60000619

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. RS-498
AUTHOR	D. Schoorl; J. P. Rogowski; B. Morris; K. Allen; L. E. Mackedon; V. Reid
DATE OF DOC(S)	2000
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine
COMMODITY If not obvious	gold; silver
NOTES	drill logs; geology; assay; total depth 1955'; invoice; geochemistry 89 p.

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

SS: DP 3/21/08
Initials Date
DB:
Initials Date
SCANNED:
Initials Date

Revised: 1/22/08

RS-498 yr 2000

Gator

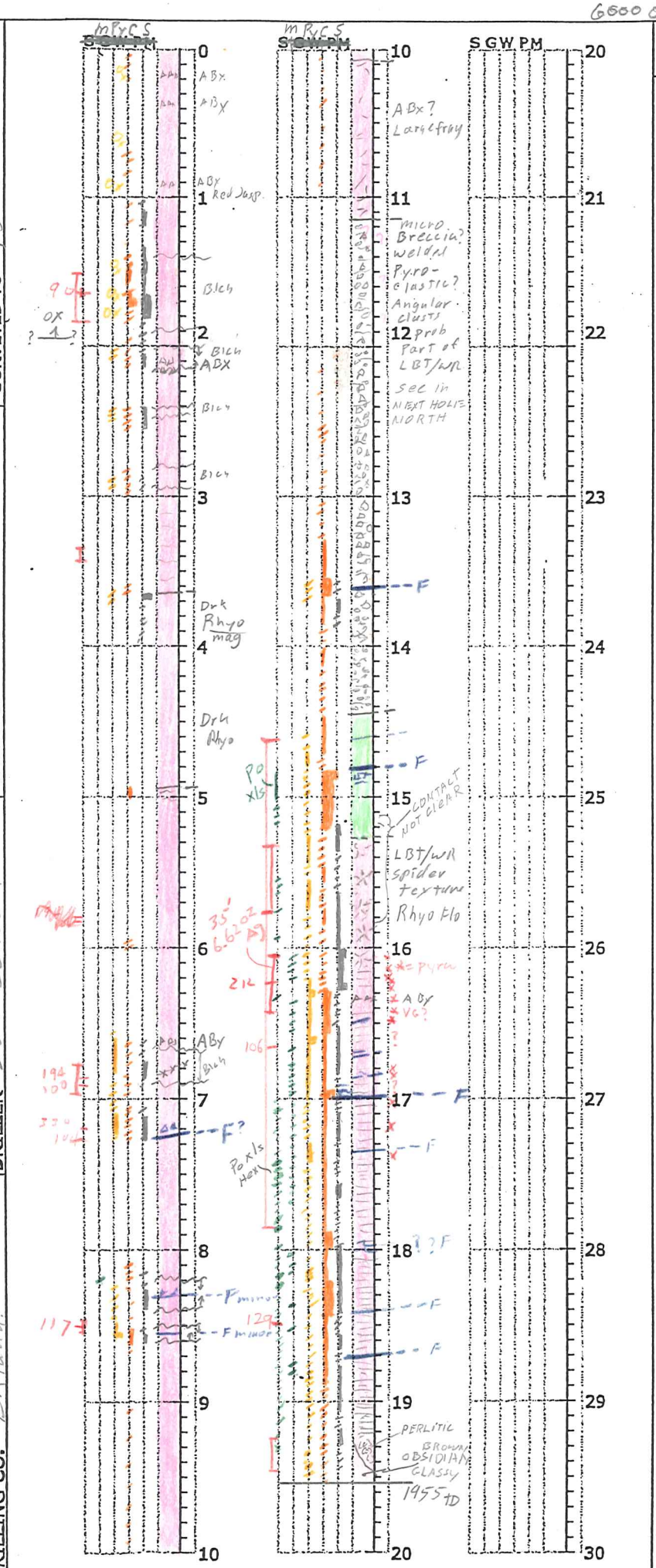
60000619
4010

6600 0619

ROSEBUD MINING COMPANY, LLC.

HOLE #	RS-498
START HOLE	7 Apr 2000
FINISH HOLE	18 Apr 2000
HOLE TYPE	6" RC
LOGGED BY	Ropowski
BEARING	
ANGLE	-90
T.D	1955 TD
SURVEYED TO	Wel-Nav - Vern Reed 1500'
PAGE 1 OF	21
COLLAR COORDINATES	
NORTH	2,217,565
EAST	479,170
ELEV	5820
DRILLER	Don Schoon
DRILLING CO.	Eklund

Drilled to cut GZY Fault @ ± 1450' in center of large LBT/WR Alt zone west of Gator



ALTERATION INTENSITY

1 WEAK — 2 MODERATE — 3 STRONG

VERITHIN COLOR

~~737~~	S SILICIFICATION
~~751~~	GREEN CLAY
~~747½~~	C WHITE CLAY
~~755~~	Py PYRITE
757	M MARCASITE

Po = ■

GRAPHIC LOG

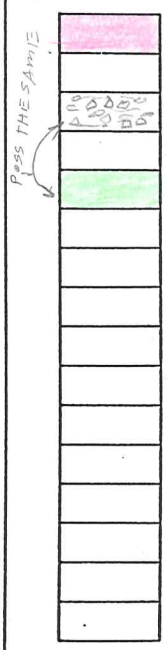
Bleached

ABy Auto Bx

* Pyrargyrite

VERITHIN COLOR

	BRECCIA
741	FAULT 741
	CONTACT
737	QUARTZ VEIN
741½	CALCITE VEIN
747½	CLAY VEIN
755	PYRITE VEIN



Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

INTENSITY
1 = WEAK
2 = MODERATE
3 = STRONG
or % by Vol

HOLE NUMBER RS-498
PAGE 2 OF 21
DATE 7 Apr 2000 to 18 Apr 2000
LOGGED BY Rogowski
TOTAL DEPTH 1955 TD

LOCATION ROSEBUD. NV
NORTHING 2,217,565
EASTING 479,170
ELEVATION 5820
AZIMUTH
INCLINATION -90

AREA Gator
DRILLING CO. Eklund.
RIG TYPE 75E RC
HOLE SIZE 6"
DOWN HOLE SURVEY BY Weldon to 1500'

0 - 100

2/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MASSIVE	QUARTZ	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	AS-SLF %	SULFOSALT %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
0			0-100	H		0					Tr					1											0						1) - Jarosite							
10			LBT/WR-Hem								Tr			weathering		1																	Tr							
			Reddish Brown,								Tr					1																	Tr							
20	ABX	III ABX	Trace of flow bands								Tr					0																								
			varying amts of								0																												
30			yellow Jaro & Red		Flow Band Hem Reddish Brn																																		
		ABX	Jaspea & some																																				
40		RHYOLITE	MnOx on fract																																				
			& in vugs.																																				
50			rare, very small L.2 mm																																				
			bio. phenos.																																				
60		LBT	Almost concoidal fract.																																				
		ABX	← Tr Red Jasper																																				
70						0																																	
			Prob silicified vuloT			1					Tr							Tr - in fract																					
80			w/WT silicification			1					Tr																												
						1					Tr																												
90						0					0																												
		ABX	Tr Red Jasper																																				
			VBX w/ Hem/Silic mutury																																				
100			Tr Red Jasper	H		0					0					0											0													

Strong oxidized

ICCJ

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

INTENSITY
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HOLE NUMBER RS-498
PAGE 3 OF 21
DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD. NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

1 - 200 3/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MASSIVE %	SILICIFICATION QUARTZ %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AS-SLF %	SILBNTE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
100			100-200 LBT/WR	H	Tr Flow Band	1					tr					0											0	— ox Py in fract												
110			Same as 0-100 but some wt & yell-brn silicification			2					tr																	Goet & mnOx in fract.													
						2		silica is calcedony			tr																														
120						2					tr																														
						8					0																														
130						0					0																	— Blk Goet in fract.													
		Tr gouge	??? Silicous veinlets			Tr					0																														
140			100 to 115 & 135 to 185			2					1																														
		RHYOLITE Bleach				2					1																	1 ox Py													
150			@150 soft wt clay on fract. minor mineralization		V. FINE RHYOLITE	2					2							tr										1													
						1					2																	2													
160		LBT/WR				2					1							tr										3													
						1 to 2					2							1										3													
170			Leached & looks granular strong Jarc			3	gouge				3							1										3					J — strong								
			"			3					1							2										2													
180		Bleach	NOTE: Probable min (Py) struct in 170-180 area			3					1																	1													
						2 to 3					1																														
190						1					tr																														
						tr					tr																														
200				H	Red Brn	tr					tr					0											0														

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ROSEBUD PROJECT DRILL LOG

INTENSITY
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or % by Vol

HOLE NUMBER RS-498
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DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

2-300

4/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	CLASTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	AC-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
200			200-300 all LBT/WR, Has 3 areas w/ th mineralization & alt on probable near vent struct.		grayish	Tr					1					0		Tr									Tr in fract.														
210	A BY/TBY					1					1							Tr									Tr														
	A BY BLK					2					1							Tr									Tr														
220						Tr					Tr																0														
					Reddish Brown	0					0																														
230																																									
240			240 to 300 has micro leopard skin text. tan/alters to wt spot alt.		Tan & wt	0					0																0														
BLK	gpy					1	spider text white				1+ wt spot alt.							1																						
250						1					1																Tr														
		LBT/WR Rhyo Flow				1					1																0														
260					Reddish Brn	0					0																														
270																																									
280						0					0																0														
						0					Tr																0														
290	BLK		- Pyrrhotite		Yel-Tan Leached	Tr					1							1									Tr	Pyrite													
			- Pyrrhotite			Tr					1							1									Tr	"													
300						0					Tr					0											0														

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ROSEBUD PROJECT DRILL LOG

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HOLE NUMBER RS-498
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DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA 3-400
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

5/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MASSIVE %	SILICIFICATION QUARTZ %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SUL %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
300		spotted ↑	300-365 Hem/reddish brown LBT/WR w/tr of flow banding	H	Reddish Brown	0					0				0												0														
310																																									
			Poss micro dikelet												0																										
320			Blk w/ phenos (micro												Tr			tr																							
			several fract												0			tr																							
330			have Alunitit															tr																							
		Rhyo	green celadonit																																						
340			on them																																						
350																																									
											0																													
360											tr																													
				H		0					tr				0												0														
370		silicified w/R	S. almost conversion	VH		3					0			?	1			tr									1		Pyrite				green qu fract w/py								
			Drk Dike? similar			0?									0			tr									0														
380			to Dikelet @ 320																														mod magnetic								
		Rhyo	V.F.xln drk gray w/		Rhyolite Drk Green		very hard																																		
390			Num bio + Feld phenos																																						
			<0.2 mm. Prob another																																						
400			variety of LBT/WR Rhyo	VH		0?					0				0												0														

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ROSEBUD PROJECT DRILL LOG

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TOTAL DEPTH

LOCATION ROSEBUD. NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

4 - 500

6/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MAJOR %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SULF %	SILICATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
400		RHYOLITE ?Poss DIKE?	365 to 495	VH	VFXln RHYO Dry gray	0					0					tr											0						MOT OXIDIZED								
410			probable dark gray																																						
			versions of LBT/WR																																						
420			has trace of flow																																						
			bands. concoidal																																						
430			fract & num very																																						
			small <0.1 mm																																						
440			w/ phenos.																																						
450																																									
460																																									
470																																									
480																																									
																tr																									
490																tr																									
				VH							0					1																									
500		Rhyo	Red-Brn Normal LBT/WR. Flow banded	H		0					2					1											0														

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LOCATION ROSEBUD. NV
NORTHING
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INCLINATION

AREA
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

5-600 7/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
500			495 to 600	H	
			LBt/WR - usual red/gray Reddish Brown Rhyo.		
510			w/ yellowish Brn		
520			color along fract		
			& rare white & gray		
530			along flowage lines		
			Flowage lines are		
540			almost non-existent		
			Rare bio. phene		
550			< 0.5 mm		
560			From 590 to 600		
			are some olive		
570			green frags		
580					
590					
600				H	

LBt/WR Rhyo Flow

Fx/m Rhyolite 1-4 cm - Reddish Brn.

FEET	ALTERATION: SILICIFICATION 5%	15%	+25%	MAR%	QZ STS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
500	O					O				O												O														
										O																										
510										O																										
										Tr	outfract																									
520										O																										
										—																										
530										—																										
										—																										
540										—																										
										O																										
550										Tr																										
										—																										
560										—																										
										—																										
570										—																										
										Tr																										
580										—																										
										Tr																										
590						O				—																										
										—																										
						Tr?				—																										
600						Tr?				Tr												O														

Stain Red but not oxidized

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ROSEBUD PROJECT DRILL LOG

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HOLE NUMBER RS-498
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LOCATION ROSEBUD. NV
NORTHING
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ELEVATION
AZIMUTH
INCLINATION

AREA
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

6-700

8/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MAJOR %	QUARTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	SELENITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
600			600-700 LBT/WR	H	mottled Lt & dk Hem Red	0					0					tr											0														
610			maroon or reddish brn & gray Hem brn down to													1	along fract thin calc coats																								
																1																									
620			665 Then Lt gray													1																									
			Argillic alt in part													1																									
630			Casin along narrow													1																									
		PHYO F=10	veinlets or flow													1																									
640			bands.													1																									
																2																									
650																2																									
																1																									
660					PHYO F=10 Hem Red	0					0					1	- fract & rock										0														
		For A BX				tr					tr					1											1														
670		Bley				tr					+	Bleach & along fracts				tr											3														
						0					tr					tr											1														
680		Py SI T=3% FBX Bley	Tan to white silicif cubic Py on fract & diss.			2	in part silica on narrow fract				tr					tr											3	cubic tr-1													
						2					1					0											tr														
690						0					tr					0											tr														
						0					tr					tr											tr														
700				H		0					TV					0											tr														

Hecla MINING COMPANY

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HOLE NUMBER RS-498
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TOTAL DEPTH

LOCATION ROSEBUD. NV
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ELEVATION
AZIMUTH
INCLINATION

AREA
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

7-800 9/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
700		LDTUFF RHYOLITE	700 – 715 micro Bx in the LBT/WR – red to dark Brown matrix spider text (Black)	H	Lt gray – wt & Bry
710					
720			715 – 725 Large frag broken zone of strong wt clay & cubic Py. Prob struct. (Black)		
730					Fxln RHYO. Reddish Brown
740			725 – 800 Dark gray to maroon LBT/WR Rhyolite weakly alt. mottled dark & Lt colors.		
750					
760					
770					
780					
790					
800				H	

FEET	ALTERATION: SILICIFICATION 5%	15%	+25%	MAJOR %	OBJECTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE
700	0					Tr					0							
710	Tr					1												
	1½					1												
720	2+3					1+wt												
	2+3					1/clay					0							
730	0					0					Tr							
											0							
740																		
750																		
											0							
760											0							
											1							
770											0							
											0							
780											Tr							
											1							
790											1							
											1							
800	0					0					1							

FEET	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SLF %	SILBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOCURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
700				Tr														
710				Tr														
				1														
720				2														
				2	cubic													
730				0														
740										Not Oxidized								
750																		
760																		
770																		
780																		
790																		
800				0														

Hecla MINING COMPANY

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HOLE NUMBER RS-498
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LOCATION ROSEBUD, NV
NORTHING
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AZIMUTH
INCLINATION

AREA
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

8-900 10/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MAGR %	QUARTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
800		LBT/WR	800-900 LBT/WR	H		0					0					1											0													
810		LBT	maroon to Reddish			0					0					1											0													
			Ham Brown			0					tr					1											0													
820						tr					tr					1											tr		tr											
			820-840																																				
			Probable narrow			tr					tr					tr											2													
830		Blched	struct. w/zoned	VH		2					1					tr											1													
			clay + silica-Pyo. wall-	H		2					1					tr											2													
840			rock is LBT/WR. Bxed			0					tr					tr											tr													
			845-855 is			0					tr					1											0													
850			similar material			1					2					tr											3													
						2					2					0											5													
860						0					tr					1											0													
											0					2																							
870			800-900													1																							
			Has the same													tr																							
880			appearance as													1																							
			it does at the													1																							
890		LBT/WR	surface													1																							
																1																							
900				H		0					0					1											0													

Note: Alt. from Rock

Rock: 1-X/W Rhyolite Tuff to Lt gray, Lithic Bxed

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3 = STRONG
or % by Vol

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AREA
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

9-1000

11/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
900		LBT/WR Flow	900-1000 LBT/WR has num. bio & very rare sanidine phenos yellowish along fract & joints. This yellowish red along fract could be around clasts of flow Bx. can't see enough to tell for sure (mottled/brecc) calc/sand veinlet	H	LBT/WRH YO Flow M-gray
910					
920					
930					
940					
950					
960					
970					
980					
990					
1000				H	

FEET	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	CLASTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE
900	0					Tr-0					1							
910											1							
											1							
920											1							
											Tr							
930											1							
											1							
940											Tr							
											1							
950											Tr							
											1							
960											1							
											1							
970											Tr							
											1							
980											Tr							
990																		
1000	0					Tr-0					Tr							

FEET	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SLF %	SILBATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
900				0														
1000				0														

Hecla MINING COMPANY

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DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

10-1100 12/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	ARGILLIC 5%	PROPYLITIC CALCITE	MINERALIZATION: PY %
1000–1010			980 - 1010 m-Drk gray mottled Lt + drk Rhyo	H	Dev'td m. gray	0	0 - tr	tr	0
1010–1100		LBT/WR Rhyo Flow	1010 - 1100 LBT/WR, mottled Lt & drk trucr at flow bands. discolored yellowish along fract + Joints. Num bio w/ very rare sanidine all < 0.5 mm. Poss Larg frag flow or Auto Bx	H	F x'ln RHYOLITE Reddish Brn ... Red	0	0 - tr	tr	0

FEET: 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100

ALTERATION: SILICIFICATION (5%, 15%, +25%, MATRIX %, CLASTS %) | ARGILLIC (5%, 15%, +25%, TYPE) | PROPYLITIC % (CHLORITE, CALCITE) | POTASSIC % (K-SPAR, ALUNITE) | OXIDATION (5%, 15%, +25%) | VIENING (%, TYPE)

