD
271-274	340-345	414-419	483-489		CUSTOM PREP
274-279.5	345-350	419-423	489-493		
279.5-285	350-355	423-427	493-497		
285-290	355-360	427-430	497-500.5		* GRAV FINISH ON ALL
290-295	360-365	430-434	500.5-505		Au ≥ 0.05 opt
295-300	365-370	434-439	505-511		
300-304	370-375	439-444	511-515		
304-307	375-380	444-449 / 449-452	515-518		
307-309	380-385	452-455	518-523		NQ CORE (≤ 15 lb samples)
309-314	385-389	455-460	523-528		
314-319	389-394	460-465	528-533		
319-324	394-399	465-470	533-539		
324-329	399-404	470-475	539-545		

COARSE REJECTS (Normally Discarded)

[ ] Return COD after analysis complete
[X] By prior arrangements

545-550 607-613
550-555 613-619
555-560 619-622.5
560-564 622.5-628
564-568 628-633
568-573 633-638
573-578 638-643
578-583 643-646
583-588 646-650.5
588-593 650.5-655
593-598 655-660 / 660-665
598-603 665-668.5
603-607 668.5-673
673-678
678-683
683-688
688-693
693-698
698-703.5

PULPS (Normally Stored Free For One Month)

[ ] Discard after one month
[ ] Return COD after one month
[ ] By prior arrangements

RESULTS AND INVOICES TO BE SENT TO:

Please mark invoice person and address [I]

(1) Charlie Muerhoff

(2)

(3)

Comments:

CLIENT FILE COPY

PROVISIONAL REPORT

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

[illegible] MINING CO.

COPIES TO : CHARLIE MUERHOFF

:

:

:

CLIENT REFERENCE No: D-91-94 RECEIVED : 7 NOV 1994

LABORATORY JOB No. : SP031523 REPORTED : 11 NOV 1994

SAMPLE TYPE : No. SAMPLES : 94

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA60	15%	OPT	0.001
Au(RZ)	FA60	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031523
REPORTED : 11 NOV 1994

605
94
699

SAMPLES	Au(OZ)	Au(RZ)	Ag(OZ)
D-91-94 262.5-266.5	0.039		
D-91-94 266.5-271	0.009		
D-91-94 271-274	0.012		
D-91-94 274-279.5	0.021		
D-91-94 279.5-285	0.008		
D-91-94 285-290	0.001		
D-91-94 290-295	0.003		
D-91-94 295-300	0.005		
D-91-94 300-304	0.005		
D-91-94 304-307	0.008	0.009	
D-91-94 307-309	0.012		
D-91-94 309-314	0.009		
D-91-94 314-319	0.004		
D-91-94 319-324	0.004		
D-91-94 324-329	0.004		
D-91-94 329-335	0.029	0.022	
D-91-94 335-340	0.005		
D-91-94 340-345	0.006		
D-91-94 345-350	0.006		
D-91-94 350-355	0.003		
D-91-94 355-360	0.001		
D-91-94 360-365	0.004		
D-91-94 365-370	0.006		
D-91-94 370-375	0.002		
D-91-94 375-380	0.002		

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031523
REPORTED : 11 NOV 1994

SAMPLE NO.	Au(OZ)	Au(RZ)	Ag(OZ)
D-91-94 380-385	0.002		
D-91-94 385-389	0.005		
D-91-94 389-394	0.012		
D-91-94 394-399	0.007		
D-91-94 399-404	0.013		
D-91-94 404-409	0.019		
D-91-94 409-414	0.101		
D-91-94 414-419	0.011		
D-91-94 419-423	0.090		
D-91-94 423-427	0.632		
D-91-94 427-430	0.132		
D-91-94 430-434	0.158		
D-91-94 434-439	0.042		
D-91-94 439-444	0.033		
D-91-94 444-449	0.025		
D-91-94 449-452	0.155		
D-91-94 452-455	0.018		
D-91-94 455-460	0.004		
D-91-94 460-465	0.013		
D-91-94 465-470	0.015		
D-91-94 470-475	0.044		
D-91-94 475-480	0.008		
D-91-94 480-483	0.017		
D-91-94 483-489	0.039		
D-91-94 489-493	0.009		

