60001511

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. 94-334
AUTHOR	L. Bernard; C. Muerhoff; S. Faircloth
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 1100' handwritten notes; receipt 43p.

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: JV Blue
Initials Date

Revised: 1/22/08

94-334 north zone

6000 1511 4010

Hecla
MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

60001511

HOLE NUMBER	94-334	LOCATION	North Zone	REMARKS	
PAGE 1 OF	13	NORTHING	2204460.6	RC to 495	
DATE	12/12	EASTING	482472.0	X CORE from 475 (475) to 1087 (1107)	
LOGGED BY	LJB	ELEVATION	5351.4	CORE Hole # off by 20'	
SCALE	RC 1"=20' CORE 1"=10'	AZIMUTH	317.5°		
TOTAL DEPTH	1100.0'	INCLINATION	-88.5°		

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		0-35 dk brown fine grain hematitic volcaniclastics w/ minor white/green altered clasts	20, 40, 60, 80, 100			0-15 wk FeOx 0-155 hem rock
		35-195 dk brown fine grain hem chips Hem tuff + volcanic lv				55-85 wk FeOx

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
0	15	15	.001	<.02		
15	25	10	<.001	<.02		
25	35	10	<.001	<.02		
35	45	10	<.001	<.02		
45	55	10	<.001	<.02		
55	65	10	<.001	<.02		
65	75	10	<.001	<.02		
75	85	10	<.001	<.02		
85	95	10	.002	<.02		
95	105	10	<.001	<.02		

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
			120, 140, 160, 180, 200, 220, 240				105	115	10	<.001	<.02		
						115-145 wk white gtz vn	115	125	10	<.001	<.02		
							125	135	10	<.001	<.02	<.001	
							135	145	10	<.001	<.02		
							145	155	10	<.001	<.02		
							155	165	10	<.001	<.02		
							165	175	10	<.001	<.02		
							175	185	10	<.001	<.02		
		195-285 SAB fine grain hem Tuff + Volcanic bx w/ fine med grey clay coating				195-285 hem rich w/ wh argillic alt	185	195	10	<.001	<.02		
							195	205	10	<.001	<.02		
							205	215	10	<.001	<.02		
							215	225	10	<.001	<.02		
							225	235	10	<.001	<.02		
							235	245	10	<.001	<.02		

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		285 - 310 dk-med brown fine grain hem Tuff + vbx	260, 280, 300			
		310 - 345 lt green fine grain clastic chips w/ lt brown hem matrix	320			310 - 345 wk chl ? wk Argillic
		345 - 395 dk brown fine grain hem Tuff &/or vbx	340, 360, 380			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
245	255	10	<.001	<.02		
255	265	10	<.001	<.02		
265	275	10	<.001	<.02		
275	285	10	<.001	<.02		
285	295	10	<.001	<.02		
295	305	10	<.001	<.02		
305	315	10	<.001	<.02		
315	325	10	<.001	<.02	<.001	
325	335	10	<.001	<.02		
335	345	10	<.001	<.02		
345	355	10	<.001	<.02		
355	365	10	<.001	<.02		
365	375	10	<.001	<.02		
375	385	10	<.001	<.02		

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		395-475 Lt gray and lt green fine grain clastic chiron w/ fine py dissem	400, 420, 440, 460, 480, 500, 520			395-475 wk chl alt. wk sil-Argillic
		475-485 SAB w/ 40% lt gray clays				tr. Fe Ox; 475-485 wk-mod Argillic wk chl
		485-495 lt gray and lt green chiron clastics w/ hints of lt brown matrix v. fine py dissem				485-495 wk chl wk-sil-Arg
		↓ SEE 1"=10' CORE LOGS				

ANALYTICAL DATA

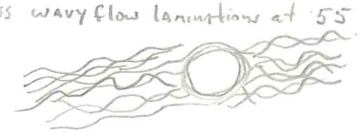
FROM	TO	W	Au	Ag	Au2	Ag2
385	395	10	<.001	<.02	<.001	
395	405	10	<.001	<.02		
405	415	10	<.001	<.02		
415	425	10	.002	.03		
425	435	10	.002	.02		
435	445	10	.005	.05		
445	455	10	<.001	<.02		
455	465	10	<.001	.02		
465	475	10	.002	<.02		
475	485	10	<.001	<.02		
485	495	10	<.001	<.02		

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
475 102	1.00 482	475-519 Heterolithic volcaniclastic, clast supported, sub-rounded 1/10 - 4" clast in a hemititic to chloritic matrix - ashy to fine grain lt, med, + dk green chl clasts, some wk welded, zoned, spherolitic, etc. white + pink Argillized clasts Tan-brown sil-Arg clasts chl ≥ Arg >> sil-Arg clasts fine py dissem 503-519 some matrix supported material	480		475-487 .3 frac/ft @ 70 R slicks w/ss movement	475-492 hem matrix wk-mod chl clasts wk-mod Arg.
104	.86 587				487-497 no frac	
94	.72 497		490			492-500 mod-str chl wk Argillic
100	.91 507		500		497-507 .1 frac/ft. @60 R	500-519 mixed hem/chl matrix wk-mod chl + Argill clasts
93	.66 517	sharp contact @ 70	510		507-517 .2 frac/ft @ 25 R w/chl-py film	
96	.93 527	"Bad" 519-525 Ashy volcaniclastic - epiclastic 1/20 - 1/4" lt green chl + Argillic chl in a med-dk green ashy matrix bedding @ 60 Mod sorted	520		517-527 .2 frac/ft @60 R	519-563.5 Mod chl alt. Mod waxy sericitic alt. blebs of py dissem tr. py veinlets Minor ca veinlets
105	1.03 537	525-537.3 WAXY (sericitic) poorly bedded volcaniclastic lt green Ashy matrix - matrix supported 1/10 - 1/4" clasts, sub rounded 537-539 Ashy volcaniclastic - epiclastic Mod bedding + sorting @ 70	530 540		527-537 no frac 537-547 .1 frac/ft @ 40	

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
475	487	12	<.001	<.02	<.001	
487	497	10	<.001	<.02		
497	507	10	<.001	<.02		
507	519	12	<.001	.02		
519	527	8	<.001	<.02		
527	537	10	<.001	<.02		
537	547	10	<.001	<.02		