MINERALIZATION: SULFIDES (5%, 15%, +25%) | PY % | CPY % | MAR % | K-SLF % | STIBNITE % | BARITE %

METALLURGY: OXIDE | SULF | CARBON | MOISTURE

ANALYTICAL DATA: FROM | TO | W | Au | Ag

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RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

11-1200

13/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
1100		Mottled Ryo	1100-1115 LBT/WR Ryo. Flow as above. Poss Lorecclast ABX	H	Fx.lh Flow Drum-tired
1110					
1120		ABX	1115 to 1200+ Breccia w/ traces		
			of welding and		
1130		ABX	Poss. Heat alteral		
		ABY	rims on fragments		
1140		ABY	(could be pyro-		
		ABY	clastic flow or		
1150		ABY	part of an Ignimbrite		
			sequence Natic		
1160		ABX	more clastic see		
			similar rock in DH		
1170			RS-495 between 1300		
			& 1400' depths and		
1180			to the west in wild-		
		ABX	strong BX rose Cyn. also		
1190			wild rose pus spot		
			Generally mono lithic		
1200			but see rare other	H	

Welded Pyro Clastic Nr. Pumice Dull gray to pad Brown

FEET	ALTERATION: SILICIFICATION 5%	15%	+25%	MASSIVE %	QZ-STS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SLF %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1100	0					Tr	0				1											0														
1110											tr																									
											tr																									
1120											tr																									
											Tr																									
1130											1																									
											tr																									
1140											tr																									
											tr																									
1150											tr																									
											Tr																									
1160											1																									
											1																									
1170											1																									
											1																									
1180											1																									
1190											1																									
1200	0					Tr	0				1											0														

(CONT)

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DOWN HOLE SURVEY BY

12-1300 14/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
1200			11 15 to 1100 (cont)	H	Clastic - Breccia across clast variation from dark gray to reddish brown
			rock types		
1210			most biophases		
			appear to be		
1220			broken fragments		
			clast size		
1230			varies from		
			very fine (<0.1mm		
1240			to very large		
			many clasts		
1250			many clasts appear		
			rounded & bias		
1260			have rounded		
			edges. Does not		
1270			look like a sed		
			but suspect Pyro		
1280		?	Flow or Ash flow		
			lithic tuff		
1290					
1300					

FEET	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	CLASTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1200	0					Tr	+0				V											0														
1210											1																									
1220											1																									
1230											Tr																									
1240											1																									
1250																																				
1260							gray																													
						Tr	← clay																													
1270						Tr	"																													
1280						Tr	+0																													
1290											1																									
1300	0					Tr	-0				TV											0														

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DOWN HOLE SURVEY BY

13-1400 15/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MASSIVE	QUARTZ %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SLF %	SILBRITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1300		Pyroclastic	1300 TO 1400		Fx Hyp. Flow																																				
			Pyroclastic or Flow Breccia	H		0					tr					tr										0															
1310			LBT/WR	H												tr																									
			Flow Bx. emplaced	H												1																									
1320			Hot, has reaction	H												tr																									
			rims on clasts	H	Redd. 135 Brown	0					tr					1																									
1330			both clast & matrix	MH		0					1					tr																									
			supported. Does not	S		0					2					1																									
1340		Pyroclastic	look like an epiclastic			0					2					1																									
			all clast are very			0					2																														
1350			angular & 99% mono-			0					2																														
			lithic			0					2																0														
1360			F large gray gouge w/	VS		0					3																tr														
			trace of py	S	gray color	0					3																tr														
1370						0					2b	3															0														
						0					1+	2																													
1380		Pyroclastic			Dk V. & Lt gray	0					1																														
						0					tr																														
1390						tr					tr																														
						0					tr																														
1400				S		0					1+	L				1										0															

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14-1500 16/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	CLASTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	SILICATE %	Po %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1400		RHYOLITIC Pyroclastic	1400 – 1445 clastic-welded or flow Bx maroon color 99% angular clasts (Rhyo) in a matrix of (Fx in) pass clastic or RHyo clasts decrease in size toward 1445 where a green Bud like material occurs		WELDED TUFF MAROON	0					2					1											0														
1410											2					1											1														
1420											2					1																									
											1					2																									
1430																2																									
																1																									
1440																2																									
																1																									
											1					2	large xls										0														
1450	?		1445 to 1480 – Bud-Like pale green soft matrix w/usual assortment of clasts Note: increase alt w/depth		CLASTIC Tan & chlorite						2					1											0														
	?					0					2					2											0														
1460	? F?	Clastic				Tr					2					2											Tr														
	?										2					1											Tr														
1470	?					1																							unusual												
	?					2					2					Tr											1 ←		clusters w/casts												
	?					2					1					1											2														
1480	?					1					1					2											2														
	F		wT to Pale green clay	VS	CLASTIC Tan, wt & Pale green PC	0					+3					1											Tr					1% Po					several Po hex xls				
			Hex Pyrite																																						
1490		Clastic	1480 – 1500 – Bud-Like? well alt	S		0					3					1											Tr					Tr					Tr Po xls				
						0					3					1											1					Tr					Tr Po xls				
1500				S		0					3					1											1					Tr					Tr Po xls				

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DOWN HOLE SURVEY BY

15-1600

17/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	CLASTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION PO SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	SILBNITE %	BARITE %	METALLURGY OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA FROM	TO	W	Au	Ag
1500			1500-1520																																						
			Probable Epiclastic	S	Clastic Varying wt pale green	0					2b3			matrix		1										2					tr					Po	xls	in	wt	clay
1510			similar to BUD	S		0					5																1					tr					tr	Po	xls	in	wt clay
			Very strong alt	S		0					3																tr					tr					"				
1520			Has Po hex xls	S		0					3																1					tr					"				
			1520 - 1600	H		2					1																1	cubic Py													
1530		LBT/WR	LBT/WR - Has	H		2b3		tr			tr																3	"									No tc				
			a granular text	H		2	silica veinlets	clear			1						1										2	Py	c/o								1521	fragmental			
1540		FB	w/ several areas	MH		1	+ clear silica				1						tr										2										Clasts are very				
			approaching spilite			1					1						1										2										rare				
1550			text colors are			1					2						1										1														
			white, pale green &			1					2						tr										1														
1560			tan	MH		tr					2						1										3					tr					Po	xl			
			See isolated	H		2					1				tr		1										2					tr					Po	xls			
1570			Po xls			2					1				tr		tr										3					tr									
						2					1				tr		1										3														
1580						1					2				tr		tr										1					tr					Po	xl			
					Very alt granular text wt pale green and tan	2					2				tr												2														
1590						2					1				tr												1														
						2					1				tr												1					tr					Po	xl			
1600				H		2					1				tr		tr										1														

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AREA 16-1700
DRILLING CO.
RIG TYPE
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DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
1600			1600 to 1700	VH	
1610			LBT/WR		
1620		Pyrite	very strong alt. has minor laths of mar near	VH	
1630			1680 to 1700	H	
1640			traces of a gray min. solo & coating		
1650		?VG?	Py or mar.		
1660		F?	tr wt gouge		
1670		F?	Clay is white. Frags show strong flow banding		
1680		F?	wt clay gouge		
1690		F?	wt clay gouge		
1700		F	wt gouge	H / S	Very alt fx/ln Rhyo flow 90% white 10% tan

ALTERATION

FEET	SILICIFICATION 5%	15%	+25%	MAUVE	QUARTS	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE
1600	3					tr					0							
1610	3+2					tr												
	2b 3					1												
1620	2b 3					1												
	3					tr					0							
1630	1					2+3					Tr							
	1					2					1							
1640	1					2+3					tr							
	1					2b 3					tr ← Large cal xls							
1650	1					2+3					tr							
1660	2					2+3					1							
	1					2					tr							
1670	2					2					tr							
	2					2					1							
	2					2					1							
1680	2					2					1							
	1b2					2					2							
1690	1					2					2							
	1					2					2							
1700	0					+3					1							

MINERALIZATION

FEET	SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	SULFATE %	BARITE %	PO
1600				1						
1610				2		tr				
				1		tr				
1620				1		tr			tr	
				3						
1630				2					tr	← Po in clay
				5					tr	← Pyrite tr
1640				3		tr				
				2		tr			tr	Pyrite w/ ?VG?
1650				2		tr			tr	Pyrite
1660				1		tr				← tr gray min coating Py
				5	PyH					← gray min & Pos Pyrite
1670				4		tr Blades				← gray min
				2						
				3						
1680				2		1			tr	← tr mar w/ Pyr ← Bio Rep by Py? or mar.
				2		1				← gray w/ mar
1690				2		1			tr	Pyrite
				1		1				← gray min and unusual gray xls
1700				2		1				← gray min

METALLURGY

FEET	OXIDE	SULF	CARBON	MOLYBDE
1620				← gray min
				← Gray min
				Bio Rep by Py
1630				← gray coating Py
1650				
1660				
1680				
1690				
1700				

ANALYTICAL DATA

FEET	FROM	TO	W	Au	Ag
1620					
1630					
1640					
1650					
1660					
1670					
1680					
1690					
1700					

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17-1800 19/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
1700		*	1700 to 1800 LBT/WR, strong flow banding (Like planar Laminated Dozen) Po appears to be with clay or calcite	S	Very Silt Flow banded LBT/WR Rhyo Flow
1710					
1720		×			
1730			wt clay		
1740		LBT/WR Rhyo	@1740 Brown SiO2 & Blue green clays		
1750					
1760			@1770 Py Rep Py		
1770			Note: @ 1760 see Po in calcite bubbles in green clay		
1780					
1790					
1800				S	

FEET	ALTERATION: SILICIFICATION 5%	15%	+25%	MAJOR	QUARTZ	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	SILICA %	Po %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1700	1					2					1											1		tr?			tr	×	Pyra	tr	trace					
1710	1					2					tr											tr		tr			1 xb		gray min?							
	2					1					tr											tr		tr			tr										
1720	2					1					tr											tr		tr			× tr	×	Pyra	tr							
	2					2					0											tr		tr			tr										
1730	1					2					1											tr Pyc		tr			tr										
	2					2					1											1-2		tr			tr										
1740	1					2					2											2		tr			TR	×	Pyra							
	1					2					2											1		tr?			/				NOTE: Brown material Press Adm in Qtz					
1750	1					2					2											1		tr			1									
	tr					2					1											tr		tr?			/									
1760	2					2					2											tr		tr			1					"	?			
	2					2					1											tr		tr			tr					"	?			
1770	1					2					2											1					tr					"	?			
	tr					2																1					tr					"	?			
1780	tr					2																1					1	Po in calcite				"	?			
	1					2																tr					1	Po in calcite				"				
1790	1					2 ← tr grn clu stgr																tr														
	1					2+ 3																tr	Pyc													
1800	1					2+ 3					2											TR					TR									

Diffcult to determine silicification & porosity because of green & white clay minerals

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DOWN HOLE SURVEY BY

IB-1900 20/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MAJOR QTZ	QTZ STS	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CALCITE	CALCITE	K-SPAR	ALUNITE	POTASSIC % OXIDATION 5%	15%	+25%	VIENNING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	X-SUL %	SEBENE %	Po BARITE %	METALLURGY: OXIDE	SULF	OPEQUE	MOLYBE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1800		LBT/WR strongly flow banded	1800-1900	mH	LBT/WR Flow banded Rhyo. Very alt. (silica & clay) very pale green & white	2					2					2											Tr		tr?			Tr									
1810			LBT/WR strongly flow banded			2					2					1											Tr	cubic				Tr									
1820			Note: flow bands alternate high silicification & high clay also see cubic & pyro Pyrite w/thin blade micro marcasite & pyrrhotite xls (hex plates) overall sulfide content is low @ 1830 some granular brownish silica (Adu?) & continues to 1900			2					2					2											1		tr?			tr									
1830						2					2					2											1		tr			1			Po w/calcite						
1840						2					2					1											1					1									
1850						2					3					1											tr					tr			Brown silica stars as in micro Bx						
1860						2					2					1											tr		tr			tr									
1870						2					3					tr											tr					tr?									
1880						1					2					tr											tr					T2									
1890						1					2					1											tr?		?			? tr			Note: Poss. pyrite						
1900				mH		1					2					1											tr					tr?									
						1					2					1											"					tr									
						2					2					tr											"					tr									
						2					2					1											1		1			tr			No tc		silvery Py like xls.			
						1					2					1											tr		1			tr									
						1					2					1											tr					tr									
						2	Brown silica				1					1											1	Py?				tr									
						2					2					1											1	Py C H				tr									
						2					1					2											tr					tr									
				mH		2					1					1											Tr					tr									

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

INTENSITY
1 = WEAK
2 = MODERATE
3 = STRONG
or % by Vol

HOLE NUMBER RS-498
PAGE 21 OF 21
DATE
LOGGED BY
TOTAL DEPTH 1955 TD

LOCATION ROSEBUD. NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

21/21

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MAJOR %	OBJECTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	SULFATE %	PO %	METALLURGY: OXIDE	SULF	OXIDE	MIXED	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1900			1900 to 1950 - LBT/WR	H		2					1					tr											tr					tr								
			white to v. very pale green, strong irregular			1					1					1											tr					tr	hex xls							
1910			flow text., ecca perlitic rings after 1920 become		1F low birefl. Pg 0 wt to very pale green																						1					tr	very small specks							
			a slightly darker green			1					1					1											0					tr								
1920			very odd gray min @			1					1					1											tr					tr								
			1945 ~ poss. prep. of			2		Brown to tan silt			1					1											tr					tr	single 1.5 mm Hex Pyrrho							
			Pyrrhotite; increasing			2					1					2											tr					tr								
1930			obsidian after 1930			1					1					2											1	Py C												
			← tr obsidian - brown w/ LBT/WR			1					tr					1											tr	Py C												
1940			20% obsidian w/ LBT/WR			tr					tr					1											1	Py C/D					Gray min as Hex plates ?(Poss. Pyrrh rep by something)?							
			10% obsidian "			tr					tr					tr											tr	Py C												
1950			50% obsidian "			0					0					tr											0													
			95% obsidian "	H	Glass Brown Blk.																																			
			1955 TD																																					
60																																								
70																																								
80																																								
90																																								
00																																								

Note: from 1920 to 1950 are rare perlitic ring fract.
also after 1920 there is much less argillic alt.

Note: Stopped hole because of cost etc. suspect that alteration will continue after drilling through obsidian.

SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 11530
Reno, NV 89510
Telephone
(702) 356-0606
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(520) 294-6352

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

Zacatecas Office
Telephone/Fax
011-52-49-234530

Other Offices
Lima, Peru
Santiago, Chile
Mendoza, Argentina

Company: Rosebud Mining, LLC

Address: PO Box 2610

City Winnemucca State NV Zip 89446

Telephone Number: (775) 623-6912 Fax Number: (775) 623-6967

Project Name: Gator Purchase Order Number:

Date Submitted: 18 Apr 2000 Number of Samples: 391

RESULTS REPORTED IN: ppm [ ] ppb [✓] opt [✓]

SAMPLE IDENTIFICATION	TYPE	ELEMENTS REQUIRED
Drill Hole RS-498	RC	Au & Ag - Use Rosebud Exploration
0-195'		Protocol Sample Prep & Assays
Note: Please make up 20	ft	composite of the pulps for
ICP + Se Trace		elements.
1 (one) Pulp - Rosebud		
Production Standard		
@ End of Run		

COARSE REJECTS (Normally Discarded After 60 Days)

[ ] Return COD after analysis complete

PULPS (Normally Stored Free For One Month)

[ ] Discard after one month

[✓] Return COD after one month

RESULTS AND INVOICES TO BE SENT TO:

Invoice to:

Kurt Allen
PO Box 2610
Winnemucca, NV 89446

Results to:

Kurt Allen
- Same -

Comments:

CLIENT FILE COPY

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

PO BOX 11530
RENO NV,USA
Ph.(775) 356-0606, Fax.(775) 356-1413

HECLA MINING COMPANY

COPIES TO : BRIAN MORRIS

: KURT ALLEN

:

:

CLIENT REFERENCE No: RS-498 RECEIVED : 26 APR 2000

No. SAMPLES : 392 REPORTED : 5 MAY 2000

MAIN SAMPLE TYPE : DRILL CUTTINGS

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	FA30	15%	ppb	5
Au(R)	FA30	15%	ppb	5
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
Ag	D210	10%	ppm	0.5
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Leonard E. Mackedon B.S.