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031523
REPORTED : 11 NOV 1994

[illegible]	Au(OZ)	Ag(OZ)
D-91-94 493-497	0.008	
D-91-94 497-500.5	<0.001	
D-91-94 500.5-505	<0.001	
D-91-94 505-511	<0.001	
D-91-94 511-515	<0.001	
D-91-94 515-518	0.005	
D-91-94 518-523	0.023	
D-91-94 523-528	0.028	
D-91-94 528-533	0.137	
D-91-94 533-539	0.236	
D-91-94 539-545	0.064	
D-91-94 545-550	0.335	
D-91-94 550-555	0.098	
D-91-94 555-560	0.029	
D-91-94 560-564	0.040	
D-91-94 564-568	0.068	
D-91-94 568-573	0.059	
D-91-94 573-578	DTF	
D-91-94 578-583	0.098	
D-91-94 583-588	0.013	
D-91-94 588-593	0.036	
D-91-94 593-598	0.038	
D-91-94 598-603	0.013	
D-91-94 603-607	0.010	
D-91-94 607-613	0.070	

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031523
REPORTED : 11 NOV 1994

SAMPLE	Au(OZ)	Au(RZ)	Ag(OZ)
D-91-94 613-619	0.093		
D-91-94 619-622.5	0.101		
D-91-94 622.5-628	0.168		
D-91-94 628-633	0.398		
D-91-94 633-638	0.017		
D-91-94 638-643	0.122		
D-91-94 643-646	0.169		
D-91-94 646-650.5	0.242		
D-91-94 650.5-655	0.131		
D-91-94 655-660	0.275		
D-91-94 660-665	0.012		
D-91-94 665-668.5	0.046		
D-91-94 668.5-673	0.426		
D-91-94 673-678	0.502		
D-91-94 678-683	0.365		
D-91-94 683-688	0.401		
D-91-94 688-693	1.843		
D-91-94 693-698	1.513		
D-91-94 698-703.5	0.683		

PROVISIONAL REPORT

P.O. BOX 71060
RENO, NV,,U.S.A.,
Ph.1-702-356-0606. Fax 1-702-[illegible]13

Checked against original invoice

[illegible] MIN[illegible]

COPIES TO : CHARLIE MUERHOFF

:

:

:

CLIENT REFERENCE No: D-91-94 RECEIVED : 24 OCT 1994

LABORATORY JOB No. : SP031395 REPORTED : 3 NOV 1994

SAMPLE TYPE : No. SAMPLES : 64

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA60	15%	OPT	0.001
Au(RZ)	FA60	15%	OPT	0.001
[illegible]	[illegible]	[illegible]	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031395
REPORTED : 3 NOV 1994

D-91-94 703.5-709.1		0.008			0.08	
D-91-94 709.1-713		0.006			0.02	
D-91-94 713-717		0.015			0.04	
D-91-94 717-720		0.002			0.04	
D-91-94 720-725		0.004			0.10	
D-91-94 725-730		0.009			0.32	
D-91-94 730-735	5'	0.132	.120	0.107	1.19	
D-91-94 735-740	5'	0.298	.438 0.587	0.420	1.55	
D-91-94 740-745	5'	0.571	.676 0.639	0.817	0.40	
D-91-94 745-749	4'	0.411	.373	0.334	0.30	41'@ .306, .82
D-91-94 749-754	5'	0.504	.467	0.430	0.93	
D-91-94 754-760	6'	0.070	.070	0.069	0.26	
D-91-94 760-767	7'	0.142	.128	0.114	0.77	
D-91-94 767-771	4'	0.326	.309	0.292	1.29	
D-91-94 771-777		0.026			1.45	
D-91-94 777-781.5		0.048			0.67	
D-91-94 781.5-785		0.036			0.29	
D-91-94 785-789		0.093		0.072	0.46	
D-91-94 789-793		0.044			0.37	
D-91-94 793-798.6		0.023			0.52	
D-91-94 798.6-802		0.046			0.60	
D-91-94 802-808.2		0.086		0.085	0.57	
D-91-94 808.2-813	4.8	0.225	.333 0.444	0.331	0.48	
D-91-94 813-818	5'	0.740	.781	0.822	0.88	30.8'@ .520, .55
D-91-94 818-823	5'	0.341	.35	0.359	0.35	