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
102	97 547	537-560 Heterolitic clast supported volcaniclastic 1/10 - 1/2" sub-angular - sub round chl + argillic clasts (wk bedding at 547 @ 80)			547-557 no frac	550.5-552 mod high angle calcite on 1/4"-1/4"	547	557	10	<.001	<.02		
102	93 557		550		557-567 .5 frac/ft @60 R	560.5-61 mod-str chl fine py disseminated	557	567	10	<.001	<.02		
97	95 567	560-566 well bedded + mod sorted volcaniclastic 1/10 - 1/5" sub-angular to sub-round white - lt green clast w/ dk green ashy matrix, bedding @70 clast sup.	560		567-577 .4 frac/ft @60 R		567	577	10	<.001	<.02		
99	88 577	566-580 Ashy volcaniclastic tuff w/ strong alignment of clasts + wk foliation of ashy matrix 50-60% clasts. sub-angular ashy clasts, w/ bedded clast support + matrix beds of dk green ash - ribbon texture lappilli clasts 1/5 - 1/2" clasts foliation @70	570		577-587 .8 frac/ft @60 R		577	587	10	<.001	<.02		
100	85 587	580-583 coarse bedded sand w/ fine ashy layers @ 45 583-603 Ashy volcaniclastic as above w/ lesser clasts 20-30%, matrix supported foliation @ 65 wk-mod arg, wk chl clasts str chl matrix (dk green) local 4"-6" sandy or sorted zones @65	580		587-597 .7 frac/ft @ 60		587	597	10	.002	<.02		
100	95 597		590		597-607 .7 frac/ft @60 VR		597	607	10	<.001	<.02		
100	95 607	603-627 wk-mod foliated ashy heterolithic volcaniclastic foliation @ 45 matrix + clast supports 1/10 - 1/4" argillic + chl clasts 1/4 - 1/2" sil clast + exotic, poss mesozoic clasts. sub-ang - sub-rounded	600 610				607	617	10	.004	<.02		

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
100	.92	SEE Above			607-617 .1 frac/ft @ 35	611-617 mod-str chl disseu py							
	617					soft waxy calcareous stringers @ 0-25 ⊥ to foliation	617	627	10	.002	.04	.002	
98	.93		620		617-627 .1 frac/ft @ 35 w/ slicks ⊙ slip	617-640 mod chl, fine py dissem, minor calcite veinlets	627	637	10	<.001	.02		
	627	627-643 Ashy Tuff w/ 10-20% clasts med green w/ dk green welded shards and 1/10" white-lt green sub-rounded clasts foliation @ 35				clusters of square py							
98	.90		630		627-637 .2 frac/ft @ 60	640-643 Mod-str Argillic alt v. wk chl, blocher of dissem py sil clay + square py on frac	637	643	6	.004	.05		
	637				637-643 1.0 frac/ft @ 60								
100	.60	WAVY Argillized contact	640				643	647	4	.003	.03		
	647	643-734 fine grain crystal rich flow Latite-trachytic Andesite porphyry 2/10 x 1/20" crystals alt to white clay and replaced by pyrite, poss wk alignment v. fine green chl crys + ± py replacement. fine py dissem			643-647 .2 frac/ft @ 20, 30 w/chl-ser	643-708 mod sil, wk arg alt chl, ser, ca films along fractures ± py							
	647				647-657 .5 frac/ft @ 10 w/chl, ser	py-chl ± ca veinlets @ high angles stockwork	647	657	10	.003	.04		
99	.53		650										
	657				657-667 1.0 frac/ft @ 10 + 35		657	667	10	.001	.04		
96	.65		660										
	667	667 poss wavy flow laminations at 55 			667-677 .1 frac/ft @ 60		667	677	10	<.001	.02		
97	.88		670										
	677	with occasional sub-rounded to rounded lithic clasts embayed or in reaction to matrix	680				677	678	10	.004	.03		

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
100	.95 687	Latite porphyry flow			677-687 .4 frac/ft @ 50 w/chl films	SEE Above	677	687	10	.004	.03		
100	.92 697		690		687-697 .9 fract/ft @ 60		687	697	10	.001	.02		
95	.88 707		700		697-707 .8 frac/ft @60		697	708	11	.001	.04	.001	
100	.91 717	V. wk 708 flow banding @ 60-65	710		707-717 .8 frac/ft @ 40-50		708	717	9	.001	.04		
101	.88 727		720		717-727 .6 frac/ft @ 60, 30		717	727	10	.001	.03		
99	.80 737	3-4" clastic contact 1/5" clasts	730		727-737 .5 frac/ft @ 25		727	734	7	<.001	<.02		
100	.89 747	734-741 chl med green Arly Tuff w/ 10% subrounded clasts, matrix supported V. wk folination @ 80? 741 752.5 Heterolithic volcanic breccia/Agglomerate 1/10" → 1 ft Angular to sub-rounded clasts., clast supported, numerous glassy clasts, mod chl matrix wk-chl - mod Argillic-silicic clasts	740 750		737-747 .3 frac/ft @ 25, 60	734-741 mod-str chl Aft fine py disseu; 741-752.5 wk chl, mod argillic alt clasts, mod chl matrix.	734	747	13	<.001	<.02	<.001	

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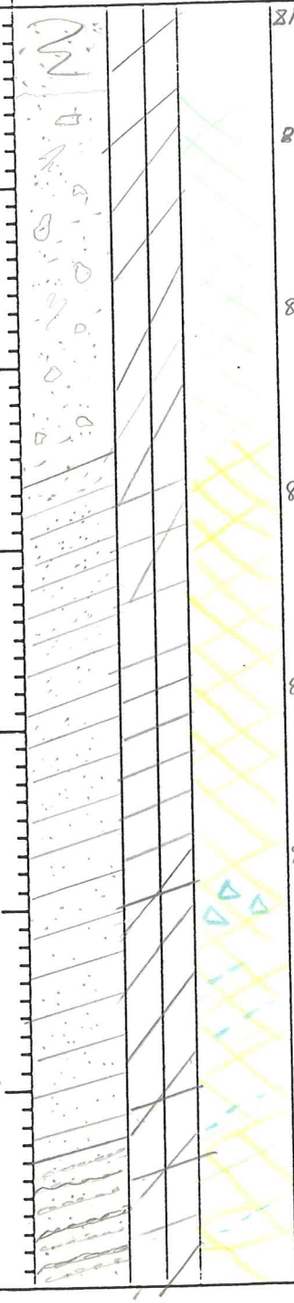
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
99	.93	752.5 - 668.7 Volcaniclastic w/ point contacts heterolithic textures 1/10 - 1/4" white clasts, green chl matrix sub-Ang - sub rounded			747-757 no frac	752.5 Mod-str chl Alt Matrix + clasts wk Arg clasts fine py dissem
	757					
100	.96		760		757-767 .2 frac/ft @ 40 VR	
	767				767-677 .6 frac/ft @ 70	
		768.7-773 Ashy foliated volcaniclastic wk welding foliation @ 65 1/20-1/4" clasts in green ashy shard-rich matrix	770		668.7 1" gouge zone gray	
100	.90					773-782 Mod chl, Mod Argill fine py dissem
	777	773-782 Volcaniclastic w/ point + clast supports 1/10 - 1/2" clasts in wk foliated green chl matrix @ 40			777-787 .5 frac/ft @ 60 R w/ chl films	
			780			
100	.88	782-792 Ashy foliated volcaniclastic w/ dk olive green foliated shard rich matrix clast and matrix supports 1/20 - 1/4" clasts white Argillic + silicic.				782-792 str chl matrix wk Argill clasts fine py dissem
	787				787-797 .7 frac/ft @ 65	
			790			792-817 str chl matrix Mod Sil-Argill clasts fine py dissem.
122	1.08	792-803 Volcaniclastic w/ mixed matrix + clast supports heterolithic subangular clasts. 1/10 - 4" clasts, 1% sil clasts dk green chl matrix				
	795					
(98%)	(.84)				797-807 .6 frac/ft @ 50	
.71	.68		800			
	803	803-817.5 foliated Ashy volcaniclastic glassy partially welded clasts (in place in matrix) ribbon text white Argillic + lt-med green chl clasts in a lt-dk green chl matrix elongate sub-rounded clasts Matrix - point supports (811 - 817.5 more rounded clasts)				
95	.85				807-217 1.1 frac/ft @ 40 w/ Dip slip movement slicks	
	807		810			
102	.76					
	817					
			820			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
747	757	10	<.001	<.02		
757	767	10	<.001	<.02		
767	777	10	<.001	<.02		
777	787	10	<.001	.02		
787	797	10	<.001	<.02		
797	807	10	<.001	<.02		
807	817.5	10.5	<.001	<.02		
End Geochem						
custom prep. starts						
817.5	822	5	<.001	.04		