05/05/2000 10:43 7753561413 AMERICAN ASSAY LABS PAGE 01
7753561413

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-498

REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 0000-0005	<5		<0.001		<0.5	<0.02
RS-498 0005-0010	<5		<0.001		0.7	0.02
RS-498 0010-0015	<5		<0.001		<0.5	<0.02
RS-498 0015-0020	<5		<0.001		<0.5	<0.02
RS-498 0020-0025	<5		<0.001		<0.5	<0.02
RS-498 0025-0030	<5		<0.001		<0.5	<0.02
RS-498 0030-0035	<5		<0.001		<0.5	<0.02
RS-498 0035-0040	<5		<0.001		<0.5	<0.02
RS-498 0040-0045	<5		<0.001		<0.5	<0.02
RS-498 0045-0050	<5		<0.001		<0.5	<0.02
RS-498 0050-0055	<5		<0.001		<0.5	<0.02
RS-498 0055-0060	<5		<0.001		<0.5	<0.02
RS-498 0060-0065	5		<0.001		<0.5	<0.02
RS-498 0065-0070	<5		<0.001		<0.5	<0.02
RS-498 0070-0075	<5		<0.001		<0.5	<0.02
RS-498 0075-0080	<5		<0.001		<0.5	<0.02
RS-498 0080-0085	<5		<0.001		<0.5	<0.02
RS-498 0085-0090	6		<0.001		<0.5	<0.02
RS-498 0090-0095	<5		<0.001		<0.5	<0.02
RS-498 0095-0100	<5		<0.001		<0.5	<0.02
RS-498 0100-0105	<5		<0.001		<0.5	<0.02
RS-498 0105-0110	<5		<0.001		<0.5	<0.02
RS-498 0110-0115	<5		<0.001		<0.5	<0.02
RS-498 0115-0120	<5		<0.001		<0.5	<0.02
RS-498 0120-0125	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

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REFERENCE : RS-498

REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 0125-0130	<5		<0.001		<0.5	<0.02
RS-498 0130-0135	<5		<0.001		<0.5	<0.02
RS-498 0135-0140	12		<0.001		<0.5	<0.02
RS-498 0140-0145	<5		<0.001		<0.5	<0.02
RS-498 0145-0150	<5		<0.001		<0.5	<0.02
RS-498 0150-0155	24		<0.001		<0.5	<0.02
RS-498 0155-0160	45		0.001		<0.5	<0.02
RS-498 0160-0165	28		<0.001		<0.5	<0.02
RS-498 0165-0170	90		0.003		<0.5	<0.02
RS-498 0170-0175	92		0.003		<0.5	<0.02
RS-498 0175-0180	20		<0.001		<0.5	<0.02
RS-498 0180-0185	<5		<0.001		<0.5	<0.02
RS-498 0185-0190	5		<0.001		<0.5	<0.02
RS-498 0190-0195	<5		<0.001		<0.5	<0.02
RS-498 0195-0200	<5		<0.001		<0.5	<0.02
RS-498 0200-0205	<5		<0.001		<0.5	<0.02
RS-498 0205-0210	187		0.005		1.8	0.05
RS-498 0210-0215	<5		<0.001		<0.5	<0.02
RS-498 0215-0220	<5		<0.001		<0.5	<0.02
RS-498 0220-0225	<5		<0.001		<0.5	<0.02
RS-498 0225-0230	<5		<0.001		<0.5	<0.02
RS-498 0230-0235	<5		<0.001		<0.5	<0.02
RS-498 0235-0240	<5		<0.001		<0.5	<0.02
RS-498 0240-0245	<5		<0.001		<0.5	<0.02
RS-498 0245-0250	<5		<0.001		<0.5	<0.02

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SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 0250-0255	<5		<0.001		<0.5	<0.02
RS-498 0255-0260	<5		<0.001		<0.5	<0.02
RS-498 0260-0265	<5		<0.001		<0.5	<0.02
RS-498 0265-0270	<5		<0.001		<0.5	<0.02
RS-498 0270-0275	<5		<0.001		<0.5	<0.02
RS-498 0275-0280	<5		<0.001		<0.5	<0.02
RS-498 0280-0285	<5		<0.001		<0.5	<0.02
RS-498 0285-0290	8		<0.001		<0.5	<0.02
RS-498 0290-0295	<5		<0.001		<0.5	<0.02
RS-498 0295-0300	<5		<0.001		<0.5	<0.02
RS-498 0300-0305	<5		<0.001		<0.5	<0.02
RS-498 0305-0310	<5		<0.001		<0.5	<0.02
RS-498 0310-0315	<5		<0.001		<0.5	<0.02
RS-498 0315-0320	<5		<0.001		<0.5	<0.02
RS-498 0320-0325	<5		<0.001		<0.5	<0.02
RS-498 0325-0330	<5		<0.001		<0.5	<0.02
RS-498 0330-0335	<5		<0.001		<0.5	<0.02
RS-498 0335-0340	80		0.002		<0.5	<0.02
RS-498 0340-0345	23		<0.001		<0.5	<0.02
RS-498 0345-0350	40		0.001		<0.5	<0.02
RS-498 0350-0355	<5		<0.001		<0.5	<0.02
RS-498 0355-0360	<5		<0.001		<0.5	<0.02
RS-498 0360-0365	8		<0.001		<0.5	<0.02
RS-498 0365-0370	<5		<0.001		<0.5	<0.02
RS-498 0370-0375	<5		<0.001		<0.5	<0.02

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SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 0375-0380	<5		<0.001		<0.5	<0.02
RS-498 0380-0385	<5		<0.001		<0.5	<0.02
RS-498 0385-0390	<5		<0.001		<0.5	<0.02
RS-498 0390-0395	<5		<0.001		<0.5	<0.02
RS-498 0395-0400	<5		<0.001		<0.5	<0.02
RS-498 0400-0405	<5		<0.001		<0.5	<0.02
RS-498 0405-0410	<5		<0.001		<0.5	<0.02
RS-498 0410-0415	<5		<0.001		<0.5	<0.02
RS-498 0415-0420	<5		<0.001		<0.5	<0.02
RS-498 0420-0425	<5		<0.001		<0.5	<0.02
RS-498 0425-0430	<5		<0.001		<0.5	<0.02
RS-498 0430-0435	<5		<0.001		<0.5	<0.02
RS-498 0435-0440	<5		<0.001		<0.5	<0.02
RS-498 0440-0445	<5		<0.001		<0.5	<0.02
RS-498 0445-0450	<5		<0.001		<0.5	<0.02
RS-498 0450-0455	<5		<0.001		<0.5	<0.02
RS-498 0455-0460	<5		<0.001		<0.5	<0.02
RS-498 0460-0465	<5		<0.001		<0.5	<0.02
RS-498 0465-0470	<5		<0.001		<0.5	<0.02
RS-498 0470-0475	<5		<0.001		<0.5	<0.02
RS-498 0475-0480	<5		<0.001		<0.5	<0.02
RS-498 0480-0485	<5		<0.001		<0.5	<0.02
RS-498 0485-0490	<5		<0.001		<0.5	<0.02
RS-498 0490-0495	<5		<0.001		<0.5	<0.02
RS-498 0495-0500	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

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REFERENCE : RS-498

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SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 0500-0505	<5		<0.001		<0.5	<0.02
RS-498 0505-0510	<5		<0.001		<0.5	<0.02
RS-498 0510-0515	<5		<0.001		<0.5	<0.02
RS-498 0515-0520	<5		<0.001		<0.5	<0.02
RS-498 0520-0525	<5		<0.001		<0.5	<0.02
RS-498 0525-0530	<5		<0.001		<0.5	<0.02
RS-498 0530-0535	<5		<0.001		<0.5	<0.02
RS-498 0535-0540	<5		<0.001		<0.5	<0.02
RS-498 0540-0545	<5		<0.001		<0.5	<0.02
RS-498 0545-0550	<5		<0.001		<0.5	<0.02
RS-498 0550-0555	<5		<0.001		<0.5	<0.02
RS-498 0555-0560	<5		<0.001		<0.5	<0.02
RS-498 0560-0565	<5		<0.001		<0.5	<0.02
RS-498 0565-0570	<5		<0.001		<0.5	<0.02
RS-498 0570-0575	<5		<0.001		<0.5	<0.02
RS-498 0575-0580	<5		<0.001		<0.5	<0.02
RS-498 0580-0585	<5		<0.001		<0.5	<0.02
RS-498 0585-0590	<5		<0.001		<0.5	<0.02
RS-498 0590-0595	<5		<0.001		<0.5	<0.02
RS-498 0595-0600	<5		<0.001		<0.5	<0.02
RS-498 0600-0605	<5		<0.001		<0.5	<0.02
RS-498 0605-0610	<5		<0.001		<0.5	<0.02
RS-498 0610-0615	<5		<0.001		<0.5	<0.02
RS-498 0615-0620	<5		<0.001		<0.5	<0.02
RS-498 0620-0625	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

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REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 0625-0630	<5		<0.001		<0.5	<0.02
RS-498 0630-0635	<5		<0.001		<0.5	<0.02
RS-498 0635-0640	<5		<0.001		<0.5	<0.02
RS-498 0640-0645	<5		<0.001		<0.5	<0.02
RS-498 0645-0650	<5		<0.001		<0.5	<0.02
RS-498 0650-0655	<5		<0.001		<0.5	<0.02
RS-498 0655-0660	9		<0.001		<0.5	<0.02
RS-498 0660-0665	<5		<0.001		<0.5	<0.02
RS-498 0665-0670	<5		<0.001		<0.5	<0.02
RS-498 0670-0675	<5		<0.001		<0.5	<0.02
RS-498 0675-0680	194		0.006		<0.5	<0.02
RS-498 0680-0685	100		0.003		<0.5	<0.02
RS-498 0685-0690	46		0.001		<0.5	<0.02
RS-498 0690-0695	16		<0.001		<0.5	<0.02
RS-498 0695-0700	<5		<0.001		<0.5	<0.02
RS-498 0700-0705	<5		<0.001		<0.5	<0.02
RS-498 0705-0710	<5		<0.001		<0.5	<0.02
RS-498 0710-0715	54		0.002		<0.5	<0.02
RS-498 0715-0720	330		0.010		<0.5	<0.02
RS-498 0720-0725	104		0.003		<0.5	<0.02
RS-498 0725-0730	20		<0.001		<0.5	<0.02
RS-498 0730-0735	7		<0.001		<0.5	<0.02
RS-498 0735-0740	5		<0.001		<0.5	<0.02
RS-498 0740-0745	6		<0.001		<0.5	<0.02
RS-498 0745-0750	7		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

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REFERENCE : RS-498

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SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 0750-0755	<5		<0.001		<0.5	<0.02
RS-498 0755-0760	<5		<0.001		<0.5	<0.02
RS-498 0760-0765	<5		<0.001		<0.5	<0.02
RS-498 0765-0770	10		<0.001		<0.5	<0.02
RS-498 0770-0775	<5		<0.001		<0.5	<0.02
RS-498 0775-0780	<5		<0.001		<0.5	<0.02
RS-498 0780-0785	<5		<0.001		<0.5	<0.02
RS-498 0785-0790	<5		<0.001		<0.5	<0.02
RS-498 0790-0795	<5		<0.001		<0.5	<0.02
RS-498 0795-0800	<5		<0.001		<0.5	<0.02
RS-498 0800-0805	<5		<0.001		<0.5	<0.02
RS-498 0805-0810	<5		<0.001		<0.5	<0.02
RS-498 0810-0815	<5		<0.001		<0.5	<0.02
RS-498 0815-0820	<5		<0.001		<0.5	<0.02
RS-498 0820-0825	22		<0.001		<0.5	<0.02
RS-498 0825-0830	36		0.001		<0.5	<0.02
RS-498 0830-0835	13		<0.001		<0.5	<0.02
RS-498 0835-0840	<5		<0.001		<0.5	<0.02
RS-498 0840-0845	<5		<0.001		<0.5	<0.02
RS-498 0845-0850	117		0.003		<0.5	<0.02
RS-498 0850-0855	72		0.002		<0.5	<0.02
RS-498 0855-0860	<5		<0.001		<0.5	<0.02
RS-498 0860-0865	<5		<0.001		<0.5	<0.02
RS-498 0865-0870	<5		<0.001		<0.5	<0.02
RS-498 0870-0875	8		<0.001		<0.5	<0.02

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AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-498

REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 0875-0880	7		<0.001		<0.5	<0.02
RS-498 0880-0885	<5		<0.001		<0.5	<0.02
RS-498 0885-0890	<5		<0.001		<0.5	<0.02
RS-498 0890-0895	<5		<0.001		<0.5	<0.02
RS-498 0895-0900	<5		<0.001		<0.5	<0.02
RS-498 0900-0905	<5		<0.001		<0.5	<0.02
RS-498 0905-0910	<5		<0.001		<0.5	<0.02
RS-498 0910-0915	<5		<0.001		<0.5	<0.02
RS-498 0915-0920	<5		<0.001		<0.5	<0.02
RS-498 0920-0925	<5		<0.001		<0.5	<0.02
RS-498 0925-0930	<5		<0.001		<0.5	<0.02
RS-498 0930-0935	<5		<0.001		<0.5	<0.02
RS-498 0935-0940	<5		<0.001		<0.5	<0.02
RS-498 0940-0945	<5		<0.001		<0.5	<0.02
RS-498 0945-0950	<5		<0.001		<0.5	<0.02
RS-498 0950-0955	<5		<0.001		<0.5	<0.02
RS-498 0955-0960	8		<0.001		<0.5	<0.02
RS-498 0960-0965	<5		<0.001		<0.5	<0.02
RS-498 0965-0970	<5		<0.001		<0.5	<0.02
RS-498 0970-0975	<5		<0.001		<0.5	<0.02
RS-498 0975-0980	<5		<0.001		<0.5	<0.02
RS-498 0980-0985	<5		<0.001		<0.5	<0.02
RS-498 0985-0990	<5		<0.001		<0.5	<0.02
RS-498 0990-0995	<5		<0.001		<0.5	<0.02
RS-498 0995-1000	<5		<0.001		<0.5	<0.02

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AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-498

REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 1000-1005	<5		<0.001		<0.5	<0.02
RS-498 1005-1010	<5		<0.001		<0.5	<0.02
RS-498 1010-1015	<5		<0.001		<0.5	<0.02
RS-498 1015-1020	<5		<0.001		<0.5	<0.02
RS-498 1020-1025	<5		<0.001		<0.5	<0.02
RS-498 1025-1030	<5		<0.001		<0.5	<0.02
RS-498 1030-1035	<5		<0.001		<0.5	<0.02
RS-498 1035-1040	<5		<0.001		<0.5	<0.02
RS-498 1040-1045	<5		<0.001		<0.5	<0.02
RS-498 1045-1050	<5		<0.001		<0.5	<0.02
RS-498 1050-1055	<5		<0.001		<0.5	<0.02
RS-498 1055-1060	<5		<0.001		<0.5	<0.02
RS-498 1060-1065	<5		<0.001		<0.5	<0.02
RS-498 1065-1070	<5		<0.001		<0.5	<0.02
RS-498 1070-1075	<5		<0.001		<0.5	<0.02
RS-498 1075-1080	7		<0.001		<0.5	<0.02
RS-498 1080-1085	5		<0.001		<0.5	<0.02
RS-498 1085-1090	<5		<0.001		<0.5	<0.02
RS-498 1090-1095	<5		<0.001		<0.5	<0.02
RS-498 1095-1100	<5		<0.001		<0.5	<0.02
RS-498 1100-1105	<5		<0.001		<0.5	<0.02
RS-498 1105-1110	<5		<0.001		<0.5	<0.02
RS-498 1110-1115	<5		<0.001		<0.5	<0.02
RS-498 1115-1120	<5		<0.001		<0.5	<0.02
RS-498 1120-1125	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

CLIENT : HECLA MINING COMPANY
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REFERENCE : RS-498

REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 1125-1130	<5		<0.001		<0.5	<0.02
RS-498 1130-1135	<5		<0.001		<0.5	<0.02
RS-498 1135-1140	<5		<0.001		<0.5	<0.02
RS-498 1140-1145	<5		<0.001		<0.5	<0.02
RS-498 1145-1150	<5		<0.001		<0.5	<0.02
RS-498 1150-1155	<5		<0.001		<0.5	<0.02
RS-498 1155-1160	<5		<0.001		<0.5	<0.02
RS-498 1160-1165	<5		<0.001		<0.5	<0.02
RS-498 1165-1170	<5		<0.001		<0.5	<0.02
RS-498 1170-1175	<5		<0.001		<0.5	<0.02
RS-498 1175-1180	<5		<0.001		<0.5	<0.02
RS-498 1180-1185	<5		<0.001		<0.5	<0.02
RS-498 1185-1190	<5		<0.001		<0.5	<0.02
RS-498 1190-1195	<5		<0.001		<0.5	<0.02
RS-498 1195-1200	<5		<0.001		<0.5	<0.02
RS-498 1200-1205	<5		<0.001		<0.5	<0.02
RS-498 1205-1210	<5		<0.001		<0.5	<0.02
RS-498 1210-1215	<5		<0.001		<0.5	<0.02
RS-498 1215-1220	<5		<0.001		<0.5	<0.02
RS-498 1220-1225	<5		<0.001		<0.5	<0.02
RS-498 1225-1230	<5		<0.001		<0.5	<0.02
RS-498 1230-1235	<5		<0.001		<0.5	<0.02
RS-498 1235-1240	<5		<0.001		<0.5	<0.02
RS-498 1240-1245	<5		<0.001		<0.5	<0.02
RS-498 1245-1250	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-498

REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 1250-1255	<5		<0.001		<0.5	<0.02
RS-498 1255-1260	<5		<0.001		<0.5	<0.02
RS-498 1260-1265	<5		<0.001		<0.5	<0.02
RS-498 1265-1270	<5		<0.001		<0.5	<0.02
RS-498 1270-1275	<5		<0.001		<0.5	<0.02
RS-498 1275-1280	<5		<0.001		<0.5	<0.02
RS-498 1280-1285	<5		<0.001		<0.5	<0.02
RS-498 1285-1290	<5		<0.001		<0.5	<0.02
RS-498 1290-1295	<5		<0.001		<0.5	<0.02
RS-498 1295-1300	<5		<0.001		<0.5	<0.02
RS-498 1300-1305	<5		<0.001		<0.5	<0.02
RS-498 1305-1310	15		<0.001		<0.5	<0.02
RS-498 1310-1315	<5		<0.001		<0.5	<0.02
RS-498 1315-1320	20		<0.001		<0.5	<0.02
RS-498 1320-1325	<5		<0.001		<0.5	<0.02
RS-498 1325-1330	<5		<0.001		<0.5	<0.02
RS-498 1330-1335	<5		<0.001		<0.5	<0.02
RS-498 1335-1340	<5		<0.001		<0.5	<0.02
RS-498 1340-1345	<5		<0.001		<0.5	<0.02
RS-498 1345-1350	<5		<0.001		<0.5	<0.02
RS-498 1350-1355	7		<0.001		<0.5	<0.02
RS-498 1355-1360	12		<0.001		<0.5	<0.02
RS-498 1360-1365	24		<0.001		<0.5	<0.02
RS-498 1365-1370	8		<0.001		<0.5	<0.02
RS-498 1370-1375	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-498

REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 1375-1380	<5		<0.001		<0.5	<0.02
RS-498 1380-1385	<5		<0.001		<0.5	<0.02
RS-498 1385-1390	<5		<0.001		<0.5	<0.02
RS-498 1390-1395	<5		<0.001		1.2	0.04
RS-498 1395-1400	<5		<0.001		<0.5	<0.02
RS-498 1400-1405	<5		<0.001		<0.5	<0.02
RS-498 1405-1410	<5		<0.001		<0.5	<0.02
RS-498 1410-1415	<5		<0.001		<0.5	<0.02
RS-498 1415-1420	<5		<0.001		<0.5	<0.02
RS-498 1420-1425	<5		<0.001		<0.5	<0.02
RS-498 1425-1430	<5		<0.001		<0.5	<0.02
RS-498 1430-1435	<5		<0.001		<0.5	<0.02
RS-498 1435-1440	<5		<0.001		<0.5	<0.02
RS-498 1440-1445	<5		<0.001		<0.5	<0.02
RS-498 1445-1450	<5		<0.001		<0.5	<0.02
RS-498 1450-1455	<5		<0.001		<0.5	<0.02
RS-498 1455-1460	<5		<0.001		<0.5	<0.02
RS-498 1460-1465	12		<0.001		1.3	0.04
RS-498 1465-1470	27		<0.001		2.4	0.07
RS-498 1470-1475	27		<0.001		1.5	0.04
RS-498 1475-1480	92		0.003		3.6	0.11
RS-498 1480-1485	16		<0.001		1.2	0.04
RS-498 1485-1490	11		<0.001		0.9	0.03
RS-498 1490-1495	22		<0.001		1.3	0.04
RS-498 1495-1500	23		<0.001		1.7	0.05

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

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REFERENCE : RS-498

REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 1500-1505	30		<0.001		3.4	0.10
RS-498 1505-1510	59		0.002		2.6	0.08
RS-498 1510-1515	30		<0.001		1.7	0.05
RS-498 1515-1520	87		0.003		1.8	0.05
RS-498 1520-1525	28		<0.001		1.8	0.05
RS-498 1525-1530	38		0.001		1.6	0.05
RS-498 1530-1535	80		0.002		2.6	0.08
RS-498 1535-1540	135		0.004		3.0	0.09
RS-498 1540-1545	63		0.002		2.6	0.08
RS-498 1545-1550	291		0.008		3.2	0.09
RS-498 1550-1555	117		0.003		2.6	0.08
RS-498 1555-1560	191		0.006		3.2	0.09
RS-498 1560-1565	238		0.007		13.7	0.40
RS-498 1565-1570	113		0.003		4.3	0.13
RS-498 1570-1575	85		0.002		3.8	0.11
RS-498 1575-1580	44		0.001		1.8	0.05
RS-498 1580-1585	31		<0.001		1.6	0.05
RS-498 1585-1590	30		<0.001		1.6	0.05
RS-498 1590-1595	46		0.001		1.5	0.04
RS-498 1595-1600	37		0.001		1.6	0.05
RS-498 1600-1605	24		<0.001		1.3	0.04
RS-498 1605-1610	59		0.002	1605-1640	125.6	3.66
RS-498 1610-1615	29		<0.001	=35' of	22.1	0.64
RS-498 1615-1620	212		0.006	0.002 Au	1111.0	32.41
RS-498 1620-1625	82		0.002	6.63 Ag	204.0	5.95

1530 pm
1575
45'
91
35'
227 ppm Ag
6.62 oz
1605-1640
35' @ 75 ppb
71

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

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REFERENCE : RS-498

REPORTED : 5 MAY 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 1625-1630	68		0.002	227 / 7.15	71.1	2.07
RS-498 1630-1635	22		<0.001		18.5	0.54
RS-498 1635-1640	53		0.002		39.9	1.16
RS-498 1640-1645	59		0.002		14.7	0.43
RS-498 1645-1650	31		<0.001		9.6	0.28
RS-498 1650-1655	20		<0.001		24.5	0.71
RS-498 1655-1660	28		<0.001		6.7	0.20
RS-498 1660-1665	106		0.003		3.5	0.10
RS-498 1665-1670	28		<0.001		2.2	0.06
RS-498 1670-1675	24		<0.001		2.8	0.08
RS-498 1675-1680	24		<0.001		3.6	0.11
RS-498 1680-1685	18		<0.001		2.6	0.08
RS-498 1685-1690	26		<0.001		1.5	0.04
RS-498 1690-1695	24		<0.001		1.1	0.03
RS-498 1695-1700	35		0.001		0.8	0.02
RS-498 1700-1705	28		<0.001		1.5	0.04
RS-498 1705-1710	83		0.002		2.9	0.08
RS-498 1710-1715	26		<0.001		0.8	0.02
RS-498 1715-1720	27		<0.001		4.6	0.13
RS-498 1720-1725	27		<0.001		6.0	0.18
RS-498 1725-1730	17		<0.001		13.1	0.38
RS-498 1730-1735	21		<0.001		2.6	0.08
RS-498 1735-1740	63		0.002		2.6	0.08
RS-498 1740-1745	20		<0.001		1.4	0.04
RS-498 1745-1750	13		<0.001		1.0	0.03

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP057167

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REFERENCE : RS-498

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SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 1750-1755	<5		<0.001		1.1	0.03
RS-498 1755-1760	10		<0.001		0.6	<0.02
RS-498 1760-1765	8		<0.001		1.5	0.04
RS-498 1765-1770	13		<0.001		0.8	0.02
RS-498 1770-1775	15		<0.001		<0.5	<0.02
RS-498 1775-1780	13		<0.001		1.7	0.05
RS-498 1780-1785	9		<0.001		<0.5	<0.02
RS-498 1785-1790	7		<0.001		<0.5	<0.02
RS-498 1790-1795	7		<0.001		1.0	0.03
RS-498 1795-1800	9		<0.001		<0.5	<0.02
RS-498 1800-1805	<5		<0.001		2.3	0.07
RS-498 1805-1810	8		<0.001		3.5	0.10
RS-498 1810-1815	<5		<0.001		<0.5	<0.02
RS-498 1815-1820	8		<0.001		<0.5	<0.02
RS-498 1820-1825	22		<0.001		<0.5	<0.02
RS-498 1825-1830	21		<0.001		0.5	<0.02
RS-498 1830-1835	19		<0.001		0.9	0.03
RS-498 1835-1840	38		0.001		1.2	0.04
RS-498 1840-1845	129		0.004		2.0	0.06
RS-498 1845-1850	29		<0.001		1.5	0.04
RS-498 1850-1855	33		<0.001		0.8	0.02
RS-498 1855-1860	28		<0.001		1.0	0.03
RS-498 1860-1865	28		<0.001		1.5	0.04
RS-498 1865-1870	36		0.001		4.0	0.12
RS-498 1870-1875	19		<0.001		1.4	0.04

AMERICAN ASSAY LABORATORIES

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REFERENCE : RS-498

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SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-498 1875-1880	12		<0.001		1.3	0.04
RS-498 1880-1885	27		<0.001		1.6	0.05
RS-498 1885-1890	9		<0.001		<0.5	<0.02
RS-498 1890-1895	6		<0.001		0.7	0.02
RS-498 1895-1900	5		<0.001		1.9	0.06
RS-498 1900-1905	23		<0.001		1.2	0.04
RS-498 1905-1910	12		<0.001		1.8	0.05
RS-498 1910-1915	16		<0.001		0.6	<0.02
RS-498 1915-1920	6		<0.001		0.7	0.02
RS-498 1920-1925	8		<0.001		0.8	0.02
RS-498 1925-1930	20		<0.001		0.5	<0.02
RS-498 1930-1935	15		<0.001		<0.5	<0.02
RS-498 1935-1940	15		<0.001		0.7	0.02
RS-498 1940-1945	19		<0.001		1.2	0.04
RS-498 1945-1950	9		<0.001		<0.5	<0.02
RS-498 1950-1955	<5		<0.001		0.6	<0.02
89679	1944		0.057		33.3	0.97

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431
PHONE: (775) 356-0506
FAX: (775) 356-1413

CLIENT: HECLA MINING CO.
CLIENT REF: KURT ALLEN
AAL REF: SP57167
METHOD: AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-498 0000-0020	34	0.94	4.7	2.5	7	123.80	0.06	0.26	0.03	0.90	2.1	13.37	1.98	3.7	52	0.18	19.6	0.11	79	0.82	0.052	2.8	0.025	43.67	0.07	2.9	1.6	0.2	84.4	<.02	9.8	0.023	0.12	0.9	7	0.4	47.1
RS-498 0020-0040	20	0.94	3	1.3	4	56.30	0.05	0.28	0.03	1.30	2.2	16.36	2.26	3.7	21	0.14	17.5	0.09	103	1.13	0.045	3.4	0.033	23.24	0.02	1.62	1.4	0.1	38.7	<.02	9.3	0.027	0.08	1.4	6	0.4	80.6
RS-498 0040-0060	283	0.73	2.6	1.1	5	268.60	0.07	0.3	0.3	7.60	3.2	12.39	2.25	3.5	29	0.13	19.4	0.07	3700	1.36	0.033	2.7	0.03	21.26	<.01	3.89	1.2	0.2	32.2	<.02	8.3	0.022	2.11	1.2	5	0.7	151
RS-498 0060-0080	62	0.79	3.5	0.8	3	116.80	0.15	0.2	0.05	1.60	1.7	9.43	2.28	3.1	79	0.14	20.9	0.05	784	0.95	0.018	2.1	0.047	15.8	0.02	5.58	1.4	0.4	33.4	<.02	10	0.025	0.8	1.7	5	0.5	66.1
RS-498 0080-0100	66	0.88	2.0	0.5	5	99.60	0.17	0.23	0.04	1.60	3.8	17.6	2.16	3.3	34	0.13	18.4	0.05	479	1.02	0.021	3.7	0.028	28.36	0.01	3.5	1.4	0.2	19	<.02	8.8	0.027	1.07	1.4	6	0.3	83.3
RS-498 0100-0120	141	0.76	5.3	1.7	2	201.40	0.17	0.21	0.22	6.50	4.4	28.8	2.55	3.8	101	0.16	18.3	0.06	3035	1.46	0.036	6	0.034	18.9	0.01	2.44	1.4	0.3	27	<.02	9.5	0.027	1.23	1.2	5	0.5	125.9
RS-498 0120-0140	152	1.06	2.3	0.5	3	145.70	0.82	0.18	0.2	3.90	2.9	16.4	2.59	4.7	167	0.21	22.2	0.1	2663	1.96	0.037	2.8	0.048	20.98	<.01	2.9	1.5	0.2	24.9	<.02	10.3	0.024	1.86	1.4	5	0.4	133.9
RS-498 0140-0160	55	0.81	13.5	14.3	1.0	211.70	0.13	0.1	0.02	0.40	2.7	12.23	1.96	5.3	2374	0.14	24.3	0.01	479	1.6	0.011	2.1	0.059	21.82	0.15	17.2	0.8	1.5	289.5	<.02	10.3	0.002	1.57	1	4	<.2	17.2
RS-498 0160-0180	57	1.01	44.7	57.1	1	93.20	0.6	0.06	<.01	0.30	3.3	23.14	3.54	5.5	5766	0.05	18.8	0.01	90	6.9	0.005	4.2	0.048	22	0.04	32.95	0.9	3.7	299.1	0.03	8	<.001	0.38	1.1	4	0.3	19.9
RS-498 0180-0200	33	0.9	5.4	3.2	2	87.20	0.27	0.08	0.02	0.60	2.7	10.06	1.68	3.2	1480	0.12	19.6	0.03	58	1.42	0.011	1.2	0.03	64.47	0.02	11.13	1.3	1.3	140.8	<.02	10.6	0.025	0.22	0.9	4	0.4	30.8
RS-498 0200-0220	553	0.96	80.5	58.5	3	104.50	0.07	0.02	0.03	5.60	2.3	14.26	2.4	4.3	20407	0.11	16.6	0.01	46	3.95	0.01	2.6	0.019	24.47	1.81	76.69	1	19.7	50.8	<.02	6.8	0.009	0.82	0.8	3	0.3	16.4
RS-498 0220-0240	87	1.2	7.2	2.7	4	176.80	0.82	0.01	0.01	1.20	2.5	13.7	1.92	4.8	580	0.18	18.9	0.04	87	1.21	0.016	2.1	0.026	42.82	0.2	12	1.6	0.8	29.9	<.02	8.9	0.03	0.3	1	5	0.5	34.4
RS-498 0240-0260	58	0.93	17.1	8.1	2	105.50	0.08	<.01	0.05	1.00	3.5	22.19	1.56	3.7	2963	0.15	19.7	0.02	51	1.45	0.01	3.6	0.026	80.77	0.34	11.84	0.9	1.2	18.6	<.02	7.8	0.015	0.24	1.3	3	0.5	34.5
RS-498 0260-0280	63	1.01	3.1	2.1	4	142.60	0.17	<.01	0.01	0.50	1.6	8.26	2.05	3.4	238	0.16	21.8	0.04	90	0.72	0.01	1.6	0.041	16.01	0.03	7.87	1.5	0.3	13.1	<.02	9.2	0.038	0.26	1.4	5	0.6	30.6
RS-498 0280-0300	60	1.15	17.9	3.5	3	80.90	0.81	0.01	0.07	3.00	2.6	9.9	1.81	3.5	4972	0.12	19.4	0.03	77	1.51	0.012	21.1	0.051	24.44	0.85	15.21	1.9	1.3	14.1	<.02	7	0.024	0.32	5.3	4	0.6	26.7
RS-498 0300-0320	68	1.09	8.0	1.4	3	132.30	1.31	0.17	0.47	3.40	7.4	9.22	3.07	4.5	601	0.2	17.7	0.11	1770	1.99	0.047	134.2	0.048	33.26	0.02	4.99	1.5	0.5	9.8	<.02	8.8	0.054	0.31	1.2	6	0.6	188.3
RS-498 0320-0340	70	0.93	13.9	16.2	3	134.00	0.18	0.22	0.25	4.10	5.5	10.14	3.08	4.9	408	0.21	16.9	0.13	1484	2.03	0.049	119.5	0.045	24.17	0.23	5.96	1.5	1.6	20.4	<.02	8.8	0.046	0.42	0.8	6	0.5	200.6
RS-498 0340-0360	59	0.77	16.0	11.5	3	80.60	0.08	0.3	0.08	3.70	5.5	7.85	3.26	4.5	325	0.2	13.6	0.14	1402	2.81	0.05	147.2	0.043	12.26	0.43	10.07	1.3	1.6	9.4	<.02	8.6	0.046	0.35	0.8	6	0.5	169.2
RS-498 0360-0380	81	0.76	4.3	4.2	1	67.50	0.1	0.85	0.17	3.10	3.9	13.26	2.73	5	105	0.2	15	0.16	1465	3.14	0.067	110.2	0.039	81.27	0.24	3.7	1.4	0.2	22.5	<.02	9.2	0.052	0.25	1.5	6	0.4	111.9
RS-498 0380-0400	87	0.87	2.9	1.7	3	62.50	0.37	0.32	0.19	3.30	7.9	14.8	3.31	5.6	74	0.19	13	0.24	1362	4.78	0.088	190	0.044	23.5	0.08	3.25	1.3	0.2	14.3	<.02	9.8	0.054	0.11	1.2	7	0.3	118.8
RS-498 0400-0420	80	0.8	4.8	2.1	1	58.30	0.07	0.98	0.13	3.30	6.8	12.88	3.08	5.8	95	0.15	14.1	0.33	975	4.11	0.063	159.4	0.043	17.88	0.17	3.41	1.2	0.4	45.4	<.02	8.8	0.064	0.09	1	6	0.2	94.5
RS-498 0420-0440	86	0.44	4.4	1	4	52.00	0.05	0.62	0.18	3.00	5.4	37.73	2.82	4.4	53	0.15	11.9	0.2	1266	4.62	0.063	42.5	0.04	19.49	<.01	1.57	1.4	0.2	19.2	<.02	9.5	0.112	0.08	1	6	0.2	98
RS-498 0440-0460	94	0.86	2.4	0.7	1	69.60	0.07	0.69	0.17	3.40	6.2	50.53	2.96	5.9	42	0.2	12.7	0.36	889	3.83	0.093	10.1	0.042	31.18	0.05	1.32	1.4	0.3	25.2	0.02	8.8	0.091	0.09	1	6	0.3	100.3
RS-498 0460-0480	99	0.91	1.2	4.3	3	69.00	0.06	0.69	0.16	3.40	7	50.21	2.9	6.3	32	0.23	13.1	0.34	884	4.08	0.109	9.6	0.044	28.39	<.01	0.4	1.6	0.2	27	<.02	9.7	0.12	0.08	1.1	6	0.5	103.1
RS-498 0480-0500	71	0.87	1.8	2.6	1	57.80	0.04	1.06	0.12	3.30	5.9	39.17	3.03	6	33	0.2	14.7	0.27	1123	3.69	0.078	7.6	0.043	32.47	<.01	0.62	1.4	0.2	33.8	<.02	9.4	0.115	0.07	1.4	6	0.6	98.1
RS-498 0500-0520	57	0.72	2.7	1.9	3	66.00	0.04	0.93	0.13	2.80	4	38.53	2.67	4.8	28	0.21	14.5	0.15	1252	2.29	0.075	7.8	0.042	18.41	<.01	1.36	1.3	0.2	31.5	<.02	10.4	0.072	0.09	1.6	6	0.7	87.8
RS-498 0520-0540	53	0.72	3.8	1.3	3	139.50	0.04	1.04	0.22	2.50	4.4	30.19	2.6	4.6	20	0.19	14.1	0.15	1184	2.25	0.062	5.7	0.043	24.16	<.01	1.32	1.3	0.2	35	<.02	10.2	0.036	0.07	1.2	6	0.7	85.1
RS-498 0540-0560	38	0.89	3.7	1.3	4	65.60	0.04	0.92	0.21	2.80	4.8	48.05	2.63	4.5	17	0.18	12	0.16	1085	1.88	0.067	8	0.041	87.49	<.01	0.51	1.4	0.2	30.8	<.02	9	0.045	0.07	1.1	6	0.5	104.7
RS-498 0560-0580	56	0.84	3.2	1.1	3	61.60	0.04	1.07	0.17	2.90	3.8	37.15	2.53	4.8	16	0.19	13.8	0.19	1126	1.84	0.061	6.8	0.042	35.12	<.01	0.86	1.4	0.2	36	<.02	9.3	0.04	0.06	1.4	7	0.7	93.6
RS-498 0580-0600	51	0.8	2	1	3.0	55.30	0.0	0.89	0.16	2.50	3.8	27.85	2.33	4.5	19	0.19	14.4	0.15	840	1.91	0.065	5.4	0.044	14.16	0.01	2.18	1.2	0.2	32.9	<.02	9.2	0.081	0.07	1.2	6	1.1	83.1
RS-498 0600-0620	79	0.97	2.2	0.9	2	78.7	0.03	1	0.19	3.7	3.3	21.5	2.67	5.5	12	0.19	17.1	0.17	950	2.44	0.063	4.3	0.045	10.82	<.01	3.24	1.3	0.1	39.4	<.02	9.3	0.071	0.07	1.4	5	0.6	95.1
RS-498 0620-0640	48	0.86	2.3	1.2	2	60.4	0.03	0.79	0.13	2.7	2.5	12.21	2.52	5.5	16	0.19	19.2	0.17	644	1.43	0.046	3.1	0.047	7.54	<.01	5.72	1.5	0.2	34.5	<.02	9.4	0.05	0.07	1.1	6	0.6	71
RS-498 0640-0660	65	0.89	1.6	1.1	2	83.1	0.06	1.28	0.17	2.1	2	4.21	2.58	4.4	29	0.18	19.9	0.13	1049	1.75	0.018	1.9	0.073	6.59	<.01	5.67	1.4	0.2	38.3	<.02	9	0.06	0.07	2.4	6	0.6	90.9
STANDARD DS2	261	1.76	58.1	185	2	155.8	11.11	0.54	10.41	11.3	163.3	131.26	3.14	6.2	230	0.16	16.1	0.61	849	14.23	0.03	37.4	0.094	31.96	0.03	9.69	3	2.2	29.1	1.84	3.7	0.094	1.88	17.6	76	6.7	164.8
RS-498 0660-0680	137	0.97	8.8	38.9	3	128.9	0.04	0.22	0.07	1.7	2	3.45	2.32	3.8	439	0.15	21.2	0.06	399	6.69	0.011	1.2	0.053	14.72	1.26	20.26	1	3.8	12.9	<.02	7.1	0.04	0.44	0.9	5	1.4	58

