60000732

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. 95-355A
AUTHOR	A. Davidson; K. Allen; S. King; C. Muerhoff
DATE OF DOC(S)	1996
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Hecla Mining Co., Rosebud Project, Far East Zone - Rosebud
COMMODITY If not obvious	gold; silver
NOTES	drill logs; geology; assay; total depth 955'; directional survey; receipts; handwritten notes 28p. 1 oversized sheet

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: DJ 4/30/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

95-355A Far East Zone

6000 0732

4010

6660 0732

Hecla
MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	95-355A	LOCATION	Far East Zone - Rosebud	REMARKS	
PAGE 1 OF 14		NORTHING			
DATE	9 Feb 96	EASTING			
LOGGED BY	Alex B. Davidson	ELEVATION			
SCALE	1" = 10'	AZIMUTH	213°		
TOTAL DEPTH		INCLINATION	-70°		

%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
		0'- 40' No Recovery	0										
			10										
			20										
			30										
		40 to 695.5 Chocolate Fx - Andesitic to Latic, Fine grained Ash Tuff, Monolithic Autobreccia. Good euhedral to subeuhedral xls of hornblend and plagioclase (replaced w/ clay). Matrix and clast supported breccia. Fxs filled w/ FeOx and calcite (rarely prop. clay - Graphitic blebs through 10% to 15% of Interval. Most of interval is slightly argillic w/ small zones that are silicified.	40		40'-70.6' .07 Fx/ft 0-20° to CA. .20 Fx/ft 30-40° to CA. .46 Fx/ft 50-60° to CA. .29 Fx/ft 70-90° to CA							
		40 to 70.6 - Soft to Mod Soft - lapilli to Coarse - Rare blocks - angular to subangular clasts - Bleached light pink and lightgreen colors. argillic - Altered by surface oxing. Strong Limonite staining throughout	50			40 to 60.4 Fx are filled w/ Limonite - disseminated into Rx							

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
			50										
			60			60.4 to 68.2 mod hard to hard - Interval is silicic - Limonite is restricted to Fxs							
		70.6 to 76.2 Mod to Mod hard slightly silicic. Interval has changed from pervs Argillic - potassic/propylitic to pervs Hematite in matrix - clasts are grey in color and have liesegang banding - Interval is a clast supported breccia - coarse to blocky - Subrounded to subangular. Color is demonatly dark red	70		70.6 to 76.2 .12 fx/ft 30-40° to CA .71 fx/ft 50-60° to CA. .18 fx/ft 70-90° to CA								
		76.2 to 86.5 mod to mod hard - slightly silicic. Clasts are propylitidy altered matrix is hematite.	80		76.2 to 86.5 .29 fx/ft 0-20° to CA .29 fx/ft 30-40° to CA .10 fx/ft 50-60° to CA .19 fx/ft 70-90° to CA 86.5 to 89.5 fault zone Fx at 18° to CA.	86.5 to 89.5 pyrite disseminated through rubble							
		89.5 to 102.3 mod to mod soft slightly argillic, blocky to coarse to lapilli size, Subangular to subrounded - Clasts prop. altered, matrix FeOx - Yellowish in color.	90		86.5 to 89.5 .66 fx/ft 0-20° to CA 93.2 Fx filled w/ graphitic clay w/ pyrite. - Fx at 20° to CA. 95.8 Fx filled w/ graphitic clay - has disseminated pyrite - Fx at 20° to CA								
		102.3 to 104.5 Hard - silicic, light green, Fx filled w/ prop. clays. and pyrites Massive Rx.	100										
		104.5 to in size Mod to Mod Hard - Same Rx described at 40 to. Autoclastic Breccia varies from lapilli to Massive, clast shape will vary from rounded to Angular clasts are a bleached grey color - Matrix is pervs hematite. Interval varies from clast supported to matrix supported.	110		104.5 to 106.6 Rubble zn - Fltzn @ ~60° to CA. 94.5 to 104.5 .30 fx/ft 0-20° CA. .20 fx/ft 30-40° CA .10 fx/ft 50-60° CA .10 fx/ft 70-90° CA 106 to 126.2 .20 fx/ft 0-20° CA .35 fx/ft 30-40° CA .35 fx/ft 50-60° CA	116' Fx healed w/ $CaCO_3$ 119 Fx healed w/ $CaCO_3$							
			120										

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
		106.6 to 126.2 - mod hard breccia, slightly silicic, clast supported to massive - Hematite alteration has been restricted to crack & Fractures. Interval is bleach grey - darkened in Fxs. 127 to 132 - mod - clast supported breccia - lapilli to coarse w/few blocks - subrounded to subangular. - Clast are dark grey matrix is dark red. 132 to 192 mod-modhard clast supported coarse to blocky - weak alteration bands - Fxst Joint healed FeOx clays and $CaCO_3$ - Bleach grey Color	120 130 140 150 160 170 180 190		119.2 - Fx at ~40° CA. - Fx healed w/$CaCO_3$ & FeOx Clay 126.2 to 127 Rubble Zn. 126.2 to 132 .17 ft/ft 0-20° CA .34 ft/ft 30-40° CA 132 to 192 .09 ft/ft 0-20° CA .19 ft/ft 30-40° CA .17 ft/ft 50-60° CA .03 ft/ft 70-90° CA. 180.9 Fx healed w/$CaCO_3$ & prop Clay Fx at ~40° to CA. 182.7 Fx healed w/$CaCO_3$ Fx at 20° CA. 184.9 Fx at 40° to CA. Filled w/ $CaCO_3$ and Hematitic clay Fx is slicked	120.8 Fx healed w/$CaCO_3$ 132 to 192 weak leisegang bands							