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		817.5-825 glassy, wk spherioidal tuff "LBT" 825 - 845.5 Ashy - fine grain dk grass green lithic tuff 10% homolithic clasts, glassy alt zones	830 840 850 860 870 880 890		817-827 .7 frac/ft @ 50 R chl-py films 827-837 .7 frac/ft @ 40 R w/ chl, ser films 837-847 1.0 frac/ft @ 30, 70 s w/sas 847-857 1.2 frac/ft 30, 70 s w/sas 857-867 1.8 frac/ft @ 70 s w/sas 867-877 1.4 frac/ft @ 40, 70 VR, s w/sas 877-887 1.0 frac/ft @ 70, 40 s, R w/sas 887-897 1.0 frac/ft @ 70, 40 w/ chl-ser films w/ minor calcite	825 - 845.5 wk-mod chl mod sil mod calcite vn ± py + tension gash fillings high angle (70-30) 827-833 mod calcite veinlets @ 25-40 845.5 - wk chl, mod sil 884 hem along frac (joints) + laminations v. minor py on lamini or as veinlets 869-870.5 calcite cemented bx zone hydro bx clast floating in matrix 870.5 - 884 calcite veinlets 884 - 890.5 wk chl-mod sil hem along flow lam, minor on veinlets + films
		845.5 - 884 fine-med grain laminated (w/ jointing) Tuff, shard(?) rich, some rounded pebbles, lappilli lamini @ 60-70 884 - 890.5 wavey flow laminated w/ wk spotted texture, <1% lappilli clasts				

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
822	827	5	.003	.47		
827	832	5	.002	.10		
832	837	5	.001	.02		
837	842	5	<.001	<.02		
842	845.5	3.5	<.001	<.02		
845.5	847	1.5	<.001	<.02		
847	852	5	<.001	<.02		
852	857	5	<.001	<.02		
857	862	5	<.001	<.02		
862	867	5	<.001	.06		
867	872	5	.022	.14		
872	877	5	<.001	<.02		
878	882	5	<.001	<.02		
882	887	5	<.001	<.02		
887	891	4	<.001	<.02		

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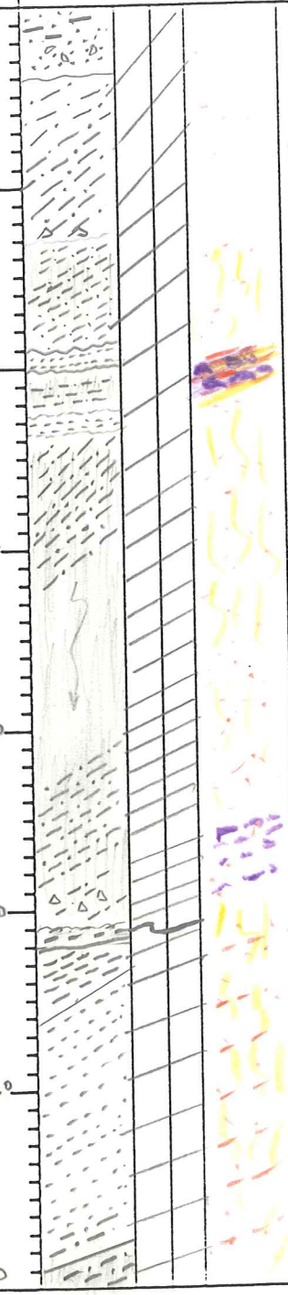
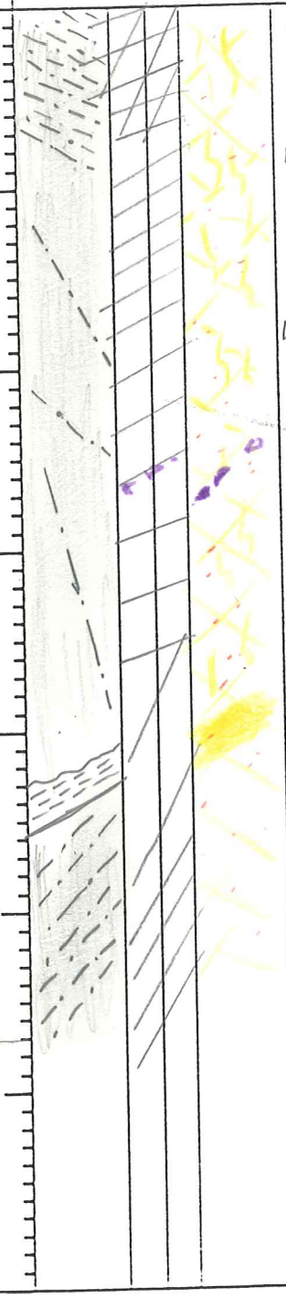
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	FROM	TO	W	Au	Ag	Au2	Ag2
		890.5 - 921 volcanic breccia w/ glossy + mod spherulitic textures clast + matrix supports 1/20 - 3" elongated sub-Angular to sub rounded green, wk-mod chl clasts - glossy w/ lt brown Ashy fine grain matrix homolithic	900		897-907 .8 frac/ft @50 R w/ chl-ser films	890.5-921 wk-mod chl, wk sil minor calcite veinlets w/ no preferred orientation	891	897	6	<.001	<.02		
							897	902	5	<.001	<.02		
						890.5 cryst calcite vn w/ v. minor py along wall rock contact 1/2" @60	902	907	5	<.001	<.02		
					907-917 .9 frac/ft @50 R w/ SAS		907	912	5	<.001	<.02		
		921-930.5 SAS w/ wk spherulitic textures lesser clasts visible med gy-brown matrix	910			921-930.5 mod chl clasts Mod sil matrix w/ mod py disseminated ± qtz-py veinlets fine ca veinlets.	912	917	5	.008	.03		
		gradational contact.			917-927 .5 frac/ft @70 Rundulating w/ SAS		917	922	5	.077	.09	.070 (2)	
		930.5-934 Sil bx vn → SRF	920				922	927	5	.007	.06		
		934-946 sil flooded volcaniclastic (white/gy) w/ crackle bx healed by sil + rubble bx ?					927	930.5	3.5	.105	.15	.042 .080 (2)	
			930		927-937 .9 frac/ft @50 R w/ white clay fine barite	930.5-934 silica flooded and brecciated (tectonically) spherulitic tuff, gray qtz and brecciated dk blk qtz vn, fine sulf disseminated, minor blebs of py, minor barite on frac., minor white clay	930.5	934	3.5	.025	.09		
		contact @70 →					934	937	3	.023	.15		
					937-947 .6 frac/ft @35 VR w/ SAS		937	942	5	.011	.20		
		946-947.5 wk-mod carbonaceous siltstone, dk brown	940				942	946	4	.129	.20	.148 (2)	Au
		947.5-964.5 dk brown sil, pyritized sandy siltstone local bx + coarse sandy bedding wk bedding @80				934-946 silica flooded + crackle bx volcaniclastic fine sulfidic qtz cem w/ blebs + blades of py - marc - nonuss fine barite on frac mod white clays	946	947	1	.217	.84	.241 (2)	.229
					947-957 .9 frac/ft @80 R w/ graphitic films white clays		947	952	6	.097	.42	.151 .189 (2)	.146
		Tcs	950				952	957	5	.239	.40	.320 (2)	.280
					654 wk white bx								
					957-967 1.0 frac/ft @40 R w/ tr graph, white clay, stay	946-964 mod sil, num qtz-py-marc vn, qtz veinlets minor graphite	957	962	5	.204	.92	.212 (2)	.208
			960										.52