AMERICAN ASSAY LABORATORIES
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CLIENT: HECLA MINING CO.
CLIENT REF: KURT ALLEN
AAL REF: SP57167
METHOD: AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-498 0680-0700	119	0.97	6.5	33.2	1	196.9	0.14	0.31	0.05	1.1	2.7	4.86	2.32	3.9	452	0.15	19.4	0.07	620	10.55	0.012	2.3	0.046	10.85	0.77	15.45	1.1	2.9	16	<.02	7.2	0.027	0.28	1.3	7	1.4	40.3
RS-498 0700-0720	102	1.5	25.4	80.2	4	138.4	0.31	0.16	0.12	8.3	2.2	4.62	1.82	5.1	1406	0.15	20.6	0.05	541	2.29	0.012	1.9	0.045	21.94	1.44	15.35	0.9	3	8.7	<.02	7.1	0.011	0.42	2.1	5	0.5	91.3
RS-498 0720-0740	69	1.11	12.3	28.6	2	156.8	0.05	0.18	0.06	6.7	1.6	3.22	1.93	4.1	597	0.16	21	0.07	168	1.59	0.012	1.1	0.048	17.11	0.51	13.97	1.1	1	10.6	<.02	8.4	0.039	0.21	1.6	5	1.3	60.6
RS-498 0740-0760	63	1.09	3.6	4.2	1	55.9	0.28	0.36	0.08	1.7	2.5	4.98	2.22	4.6	211	0.19	15.3	0.15	302	1.47	0.042	1.8	0.045	6.44	0.16	7.4	1.4	0.4	26.6	<.02	8.7	0.031	0.08	1.1	8	0.7	57.2
RS-498 0760-0780	35	0.89	2.5	2.5	3	65.4	0.02	0.62	0.12	2.3	3.3	6.73	2.33	4.6	192	0.2	12.6	0.14	575	2.13	0.064	2.6	0.043	4.86	0.03	4.45	1.7	0.4	36.9	<.02	9	0.034	0.09	1.3	7	0.5	63.3
RS-498 0780-0800	34	0.96	1.8	0.6	3	63.3	0.05	0.73	0.08	2.3	3.4	5.05	2.36	4.7	72	0.19	13.1	0.18	608	1.86	0.058	2.5	0.044	4.38	0.01	1.5	1.6	0.3	31.9	<.02	9.4	0.035	0.08	1.5	7	0.4	74.5
RS-498 0800-0820	45	0.95	2	2.3	2	59.9	0.04	1.35	0.11	2.2	2.8	5.19	2.46	4.4	92	0.17	16.7	0.15	915	2.1	0.035	1.6	0.048	19.71	0.13	3.35	1.6	0.5	38.9	<.02	8.7	0.034	0.1	1.1	6	0.7	66.5
RS-498 0820-0840	150	1.07	8.6	13.4	2	29.8	0.09	0.27	0.24	3.3	2.5	5.5	2.39	4	1071	0.12	20.5	0.06	1696	1.91	0.01	1.2	0.048	24.04	1.39	12.42	1	1.8	9.8	<.02	6.9	0.024	0.25	1.1	4	1.1	91.1
RS-498 0840-0860	61	0.82	14.2	42.4	1	43.5	0.04	0.62	0.13	3.4	2.6	4.29	2.38	3.8	467	0.13	20.6	0.06	526	1.78	0.013	30.6	0.048	14.56	1.57	12.62	1.2	2.4	21.2	<.02	7.1	0.023	0.28	1.2	5	0.8	71.9
RS-498 0860-0880	102	0.97	3.8	12.1	2	76.4	0.03	1.13	0.13	3.2	4.1	5.24	2.52	4.6	140	0.17	16.3	0.19	711	2.19	0.043	51.4	0.044	9.98	0.12	3.43	1.5	0.8	38.1	<.02	8.3	0.041	0.1	1.2	6	0.6	90.5
RS-498 0880-0900	98	0.94	2.7	2.6	2	66	0.02	0.84	0.11	2.7	3.1	5.12	2.39	4.9	45	0.2	14.4	0.2	711	1.87	0.055	76.7	0.042	5.29	0.01	0.95	1.6	0.3	33.1	<.02	9.1	0.037	0.07	1.3	6	0.4	86.6
RS-498 0900-0920	30	0.96	3	0.7	1	58.6	0.03	0.94	0.11	2.6	2.3	5.18	2.71	5.1	17	0.2	15.5	0.19	882	1.76	0.065	67.9	0.046	4.8	<.01	0.49	1.7	0.3	33	<.02	9.5	0.034	0.06	1.1	6	0.4	74.8
RS-498 0920-0940	41	0.89	2.8	0.4	1	49.5	0.05	0.94	0.15	2.7	3.4	5.8	2.51	4.6	21	0.18	14.1	0.17	934	1.81	0.054	86.2	0.043	5.46	0.02	0.71	1.5	0.2	32.2	<.02	8.8	0.034	0.06	1.2	7	0.5	79.7
RS-498 0940-0960	48	0.88	2	1.7	<1	49.6	0.08	0.96	0.16	2.6	3.2	6.49	2.4	3.8	27	0.16	13.1	0.13	993	2.27	0.06	84.5	0.049	6.36	0.06	1.07	1.3	0.3	34	<.02	8.5	0.043	0.06	1.7	7	0.6	71.8
RS-498 0960-0980	72	0.8	1.7	0.7	1	54.3	0.08	0.79	0.28	2.9	5.8	6.83	2.66	4.4	15	0.17	12.8	0.16	1013	3.37	0.064	135.1	0.048	3.81	<.01	0.68	1.5	0.3	31.7	<.02	8.2	0.073	0.06	2.5	8	0.5	85.2
RS-498 0980-1000	61	0.55	1.2	0.8	3	42.4	0.07	0.6	0.09	3.1	9.9	7.86	2.77	3.7	6	0.12	11.2	0.11	679	4.2	0.043	150.7	0.043	8.75	<.01	1.05	1.1	0.2	23.1	<.02	7.4	0.092	0.05	1.5	7	0.8	80.2
RS-498 1000-1020	71	0.68	1.7	0.8	1	50.1	0.03	0.75	0.13	3.4	5.8	9.44	2.78	4.5	8	0.16	12.7	0.16	943	3.54	0.058	135.3	0.047	13.04	<.01	0.52	1.4	0.2	26.5	<.02	8.8	0.083	0.05	1.5	8	0.7	86.7
RS-498 1020-1040	56	0.68	1.7	1.2	3	54.3	0.02	0.69	0.1	2.9	5.8	8.3	2.86	4.1	11	0.18	13.6	0.15	810	2.58	0.064	130.3	0.046	3.62	<.01	0.64	1.4	0.2	26.9	<.02	9.3	0.06	0.05	1.4	8	0.8	81.3
RS-498 1040-1060	32	0.63	1.5	0.8	1	49.2	0.02	0.66	0.11	2.8	5	29.13	2.68	4.1	7	0.18	15.6	0.16	695	1.96	0.055	89.6	0.047	4.71	<.01	1.47	1.4	0.1	26.9	<.02	10.3	0.055	0.06	1.1	9	0.7	82.9
RS-498 1060-1080	37	0.98	3.1	0.8	1	66.8	0.12	1.32	0.18	3.5	3.9	26.76	2.66	5.5	<5	0.26	19.9	0.25	1261	1.45	0.058	4.5	0.047	6.16	<.01	0.39	1.5	0.1	44.2	<.02	10.5	0.039	0.11	1.4	7	0.5	78.3
RS-498 1080-1100	56	0.85	4.1	1.2	1	75.5	0.1	0.84	0.16	3.4	4.8	34.41	2.75	5.2	5	0.31	20.9	0.18	772	2.06	0.076	7.3	0.045	6.62	<.01	0.8	1.5	0.2	35.2	<.02	11.4	0.06	0.13	1.2	8	0.8	83.6
RS-498 1100-1120	51	0.93	7.5	0.9	<1	65.6	0.05	0.94	0.11	3.1	7.4	38.25	2.47	5	50	0.24	20.4	0.19	662	2.39	0.069	9.9	0.038	8.14	0.18	0.86	0.9	0.2	51.2	<.02	8.9	0.035	0.11	1	7	1.1	85.9
RS-498 1120-1140	61	1.14	3.3	6.7	1	121.9	0.16	1.29	0.25	3.4	5.2	20.65	2.76	6.2	13	0.38	21.3	0.14	1022	2.02	0.159	4.6	0.062	10.71	0.03	0.57	1.3	0.2	61.4	<.02	8.5	0.068	0.11	2.1	10	0.9	88.3
RS-498 1140-1160	64	0.77	2.9	2.8	3	124.5	0.18	0.84	0.21	3.7	7.7	36.77	2.8	4.4	7	0.34	17.9	0.11	826	2.7	0.158	8.8	0.037	8.37	<.01	0.55	1.2	0.2	48.8	<.02	7.3	0.07	0.11	1.4	11	1.4	83.9
RS-498 1160-1180	42	0.76	4.1	2	1	72.5	0.17	0.86	0.17	3.8	11.5	23.64	3.83	4	43	0.24	18.5	0.14	699	3.44	0.071	326.5	0.047	8.2	<.01	0.58	1.2	0.1	75.2	<.02	6.9	0.036	0.08	0.9	13	0.6	80.8
RS-498 1180-1200	53	1.14	7.2	2	1	91.4	0.05	0.94	0.14	10.4	5.6	11.89	2.68	5.8	27	0.24	23.1	0.21	569	1.55	0.098	83.6	0.061	12.95	0.03	0.69	1.1	0.1	140.4	0.02	7.6	0.024	0.11	1.2	10	13.5	72.3
RS-498 1200-1220	66	0.96	2.7	2.5	2	118.1	0.07	0.96	0.15	3.5	4	15.08	2.26	4.7	16	0.31	21.5	0.15	578	1.74	0.122	18.7	0.049	9.72	0.02	0.74	1	0.1	102.3	<.02	6.9	0.037	0.09	1.1	10	1.2	81
RS-498 1220-1240	61	0.82	2.3	1.5	2	142.9	0.05	0.71	0.16	3	4.1	17.33	2.21	4	6	0.3	20.9	0.12	505	1.78	0.126	5	0.047	9.58	<.01	0.52	0.9	0.2	91.6	<.02	6.9	0.043	0.09	1.1	10	1.1	82.5
RS-498 1240-1260	81	0.77	1.9	2.6	<1	184	0.08	0.63	0.17	3.2	6.4	24.64	2.36	3.8	18	0.29	19.8	0.12	500	2.22	0.145	6.5	0.044	10.28	<.01	0.48	0.7	<.1	80.9	<.02	6.5	0.052	0.08	1	9	0.9	82.8
RS-498 1260-1280	48	0.75	3.1	2.8	<1	136.9	0.03	0.96	0.17	3.5	5.9	11.98	2.42	3.5	33	0.23	23	0.12	722	2.07	0.103	44.8	0.049	11.32	0.02	0.81	0.8	0.2	111	0.02	7.5	0.03	0.07	1	9	0.9	84.6
RS-498 1280-1300	56	0.84	3.3	0.9	<1	129.2	0.02	1.1	0.18	2.8	6.9	4.7	2.91	3.7	<5	0.33	23.9	0.09	918	1.9	0.111	99.8	0.044	11.73	<.01	0.49	0.8	0.2	111.2	<.02	7.7	0.024	0.08	0.8	8	1.6	47.1
RS-498 1300-1320	64	0.86	9.1	9.8	<1	109.2	0.09	1.18	0.12	4.3	9.3	6.1	2.41	3.8	76	0.28	22.4	0.11	698	2.99	0.092	46.7	0.042	135.21	0.12	2.18	0.7	0.7	108.2	<.02	7.5	0.015	0.09	0.8	5	2	59.4
STANDARD DS2	267	1.75	57.6	202.4	2	154.4	10.44	0.54	9.97	11.2	163.1	130.19	3.11	6	223	0.17	16	0.6	835	13.93	0.031	36	0.069	33.88	0.02	9.21	2.7	2.1	28	1.9	3.5	0.091	1.8	17.8	74	6.7	168.6
RS-498 1320-1340	79	0.9	1.7	1.4	1	81.6	0.07	1.37	0.19	2.4	4.5	3.42	2.23	3	18	0.24	24.4	0.15	844	1.43	0.099	39.5	0.038	21.03	0.05	0.54	0.5	0.1	112	<.02	7.6	0.014	0.06	1.2	6	<.2	82.6
RS-498 1340-1360	211	0.92	2.7	6	1	206	0.43	1.59	0.25	2.5	7.1	4.9	2.12	3.5	80	0.3	25.9	0.15	657	4.88	0.069	49.1	0.041	33.88	0.13	1.08	0.5	0.5	101.4	<.02	7.1	0.009	0.1	1.1	5	0.3	76.6