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
		192 to 197.2 Mod to Mod hard Breccia matrix supported - clasts are rounded to subrounded - lapilli to coarse w/few blocks (<10%).	190										
		197.2 to 202.7 mod - slightly more argillic than above - matrix supported Breccia - clasts are subrounded to subangular coarse in size w/>25% blocks			197.2 Fx filled w/$CaCO_3$ - FeOx Clays at 50° to CA.								
		202.7 to 214 mod hard to hard - more silicic lapilli to coarse-clast supported breccia - subrounded to subangular w/ frequent block (>25%) - <50% clast have flow bands	200										
		214 to 220.5 mod soft to mod - fault gouge? Fxs are 20° to CA.	210		214.7 to 220 Rubble zn - FeOx Clay fault Gouge								
		220.5 to 238.8 Same as 202.7 to 214	220										
					225.8 to 229.1 Rubble zn 226.4 - Fx at 60° to CA. lined w/ $CaCO_3$	Rubble surfaces are slicked - lined w/ $CaCO_3$, FeOx and prop. clay							
			230		230.4 to 237 Rubble zn								
		242 to 243.5 soft - matrix is FeOx clays and prop. clays, clasts are lapilli to coarse subangular to subrounded	240		238.8 to 242 Rubble zn								
		243.5 to 251.1 Same as 202.7 to 214			245 to 246.3 Rubble zn								
		252 to 255.3 Same as 202.7 to 214	250		250.1 to 252 Rubble zn								
		255.3 to 314.1 Mod to Mod hard very slightly argillic - Breccia varries from matrix to clast supported - clasts vary in size from lapilli to coarse w/ frequent blocks	260										

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
			260										
					269 to 332.8 .03 fx/ft 0-20° CA .16 fx/ft 30-40° CA .02 fx/ft 50-60° CA								
			270		269.6 Fx filled w/$CaCO_3$ at 40° to CA. - Offset by post mineralization movement ~.1'								
					273.5 Fx filled w/$CaCO_3$ at ~50° to CA								
					275 Fx filled w/$CaCO_3$ at 20° to CA								
			280		281.8 Fx at 20° CA filled FeOx + Prop clay.								
					282.1 Fx filled w/$CaCO_3$ - Fx at 30° to CA.								
			290		292.2 Fx at 30° to CA. filled w/$CaCO_3$								
			300		301.6 Fx at 30° to CA - filled w/$CaCO_3$								
					306.5 Fx at 30° to CA filled w/$CaCO_3$								
			310		309.4 Fx at 40° to CA filled w/$CaCO_3$								
		314.1 to 317 - mod hard to hard - slightly silicic - same breccia described above 317 to 325.8 mod to soft - becomes softer towards Rubble zone After 329.3 Interval gradually get harder.											
			320										
					325.8 to 329.3 Rubble zn - mostly FeOx fault gouge. Rubble surfaces are slicked								
			330										

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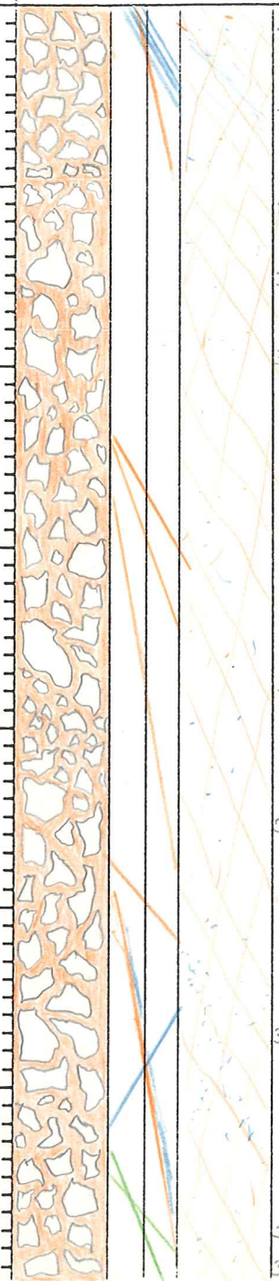
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
		329.3 to 419.9 mod to mod hard breccia - subangular to subround clast lapilli to coarse w/ frequent blocks, Interval is clast supported. <5% of clasts are flow laminated. Rx are light Bleached Grey color.	330		330.1 to 331 - 4 Fxs at 30° to CA filled w/ $CaCO_3$ 332.3 - Fx at 10° to CA.. filled w/ FeOx Clay - slicked 342.1 Fx at 20° Lined w/ FeOx 346.1 Fx at 30° Lined w/ FeOx 349.65 to 351.8 Fx from 0-20° to CA - Healed w/ FeOx clay Small broken clasts in Fx 342 - 419.9 .05 ft/ft 0-20° to CA. .07 ft/ft 30-40° to CA .01 ft/ft 50-60° to CA 368.4 to 369.7 Fx from 10° to 20° to CA. - Healed w/ FeOx Clay Small broken clasts in Fx 379.9 Fx at 40° to CA ~3/4" wide - Healed w/ FeOx Clay - Small broken clasts in Fx 378.1 to 380.7 Large Fx 0-20° to CA. ~1/4" to 3/4" - Healed w/ FeOx - is offset at 379.5 by Fx at 30° to CA.: fill w/ $CaCO_3$ 397.1 - Fx at 40° to CA Lined w/ prop. clays 398 Fx at 20° to CA. Lined w/ prop clay	339 to 354.4 Heavy Liesegang band - Disappears w/ depth						
			340										
			350										
			360										
			370										
			380										
			390										
			400										