20 @ .199 .212

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		coarse sand base 964-973 med brown laminated siltstone wk cross-lam lam @ 60 convoluted siltsn w/ bx at contact 973-979 bk siltsn-shale w/ minor interbed of gray siltsn wk bedding @ 60? sed. bx. in places. Carbonaceous 979-980 gray sandstone 980-982.5 bk sed bx siltstn shale 982.5-983.5 gray sandstone contact @ 70 (bottom) 983.5-1011 bk carbonaceous, silicic siltsn-shale minor 1/4" sandy layers, fine py dissem bedding @ 40-50 bx base 1011-1012 claystone bedding @ 60 tan-gray 1012-1015 clayey siltstone tan 1015-1028.5 fine-coarse grain gray sandstone bedding @ 60 v. fine x-bedding convoluted bedding 5" clayey contact J Ka	970 980 990 1000 1010 1020 1030		967-977 1.3 frac/ft @ 50 R w/ minor clay films 977-987 .9 frac/ft @ 60 R w/ minor clay films + BA 987-997 1.4 frac/ft @ 60 R w/ minor py 997-1007 1.5 60-70 R w/ graphite 1007-1017 1.6 frac/ft @ 70 w/ white clay barite, graphite 1011 4" sheared claystone contact 1017-1027 1.0 frac/ft @ 70 R w/ white clay, BA	964-973 white clay + py on frac, fine py dissem tr graphite, wk py vnlets 973-981 mod sil Fractured siltstone w/ silica stockwork filling fine py vnlets, graphite 981-982 carst hole vn fills composed of coarse barite along wall rock and white/gy clay + sand fills w/ py + poss sphalerite dissem dk sulf. barite w/ gray/bk metallic star burst inclusions 982-1007 mod sil stockwork qtz frac fills, dissem py, graphite 1007-1011 sab w/ minor qtz clasts & barite on frac 1011-1015 clayey siltsn 1015-1028.5 minor qtz py vnlets, white clays & barite on frac.

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
962	967	5	.046	.19	.054 (2)	
967	972	5	.078	.22	.080 (2)	
972	977	5	.046	.55		
977	981	4	.070	3.80	.062 (2)	
981	982	1	.054	6.72	.055 (2)	10' @ .043 7.64
982	984	2	.025	4.12		
984	987	3	.020	15.42		
987	992	5	.010	.73		
992	997	5	.021	.35		
997	1002	5	.007	.24		
1002	1007	5	.004	.38		
1007	1010.5	3.5	.010	.39		
1010.5	1014.5	4	.004	.15		
1014.5	1019	4.5	.008	.15		
1019	1024	5	.013	.84		
1024	1028.5	4.5	.010	1.40		
1028.5	1032	3.5	.007	1.60	.008	

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
		1028.5 - 1073 bk silicic, carbonaceous siltsn-shale w/ qtz vn + clasts of qtz vn bedding variable due to folding 1035 bedding @ 70 1042 bedding change to 25 1053 bedding @ 50 1062 bedding @ 15 1077 bedding @ 40 1073 - 1074.5 gray pyritic dissem silty claystone 1074.5 - 1087 EOH graphitic (softer) bk siltstone w/ bedding @ 30-40	1040 1050 1060 1070 1080 1087 EOH		1027 - 1037 2.3 frac/ft @ 70 = 25 R wh clay, ba, graph 1037 - 1047 1.9 frac/ft @ 60 R graphite 1047 - 1057 .9 frac/ft @ 60 R w/ graph barite 1057 - 1067 .7 frac/ft @ 70 R w/ graphite 1067 - 1077 .8 @ 25 S graph - qtz 1077 - 1087 1.8 frac/ft @ 30 S graphite	1028.5 - 1071 sil, graphitic Rh w/ clasts (vn) veins of qtz fine pyritic vnlets + blebs fine py dissem 1057 ba on frac 1069 - 1071 Zone of qtz vn, several faulted 4" vn material 1073 - 1074.5 clay sm w/ dissem py 1074.5 - 1087 graphitic siltsm w/ py dissem	1032 1037 1042 1047 1052 1057 1062 1067 1072 1074.6 1077 1082	1037 1042 1047 1052 1057 1062 1067 1072 1074.6 1077 1082 1087 (1107)	5 5 5 5 5 5 5 5 2.6 2.4 5 5 ??	.006 .003 .004 .006 .006 .002 .009 .004 .004 .003 .002 .004	.35 .35 .78 5.08 .67 .23 .33 .10 .13 .11 .10 .10		

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 94-334 DATE: 11/22/94 LOGGED BY: LJB/ PAGE 1 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)
817	827	102	102	.77		R3	.7	50	R	chl+py films	823	777.8	318	2.45
827	837	99	99	.77		R2	.7	40	R	chl-ser films	832	802	325	2.47
837	847	93	93	.48		R2	1.0	30, 70	S	SAB	842	660	270	2.44
847	857	104	107	.82		R3	1.2	30, 70	S	SAB	852	982.5	385	2.55
857	867	102	102	.62		R3	1.8	70	S	SAB	862	1051	425	2.47
867	877	97	97	.70		R3	1.4	40 +70	VR, S	SAB	872	1057	430	2.46
877	887	102	102	.97		R3	1.0	70, 40	S, R	SAB	882	970.5	385	2.52
887	897	95	95	.82		R3	1.0	70 40	S	chl-ser film RARE CA	892	919	380	2.42
897	907	97	100	.81		R2	.8	50	R	chl-ser film	902	687.5	280	2.45
907	917	96	99	.79		R2	.9	50	R	SAB	912	895.5	370	2.42
917	927	80	100	.73		R2	.5	70	R undulating	SAB	922	885.5	360	2.45

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 94-334 DATE: 11/22/94 LOGGED BY: LJB/ PAGE 2 OF 3