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CLIENT: HECLA MINING CO.
CLIENT REF: KURT ALLEN
AAL REF: SP57167
METHOD: AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-498 1360-1380	126	0.88	3	9	< 1	104.8	0.12	2.2	0.18	3	5.6	4.11	2.24	3.2	95	0.29	25.2	0.16	1036	2.39	0.06	45.1	0.044	46.65	0.13	1.24	0.6	0.4	103.8	< .02	6.7	0.007	0.12	1.3	5	0.3	66.[illegible]
RS-498 1380-1400	269	1.05	2.9	3.9	< 1	89.1	0.18	2.24	0.2	3.3	4.6	3.61	1.94	3.8	57	0.32	28.6	0.21	1019	1.65	0.061	34.7	0.051	39.53	0.04	0.68	0.7	0.3	117.4	< .02	6.8	0.008	0.12	1.5	3	0.3	66
RS-498 1400-1420	88	0.98	1.7	2.3	< 1	80.5	0.11	2.51	0.19	2.3	4.3	2.55	1.81	3	60	0.34	27.5	0.16	1051	1.14	0.052	23.1	0.045	34.03	0.03	0.62	0.7	0.2	118	< .02	6.3	0.006	0.12	1.6	5	< .2	48.3
RS-498 1420-1440	91	0.82	1.8	1.7	< 1	61.3	0.22	2.64	0.2	1.6	3	2.68	1.95	2.6	16	0.36	24.4	0.1	1063	1.49	0.034	37.6	0.043	22.75	0.02	0.53	0.5	< .1	105.6	< .02	6.5	0.009	0.11	1.1	5	0.3	39.9
RS-498 1440-1460	230	0.68	9.6	1.9	1	67.4	0.43	3.71	0.36	2.3	4.5	5.21	2.59	1.9	33	0.33	15.3	0.08	1825	1.4	0.017	47.8	0.036	40.38	1.66	2.78	0.7	0.4	98.2	0.03	3.7	0.004	0.22	0.7	3	0.3	74.6
RS-498 1460-1480	1542	0.51	63.2	34.7	< 1	35.5	0.92	1.9	0.47	4.3	10.2	12.09	4.46	1.9	39	0.29	8.8	0.04	983	2.11	0.012	98.6	0.028	62.37	4.13	11.13	0.9	12.4	63.6	0.08	2	0.003	0.49	0.4	5	0.6	68
RS-498 1480-1500	770	1.48	32.5	18.5	< 1	48.5	0.92	2.96	1.49	10.1	6.1	23.43	4.83	4.5	42	0.7	9.8	0.17	1430	1.85	0.018	8.3	0.026	71.74	4.17	6.67	1.6	7.6	115.3	0.04	1.7	0.001	0.49	0.5	7	0.5	119.1
RS-498 1500-1520	1553	0.97	45.4	41.4	< 1	38.1	0.46	1.59	0.83	7.3	7.1	24.25	4.16	3.3	130	0.62	10	0.08	813	2.33	0.012	6.7	0.028	42.57	4.29	16.23	1	18.9	67.5	0.03	1.7	0.002	0.71	0.5	6	0.4	112
RS-498 1520-1540	1609	0.61	79.3	53.8	1	30.7	0.69	0.88	0.57	5.8	5.7	37.22	4.02	2.1	135	0.36	13.4	0.04	525	2.23	0.009	9.3	0.024	68.5	4.1	12.06	0.7	20.5	42.3	< .02	2.4	0.001	0.43	0.7	4	0.5	119.4
RS-498 1540-1560	2447	0.69	99.4	175.9	< 1	28.6	0.39	1.03	0.52	5.9	5.3	24.14	3.85	2.3	121	0.41	16.1	0.05	574	2.33	0.011	6.7	0.026	45.47	4.22	14.73	0.7	26	51.6	0.02	3.4	0.001	0.68	0.7	3	0.3	123.1
RS-498 1560-1580	5068	0.79	122.1	98.8	< 1	40.8	0.41	0.86	0.44	4.9	7.7	31.91	3.37	2.7	182	0.42	14.4	0.04	486	2.22	0.009	9.3	0.019	43.9	3.29	11.74	0.7	16.9	44	0.04	2.8	0.001	0.46	0.6	3	0.5	95.9
RS-498 1580-1600	684	0.63	46.2	28.2	< 1	50.9	0.28	0.64	0.4	2.6	5.8	32.28	2.72	1.7	169	0.3	14.7	0.03	391	2.22	0.007	8.2	0.011	32.26	2.2	6.39	0.4	9.5	32.7	< .02	3.8	0.001	0.26	0.6	2	0.4	83.8
RS-498 1600-1620	39999	0.41	61	71.8	< 1	53.6	0.17	0.34	0.35	1.5	5.6	38.52	2.01	1.6	645	0.24	16.3	0.02	279	2.56	0.007	6.4	0.007	56.14	1.54	148.53	0.3	45.4	26.2	0.29	5.3	< .001	0.26	0.8	< 2	0.3	74.7
RS-498 1620-1640	66290	0.34	65.2	47.3	< 1	52.2	0.32	0.69	0.41	2.5	5.4	23.6	2.8	1.2	219	0.24	13.6	0.02	422	2.21	0.008	5.8	0.012	74.67	2.46	57.63	0.3	21.9	36.3	0.05	3.4	0.001	0.3	0.9	< 2	0.3	87.1
RS-498 1640-1660	13838	0.65	37.2	35.1	< 1	54.9	0.31	0.82	0.4	2.8	7.2	19.96	2.57	2.2	152	0.38	13.7	0.03	578	2.68	0.009	4.4	0.011	58.96	2.51	14.5	0.4	12	43.4	< .02	3.9	0.001	0.33	0.9	2	0.3	102.2
RS-498 1660-1680	1876	0.53	74	39.3	2	63	0.18	0.99	0.3	1.6	7	21.62	2.09	1.8	62	0.34	15	0.02	658	2.19	0.008	4.1	0.007	38.81	1.91	5.79	0.3	9	43.7	0.04	5	0.001	0.26	1	< 2	0.3	82.7
RS-498 1680-1700	903	0.48	9.5	21.4	< 1	62.4	0.13	2.09	0.26	1.2	4.3	12.38	1.37	1.6	45	0.35	15.9	0.02	894	1.61	0.009	2.5	0.008	26.77	1.18	3.67	0.5	3.4	67.1	< .02	5.1	< .001	0.25	0.9	< 2	0.2	70.7
RS-498 1700-1720	1588	0.55	66.9	30	< 1	72.9	0.13	0.53	0.29	1.4	5.1	9.92	2.16	1.9	62	0.34	18	0.02	324	2.05	0.012	68.4	0.008	36.06	1.76	4.44	0.3	9.7	38	0.03	5.6	0.001	0.21	1	2	0.4	83.3
RS-498 1720-1740	5515	0.84	28.4	15.2	< 1	63.2	0.34	1.42	0.44	3.2	6.2	6.95	2.94	2.9	57	0.5	17.5	0.04	941	2.55	0.011	84.8	0.013	33.41	2.41	8.75	0.7	8.5	63.6	< .02	5.2	0.001	0.33	1	4	0.2	84.1
RS-498 1740-1760	694	0.66	15.5	5.7	< 1	71.4	0.23	2.37	0.41	2.2	7.5	5.39	2.14	2.1	19	0.4	18.9	0.03	1269	2.5	0.01	95.4	0.013	23.18	1.06	3	0.7	3.7	78	0.02	5.1	0.001	0.17	1	4	< .2	79.2
RS-498 1760-1780	677	0.67	13	11.3	1	48.5	0.22	1.97	0.29	1.8	8.4	5.45	2.09	2.6	32	0.39	21.8	0.03	1316	1.95	0.014	76	0.012	22.04	0.9	3	0.6	3.1	78.5	< .02	5.9	0.001	0.16	0.9	2	< .2	74
RS-498 1780-1800	525	0.67	11.2	9.7	< 1	45.7	0.16	2.52	0.26	1.5	7.8	4.64	1.89	2.5	27	0.38	23.8	0.03	1320	2.19	0.016	65.9	0.01	24.03	0.74	2.55	0.6	2.8	93.9	< .02	7.2	0.001	0.14	1	2	< .2	77.9
RS-498 1800-1820	916	0.7	7.3	6.2	< 1	45.7	0.11	1.62	0.28	1.3	7	4.96	1.72	2.8	20	0.41	26.2	0.03	1011	2	0.017	64	0.007	38.3	0.57	1.96	0.4	1.8	78	< .02	8.5	0.001	0.13	1	2	< .2	73.3
RS-498 1820-1840	564	0.59	38.6	13.8	< 1	31.4	0.12	0.55	0.24	1.2	5.9	6.17	2.2	2	42	0.37	18.3	0.02	413	2.02	0.011	67.3	0.007	28.08	1.54	2.97	0.3	8.9	45.4	< .02	6	0.001	0.18	0.9	2	0.2	77.7
RS-498 1840-1860	886	0.6	30.3	43	1	71.2	0.18	0.59	0.32	1.6	7.4	5.17	1.9	2.1	45	0.39	19	0.02	358	1.83	0.011	46.2	0.007	33.16	1.52	3.19	0.4	8.1	47	0.02	6.5	0.001	0.2	1	2	< .2	79.2
RS-498 1860-1880	1057	0.87	11.8	16.9	2	39	0.25	0.91	0.31	1.7	7.2	20.32	1.68	3.2	94	0.49	20.3	0.03	572	1.56	0.015	4.7	0.011	26.29	1.22	3.29	0.5	4.2	55.5	< .02	7.1	0.001	0.25	1.2	3	< .2	80.2
RS-498 1880-1900	919	0.71	15.2	9.9	2	61.1	0.34	1.27	0.34	2.1	6.9	28.92	1.77	3.5	36	0.4	25.7	0.03	690	2.46	0.039	6.5	0.011	26.23	0.89	3.26	0.6	4.2	64	< .02	8.3	0.001	0.18	1	2	0.3	72.8
RS-498 1900-1920	1042	0.67	11.3	4.9	2	62.8	0.4	0.8	0.34	1.7	7.9	16.44	2.11	3.6	43	0.36	22.9	0.03	731	2.75	0.048	115.9	0.009	30.1	0.65	2.48	0.3	2.9	46.7	0.04	7.5	0.001	0.14	0.7	4	0.6	97.2
RS-498 1920-1940	772	0.75	12.8	5.4	< 1	42.5	0.46	1.2	0.33	3.1	10	6.73	1.89	3.3	36	0.31	21.9	0.04	643	3.83	0.417	103.2	0.01	31.56	0.67	2.39	0.4	3.3	131.3	< .02	4.5	0.001	0.17	1.1	3	2	95
RS-498 1940-1955	883	0.9	12.9	5.2	< 1	64.1	0.48	0.8	0.34	1.9	10.2	6.81	2.24	6.6	37	0.26	18.1	0.04	579	4.28	1.242	126.6	0.009	26.69	0.87	3.38	0.6	4.4	214.7	0.04	3.2	0.003	0.26	1.4	4	0.7	83.1
89679	35241	0.8	67.2	1925	< 1	66.6	0.6	0.88	0.21	2.9	23.6	10.98	1.96	2.5	197	0.37	14.5	0.08	251	8.67	0.023	11	0.058	23.21	1.85	10.78	0.2	18	76.6	0.03	2.8	0.001	0.28	0.5	2	0.4	79.9
STANDARD DS2	269	1.67	56.7	194.3	2	149.1	10.14	0.52	9.85	12.5	157.6	126.45	2.99	5.9	220	0.15	15.6	0.58	608	13.76	0.031	34.8	0.086	30.84	0.01	8.36	2.7	2.2	28.3	1.72	3.4	0.094	1.7	17.8	72	6.6	156

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP057167

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COPIES TO : BRIAN MORRIS

: KURT ALLEN

:

:

CLIENT REFERENCE No: RS-498

No. SAMPLES : 392

MAIN SAMPLE TYPE : DRILL CUTTINGS

RECEIVED : 26 APR 2000

REPORTED : 18 MAY 2000

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	FA30	15%	ppb	5
Au(R)	FA30	15%	ppb	5
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
Ag	D210	10%	ppm	0.5
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Leonard E. Mackedon B.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP057167

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-498

REPORTED : 18 MAY 2000

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0000-0005	<5		<0.001		<0.5	<0.02
RS-498 0005-0010	<5		<0.001		0.7	0.02
RS-498 0010-0015	<5		<0.001		<0.5	<0.02
RS-498 0015-0020	<5		<0.001		<0.5	<0.02
RS-498 0020-0025	<5		<0.001		<0.5	<0.02
RS-498 0025-0030	<5		<0.001		<0.5	<0.02
RS-498 0030-0035	<5		<0.001		<0.5	<0.02
RS-498 0035-0040	<5		<0.001		<0.5	<0.02
RS-498 0040-0045	<5		<0.001		<0.5	<0.02
RS-498 0045-0050	<5		<0.001		<0.5	<0.02
RS-498 0050-0055	<5		<0.001		<0.5	<0.02
RS-498 0055-0060	<5		<0.001		<0.5	<0.02
RS-498 0060-0065	5		<0.001		<0.5	<0.02
RS-498 0065-0070	<5		<0.001		<0.5	<0.02
RS-498 0070-0075	<5		<0.001		<0.5	<0.02
RS-498 0075-0080	<5		<0.001		<0.5	<0.02
RS-498 0080-0085	<5		<0.001		<0.5	<0.02
RS-498 0085-0090	6		<0.001		<0.5	<0.02
RS-498 0090-0095	<5		<0.001		<0.5	<0.02
RS-498 0095-0100	<5		<0.001		<0.5	<0.02
RS-498 0100-0105	<5		<0.001		<0.5	<0.02
RS-498 0105-0110	<5		<0.001		<0.5	<0.02
RS-498 0110-0115	<5		<0.001		<0.5	<0.02
RS-498 0115-0120	<5		<0.001		<0.5	<0.02
RS-498 0120-0125	<5		<0.001		<0.5	<0.02

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American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-498

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0125-0130	<5		<0.001		<0.5	<0.02
RS-498 0130-0135	<5		<0.001		<0.5	<0.02
RS-498 0135-0140	12		<0.001		<0.5	<0.02
RS-498 0140-0145	<5		<0.001		<0.5	<0.02
RS-498 0145-0150	<5		<0.001		<0.5	<0.02
RS-498 0150-0155	24		<0.001		<0.5	<0.02
RS-498 0155-0160	45		0.001		<0.5	<0.02
RS-498 0160-0165	26		<0.001		<0.5	<0.02
RS-498 0165-0170	90		0.003		<0.5	<0.02
RS-498 0170-0175	92		0.003		<0.5	<0.02
RS-498 0175-0180	20		<0.001		<0.5	<0.02
RS-498 0180-0185	<5		<0.001		<0.5	<0.02
RS-498 0185-0190	5		<0.001		<0.5	<0.02
RS-498 0190-0195	<5		<0.001		<0.5	<0.02
RS-498 0195-0200	<5		<0.001		<0.5	<0.02
RS-498 0200-0205	<5		<0.001		<0.5	<0.02
RS-498 0205-0210	187		0.005		1.8	0.05
RS-498 0210-0215	<5		<0.001		<0.5	<0.02
RS-498 0215-0220	<5		<0.001		<0.5	<0.02
RS-498 0220-0225	<5		<0.001		<0.5	<0.02
RS-498 0225-0230	<5		<0.001		<0.5	<0.02
RS-498 0230-0235	<5		<0.001		<0.5	<0.02
RS-498 0235-0240	<5		<0.001		<0.5	<0.02
RS-498 0240-0245	<5		<0.001		<0.5	<0.02
RS-498 0245-0250	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0250-0255	<5		<0.001		<0.5	<0.02
RS-498 0255-0260	<5		<0.001		<0.5	<0.02
RS-498 0260-0265	<5		<0.001		<0.5	<0.02
RS-498 0265-0270	<5		<0.001		<0.5	<0.02
RS-498 0270-0275	<5		<0.001		<0.5	<0.02
RS-498 0275-0280	<5		<0.001		<0.5	<0.02
RS-498 0280-0285	<5		<0.001		<0.5	<0.02
RS-498 0285-0290	8		<0.001		<0.5	<0.02
RS-498 0290-0295	<5		<0.001		<0.5	<0.02
RS-498 0295-0300	<5		<0.001		<0.5	<0.02
RS-498 0300-0305	<5		<0.001		<0.5	<0.02
RS-498 0305-0310	<5		<0.001		<0.5	<0.02
RS-498 0310-0315	<5		<0.001		<0.5	<0.02
RS-498 0315-0320	<5		<0.001		<0.5	<0.02
RS-498 0320-0325	<5		<0.001		<0.5	<0.02
RS-498 0325-0330	<5		<0.001		<0.5	<0.02
RS-498 0330-0335	<5		<0.001		<0.5	<0.02
RS-498 0335-0340	80		0.002		<0.5	<0.02
RS-498 0340-0345	23		<0.001		<0.5	<0.02
RS-498 0345-0350	40		0.001		<0.5	<0.02
RS-498 0350-0355	<5		<0.001		<0.5	<0.02
RS-498 0355-0360	<5		<0.001		<0.5	<0.02
RS-498 0360-0365	8		<0.001		<0.5	<0.02
RS-498 0365-0370	<5		<0.001		<0.5	<0.02
RS-498 0370-0375	<5		<0.001		<0.5	<0.02