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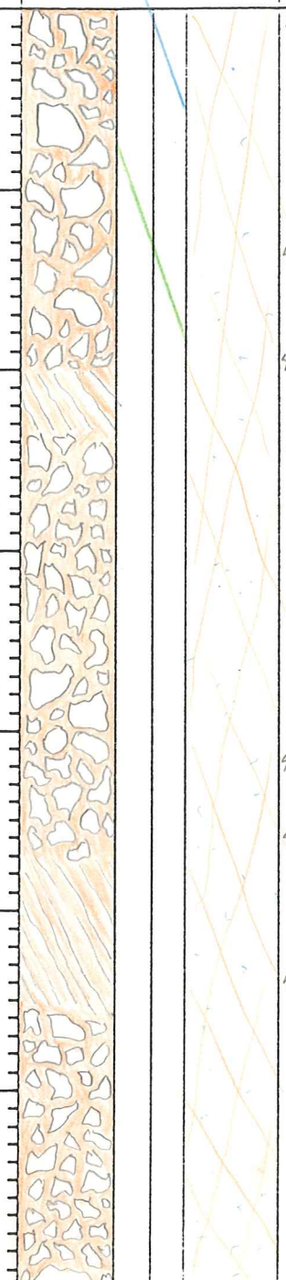
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
			400		399.4 Fx at 20° to CA ~1" to 1½" side lined w/ FeOx and $CaCO_3$								
			410		413.5 Fx at 20° to CA lined w/ prop clay - and slicked.								
		419.9 to 423.5 Flow laminated - 30° to 40° to C.A.	420		419.9 to 423.5 Fxs preferentially following Flow laminations								
		423.5 to 446.6 same breccia described at 329.3 to 419.9			423.5 to 446.6 .08 Fx/ft 70-90° to CA								
			430										
			440		446.6 to 455.4 - Fxs preferentially following Flow laminations								
		446.6 to 455.4 Flow laminated - 20° to 30° to CA.			446.6 to 455.4 .68 Fx/ft 0-20° to CA. .90 Fx/ft 30-40° to CA								
			450										
		455.4 to 50% + of Breccia clast are Flow laminated - coarse to lapilli w/ frequent blocks - subangular to subrounded.			455.4 to 486 .06 0-20° to CA .03 30-40 to C.A.								
			460										
			470										

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
			470										
			480										
			490		491.9 - Fx Line w/$CaCO_3$ - at 30° CA. 495.6 - Fx at 40° to CA - Lined w/ FeOx & $CaCO_3$ - Fx is slicked 498 Fx at 20° to CA - Lined w/ $CaCO_3$								
			500										
			510										
			520		518.6 - Fx at 30° to CA - Lined w/ $CaCO_3$ & prop clay - Fx is slicked								
			530		529.9 to 530.4 Rubble zn w/ fault gouge - at 40° to CA								
			540										

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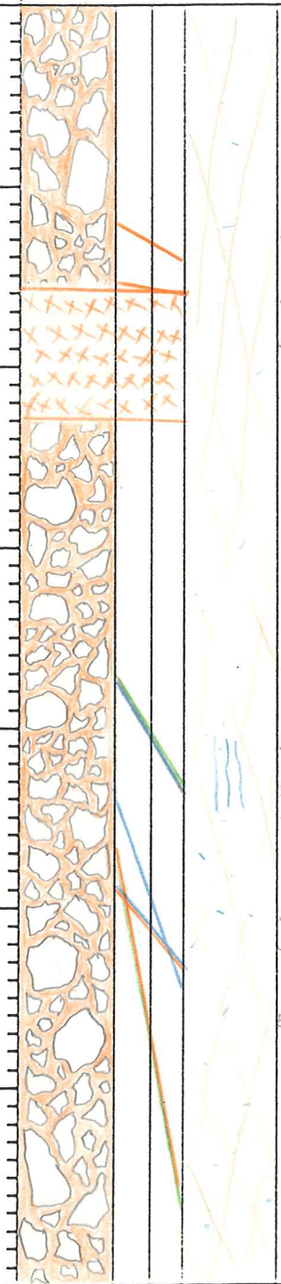
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
			540										
			550		552.8 Fx at 60° to CA is Filled w/ soft FeOx Clay 554.1 Fx at ~80° to CA - Filled w/ FeOx Clay Gouge 555.6 to 562.7 Rubble zn							
			560										
			570										
			580		581.1 Fx at 30° to CA Lined w/ $CaCO_3$ and prop clay 581.5 to 582.7 - stringers of $CaCO_3$ at 0° to CA.							
			590		590.8 - Fx at 20° to CA. Filled w/ $CaCO_3$ 591.2 - Fx at 40° to CA - slicked Lined w/ FeOx & $CaCO_3$							
			600		595.5 Fx at 10° to CA lined w/ FeOx and Prop Clay							
			610										