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031395
REPORTED : 3 NOV 1994

SAMPLES		Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-91-94 823-828	5'	0.680	.695	0.710	0.86
D-91-94 828-831.5	3.5'	0.289	.279	0.268	0.38
D-91-94 831.5-834	2.5'	0.490	.50	0.510	0.55
D-91-94 834-839	5'	0.664	.610	0.556	0.31
D-91-94 839-844		0.013			0.15
D-91-94 844-848		0.031			0.25
D-91-94 848-852		0.011			0.38
D-91-94 852-857		0.003			0.19
D-91-94 857-862		0.005			0.21
D-91-94 862-867		0.002			0.17
D-91-94 867-870		0.002			0.20
D-91-94 870-875		0.003			0.27
D-91-94 875-880		0.008			1.58
D-91-94 880-884.5		0.004			0.36
D-91-94 884.5-889		0.007			0.24
D-91-94 889-892		0.004			0.26
D-91-94 892-896		0.035			2.34
D-91-94 896-901.5		0.045			4.29
D-91-94 901.5-907		0.014			1.15
D-91-94 907-912		0.004			0.32
D-91-94 912-918		0.007			1.29
D-91-94 918-922		0.007			0.17
D-91-94 922-926		0.005			0.32
D-91-94 926-929		0.008			0.65
D-91-94 929-931.5		0.015			1.41

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031395
REPORTED : 3 NOV 1994

D-91-94 931.5-935	0.020	9.53
D-91-94 935-939	0.012	0.49
D-91-94 939-943	0.011	0.96
D-91-94 943-946	0.006	0.89
D-91-94 946-950	0.008	0.75
D-91-94 950-955	0.005	0.17
D-91-94 955-959.5	0.007	0.43
D-91-94 959.5-965	0.003	0.11
D-91-94 965-971	0.004	0.08
D-91-94 971-975	0.007	0.09
D-91-94 975-980	0.007	0.12
D-91-94 980-983	0.007	0.09
D-91-94 983-986.8	0.008	0.35
D-91-94 986.8-989	0.007	0.12

PROVISIONAL REPORT

Checked against original invoice

REGLA MIN

COPIES TO : CHARLIE MUERHOFF

:

:

:

CLIENT REFERENCE No: D-91-94 RECEIVED : 28 OCT 1994

LABORATORY JOB No. : SP031458 REPORTED : 4 NOV 1994

SAMPLE TYPE : No. SAMPLES : 56

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)	DZ10	10%	OPT	0.02

SIGNATORY : Sue Fairclough M.S.

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031458
REPORTED : 4 NOV 1994

SAMPLES	Au(OZ)	Au(RE)	AuGRAV	Ag(OZ)	
D-91-94 00-05	0.001			0.05	
D-91-94 05-10	0.002			0.04	
D-91-94 10-15	<0.001			0.04	
D-91-94 15-20	0.002			0.07	
D-91-94 20-25	0.001			0.06	1.637
D-91-94 25-27.5	0.004			0.06	
D-91-94 27.5-32	0.112	.104	0.099	0.26	
D-91-94 32-37	0.129	.138	0.147	0.20	
D-91-94 37-39	0.264	.235	0.206	0.32	
D-91-94 39-45	0.018			0.08	
D-91-94 45-50	0.084	0.060	0.104	0.15	
D-91-94 50-55	0.003			0.04	
D-91-94 55-60	0.001			0.05	
D-91-94 60-64.7	0.040			0.08	
D-91-94 64.7-69.4	0.128		0.113	0.13	
D-91-94 69.4-73	0.029			0.08	
D-91-94 73-76	0.001			0.03	
D-91-94 76-79.5	0.001			0.03	
D-91-94 79.5-82.5	0.033	0.024		0.11	
D-91-94 82.5-87	<0.001			0.02	
D-91-94 87-92	<0.001			<0.02	
D-91-94 92-97	0.202		0.249	0.09	
D-91-94 97-101.7	0.047			0.07	
D-91-94 101.7-106	0.025			0.17	
D-91-94 106-110	0.030			0.14	

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031458
REPORTED : 4 NOV 1994