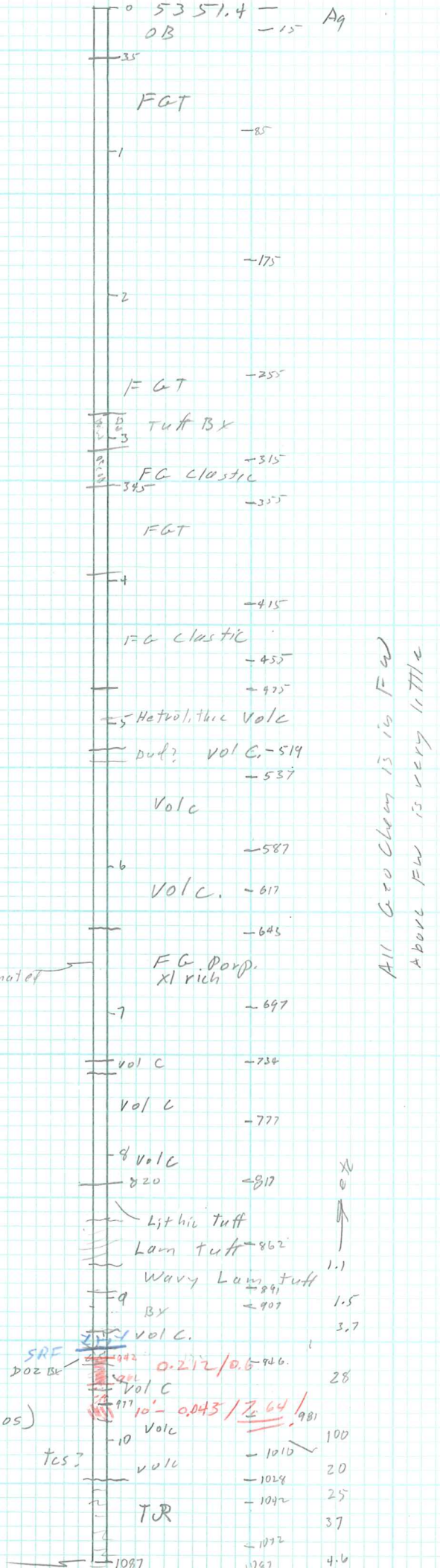
DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
927	937	100	101	.89		R3	.9	50	R	white clay barite	932	1085	425	2.55
937	947	99	99	.86		R3	.6	35	VR	SAB	942	833	325	2.56
947	957	97	97	.87		R3	.9	80	R	graphite films white clay	952	908.5	355	2.56
957	967	100	100	.87		R3	1.0	40	R	tr graphite wh clay ± py	962	767	295	2.6
967	977	98	98	.80		R3	1.3	50	R	minor clay films	973	947	380	2.49
977	987	100	100	.84		R3	.9	60	R	minor clay films barite	984	1174	450	2.6
987	997	100	100	.85		R3	1.4	60	R	minor py	994	1198.5	460	2.61
997	1007	99	99	.90		R3	1.5	60-70	R	graphite	1003	1237.5	485	2.55
1007	1017	90	98	.80		R3	1.6	70	R	clay, barite ~~qtz~~ coat	1012	1185	455	2.60
1017	1027	100	100	.90		R3	1.0	70	R	SAB + graphite	1022	1295	500	2.59
1027	1037	505	106	.63		R3	2.3	~~70~~ 25	R	SAB + graph	1032	918	350	2.62

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 94-334 DATE: 11/23/94 LOGGED BY: LTB PAGE 3 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)
1037	1047	100	100	.74		R3	1.9	60	R	graphite	1042	873	340	2.57
1047	1057	102	102	.85		R3	.9	60	R	graphite barite	1052	1117.5	430	2.60
1057	1067	100	100	.94		R3	.7	70	R	graphite	1062	1028	390	2.63
1067	1077	100	100	.76		R3	.8	25	S	graphite qtz	1072	908	355	2.56
1077	1087	99	99	.68		R3	1.8	30	S	graphite	1082	1017	390	2.61

2,204,460.6 N
482,472.0 E



ROSEBUD
94-334
1" = 100'

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: 94-334

LABORATORY JOB No. : SP031233

SAMPLE TYPE :

RECEIVED : 10 OCT 1994

REPORTED : 20 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 : 94-334
JOB NUMBER : SP031233
REPORTED : 20 OCT 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-334 00-15	0.001		<0.02
94-334 15-25	<0.001		<0.02
94-334 25-35	<0.001		<0.02
94-334 35-45	<0.001		<0.02
94-334 45-55	<0.001		<0.02
94-334 55-65	<0.001		<0.02
94-334 65-75	<0.001		<0.02
94-334 75-85	<0.001		<0.02
94-334 85-95	0.002		<0.02
94-334 95-105	<0.001		<0.02
94-334 105-115	<0.001		<0.02
94-334 115-125	<0.001		<0.02
94-334 125-135	<0.001	<0.001	<0.02
94-334 135-145	<0.001		<0.02
94-334 145-155	<0.001		<0.02
94-334 155-165	<0.001		<0.02
94-334 165-175	<0.001		<0.02
94-334 175-185	<0.001		<0.02
94-334 185-195	<0.001		<0.02
94-334 195-205	<0.001		<0.02
94-334 205-215	<0.001		<0.02
94-334 215-225	<0.001		<0.02
94-334 225-235	<0.001		<0.02
94-334 235-245	<0.001		<0.02
94-334 245-255	<0.001		<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031233
REPORTED : 20 OCT 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-334 255-265	<0.001		<0.02
94-334 265-275	<0.001		<0.02
94-334 275-285	<0.001		<0.02
94-334 285-295	<0.001		<0.02
94-334 295-305	<0.001		<0.02
94-334 305-315	<0.001		<0.02
94-334 315-325	<0.001	<0.001	<0.02
94-334 325-335	<0.001		<0.02
94-334 335-345	<0.001		<0.02
94-334 345-355	<0.001		<0.02
94-334 355-365	<0.001		<0.02
94-334 365-375	<0.001		<0.02
94-334 375-385	<0.001		<0.02
94-334 385-395	<0.001	<0.001	<0.02
94-334 395-405	<0.001		<0.02
94-334 405-415	<0.001		<0.02
94-334 415-425	0.002		0.03
94-334 425-435	0.002		0.02
94-334 435-445	0.005		0.05
94-334 445-455	<0.001		<0.02
94-334 455-465	<0.001		0.02
94-334 465-475	0.002		<0.02
94-334 475-485	<0.001		<0.02
94-334 485-495 ← RUC CORE	<0.001		<0.02

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

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CLIENT REFERENCE No: 94-334

LABORATORY JOB No. : SP031233

SAMPLE TYPE :

RECEIVED : 10 OCT 1994

REPORTED : 20 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 : 94-334
JOB NUMBER : SP031233
REPORTED : 20 OCT 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-334 00-15	0.001		<0.02
94-334 15-25	<0.001		<0.02
94-334 25-35	<0.001		<0.02
94-334 35-45	<0.001		<0.02
94-334 45-55	<0.001		<0.02
94-334 55-65	<0.001		<0.02
94-334 65-75	<0.001		<0.02
94-334 75-85	<0.001		<0.02
94-334 85-95	0.002		<0.02
94-334 95-105	<0.001		<0.02
94-334 105-115	<0.001		<0.02
94-334 115-125	<0.001		<0.02
94-334 125-135	<0.001	<0.001	<0.02
94-334 135-145	<0.001		<0.02
94-334 145-155	<0.001		<0.02
94-334 155-165	<0.001		<0.02
94-334 165-175	<0.001		<0.02
94-334 175-185	<0.001		<0.02
94-334 185-195	<0.001		<0.02
94-334 195-205	<0.001		<0.02
94-334 205-215	<0.001		<0.02
94-334 215-225	<0.001		<0.02
94-334 225-235	<0.001		<0.02
94-334 235-245	<0.001		<0.02
94-334 245-255	<0.001		<0.02