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
			610										
			620			622 to 623.6 Blebs of $CaCO_3$ clay and Prop clay.							
			630										
			640										
			650										
			660										
			670										
			680										

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
		695.5 to 791 Upper Bud Fm - Andesitic to latic Ash Tuff? Lahar? epiclastic breccia. Interval is soft - ± 40% argillic. Most of Interval has been strongly propylitize, w/ zones of FeOx alteration.	680		695.5 Fault contact - has been ground away by drill! 695.5 to 716.2 - Fxs are slicked	695.5 to 698.7 Small blebs of disseminated pyrite appear sporadically thru interval.							
		695.5 to 698.7 - soft - gouge - Light green to cream color, Coarse to lapilli w/frequent blocks, subround to subangular - clast supported breccia.	690										
		698.7 to 708.5 - soft - strongly argillic Dark red brown - FeOx alteration - Coarse to lapilli w/few blocks - subrounded to subangular matrix supported breccia. Fxs filled $CaCO_3$ clay + prop. clay	700										
		708.5 to 716.2 - Soft - dark brown-red color - subangular to subrounded lapilli to coarse size. Slight foliation to preferred lineation to clasts possible flamme? - has flamme appearance! lineations are @ 40° to 50° to CA - Has proprlitic texture - good euhedral xls of hornblende and plagioclase.	710		712 Fx at 20° slicked 712.8 Fx at 30° slicked 714.9 Fx at 30° slicked (strongly)	716.2 to 716.8 $CaCO_3$ stringers							
		716.2 to 716.8 - Soft to Mod Soft - clasts vary from dark green to rust red color clasts are well rounded to subrounded - coarse to lapilli sized - clast supported											
		716.8 to 725 - mod soft to mod hard - Lt green to dark green color in matrix - same breccia as at 708.5 to 716.2	720										
		725 to 734 - mod soft to mod hard - Lt bleached green - matrix supported subangular to subrounded - lapilli to coarse sized - no blocks			725.4 Fx at 40° slicked								
		734 to 736.9 - soft to mod soft - Dark brown red color in matrix - clast supported Subrounded to subangular - coarse to lapilli w/frequent blocks clasts are heterolithic in nature.	730		734.3 to 735.4 - Rubble zn material soft - surfaces are slicked 736.9 to 741 Fxs following bedding planes at 70° to CA Fxs are slicked	734 to 736.9 - Blebs and stringers of $CaCO_3$							
		736.9 to 741.3 - Soft to mod soft - Dark brown-red color in matrix - clast supported subrounded to subangular - fine to lapilli sized grains - well sorted - planar bedded appearance.	740		740.8 Fx at 70° to CA slicked								
		741.3 to 761 - Matrix is soft - heavily washed out - harder clasts standout w/ positive relief. Lt green and tan in color. Clasts are subrounded to subangular - coarse to lapilli w/frequent Blocks - Matrix supported to clast supported.	750										