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-91-94 110-113	0.029			0.23
D-91-94 113-118	0.094		0.110	0.10
D-91-94 118-122	0.013			0.07
D-91-94 122-127	0.111		0.110	0.21
D-91-94 127-132	0.044			0.18
D-91-94 132-137	0.002			0.06
D-91-94 137-142	0.003			0.08
D-91-94 142-147	0.008	0.011		0.05
D-91-94 147-151	0.001			0.03
D-91-94 151-156	0.005			0.08
D-91-94 156-161	0.004			0.06
D-91-94 161-166	<0.001			0.04
D-91-94 166-171	0.001			0.05
D-91-94 171-176	0.005			0.07
D-91-94 176-181	0.001			0.04
D-91-94 181-186	<0.001			0.04
D-91-94 186-192	0.002			0.05
D-91-94 192-195	0.063		0.073	0.14
D-91-94 195-200	0.034			0.08
D-91-94 200-205	0.023			0.08
D-91-94 205-210	0.072		0.072	0.27
D-91-94 210-215	0.054		0.048	0.11
D-91-94 215-221	0.025			0.11
D-91-94 221-226	0.040			0.09
D-91-94 226-231	0.007			0.09

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT

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JOB NUMBER : SP031458
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SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
D-91-94 231-236	0.007			0.13
D-91-94 236-241	0.107		0.109	0.19
D-91-94 241-247	0.017			0.10
D-91-94 247-251	0.010			0.11
D-91-94 251-256	0.003			0.05
D-91-94 256-262.5	0.002			0.05

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: D-91-94

LABORATORY JOB No. : SP031523

SAMPLE TYPE :

RECEIVED : 7 NOV 1994

REPORTED : 21 NOV 1994

No. SAMPLES : 94

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA60	15%	OPT	0.001
Au(RZ)	FA60	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Sue Faircloth M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031523
REPORTED : 21 NOV 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-91-94 262.5-266.5	0.039			0.11
D-91-94 266.5-271	0.009			0.13
D-91-94 271-274	0.012			0.06
D-91-94 274-279.5	0.021			0.14
D-91-94 279.5-285	0.008			0.07
D-91-94 285-290	0.001			0.06
D-91-94 290-295	0.003			0.06
D-91-94 295-300	0.005			0.09
D-91-94 300-304	0.005			0.07
D-91-94 304-307	0.008	0.009		0.08
D-91-94 307-309	0.012			0.08
D-91-94 309-314	0.009			0.11
D-91-94 314-319	0.004			0.07
D-91-94 319-324	0.004			0.07
D-91-94 324-329	0.004			0.08
D-91-94 329-335	0.029	0.022		0.07
D-91-94 335-340	0.005			0.05
D-91-94 340-345	0.006			0.10
D-91-94 345-350	0.006			0.08
D-91-94 350-355	0.003			0.05
D-91-94 355-360	0.001			<0.02
D-91-94 360-365	0.004			0.05
D-91-94 365-370	0.006			0.09
D-91-94 370-375	0.002			0.03
D-91-94 375-380	0.002			0.04

AMERICAN ASSAY LABORATORIES
ANALYSIS REPORT

American Assay Laboratories

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PROJECT : ROSEBUD
REFERENCE : D-91-94
JOB NUMBER : SP031523
REPORTED : 21 NOV 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-91-94 380-385	0.002			0.03
D-91-94 385-389	0.005			0.06
D-91-94 389-394	0.012			0.18
D-91-94 394-399	0.007			0.10
D-91-94 399-404	0.013			0.12
D-91-94 404-409	0.019			0.09
D-91-94 409-414	0.101		0.108	0.11
D-91-94 414-419	0.011			0.09
D-91-94 419-423	0.090		0.079	0.14
D-91-94 423-427	0.632		0.614	0.55
D-91-94 427-430	0.132		0.089	0.12
D-91-94 430-434	0.158		0.170	0.16
D-91-94 434-439	0.042			0.19
D-91-94 439-444	0.033			0.11
D-91-94 444-449	0.025			0.10
D-91-94 449-452	0.155		0.135	0.22
D-91-94 452-455	0.018			0.14
D-91-94 455-460	0.004			0.05
D-91-94 460-465	0.013			0.08
D-91-94 465-470	0.015			0.11
D-91-94 470-475	0.044			0.10
D-91-94 475-480	0.008			0.09
D-91-94 480-483	0.017			0.10
D-91-94 483-489	0.039			0.13
D-91-94 489-493	0.009			0.08