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CLIENT : HECLA MINING COMPANY
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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0375-0380	<5		<0.001		<0.5	<0.02
RS-498 0380-0385	<5		<0.001		<0.5	<0.02
RS-498 0385-0390	<5		<0.001		<0.5	<0.02
RS-498 0390-0395	<5		<0.001		<0.5	<0.02
RS-498 0395-0400	<5		<0.001		<0.5	<0.02
RS-498 0400-0405	<5		<0.001		<0.5	<0.02
RS-498 0405-0410	<5		<0.001		<0.5	<0.02
RS-498 0410-0415	<5		<0.001		<0.5	<0.02
RS-498 0415-0420	<5		<0.001		<0.5	<0.02
RS-498 0420-0425	<5		<0.001		<0.5	<0.02
RS-498 0425-0430	<5		<0.001		<0.5	<0.02
RS-498 0430-0435	<5		<0.001		<0.5	<0.02
RS-498 0435-0440	<5		<0.001		<0.5	<0.02
RS-498 0440-0445	<5		<0.001		<0.5	<0.02
RS-498 0445-0450	<5		<0.001		<0.5	<0.02
RS-498 0450-0455	<5		<0.001		<0.5	<0.02
RS-498 0455-0460	<5		<0.001		<0.5	<0.02
RS-498 0460-0465	<5		<0.001		<0.5	<0.02
RS-498 0465-0470	<5		<0.001		<0.5	<0.02
RS-498 0470-0475	<5		<0.001		<0.5	<0.02
RS-498 0475-0480	<5		<0.001		<0.5	<0.02
RS-498 0480-0485	<5		<0.001		<0.5	<0.02
RS-498 0485-0490	<5		<0.001		<0.5	<0.02
RS-498 0490-0495	<5		<0.001		<0.5	<0.02
RS-498 0495-0500	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0500-0505	<5		<0.001		<0.5	<0.02
RS-498 0505-0510	<5		<0.001		<0.5	<0.02
RS-498 0510-0515	<5		<0.001		<0.5	<0.02
RS-498 0515-0520	<5		<0.001		<0.5	<0.02
RS-498 0520-0525	<5		<0.001		<0.5	<0.02
RS-498 0525-0530	<5		<0.001		<0.5	<0.02
RS-498 0530-0535	<5		<0.001		<0.5	<0.02
RS-498 0535-0540	<5		<0.001		<0.5	<0.02
RS-498 0540-0545	<5		<0.001		<0.5	<0.02
RS-498 0545-0550	<5		<0.001		<0.5	<0.02
RS-498 0550-0555	<5		<0.001		<0.5	<0.02
RS-498 0555-0560	<5		<0.001		<0.5	<0.02
RS-498 0560-0565	<5		<0.001		<0.5	<0.02
RS-498 0565-0570	<5		<0.001		<0.5	<0.02
RS-498 0570-0575	<5		<0.001		<0.5	<0.02
RS-498 0575-0580	<5		<0.001		<0.5	<0.02
RS-498 0580-0585	<5		<0.001		<0.5	<0.02
RS-498 0585-0590	<5		<0.001		<0.5	<0.02
RS-498 0590-0595	<5		<0.001		<0.5	<0.02
RS-498 0595-0600	<5		<0.001		<0.5	<0.02
RS-498 0600-0605	<5		<0.001		<0.5	<0.02
RS-498 0605-0610	<5		<0.001		<0.5	<0.02
RS-498 0610-0615	<5		<0.001		<0.5	<0.02
RS-498 0615-0620	<5		<0.001		<0.5	<0.02
RS-498 0620-0625	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0625-0630	<5		<0.001		<0.5	<0.02
RS-498 0630-0635	<5		<0.001		<0.5	<0.02
RS-498 0635-0640	<5		<0.001		<0.5	<0.02
RS-498 0640-0645	<5		<0.001		<0.5	<0.02
RS-498 0645-0650	<5		<0.001		<0.5	<0.02
RS-498 0650-0655	<5		<0.001		<0.5	<0.02
RS-498 0655-0660	9		<0.001		<0.5	<0.02
RS-498 0660-0665	<5		<0.001		<0.5	<0.02
RS-498 0665-0670	<5		<0.001		<0.5	<0.02
RS-498 0670-0675	<5		<0.001		<0.5	<0.02
RS-498 0675-0680	194		0.006		<0.5	<0.02
RS-498 0680-0685	100		0.003		<0.5	<0.02
RS-498 0685-0690	46		0.001		<0.5	<0.02
RS-498 0690-0695	16		<0.001		<0.5	<0.02
RS-498 0695-0700	<5		<0.001		<0.5	<0.02
RS-498 0700-0705	<5		<0.001		<0.5	<0.02
RS-498 0705-0710	<5		<0.001		<0.5	<0.02
RS-498 0710-0715	54		0.002		<0.5	<0.02
RS-498 0715-0720	330		0.010		<0.5	<0.02
RS-498 0720-0725	104		0.003		<0.5	<0.02
RS-498 0725-0730	20		<0.001		<0.5	<0.02
RS-498 0730-0735	7		<0.001		<0.5	<0.02
RS-498 0735-0740	5		<0.001		<0.5	<0.02
RS-498 0740-0745	6		<0.001		<0.5	<0.02
RS-498 0745-0750	7		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0750-0755	<5		<0.001		<0.5	<0.02
RS-498 0755-0760	<5		<0.001		<0.5	<0.02
RS-498 0760-0765	<5		<0.001		<0.5	<0.02
RS-498 0765-0770	10		<0.001		<0.5	<0.02
RS-498 0770-0775	<5		<0.001		<0.5	<0.02
RS-498 0775-0780	<5		<0.001		<0.5	<0.02
RS-498 0780-0785	<5		<0.001		<0.5	<0.02
RS-498 0785-0790	<5		<0.001		<0.5	<0.02
RS-498 0790-0795	<5		<0.001		<0.5	<0.02
RS-498 0795-0800	<5		<0.001		<0.5	<0.02
RS-498 0800-0805	<5		<0.001		<0.5	<0.02
RS-498 0805-0810	<5		<0.001		<0.5	<0.02
RS-498 0810-0815	<5		<0.001		<0.5	<0.02
RS-498 0815-0820	<5		<0.001		<0.5	<0.02
RS-498 0820-0825	22		<0.001		<0.5	<0.02
RS-498 0825-0830	36		0.001		<0.5	<0.02
RS-498 0830-0835	13		<0.001		<0.5	<0.02
RS-498 0835-0840	<5		<0.001		<0.5	<0.02
RS-498 0840-0845	<5		<0.001		<0.5	<0.02
RS-498 0845-0850	117		0.003		<0.5	<0.02
RS-498 0850-0855	72		0.002		<0.5	<0.02
RS-498 0855-0860	<5		<0.001		<0.5	<0.02
RS-498 0860-0865	<5		<0.001		<0.5	<0.02
RS-498 0865-0870	<5		<0.001		<0.5	<0.02
RS-498 0870-0875	8		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0875-0880	7		<0.001		<0.5	<0.02
RS-498 0880-0885	<5		<0.001		<0.5	<0.02
RS-498 0885-0890	<5		<0.001		<0.5	<0.02
RS-498 0890-0895	<5		<0.001		<0.5	<0.02
RS-498 0895-0900	<5		<0.001		<0.5	<0.02
RS-498 0900-0905	<5		<0.001		<0.5	<0.02
RS-498 0905-0910	<5		<0.001		<0.5	<0.02
RS-498 0910-0915	<5		<0.001		<0.5	<0.02
RS-498 0915-0920	<5		<0.001		<0.5	<0.02
RS-498 0920-0925	<5		<0.001		<0.5	<0.02
RS-498 0925-0930	<5		<0.001		<0.5	<0.02
RS-498 0930-0935	<5		<0.001		<0.5	<0.02
RS-498 0935-0940	<5		<0.001		<0.5	<0.02
RS-498 0940-0945	<5		<0.001		<0.5	<0.02
RS-498 0945-0950	<5		<0.001		<0.5	<0.02
RS-498 0950-0955	<5		<0.001		<0.5	<0.02
RS-498 0955-0960	8		<0.001		<0.5	<0.02
RS-498 0960-0965	<5		<0.001		<0.5	<0.02
RS-498 0965-0970	<5		<0.001		<0.5	<0.02
RS-498 0970-0975	<5		<0.001		<0.5	<0.02
RS-498 0975-0980	<5		<0.001		<0.5	<0.02
RS-498 0980-0985	<5		<0.001		<0.5	<0.02
RS-498 0985-0990	<5		<0.001		<0.5	<0.02
RS-498 0990-0995	<5		<0.001		<0.5	<0.02
RS-498 0995-1000	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1000-1005	<5		<0.001		<0.5	<0.02
RS-498 1005-1010	<5		<0.001		<0.5	<0.02
RS-498 1010-1015	<5		<0.001		<0.5	<0.02
RS-498 1015-1020	<5		<0.001		<0.5	<0.02
RS-498 1020-1025	<5		<0.001		<0.5	<0.02
RS-498 1025-1030	<5		<0.001		<0.5	<0.02
RS-498 1030-1035	<5		<0.001		<0.5	<0.02
RS-498 1035-1040	<5		<0.001		<0.5	<0.02
RS-498 1040-1045	<5		<0.001		<0.5	<0.02
RS-498 1045-1050	<5		<0.001		<0.5	<0.02
RS-498 1050-1055	<5		<0.001		<0.5	<0.02
RS-498 1055-1060	<5		<0.001		<0.5	<0.02
RS-498 1060-1065	<5		<0.001		<0.5	<0.02
RS-498 1065-1070	<5		<0.001		<0.5	<0.02
RS-498 1070-1075	<5		<0.001		<0.5	<0.02
RS-498 1075-1080	7		<0.001		<0.5	<0.02
RS-498 1080-1085	5		<0.001		<0.5	<0.02
RS-498 1085-1090	<5		<0.001		<0.5	<0.02
RS-498 1090-1095	<5		<0.001		<0.5	<0.02
RS-498 1095-1100	<5		<0.001		<0.5	<0.02
RS-498 1100-1105	<5		<0.001		<0.5	<0.02
RS-498 1105-1110	<5		<0.001		<0.5	<0.02
RS-498 1110-1115	<5		<0.001		<0.5	<0.02
RS-498 1115-1120	<5		<0.001		<0.5	<0.02
RS-498 1120-1125	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1125-1130	<5		<0.001		<0.5	<0.02
RS-498 1130-1135	<5		<0.001		<0.5	<0.02
RS-498 1135-1140	<5		<0.001		<0.5	<0.02
RS-498 1140-1145	<5		<0.001		<0.5	<0.02
RS-498 1145-1150	<5		<0.001		<0.5	<0.02
RS-498 1150-1155	<5		<0.001		<0.5	<0.02
RS-498 1155-1160	<5		<0.001		<0.5	<0.02
RS-498 1160-1165	<5		<0.001		<0.5	<0.02
RS-498 1165-1170	<5		<0.001		<0.5	<0.02
RS-498 1170-1175	<5		<0.001		<0.5	<0.02
RS-498 1175-1180	<5		<0.001		<0.5	<0.02
RS-498 1180-1185	<5		<0.001		<0.5	<0.02
RS-498 1185-1190	<5		<0.001		<0.5	<0.02
RS-498 1190-1195	<5		<0.001		<0.5	<0.02
RS-498 1195-1200	<5		<0.001		<0.5	<0.02
RS-498 1200-1205	<5		<0.001		<0.5	<0.02
RS-498 1205-1210	<5		<0.001		<0.5	<0.02
RS-498 1210-1215	<5		<0.001		<0.5	<0.02
RS-498 1215-1220	<5		<0.001		<0.5	<0.02
RS-498 1220-1225	<5		<0.001		<0.5	<0.02
RS-498 1225-1230	<5		<0.001		<0.5	<0.02
RS-498 1230-1235	<5		<0.001		<0.5	<0.02
RS-498 1235-1240	<5		<0.001		<0.5	<0.02
RS-498 1240-1245	<5		<0.001		<0.5	<0.02
RS-498 1245-1250	<5		<0.001		<0.5	<0.02

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American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-498

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1250-1255	<5		<0.001		<0.5	<0.02
RS-498 1255-1260	<5		<0.001		<0.5	<0.02
RS-498 1260-1265	<5		<0.001		<0.5	<0.02
RS-498 1265-1270	<5		<0.001		<0.5	<0.02
RS-498 1270-1275	<5		<0.001		<0.5	<0.02
RS-498 1275-1280	<5		<0.001		<0.5	<0.02
RS-498 1280-1285	<5		<0.001		<0.5	<0.02
RS-498 1285-1290	<5		<0.001		<0.5	<0.02
RS-498 1290-1295	<5		<0.001		<0.5	<0.02
RS-498 1295-1300	<5		<0.001		<0.5	<0.02
RS-498 1300-1305	<5		<0.001		<0.5	<0.02
RS-498 1305-1310	15		<0.001		<0.5	<0.02
RS-498 1310-1315	<5		<0.001		<0.5	<0.02
RS-498 1315-1320	20		<0.001		<0.5	<0.02
RS-498 1320-1325	<5		<0.001		<0.5	<0.02
RS-498 1325-1330	<5		<0.001		<0.5	<0.02
RS-498 1330-1335	<5		<0.001		<0.5	<0.02
RS-498 1335-1340	<5		<0.001		<0.5	<0.02
RS-498 1340-1345	<5		<0.001		<0.5	<0.02
RS-498 1345-1350	<5		<0.001		<0.5	<0.02
RS-498 1350-1355	7		<0.001		<0.5	<0.02
RS-498 1355-1360	12		<0.001		<0.5	<0.02
RS-498 1360-1365	24		<0.001		<0.5	<0.02
RS-498 1365-1370	8		<0.001		<0.5	<0.02
RS-498 1370-1375	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1375-1380	<5		<0.001		<0.5	<0.02
RS-498 1380-1385	<5		<0.001		<0.5	<0.02
RS-498 1385-1390	<5		<0.001		<0.5	<0.02
RS-498 1390-1395	<5		<0.001		1.2	0.04
RS-498 1395-1400	<5		<0.001		<0.5	<0.02
RS-498 1400-1405	<5		<0.001		<0.5	<0.02
RS-498 1405-1410	<5		<0.001		<0.5	<0.02
RS-498 1410-1415	<5		<0.001		<0.5	<0.02
RS-498 1415-1420	<5		<0.001		<0.5	<0.02
RS-498 1420-1425	<5		<0.001		<0.5	<0.02
RS-498 1425-1430	<5		<0.001		<0.5	<0.02
RS-498 1430-1435	<5		<0.001		<0.5	<0.02
RS-498 1435-1440	<5		<0.001		<0.5	<0.02
RS-498 1440-1445	<5		<0.001		<0.5	<0.02
RS-498 1445-1450	<5		<0.001		<0.5	<0.02
RS-498 1450-1455	<5		<0.001		<0.5	<0.02
RS-498 1455-1460	<5		<0.001		<0.5	<0.02
RS-498 1460-1465	12		<0.001		1.3	0.04
RS-498 1465-1470	27		<0.001		2.4	0.07
RS-498 1470-1475	27		<0.001		1.5	0.04
RS-498 1475-1480	92		0.003		3.6	0.11
RS-498 1480-1485	16		<0.001		1.2	0.04
RS-498 1485-1490	11		<0.001		0.9	0.03
RS-498 1490-1495	22		<0.001		1.3	0.04
RS-498 1495-1500	23		<0.001		1.7	0.05

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1500-1505	30		<0.001		3.4	0.10
RS-498 1505-1510	59		0.002		2.6	0.08
RS-498 1510-1515	30		<0.001		1.7	0.05
RS-498 1515-1520	87		0.003		1.8	0.05
RS-498 1520-1525	28		<0.001		1.8	0.05
RS-498 1525-1530	38		0.001		1.6	0.05
RS-498 1530-1535	80		0.002		2.6	0.08
RS-498 1535-1540	135		0.004		3.0	0.09
RS-498 1540-1545	63		0.002		2.6	0.08
RS-498 1545-1550	291		0.008		3.2	0.09
RS-498 1550-1555	117		0.003		2.6	0.08
RS-498 1555-1560	191		0.006		3.2	0.09
RS-498 1560-1565	238		0.007		13.7	0.40
RS-498 1565-1570	113		0.003		4.3	0.13
RS-498 1570-1575	85		0.002		3.8	0.11
RS-498 1575-1580	44		0.001		1.8	0.05
RS-498 1580-1585	31		<0.001		1.6	0.05
RS-498 1585-1590	30		<0.001		1.6	0.05
RS-498 1590-1595	46		0.001		1.5	0.04
RS-498 1595-1600	37		0.001		1.6	0.05
RS-498 1600-1605	24		<0.001		1.3	0.04
RS-498 1605-1610	59		0.002		125.6	3.66
RS-498 1610-1615	29		<0.001		22.1	0.64
RS-498 1615-1620	212		0.006		1111.0	32.41
RS-498 1620-1625	82		0.002		204.0	5.95

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1625-1630	68		0.002		71.1	2.07
RS-498 1630-1635	22		<0.001		18.5	0.54
RS-498 1635-1640	53		0.002		39.9	1.16
RS-498 1640-1645	59		0.002		14.7	0.43
RS-498 1645-1650	31		<0.001		9.6	0.28
RS-498 1650-1655	20		<0.001		24.5	0.71
RS-498 1655-1660	28		<0.001		6.7	0.20
RS-498 1660-1665	106		0.003		3.5	0.10
RS-498 1665-1670	28		<0.001		2.2	0.06
RS-498 1670-1675	24		<0.001		2.8	0.08
RS-498 1675-1680	24		<0.001		3.6	0.11
RS-498 1680-1685	18		<0.001		2.6	0.08
RS-498 1685-1690	26		<0.001		1.5	0.04
RS-498 1690-1695	24		<0.001		1.1	0.03
RS-498 1695-1700	35		0.001		0.8	0.02
RS-498 1700-1705	28		<0.001		1.5	0.04
RS-498 1705-1710	83		0.002		2.9	0.08
RS-498 1710-1715	26		<0.001		0.8	0.02
RS-498 1715-1720	27		<0.001		4.6	0.13
RS-498 1720-1725	27		<0.001		6.0	0.18
RS-498 1725-1730	17		<0.001		13.1	0.38
RS-498 1730-1735	21		<0.001		2.6	0.08
RS-498 1735-1740	63		0.002		2.6	0.08
RS-498 1740-1745	20		<0.001		1.4	0.04
RS-498 1745-1750	13		<0.001		1.0	0.03

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1750-1755	<5		<0.001		1.1	0.03
RS-498 1755-1760	10		<0.001		0.6	<0.02
RS-498 1760-1765	8		<0.001		1.5	0.04
RS-498 1765-1770	13		<0.001		0.8	0.02
RS-498 1770-1775	15		<0.001		<0.5	<0.02
RS-498 1775-1780	13		<0.001		1.7	0.05
RS-498 1780-1785	9		<0.001		<0.5	<0.02
RS-498 1785-1790	7		<0.001		<0.5	<0.02
RS-498 1790-1795	7		<0.001		1.0	0.03
RS-498 1795-1800	9		<0.001		<0.5	<0.02
RS-498 1800-1805	<5		<0.001		2.3	0.07
RS-498 1805-1810	8		<0.001		3.5	0.10
RS-498 1810-1815	<5		<0.001		<0.5	<0.02
RS-498 1815-1820	8		<0.001		<0.5	<0.02
RS-498 1820-1825	22		<0.001		<0.5	<0.02
RS-498 1825-1830	21		<0.001		0.5	<0.02
RS-498 1830-1835	19		<0.001		0.9	0.03
RS-498 1835-1840	38		0.001		1.2	0.04
RS-498 1840-1845	129		0.004		2.0	0.06
RS-498 1845-1850	29		<0.001		1.5	0.04
RS-498 1850-1855	33		<0.001		0.8	0.02
RS-498 1855-1860	28		<0.001		1.0	0.03
RS-498 1860-1865	28		<0.001		1.5	0.04
RS-498 1865-1870	36		0.001		4.0	0.12
RS-498 1870-1875	19		<0.001		1.4	0.04

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1875-1880	12		<0.001		1.3	0.04
RS-498 1880-1885	27		<0.001		1.6	0.05
RS-498 1885-1890	9		<0.001		<0.5	<0.02
RS-498 1890-1895	6		<0.001		0.7	0.02
RS-498 1895-1900	5		<0.001		1.9	0.06
RS-498 1900-1905	23		<0.001		1.2	0.04
RS-498 1905-1910	12		<0.001		1.8	0.05
RS-498 1910-1915	16		<0.001		0.6	<0.02
RS-498 1915-1920	6		<0.001		0.7	0.02
RS-498 1920-1925	8		<0.001		0.8	0.02
RS-498 1925-1930	20		<0.001		0.5	<0.02
RS-498 1930-1935	15		<0.001		<0.5	<0.02
RS-498 1935-1940	15		<0.001		0.7	0.02
RS-498 1940-1945	19		<0.001		1.2	0.04
RS-498 1945-1950	9		<0.001		<0.5	<0.02
RS-498 1950-1955	<5		<0.001		0.6	<0.02
89679	1944		0.057		33.3	0.97

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American Assay Laboratories

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HECLA MINING COMPANY

COPIES TO : BRIAN MORRIS
: KURT ALLEN
:
:

CLIENT REFERENCE No: RS-498
No. SAMPLES : 392
MAIN SAMPLE TYPE : DRILL CUTTINGS

RECEIVED : 26 APR 2000
REPORTED : 18 MAY 2000

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	FA30	15%	ppb	5
Au(R)	FA30	15%	ppb	5
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
Ag	D210	10%	ppm	0.5
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Leonard E. Mackedon B.S.