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REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		761 to 769.9 - mod soft - Dark green matrix, clasts are bleach lt. green. Clast supported - clasts are angular to subangular has mossaic appearance - Possible fiamme fragments w/in. At 761.7 to 762.2 is a zone of well sorted beds - coarse lapilli uphole grades to fine, lapilli downhole.	750 760		758 Fx at 30° to CA lined w/ $CaCO_3$	758 ! 761 to 769.9 dissemanated pyrite xls dispursed throughout interval - very small <.5mm
		769.9 to 770.5 soft matrix is dark red brown clast are propylitized - clast supported - lapilli w/ frequent coarse sized clast - rare blocks subangular to subrounded	770		769 - Fx at 50° to CA ~1/8" wide filled w $CaCO_3$	770.5 to 772.7 large blebs and Fxs filled w/ Massive Calcite
		770.5 to 772.7 - soft gouge material green to dark green in color matrix supported - mostly lapilli size clasts rare block (1) (heterolithic) - fiamme?? fragments			772.7 Fx at ~90° to CA. ~1/4" to 1/2" Thick - filled w/ massive calcite	
		772.7 to 775.8 - Soft gouge - dark brown in color. 75% + of clast are prop. altered clasts are light to dark green in color. Matrix supported - fine to lapilli w/ few coarse sized clasts. subrounded to subangular	780			
		775.8 to 778.4 - same as 770.5 to 772.7				
		778.4 to 781 - Very soft - 80% clay - dark brown chocolate color - coarse to lapilli size clasts - subangular to subrounded - some clasts are prop. altered				
		781 to 788 - Soft - light green matrix - clast to matrix supported Lapilli to coarse size clast w/ rare blocks - subangular to subrounded w/ fiamme like fragments trending ~ 70° to 80° to CA.	790		788 - Hangwall contact is ground away ~ 788	
		788 to 791 - Very soft - crumbles to touch - 80% + clay gouge likely South Ridge Fault			791 - Footwall fault contact 70° to C.A.	788 - 791 fault gouge has dissemenated Pyrite and fine grained sulfides
		791 to 817.9 - Hard - Highly silicified light green matrix w/ black stringers - likely fine grained sulfides and pyrite stringers. Interval is vuggy - Vugs are filled w/ sericitic/Dickite clays. Ag & salts associated - likely pyrargyrite xls. Towards end of interval some large vugs are filled w/ Massive quartz (Banded) - Clasts are bleached green color - coarse to lapilli sized - subangular to subrounded - Breccia is clast supported.	800 810		791 to 817.9 .9 ft/ft 30° to 40° to CA .37 ft/ft 50° to 60° to CA .18 ft/ft 70° to 90° to CA	791 to 817.9 - Vugs filled w/ sericitic clays has sporadic pyrargyrite xls fxs & stringers filled w/ fine grained sulfides and pyrites - large blebs of disseminated pyrites
		817.9 to 819.3 Hard silicified - light bleached tan colored clasts - matrix is smokey quartz w/ associated - marcasite/pyrite stringers. Clast supported - coarse sized grains - subangular.	820		817.9 Boundry at 10° to C.A.	

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
770.5	772.7					
772.7	775.8					
775.8	778.4					
778.4	781					
781	788					
788	791					
791	796					
796	801					
801	806					
806	811					
811	817.9					
817.9	819.3					

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%REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		819.4 to 829.7 Soft to mod soft - bleached light green color - Clast supported breccia - dominantly coarse sized clasts angular to subangular - clasts are bound close together matrix is dark chloritic clay - clasts have very fine grained - aphanitic texture - slight vitreous luster - 30 to 40% argillic. Bud Marker?	820		819.4-823.3 .76 ft/ft 30° to 40° to CA; 1.28 ft/ft 50° to 60° to CA; .76 ft/ft 70± 90° to CA	
		829.7 to 867.7 mod to mod soft - Ferrugenous in nature - rusty red color is dominant in matrix - Clasts are highly stained w/ rust. Breccia is clast supported - monolithic in nature - clasts are subangular to subrounded - dominantly coarse size w/ frequent blocks. - Interval is porphyritic - large, good euhedral to subeuhedal amphibole xls and to a lesser degree plagioclase (replace w/ $CaCO_3$ and other clays) - Andesitic to latitic-Tuff? - Fm in question - List?? Looks similar to Chocolate Fm.	830		823.3 to 829.7 .31 ft/ft 30 to 40° to CA; .15 ft/ft 50 to 60° to CA	
					829.7 to 867.7 .05 ft/ft 11-20° to CA; .15 ft/ft 21-30° to CA; .13 ft/ft 31-40° to CA; .13 ft/ft 41-50° to CA; .07 ft/ft 51-60 to CA; .07 ft/ft 61-70 to CA; .05 ft/ft 71-80 to CA	829.7 to 932 Blebs of $CaCO_3$ occur sporaticly throughout
			840		837.3 to 839 - Rubble zone - material is very soft fault gouge!	
					840.7 to 847 Rubble zone	
			850			
			860			
		870 to 955 EOH - Dozer Fm. Mod to Mod hard - Also ferrugenous in nature. Strong hematite staining - dark red-rust in color (Rust 62) At ~ 932' Interval become perv. prop. altered and is grey-green in color. Clasts are finely laminated and have an aphanitic texture. This interval is brecciated - perv. clast supported - subangular to subrounded - coarse to blocky.	870		867.7 to 870 Rubble - Fault zone material is very soft gouge-clay. Highly sheared - slicked surfaces	
					873.7 to 879.6 Vein filled w/ massive calcite at 40° to CA.	
			880		861.7 to 955 .10 ft/ft 0-20° to CA; .28 ft/ft 30-40° to CA; .34 ft/ft 50-60° to CA; .02 ft/ft 70-90° to CA (note: - massive block have fxs at 50° to CA)	
			890			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
819.3	824					
824	829.7					
829.7	835					
835	840					
840	847					