AMERICAN ASSAY LABORATORIES
ANALYSIS REPORT

American Assay Laboratories

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JOB NUMBER : SP031523
REPORTED : 21 NOV 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-91-94 493-497	0.008			0.08
D-91-94 497-500.5	<0.001			<0.02
D-91-94 500.5-505	<0.001			<0.02
D-91-94 505-511	<0.001			<0.02
D-91-94 511-515	<0.001			<0.02
D-91-94 515-518	0.005			0.06
D-91-94 518-523	0.023			0.08
D-91-94 523-528	0.028			0.07
D-91-94 528-533	0.137		0.106	0.22
D-91-94 533-539	0.056		0.037	0.18
D-91-94 539-545	0.064		0.131	0.09
D-91-94 545-550	0.335		0.309	2.56
D-91-94 550-555	0.098		0.098	1.02
D-91-94 555-560	0.029			0.11
D-91-94 560-564	0.040		0.063	0.28
D-91-94 564-568	0.068		0.068	0.17
D-91-94 568-573	0.059		0.062	0.11
D-91-94 573-578	0.166		0.143	0.14
D-91-94 578-583	0.098		0.088	0.11
D-91-94 583-588	0.013			0.10
D-91-94 588-593	0.036			0.09
D-91-94 593-598	0.038			0.29
D-91-94 598-603	0.013			0.25
D-91-94 603-607	0.010			0.10
D-91-94 607-613	0.070		0.084	0.16

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

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JOB NUMBER : SP031523
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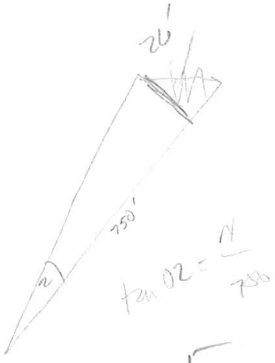
SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
D-91-94 613-619	0.093		0.124	0.91
D-91-94 619-622.5	0.101		0.117	0.20
D-91-94 622.5-628	0.168		0.247	0.23
D-91-94 628-633	0.398		0.401	0.26
D-91-94 633-638	0.017			0.12
D-91-94 638-643	0.122		0.173	0.35
D-91-94 643-646	0.169		0.149	0.34
D-91-94 646-650.5	0.242		0.273	0.39
D-91-94 650.5-655	0.131		0.165	0.16
D-91-94 655-660	0.275		0.302	0.33
D-91-94 660-665	0.012			0.10
D-91-94 665-668.5	0.046			0.12
D-91-94 668.5-673	0.426		0.298	1.78
D-91-94 673-678	0.502		0.361	0.49
D-91-94 678-683	0.365		0.292	0.69
D-91-94 683-688	0.401		0.449	0.81
D-91-94 688-693	1.843		1.400	1.60
D-91-94 693-698	1.513		1.306	4.39
D-91-94 698-703.5	0.343		0.360	0.25

Down Hole Survey Data
[redacted]-D91-94

Footage	Measured Bearing	Corrected Azimuth	Measured Inclination	Calculated Dip
		-15.98		
10	34	50.0	71	-19.0
200	37	53.0	70.9	-19.1
400	36.5	52.5	70.6	-19.4
600	35.4	51.4	70.0	-20.0
800	35.0	51.0	70.0	-20.0
989	34	50.0	70.0	-20.0

This is not in the model as of 1-5-00

In the model 2-9-00
Charlie located hole in PS
Stope 33 2-9-00



DGM
1-4-00

Final change
weekend of 3-4-00
By C.M.

1999 15.66°

Declination Decreases 3.9′ /year

So Δ Dec in 1994 (5 years) 19.5′

1994 Declination 15.66° + 19.5′

$\frac{19.5'}{60} = .325°$

1994 Declination 15.98

10	49.98	= 50
200	52.98	= 53
400	52.48	= 52.5
600	51.38	= 51.4
800	50.98	51.
989	49.98	= 50