AMERICAN ASSAY LABORATORIES
ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031233
REPORTED : 20 OCT 1994

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-334 255-265	<0.001		<0.02
94-334 265-275	<0.001		<0.02
94-334 275-285	<0.001		<0.02
94-334 285-295	<0.001		<0.02
94-334 295-305	<0.001		<0.02
94-334 305-315	<0.001		<0.02
94-334 315-325	<0.001	<0.001	<0.02
94-334 325-335	<0.001		<0.02
94-334 335-345	<0.001		<0.02
94-334 345-355	<0.001		<0.02
94-334 355-365	<0.001		<0.02
94-334 365-375	<0.001		<0.02
94-334 375-385	<0.001		<0.02
94-334 385-395	<0.001	<0.001	<0.02
94-334 395-405	<0.001		<0.02
94-334 405-415	<0.001		<0.02
94-334 415-425	0.002		0.03
94-334 425-435	0.002		0.02
94-334 435-445	0.005		0.05
94-334 445-455	<0.001		<0.02
94-334 455-465	<0.001		0.02
94-334 465-475	0.002		<0.02
94-334 475-485	<0.001		<0.02
94-334 485-495	<0.001		<0.02

American Assay Laboratories

INVOICE

Remit To: P.O. Box 71060
Reno, NV 89570
Phone No.: 702-356-0606
Fax No.: 702-356-1413

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431

(702) 356-0606

INVOICE NO: SP 0031830-IN
INVOICE DATE: 12/09/94

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
C. MUERHOFF	ROSEBUD 94-334	NET 30

QUANTITY	DESCRIPTION	PRICE	AMOUNT
35	SAMPLES RECEIVED	.00	.00
35	DRYING	.80	28.00
35	JAW CRUSHING CHARGE	1.20	42.00
35	SPLITTING CHARGE	1.00	35.00
35	KEEGOR MILLING CHARGE	2.00	70.00
35	Au (1 A.T. FIRE ASSAY)	7.25	253.75
35	HYDROCHLORIC/NITRIC DIGESTION	2.00	70.00
35	Ag ANALYSES	.80	28.00

OK to pay
140195-477
Charles V. Muerhoff

NET INVOICE:	526.75
LESS DISCOUNT:	158.03
FREIGHT:	.00
INVOICE TOTAL:	368.72

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

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CLIENT REFERENCE No: 94-334

LABORATORY JOB No. : SP031830

SAMPLE TYPE :

RECEIVED : 2 DEC 1994

REPORTED : 7 DEC 1994

No. SAMPLES : 35

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.

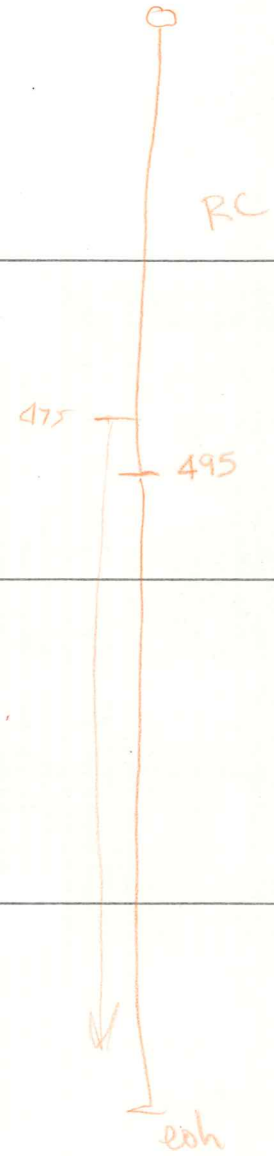
AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031830
REPORTED : 7 DEC 1994

SAMPLES	CORRECTED INTERVALS	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-334 ~~475-487~~	495-507	<0.001	<0.001	<0.02
94-334 ~~487-497~~	507-517	<0.001		<0.02
94-334 ~~497-507~~	517-527	<0.001		<0.02
94-334 ~~507-519~~	527-539	<0.001		0.02
94-334 ~~519-527~~	539-547	<0.001		<0.02
94-334 ~~527-537~~	547-557	<0.001		<0.02
94-334 ~~537-547~~	557-567	<0.001		<0.02
94-334 ~~547-557~~	567-577	<0.001		<0.02
94-334 ~~557-567~~	577-587	<0.001		<0.02
94-334 ~~567-577~~	587-597	<0.001		<0.02
94-334 ~~577-587~~	597-607	<0.001		<0.02
94-334 ~~587-597~~	607-617	0.002		<0.02
94-334 ~~597-607~~	617-627	<0.001		<0.02
94-334 ~~607-617~~	627-637	0.004		<0.02
94-334 ~~617-627~~	637-647	0.002	0.002	0.04
94-334 ~~627-637~~	647-657	<0.001		0.02
94-334 ~~637-643~~	657-663	0.004		0.05
94-334 ~~643-647~~	663-667	0.003		0.03
94-334 ~~647-657~~	667-677	0.003		0.04
94-334 ~~657-667~~	677-687	0.001		0.04
94-334 ~~667-677~~	687-697	<0.001		0.02
94-334 ~~677-687~~	697-707	0.004		0.03
94-334 ~~687-697~~	707-717	0.001		0.02
94-334 ~~697-707~~	717-727	0.001	0.001	0.04
94-334 ~~707-717~~	727-737	0.001		0.04



AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031830
REPORTED : 7 DEC 1994

SAMPLES	CORRECTED INTERVALS	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-334 ~~717-727~~	737-747	0.001		0.03
94-334 ~~727-734~~	747-754	<0.001		<0.02
94-334 ~~734-747~~	754-767	<0.001	<0.001	<0.02
94-334 ~~747-757~~	767-777	<0.001		<0.02
94-334 ~~757-767~~	777-787	<0.001		<0.02
94-334 ~~767-777~~	787-797	<0.001		<0.02
94-334 ~~777-787~~	797-807	<0.001		0.02
94-334 ~~787-797~~	807-817	<0.001		<0.02
94-334 ~~797-807~~	817-827	<0.001		<0.02
94-334 ~~807-817.5~~	827-837.5	<0.001		<0.02

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: 94-334

LABORATORY JOB No. : SP031830

SAMPLE TYPE

RECEIVED : 2 DEC 1994

REPORTED : 7 DEC 1994

No. SAMPLES : 35

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

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031830
REPORTED : 7 DEC 1994