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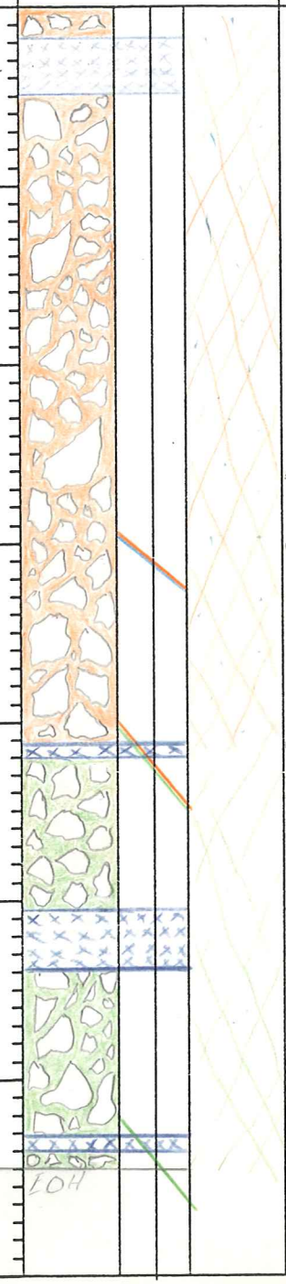
REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
			890		921 fx at 50° to CA - slick - filled w/ $CaCO_3$ and FeOx clay 930.6 to 931.3 Rubble zn 931.3 Fx at 40° to CA - filled w/ FeOx clay and prop clay 940.8 to 944 Rubble zone - Rubble is slicked - surfaces covered w/ white clay 953.3 to 954.6 Rubble zn / Fault zn - Rubble has gouge 954.6 Fx at 40° to CA - slicked - filled w/ prop clay.	932 to 955 Interval is slightly silicified 940.8 to 944 - white clay						
			900										
			910										
			920										
			930										
			940										
			950										
				EOH									
			960										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE 2/12/96 LOGGED BY: Alex B Davidson PAGE 1 OF 10

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)
40	48	71	103	41.2							44	668.1	340	2.00
48	52	63	120	35										
52	62	60	82	22										
62	68	58	90	43										
68	72	73	85	21							72.5	742.5	320	2.32
72	82	65	92	36							79.7	768.8	340	2.26
82	92	35	103	25							88.7	584.5	245	2.38
92	100.5	30	82	14							92.2 94 96.4	984.5 70.6 359.1	400 40 160	2.46 1.77 2.24
100.5	107	26	91	20							103.2 105.8	515.2 261.8	220 120	2.34 2.18
107	112	70	92	67										
112	122	67	101	31							113.8	805.9	325	2.48

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE 2/12/96 LOGGED BY: Alex B Davidson PAGE 2 OF 10

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)
122	132	74	102	65										
132	142	86	93	67										
142	152	92	99	86										
152	162	84	97	74										
162	172	72	101	55							163	855.6	400	2.14
172	175	93	100	93										
175	182	75	99	65										
182	192	56	100	48										
192	202	90	96	80										
202	212	84	100	79							194.9	902.3	380	2.37
212	220.5	43	62	43										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE 2/13/96 LOGGED BY: Alex B Davidson PAGE 3 OF 10

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)
220.5	228	40	106	29										
228	229.5	30	66	0										
229.5	232.5	22	120	0										
232.5	234	0	113	0										
234	237	10	100	0										
237	242	32	76	24										
242	252	47	100	32							244	953.8	420	2.27
252	262	67	100	48										
262	272	91	93	75										
272	282	81	100	66										
282	292	78	97	70										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE 2/13/96 LOGGED BY: Alex B Davidson PAGE 4 OF 10

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)
292	302	88	92	74										
302	312	81	99	70							303.7	765	360	2.13
312	319	68	105	65										
319	328.5	58	96	44										
328.5	339	74	93	62										
339	342	113	123	113										
352	362	79	89	62							352.2	730	340	2.15
362	372	75	104	64										
372	382	88	102	79										
382	392	93	104	91										
392	402	89	100	89										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE 2/15/96 LOGGED BY: Alex B Davidson PAGE 5 OF 10

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)
402	412	90	97	86							402.2	971.05	445	2.18
412	422	88	100	70										
422	432	93	100	81										
432	442	95	105	88										
442	452	81	95	77							451.8	794.1	360	2.20
452	462	85	99	81										
462	472	90	99	86										
472	482	92	99	75										
482	492	97	98	92										
492	502	89	100	78							492.3	687.3	300	2.29
502	512	89	100	83										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE: 2/16/96 LOGGED BY: Alex B Davidson PAGE 6 OF 10

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
512	522	94	100	92										
522	532	59	100	37										
532	542	89	98	84										
542	552	76	99	64							544	1085.3	520	2.08
552	562	28	69	13										
562	572	78	102	66										
572	582	94	103	82										
582	592	81	90	64										
592	602	78	100	75							592.2	543.2	240	2.26
602	612	61	87	61										
612	622	85	101	68										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE: 2/16/96 LOGGED BY: Alex B Davidson PAGE 7 OF 10

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)
622	632	84	105	79										
632	642	90	102	84										
642	652	94	103	91							647.1	738.2	340	2.17
652	662	83	100	75										
662	672	75	102	64										
672	682	90	100	78										
682	692	88	100	78										
692	702	56	104	29							693.8 695.8 699	855 1061.9 769.7	400 460 350	2.14 2.31 2.20
702	712	64	99	33										
712	722	64	99	58										
722	732	42	105	22							625.8	700.5	320	2.19

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE: 2/19/96 LOGGED BY: Alex Davidson PAGE 8 OF 10

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 A/G. 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)
732	741	44	115	29							738.4	491.1	240	2.04
741	751	67	82	41							743.5	457.75	210	2.18
751	761	57	110	35										
761	771	53	102	45							761.5	941.4	440	2.15
771	781	37	104	17							774.6 777.1 779.2	608.5 638.8 1026.45	270 280 460	2.25 2.28 2.23
781	788	61	84	46							782.1	617.1	260	2.37
788	798	40	109	33							791.6	497	200	2.48
798	808	49	104	44										
808	818.5	57	100	48							818	796.7	330	2.41
818.5	827.5	47	84	32							820.3 827.	425.1 789.5	200 370	2.12 2.13
827.5	838	44	72	41							830.2	764.8	400	1.91

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE: 7/23/96 LOGGED BY: Alex B Davidson PAGE 9 OF 10

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)
838	839	0	70	0										
839	847	18	50	10							840.2	802.7	410	1.95
847	851	18	80	0										
851	860	66	94	44							854.5	688.5	330	2.08
860	870	38	104	16										
870	880	58	100	49							Calcite vein 874.3	1285.5	560	2.30
880	890	60	105	47							884.9	572.8	300	1.91
890	895	8	98	0										
895	905	62	100	47										
905	915.5	87	100	72							907.9	680.6	280	2.43
915.5	925.7	71	97	66										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # 95-355A DATE: 2/23/96 LOGGED BY: Alex B Davidson PAGE 10 OF 10

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
925.7	936	63	101	49							933.5	686.2	340	2.02
936	942	59	98	51										
942	947	35	112	26										
947	955	56	96	40							951.6	895.4	360	2.49

DRILLHOLE DIP AND DIRECTION MEASUREMENTS WITH REFLEX FOTOBOR DDI

CUSTOMER: HECLA
CUSTOMER REFERENCE: ROSEBUD
SURVEYOR: KURT ALLEN
DATE: 10-14-95
DRILL HOLE: 95-355A
NO CASING

COLLAR POSITION

X(FT)	Y(FT)	Z(FT)	DIP (DEG.)	DIR. (DEG.)
483731	2204241	5366.11	70	212.99

POSITION AT 830 FT

X(FT)	Y(FT)	Z(FT)	DIP (DEG.)	DIR. (DEG.)
483493.5	2204100	4583.44	70.58	206.89

LOCAL COORDINATES AT 830 FT
Y-LOC= -10.73 FT TO THE LEFT
Z-LOC= -8.07 FT DOWNWARDS

N

RESULTS

STATION (FT)	X(FT)	Y(FT)	Z(FT)	DIP (DEG.)	DIR. (DEG.)
0	483731	2204241	5366.11	70	212.99
20	483725.3	2204238	5347.31	70.18	212.64
40	483719.6	2204234	5328.49	70.26	212.69
60	483713.9	2204230	5309.67	70.16	212.62
80	483708.2	2204227	5290.85	70.26	212.76
100	483702.5	2204223	5272.02	70.32	212.59
* 100	33.95	-.05	-.28		
120	483696.8	2204219	5253.19	70.44	212.49
140	483691.2	2204216	5234.34	70.36	212.67
160	483685.6	2204212	5215.51	70.37	212.88
180	483679.9	2204208	5196.67	70.3	212.79
200	483674.2	2204204	5177.84	70.41	212.7
* 200	67.73	.01	-.74		
220	483668.6	2204201	5158.99	70.47	212.77
240	483663	2204197	5140.14	70.44	212.61
260	483657.4	2204193	5121.29	70.44	212.39
280	483651.7	2204190	5102.44	70.53	212.18
300	483646.1	2204186	5083.58	70.58	211.98
* 300	101.16	-.18	-1.57		
320	483640.4	2204183	5064.72	70.54	212.08
340	483634.8	2204179	5045.86	70.54	211.71
360	483629.2	2204176	5027	70.62	211.28
380	483623.5	2204173	5008.14	70.63	211
400	483617.8	2204169	4989.27	70.65	211.21
* 400	134.39	-.97	-2.6		
420	483612.2	2204166	4970.39	70.67	211.19

440	483606.5	2204162	4951.52	70.72	211.01
460	483600.9	2204159	4932.64	70.74	211.03
480	483595.2	2204155	4913.76	70.74	210.76
500	483589.5	2204152	4894.88	70.67	210.94
* 500	167.46	-1.91	-3.81		
520	483583.8	2204148	4876.01	70.69	210.84
540	483578.2	2204145	4857.13	70.76	210.4
560	483572.5	2204142	4838.24	70.63	209.66
580	483566.7	2204138	4819.37	70.66	208.96
600	483560.9	2204135	4800.5	70.63	208.57
* 600	200.5	-3.56	-5.04		
620	483555.1	2204132	4781.63	70.65	208.2
640	483549.3	2204129	4762.76	70.7	207.7
660	483543.4	2204126	4743.88	70.69	207.69
680	483537.6	2204123	4725	70.77	207.48
700	483531.7	2204120	4706.12	70.75	207.64
* 700	233.38	-6.58	-6.43		
720	483525.9	2204117	4687.23	70.84	207.51
740	483520	2204114	4668.34	70.72	207.6
760	483514.2	2204111	4649.47	70.66	207.52
780	483508.3	2204108	4630.6	70.53	207.19
800	483502.4	2204104	4611.74	70.62	206.88
* 800	266.39	-9.68	-7.68		
830	483493.5	2204100	4583.44	70.58	206.89
* 830	276.28	-10.73	-8.07		