SAMPLES	CORRECTED INTERVALS	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-334 ~~475-487~~	737-747	<0.001	<0.001	<0.02
	745-757			
94-334 ~~487-497~~	747-754	<0.001		<0.02
	757-817			
94-334 ~~497-507~~	754-767	<0.001		<0.02
	817-827			
94-334 ~~507-519~~	767-777	<0.001		0.02
	827-837			
94-334 ~~519-527~~	777-787	<0.001		<0.02
	837-847			
94-334 ~~527-537~~	787-797	<0.001		<0.02
	847-857			
94-334 ~~537-547~~	797-807	<0.001		<0.02
	857-867			
94-334 ~~547-557~~	807-817	<0.001		<0.02
	867-877			
94-334 ~~557-567~~	817-827	<0.001		<0.02
	877-887			
94-334 ~~567-577~~	827-887.5	<0.001		<0.02
	887-897			
94-334 577-587		<0.001		<0.02
	897-607			
94-334 587-597		0.002		<0.02
	607-617			
94-334 597-607		<0.001		<0.02
	617-627			
94-334 607-617		0.004		<0.02
	627-637			
94-334 617-627		0.002	0.002	0.04
	637-647			
94-334 627-637		<0.001		0.02
	647-657			
94-334 637-643	657-663	0.004		0.05
94-334 643-647	663-667	0.003		0.03
94-334 647-657	667-677	0.003		0.04
94-334 657-667		0.001		0.04
	677-687			
94-334 667-677		<0.001		0.02
	687-697			
94-334 677-687		0.004		0.03
	697-707			
94-334 687-697		0.001		0.02
	707-717			
94-334 697-707		0.001	0.001	0.04
	717-727			
94-334 707-717		0.001		0.04
	727-737			

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031830
REPORTED : 7 DEC 1994

SAMPLES	COLLECTED INTERVALS	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
94-334 717-727	737-747	0.001		0.03
94-334 727-734	747-754	<0.001		<0.02
94-334 734-747	754-767	<0.001	<0.001	<0.02
94-334 747-757	767-777	<0.001		<0.02
94-334 757-767	777-787	<0.001		<0.02
94-334 767-777	767-777	<0.001		<0.02
94-334 777-787	797-807	<0.001		0.02
94-334 787-797	807-817	<0.001		<0.02
94-334 797-807	817-827	<0.001		<0.02
94-334 807-817.5	827-837.5	<0.001		<0.02

American Assay Laboratories

INVOICE

Remit To: P.O. Box 71060
Reno, NV 89570
Phone No.: 702-356-0606
Fax No.: 702-356-1413

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431

(702) 356-0606

INVOICE NO: SP 0031233-IN
INVOICE DATE: 10/21/94

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
C. MUERHOFF	ROSEBUD 94-334	NET 30

QUANTITY	DESCRIPTION	PRICE	AMOUNT
49	SAMPLES RECEIVED	.00	.00
49	DRYING	.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

NET INVOICE:	737.45
LESS DISCOUNT:	221.24
FREIGHT:	.00
INVOICE TOTAL:	516.21

OK to pay
140195-477
Charles V. Muerhoff

American Assay Laboratories

INVOICE

Remit To: P.O. Box 71060
Reno, NV 89570
Phone No.: 702-356-0606
Fax No.: 702-356-1413

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431

(702) 356-0606

INVOICE NO: SP 0031827-IN
INVOICE DATE: 12/15/94

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
C. MUERHOFF	ROSEBUD 94-334	NET 30

QUANTITY	DESCRIPTION	PRICE	AMOUNT
61	SAMPLES RECEIVED	.00	.00
61	JAW CRUSHING CHARGE	2.40	146.40
61	COARSE MILLING CHARGE	8.00	488.00
61	SPLITTING CHARGE	2.00	122.00
61	KEEGOR MILLING CHARGE	2.00	122.00
61	BLENDING CHARGE	1.00	61.00
61	RING MILLING CHARGE	1.50	91.50
61	Au (2 A.T. FIRE ASSAY)	9.50	579.50
11	Au ANALYSES/GRAVIMETRIC	10.00	110.00
61	HYDROCHLORIC/NITRIC DIGESTION	2.00	122.00
61	Ag ANALYSES	.80	48.80
6	Ag (ore grade) ANALYSES	5.00	30.00

NET INVOICE:	1,921.20
LESS DISCOUNT:	576.36
FREIGHT:	.00
INVOICE TOTAL:	1,344.84

OK to pay
140195-477
Charles Muerhoff

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: 94-334

LABORATORY JOB No. : SP031827

SAMPLE TYPE :

RECEIVED : 2 DEC 1994

REPORTED : 16 DEC 1994

No. SAMPLES : 61

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 : 94-334
JOB NUMBER : SP031827
REPORTED : 16 DEC 1994

SAMPLES		Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-334 817.5-822	ADD 20' TO ALL INTERVALS	<0.001			0.04
94-334 822-827		0.003			0.47
94-334 827-832		0.002			0.10
94-334 832-837		0.001			0.02
94-334 837-842		<0.001			<0.02
94-334 842-845.5		<0.001			<0.02
94-334 845.5-847		<0.001			<0.02
94-334 847-852		<0.001			<0.02
94-334 852-857		<0.001			<0.02
94-334 857-862		<0.001			<0.02
94-334 862-867		<0.001			0.06
94-334 867-872		0.022			0.14
94-334 872-878		<0.001			<0.02
94-334 878-882		<0.001			<0.02
94-334 882-887		<0.001			<0.02
94-334 887-891		<0.001			<0.02
94-334 891-897		<0.001			<0.02
94-334 897-902		<0.001			<0.02
94-334 902-907		<0.001			<0.02
94-334 907-912		<0.001			<0.02
94-334 912-917	932-937	0.008			0.03
94-334 917-922	937-942	0.077		0.070	0.09
94-334 922-927	942-947	0.007			0.06
94-334 927-930.5	947-950.5	0.105	0.042	0.080	0.15
94-334 930.5-934	950.5-954	0.025			0.09

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031827
REPORTED : 16 DEC 1994

SAMPLES		Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
954-957 94-334 934-937	ADD 20'	0.023			0.15
957-962 94-334 937-942	TO ALL	0.011			0.20
962-966 94-334 942-946	INTERVALS	0.129		0.148	0.20
966-967 94-334 946-947		0.217		0.241	0.84
967-972 94-334 947-952		0.097	0.151	0.189	0.42
972-977 94-334 952-957		0.239		0.320	0.40
977-982 94-334 957-962		0.204		0.212	0.92
982-987 94-334 962-967		0.046		0.054	0.19
987-992 94-334 967-972		0.078		0.080	0.22
992-997 94-334 972-977		0.046			0.55
997-1001 94-334 977-981		0.070		0.062	3.80
1001-1002 94-334 981-982		0.054		0.055	6.72
94-334 982-984	1002-1004	0.025			4.12
94-334 984-987	1004-1007	0.020			15.42
94-334 987-992	1007-1012	0.010			0.73
94-334 992-997	1012-1017	0.021			0.35
94-334 997-1002		0.007			0.24
94-334 1002-1007		0.004			0.38
94-334 1007-1010.5	1027-1030.5	0.010			0.39
94-334 1010.5-1014.5	1030.5-1034.5	0.004			0.15
94-334 1014.5-1019	1034.5-1039	0.008			0.15
94-334 1019-1024	1039-1044	0.013			0.84
94-334 1024-1028.5	1044-1048.5	0.010			1.40
94-334 1028.5-1032		0.007	0.008		1.60
94-334 1032-1037		0.006			0.35