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP037712

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 95-355A

REPORTED : 1 APR 1996

SAMPLES		Au(OZ)	Au(GPT)	Au(GPT)AV	Ag(OZ)	
95-355A 770.5-772.7		0.001			0.02	
95-355A 772.7-775.8		<0.001			<0.02	
95-355A 775.8-778.4		<0.001			<0.02	
95-355A 778.4-781		<0.001			<0.02	
95-355A 781-788		<0.001			<0.02	
95-355A 788-791		<0.001			0.02	
95-355A 791-796	5'	0.053			6.84	
95-355A 796-801	5'	0.018			0.30	
95-355A 801-806	5'	0.085			0.94	22.0 @ 0.09, 1.67
95-355A 806-811	5'	0.163		0.184	0.60	11.9' @ 0.158, 0.39
95-355A 811-817.9	6.9'	0.150		0.144	0.23	
95-355A 817.9-819.3		0.020			0.04	
95-355A 819.3-824		<0.001			<0.02	
95-355A 824-829.7		<0.001			<0.02	
95-355A 829.7-835		<0.001			<0.02	
95-355A 835-840		<0.001			<0.02	
95-355A 840-847		<0.001			<0.02	

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP037712

American Assay Laboratories

P.O. BOX 11530
RENO, NV,,USA
Ph.1-702-356-0606, Fax.1-702-356-1413

HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF
:
:
:

CLIENT REFERENCE No: 95-355A
No. SAMPLES : 17
MAIN SAMPLE TYPE : DRILL CORE

RECEIVED : 26 MAR 1996
REPORTED : 1 APR 1996

NEVADA LEGISLATIVE DISCLAIMER :-
The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him and based on an evaluation of all engineering data which is available concerning any proposed project.

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	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 King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP037712

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 95-355A

REPORTED : 1 APR 1996

SAMPLES		Au(OZ) FA60 OPT	Au(RZ) FA60 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
95-355A 770.5-772.7		0.001			0.02
95-355A 772.7-775.8		<0.001			<0.02
95-355A 775.8-778.4		<0.001			<0.02
95-355A 778.4-781		<0.001			<0.02
95-355A 781-788		<0.001			<0.02
95-355A 788-791		<0.001			0.02
95-355A 791-796	5'	0.053			6.84
95-355A 796-801	5'	0.018			0.30
95-355A 801-806	5'	0.085			0.94
95-355A 806-811	5'	0.163		0.184	0.60
95-355A 811-817.9	6.9'	0.150		0.144	0.23
95-355A 817.9-819.3	1.4'	0.020			0.04
95-355A 819.3-824		<0.001			<0.02
95-355A 824-829.7		<0.001			<0.02
95-355A 829.7-835		<0.001			<0.02
95-355A 835-840		<0.001			<0.02
95-355A 840-847		<0.001			<0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP037712

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HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF

:

:

:

CLIENT REFERENCE No: 95-355A RECEIVED : 26 MAR 1996

No. SAMPLES : 17 REPORTED : 1 APR 1996

MAIN SAMPLE TYPE : DRILL CORE

NEVADA LEGISLATIVE DISCLAIMER :-
The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him and based on an evaluation of all engineering data which is available concerning any proposed project.

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	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 King M.S.

FIELD NOTE SHEET

DRILLHOLE 95-355A

REFLEX–FOTOBOR DDI

LOCATION

BY SM S 33° W DIP -70 DATE 10/14/95

TIME MIN	DEPTH	NOTES	DEPTH	NOTES	TIME MIN	DEPTH	NOTES	DEPTH	NOTES
1	setup				31	440			
2					32	460			
3					33	480			
4					34	500			
5					35	520			
6					36	540			
7	Setup				37	560			
8	BLURRED				38	580			
9	0				39	600			
10	20'				40	620			
11	40'				41	640			
12	60'				42	660'			
13	80'				43	680			
14	100'				44	700			
15	120'				45	720			
16	140'				46	740			
17	160'				47	760			
18	180'				48	780			
19	200'				49	800'			
20	220'				50	Coming out of hole			
21	240				51				
22	260'				52				
23	280'				53				
24	300'				54				
25	320				55				
26	340'				56				
27	360'				57				
28	380				58				
29	400				59	Clear Shot			
30	420				60	Clear Shot			

Film Continues to 95-342

BIT 902'
RODS - 40' 40'
862
SURFACE - 11
851
CORE TUBE - 12
839
SURVEY to - 800'