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031827
REPORTED : 16 DEC 1994

SAMPLES		Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-334 1037-1042	ADD 20' TO ALL INTERVALS	0.003			0.35
94-334 1042-1047		0.004			0.78
94-334 1047-1052	↓	0.006			5.08
94-334 1052-1057		0.006			0.67
94-334 1057-1062		0.002			0.23
94-334 1062-1067		0.009			0.33
94-334 1067-1072		0.004			0.10
94-334 1072-1074.6		0.004			0.13
94-334 1074.6-1077		0.003			0.11
94-334 1077-1082		0.002			0.10
94-334 1082-1087		0.004			0.10

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

ADD 30" TO ALL INTERVALS

CLIENT REFERENCE No: 94-334

LABORATORY JOB No. : SP031827

SAMPLE TYPE :

RECEIVED : 2 DEC 1994

REPORTED : 16 DEC 1994

No. SAMPLES : 61

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

AMERICAN ASSAY LABORATORIES
ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031827
REPORTED : 16 DEC 1994

ADD 30' TO ALL INTERVALS

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-334 817.5-822	<0.001			0.04
94-334 822-827	0.003			0.47
94-334 827-832	0.002			0.10
94-334 832-837	0.001			0.02
94-334 837-842	<0.001			<0.02
94-334 842-845.5	<0.001			<0.02
94-334 845.5-847	<0.001			<0.02
94-334 847-852	<0.001			<0.02
94-334 852-857	<0.001			<0.02
94-334 857-862	<0.001			<0.02
94-334 862-867	<0.001			0.06
94-334 867-872	0.022			0.14
94-334 872-878	<0.001			<0.02
94-334 878-882	<0.001			<0.02
94-334 882-887	<0.001			<0.02
94-334 887-891	<0.001			<0.02
94-334 891-897	<0.001			<0.02
94-334 897-902	<0.001			<0.02
94-334 902-907	<0.001			<0.02
94-334 907-912	<0.001			<0.02
94-334 912-917	0.008			0.03
94-334 917-922	0.077		0.070	0.09
94-334 922-927	0.007			0.06
94-334 927-930.5	0.105	0.042	0.080	0.15
94-334 930.5-934	0.025			0.09

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031827
REPORTED : 16 DEC 1994

ADD 20' TO ALL INTERVALS

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-334 934-937	0.023			0.15
94-334 937-942	0.011			0.20
94-334 942-946	0.129		0.148	0.20
94-334 946-947	0.217		0.241	0.84
94-334 947-952	0.097	0.151	0.189	0.42
94-334 952-957	0.239		0.320	0.40
94-334 957-962	0.204		0.212	0.92
94-334 962-967	0.046		0.054	0.19
94-334 967-972	0.078		0.080	0.22
94-334 972-977	0.046			0.55
94-334 977-981	0.070		0.062	3.80
94-334 981-982	0.054		0.055	6.72
94-334 982-984	0.025			4.12
94-334 984-987	0.020			15.42
94-334 987-992	0.010			0.73
94-334 992-997	0.021			0.35
94-334 997-1002	0.007			0.24
94-334 1002-1007	0.004			0.38
94-334 1007-1010.5	0.010			0.39
94-334 1010.5-1014.5	0.004			0.15
94-334 1014.5-1019	0.008			0.15
94-334 1019-1024	0.013			0.84
94-334 1024-1028.5	0.010			1.40
94-334 1028.5-1032	0.007	0.008		1.60
94-334 1032-1037	0.006			0.35

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-334
JOB NUMBER : SP031827
REPORTED : 16 DEC 1994

SAMPLES	Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
94-334 1037-1042	0.003			0.35
94-334 1042-1047	0.004			0.78
94-334 1047-1052	0.006			5.08
94-334 1052-1057	0.006			0.67
94-334 1057-1062	0.002			0.23
94-334 1062-1067	0.009			0.33
94-334 1067-1072	0.004			0.10
94-334 1072-1074.6	0.004			0.13
94-334 1074.6-1077	0.003			0.11
94-334 1077-1082	0.002			0.10
94-334 1082-1087	0.004			0.10

ADD 20' TO ALL INTERVALS

TD 1107

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: 35 [ ] Prepaid [ ] Collect

ANALYSIS REQUIRED

94-334 SAMPLE			TYPE	ELEMENTS REQUIRED
475-487	627-637	757-767	CORE	Au & Ag / AT FA
487-497	637-643	767-777		standard prep.
497-507	643-647	777-787		
507-519	647-657	787-797		* if Au ≥ 1500 ppb
519-527	657-667	797-807		repeat w/ grav. finish
527-537	667-677	807-817.5		
537-547	[redacted]	677-687		
547-557	[redacted]	687-697		
557-567	[redacted]	697-707		
567-577	[redacted]	707-717		
577-587	[redacted]	717-727		
587-597	[redacted]	727-734		
597-607	[redacted]	734-747		
607-617	[redacted]			
617-627	747-757			

COARSE REJECTS (Normally Discarded)

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

PULPS (Normally Stored Free For One Month)

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

RESULTS AND INVOICES TO BE SENT TO:

Please mark invoice person and address [I]

(1) Charlie Muerhoff

(2)

(3)

Comments:

≤ 15 lbs

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: 59 [ ] Prepaid [ ] Collect

ANALYSIS REQUIRED

94-334	SAMPLE			TYPE	ELEMENTS REQUIRED
817.5-822	887-891	952-957	1024-1028.5	CORE	Au & Ag 2 AT FA
822-827	891-897	957-962	1028.5-1032		w/ Hecla-rosebud custom prep.
827-832	897-902	962-967	1032-1037		
832-837	902-907	967-972	1037-1042		
837-842	907-912	972-977	1042-1047		* if Au > .05 opt
842-845.5	912-917	977-981	1047-1052		repeat w/ grav. finish
845.5-847	917-922	981-982	1052-1057		
847-852	922-927	982-984	1057-1062		
852-857	927-930.5	984-987	1062-1067		
857-862	930.5-934	987-1002	1067-1072		
862-867	934-937	1002-1007	1072-1074.6		
867-872	937-942	1007-1010.5	1074.6-1077		
872-878	942-946	1010.5-1014.5	1077-1082		
878-882	946-947	1014.5-1017	1082-1087		
882-887	947-952	1019-1024	EOH!		

COARSE REJECTS (Normally Discarded)

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

PULPS (Normally Stored Free For One Month)

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

RESULTS AND INVOICES TO BE SENT TO:

Please mark invoice person and address [I]

Charlie Muerhoff

Comments:

CLIENT FILE COPY

TCS ALS contact Zone
interpretation as of 1-9-00
by W.S. MacKenzie

Depths corrected for pilot hole error

992-993 Lay gravel/Bxa contact
993- A.L.S.
998.5-1004 Fault 998.5-1000 Int. in hanging wall
Breccia of phillites, quartz, Int.
Footwall Int. 1003-1004
1031.5-1048.5 Ash Fall Tuff See dark zone drift
1048.5 ALS phillites 70° depositional contact