AMERICAN ASSAY LABORATORIES

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0000-0005	<5		<0.001		<0.5	<0.02
RS-498 0005-0010	<5		<0.001		0.7	0.02
RS-498 0010-0015	<5		<0.001		<0.5	<0.02
RS-498 0015-0020	<5		<0.001		<0.5	<0.02
RS-498 0020-0025	<5		<0.001		<0.5	<0.02
RS-498 0025-0030	<5		<0.001		<0.5	<0.02
RS-498 0030-0035	<5		<0.001		<0.5	<0.02
RS-498 0035-0040	<5		<0.001		<0.5	<0.02
RS-498 0040-0045	<5		<0.001		<0.5	<0.02
RS-498 0045-0050	<5		<0.001		<0.5	<0.02
RS-498 0050-0055	<5		<0.001		<0.5	<0.02
RS-498 0055-0060	<5		<0.001		<0.5	<0.02
RS-498 0060-0065	5		<0.001		<0.5	<0.02
RS-498 0065-0070	<5		<0.001		<0.5	<0.02
RS-498 0070-0075	<5		<0.001		<0.5	<0.02
RS-498 0075-0080	<5		<0.001		<0.5	<0.02
RS-498 0080-0085	<5		<0.001		<0.5	<0.02
RS-498 0085-0090	6		<0.001		<0.5	<0.02
RS-498 0090-0095	<5		<0.001		<0.5	<0.02
RS-498 0095-0100	<5		<0.001		<0.5	<0.02
RS-498 0100-0105	<5		<0.001		<0.5	<0.02
RS-498 0105-0110	<5		<0.001		<0.5	<0.02
RS-498 0110-0115	<5		<0.001		<0.5	<0.02
RS-498 0115-0120	<5		<0.001		<0.5	<0.02
RS-498 0120-0125	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0125-0130	<5		<0.001		<0.5	<0.02
RS-498 0130-0135	<5		<0.001		<0.5	<0.02
RS-498 0135-0140	12		<0.001		<0.5	<0.02
RS-498 0140-0145	<5		<0.001		<0.5	<0.02
RS-498 0145-0150	<5		<0.001		<0.5	<0.02
RS-498 0150-0155	24		<0.001		<0.5	<0.02
RS-498 0155-0160	45		0.001		<0.5	<0.02
RS-498 0160-0165	26		<0.001		<0.5	<0.02
RS-498 0165-0170	90		0.003		<0.5	<0.02
RS-498 0170-0175	92		0.003		<0.5	<0.02
RS-498 0175-0180	20		<0.001		<0.5	<0.02
RS-498 0180-0185	<5		<0.001		<0.5	<0.02
RS-498 0185-0190	5		<0.001		<0.5	<0.02
RS-498 0190-0195	<5		<0.001		<0.5	<0.02
RS-498 0195-0200	<5		<0.001		<0.5	<0.02
RS-498 0200-0205	<5		<0.001		<0.5	<0.02
RS-498 0205-0210	187		0.005		1.8	0.05
RS-498 0210-0215	<5		<0.001		<0.5	<0.02
RS-498 0215-0220	<5		<0.001		<0.5	<0.02
RS-498 0220-0225	<5		<0.001		<0.5	<0.02
RS-498 0225-0230	<5		<0.001		<0.5	<0.02
RS-498 0230-0235	<5		<0.001		<0.5	<0.02
RS-498 0235-0240	<5		<0.001		<0.5	<0.02
RS-498 0240-0245	<5		<0.001		<0.5	<0.02
RS-498 0245-0250	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0250-0255	<5		<0.001		<0.5	<0.02
RS-498 0255-0260	<5		<0.001		<0.5	<0.02
RS-498 0260-0265	<5		<0.001		<0.5	<0.02
RS-498 0265-0270	<5		<0.001		<0.5	<0.02
RS-498 0270-0275	<5		<0.001		<0.5	<0.02
RS-498 0275-0280	<5		<0.001		<0.5	<0.02
RS-498 0280-0285	<5		<0.001		<0.5	<0.02
RS-498 0285-0290	8		<0.001		<0.5	<0.02
RS-498 0290-0295	<5		<0.001		<0.5	<0.02
RS-498 0295-0300	<5		<0.001		<0.5	<0.02
RS-498 0300-0305	<5		<0.001		<0.5	<0.02
RS-498 0305-0310	<5		<0.001		<0.5	<0.02
RS-498 0310-0315	<5		<0.001		<0.5	<0.02
RS-498 0315-0320	<5		<0.001		<0.5	<0.02
RS-498 0320-0325	<5		<0.001		<0.5	<0.02
RS-498 0325-0330	<5		<0.001		<0.5	<0.02
RS-498 0330-0335	<5		<0.001		<0.5	<0.02
RS-498 0335-0340	80		0.002		<0.5	<0.02
RS-498 0340-0345	23		<0.001		<0.5	<0.02
RS-498 0345-0350	40		0.001		<0.5	<0.02
RS-498 0350-0355	<5		<0.001		<0.5	<0.02
RS-498 0355-0360	<5		<0.001		<0.5	<0.02
RS-498 0360-0365	8		<0.001		<0.5	<0.02
RS-498 0365-0370	<5		<0.001		<0.5	<0.02
RS-498 0370-0375	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0375-0380	<5		<0.001		<0.5	<0.02
RS-498 0380-0385	<5		<0.001		<0.5	<0.02
RS-498 0385-0390	<5		<0.001		<0.5	<0.02
RS-498 0390-0395	<5		<0.001		<0.5	<0.02
RS-498 0395-0400	<5		<0.001		<0.5	<0.02
RS-498 0400-0405	<5		<0.001		<0.5	<0.02
RS-498 0405-0410	<5		<0.001		<0.5	<0.02
RS-498 0410-0415	<5		<0.001		<0.5	<0.02
RS-498 0415-0420	<5		<0.001		<0.5	<0.02
RS-498 0420-0425	<5		<0.001		<0.5	<0.02
RS-498 0425-0430	<5		<0.001		<0.5	<0.02
RS-498 0430-0435	<5		<0.001		<0.5	<0.02
RS-498 0435-0440	<5		<0.001		<0.5	<0.02
RS-498 0440-0445	<5		<0.001		<0.5	<0.02
RS-498 0445-0450	<5		<0.001		<0.5	<0.02
RS-498 0450-0455	<5		<0.001		<0.5	<0.02
RS-498 0455-0460	<5		<0.001		<0.5	<0.02
RS-498 0460-0465	<5		<0.001		<0.5	<0.02
RS-498 0465-0470	<5		<0.001		<0.5	<0.02
RS-498 0470-0475	<5		<0.001		<0.5	<0.02
RS-498 0475-0480	<5		<0.001		<0.5	<0.02
RS-498 0480-0485	<5		<0.001		<0.5	<0.02
RS-498 0485-0490	<5		<0.001		<0.5	<0.02
RS-498 0490-0495	<5		<0.001		<0.5	<0.02
RS-498 0495-0500	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0500-0505	<5		<0.001		<0.5	<0.02
RS-498 0505-0510	<5		<0.001		<0.5	<0.02
RS-498 0510-0515	<5		<0.001		<0.5	<0.02
RS-498 0515-0520	<5		<0.001		<0.5	<0.02
RS-498 0520-0525	<5		<0.001		<0.5	<0.02
RS-498 0525-0530	<5		<0.001		<0.5	<0.02
RS-498 0530-0535	<5		<0.001		<0.5	<0.02
RS-498 0535-0540	<5		<0.001		<0.5	<0.02
RS-498 0540-0545	<5		<0.001		<0.5	<0.02
RS-498 0545-0550	<5		<0.001		<0.5	<0.02
RS-498 0550-0555	<5		<0.001		<0.5	<0.02
RS-498 0555-0560	<5		<0.001		<0.5	<0.02
RS-498 0560-0565	<5		<0.001		<0.5	<0.02
RS-498 0565-0570	<5		<0.001		<0.5	<0.02
RS-498 0570-0575	<5		<0.001		<0.5	<0.02
RS-498 0575-0580	<5		<0.001		<0.5	<0.02
RS-498 0580-0585	<5		<0.001		<0.5	<0.02
RS-498 0585-0590	<5		<0.001		<0.5	<0.02
RS-498 0590-0595	<5		<0.001		<0.5	<0.02
RS-498 0595-0600	<5		<0.001		<0.5	<0.02
RS-498 0600-0605	<5		<0.001		<0.5	<0.02
RS-498 0605-0610	<5		<0.001		<0.5	<0.02
RS-498 0610-0615	<5		<0.001		<0.5	<0.02
RS-498 0615-0620	<5		<0.001		<0.5	<0.02
RS-498 0620-0625	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0625-0630	<5		<0.001		<0.5	<0.02
RS-498 0630-0635	<5		<0.001		<0.5	<0.02
RS-498 0635-0640	<5		<0.001		<0.5	<0.02
RS-498 0640-0645	<5		<0.001		<0.5	<0.02
RS-498 0645-0650	<5		<0.001		<0.5	<0.02
RS-498 0650-0655	<5		<0.001		<0.5	<0.02
RS-498 0655-0660	9		<0.001		<0.5	<0.02
RS-498 0660-0665	<5		<0.001		<0.5	<0.02
RS-498 0665-0670	<5		<0.001		<0.5	<0.02
RS-498 0670-0675	<5		<0.001		<0.5	<0.02
RS-498 0675-0680	194		0.006		<0.5	<0.02
RS-498 0680-0685	100		0.003		<0.5	<0.02
RS-498 0685-0690	46		0.001		<0.5	<0.02
RS-498 0690-0695	16		<0.001		<0.5	<0.02
RS-498 0695-0700	<5		<0.001		<0.5	<0.02
RS-498 0700-0705	<5		<0.001		<0.5	<0.02
RS-498 0705-0710	<5		<0.001		<0.5	<0.02
RS-498 0710-0715	54		0.002		<0.5	<0.02
RS-498 0715-0720	330		0.010		<0.5	<0.02
RS-498 0720-0725	104		0.003		<0.5	<0.02
RS-498 0725-0730	20		<0.001		<0.5	<0.02
RS-498 0730-0735	7		<0.001		<0.5	<0.02
RS-498 0735-0740	5		<0.001		<0.5	<0.02
RS-498 0740-0745	6		<0.001		<0.5	<0.02
RS-498 0745-0750	7		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0750-0755	<5		<0.001		<0.5	<0.02
RS-498 0755-0760	<5		<0.001		<0.5	<0.02
RS-498 0760-0765	<5		<0.001		<0.5	<0.02
RS-498 0765-0770	10		<0.001		<0.5	<0.02
RS-498 0770-0775	<5		<0.001		<0.5	<0.02
RS-498 0775-0780	<5		<0.001		<0.5	<0.02
RS-498 0780-0785	<5		<0.001		<0.5	<0.02
RS-498 0785-0790	<5		<0.001		<0.5	<0.02
RS-498 0790-0795	<5		<0.001		<0.5	<0.02
RS-498 0795-0800	<5		<0.001		<0.5	<0.02
RS-498 0800-0805	<5		<0.001		<0.5	<0.02
RS-498 0805-0810	<5		<0.001		<0.5	<0.02
RS-498 0810-0815	<5		<0.001		<0.5	<0.02
RS-498 0815-0820	<5		<0.001		<0.5	<0.02
RS-498 0820-0825	22		<0.001		<0.5	<0.02
RS-498 0825-0830	36		0.001		<0.5	<0.02
RS-498 0830-0835	13		<0.001		<0.5	<0.02
RS-498 0835-0840	<5		<0.001		<0.5	<0.02
RS-498 0840-0845	<5		<0.001		<0.5	<0.02
RS-498 0845-0850	117		0.003		<0.5	<0.02
RS-498 0850-0855	72		0.002		<0.5	<0.02
RS-498 0855-0860	<5		<0.001		<0.5	<0.02
RS-498 0860-0865	<5		<0.001		<0.5	<0.02
RS-498 0865-0870	<5		<0.001		<0.5	<0.02
RS-498 0870-0875	8		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 0875-0880	7		<0.001		<0.5	<0.02
RS-498 0880-0885	<5		<0.001		<0.5	<0.02
RS-498 0885-0890	<5		<0.001		<0.5	<0.02
RS-498 0890-0895	<5		<0.001		<0.5	<0.02
RS-498 0895-0900	<5		<0.001		<0.5	<0.02
RS-498 0900-0905	<5		<0.001		<0.5	<0.02
RS-498 0905-0910	<5		<0.001		<0.5	<0.02
RS-498 0910-0915	<5		<0.001		<0.5	<0.02
RS-498 0915-0920	<5		<0.001		<0.5	<0.02
RS-498 0920-0925	<5		<0.001		<0.5	<0.02
RS-498 0925-0930	<5		<0.001		<0.5	<0.02
RS-498 0930-0935	<5		<0.001		<0.5	<0.02
RS-498 0935-0940	<5		<0.001		<0.5	<0.02
RS-498 0940-0945	<5		<0.001		<0.5	<0.02
RS-498 0945-0950	<5		<0.001		<0.5	<0.02
RS-498 0950-0955	<5		<0.001		<0.5	<0.02
RS-498 0955-0960	8		<0.001		<0.5	<0.02
RS-498 0960-0965	<5		<0.001		<0.5	<0.02
RS-498 0965-0970	<5		<0.001		<0.5	<0.02
RS-498 0970-0975	<5		<0.001		<0.5	<0.02
RS-498 0975-0980	<5		<0.001		<0.5	<0.02
RS-498 0980-0985	<5		<0.001		<0.5	<0.02
RS-498 0985-0990	<5		<0.001		<0.5	<0.02
RS-498 0990-0995	<5		<0.001		<0.5	<0.02
RS-498 0995-1000	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1000-1005	<5		<0.001		<0.5	<0.02
RS-498 1005-1010	<5		<0.001		<0.5	<0.02
RS-498 1010-1015	<5		<0.001		<0.5	<0.02
RS-498 1015-1020	<5		<0.001		<0.5	<0.02
RS-498 1020-1025	<5		<0.001		<0.5	<0.02
RS-498 1025-1030	<5		<0.001		<0.5	<0.02
RS-498 1030-1035	<5		<0.001		<0.5	<0.02
RS-498 1035-1040	<5		<0.001		<0.5	<0.02
RS-498 1040-1045	<5		<0.001		<0.5	<0.02
RS-498 1045-1050	<5		<0.001		<0.5	<0.02
RS-498 1050-1055	<5		<0.001		<0.5	<0.02
RS-498 1055-1060	<5		<0.001		<0.5	<0.02
RS-498 1060-1065	<5		<0.001		<0.5	<0.02
RS-498 1065-1070	<5		<0.001		<0.5	<0.02
RS-498 1070-1075	<5		<0.001		<0.5	<0.02
RS-498 1075-1080	7		<0.001		<0.5	<0.02
RS-498 1080-1085	5		<0.001		<0.5	<0.02
RS-498 1085-1090	<5		<0.001		<0.5	<0.02
RS-498 1090-1095	<5		<0.001		<0.5	<0.02
RS-498 1095-1100	<5		<0.001		<0.5	<0.02
RS-498 1100-1105	<5		<0.001		<0.5	<0.02
RS-498 1105-1110	<5		<0.001		<0.5	<0.02
RS-498 1110-1115	<5		<0.001		<0.5	<0.02
RS-498 1115-1120	<5		<0.001		<0.5	<0.02
RS-498 1120-1125	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1250-1255	<5		<0.001		<0.5	<0.02
RS-498 1255-1260	<5		<0.001		<0.5	<0.02
RS-498 1260-1265	<5		<0.001		<0.5	<0.02
RS-498 1265-1270	<5		<0.001		<0.5	<0.02
RS-498 1270-1275	<5		<0.001		<0.5	<0.02
RS-498 1275-1280	<5		<0.001		<0.5	<0.02
RS-498 1280-1285	<5		<0.001		<0.5	<0.02
RS-498 1285-1290	<5		<0.001		<0.5	<0.02
RS-498 1290-1295	<5		<0.001		<0.5	<0.02
RS-498 1295-1300	<5		<0.001		<0.5	<0.02
RS-498 1300-1305	<5		<0.001		<0.5	<0.02
RS-498 1305-1310	15		<0.001		<0.5	<0.02
RS-498 1310-1315	<5		<0.001		<0.5	<0.02
RS-498 1315-1320	20		<0.001		<0.5	<0.02
RS-498 1320-1325	<5		<0.001		<0.5	<0.02
RS-498 1325-1330	<5		<0.001		<0.5	<0.02
RS-498 1330-1335	<5		<0.001		<0.5	<0.02
RS-498 1335-1340	<5		<0.001		<0.5	<0.02
RS-498 1340-1345	<5		<0.001		<0.5	<0.02
RS-498 1345-1350	<5		<0.001		<0.5	<0.02
RS-498 1350-1355	7		<0.001		<0.5	<0.02
RS-498 1355-1360	12		<0.001		<0.5	<0.02
RS-498 1360-1365	24		<0.001		<0.5	<0.02
RS-498 1365-1370	8		<0.001		<0.5	<0.02
RS-498 1370-1375	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1375-1380	<5		<0.001		<0.5	<0.02
RS-498 1380-1385	<5		<0.001		<0.5	<0.02
RS-498 1385-1390	<5		<0.001		<0.5	<0.02
RS-498 1390-1395	<5		<0.001		1.2	0.04
RS-498 1395-1400	<5		<0.001		<0.5	<0.02
RS-498 1400-1405	<5		<0.001		<0.5	<0.02
RS-498 1405-1410	<5		<0.001		<0.5	<0.02
RS-498 1410-1415	<5		<0.001		<0.5	<0.02
RS-498 1415-1420	<5		<0.001		<0.5	<0.02
RS-498 1420-1425	<5		<0.001		<0.5	<0.02
RS-498 1425-1430	<5		<0.001		<0.5	<0.02
RS-498 1430-1435	<5		<0.001		<0.5	<0.02
RS-498 1435-1440	<5		<0.001		<0.5	<0.02
RS-498 1440-1445	<5		<0.001		<0.5	<0.02
RS-498 1445-1450	<5		<0.001		<0.5	<0.02
RS-498 1450-1455	<5		<0.001		<0.5	<0.02
RS-498 1455-1460	<5		<0.001		<0.5	<0.02
RS-498 1460-1465	12		<0.001		1.3	0.04
RS-498 1465-1470	27		<0.001		2.4	0.07
RS-498 1470-1475	27		<0.001		1.5	0.04
RS-498 1475-1480	92		0.003		3.6	0.11
RS-498 1480-1485	16		<0.001		1.2	0.04
RS-498 1485-1490	11		<0.001		0.9	0.03
RS-498 1490-1495	22		<0.001		1.3	0.04
RS-498 1495-1500	23		<0.001		1.7	0.05

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1500-1505	30		<0.001		3.4	0.10
RS-498 1505-1510	59		0.002		2.6	0.08
RS-498 1510-1515	30		<0.001		1.7	0.05
RS-498 1515-1520	87		0.003		1.8	0.05
RS-498 1520-1525	28		<0.001		1.8	0.05
RS-498 1525-1530	38		0.001		1.6	0.05
RS-498 1530-1535	80		0.002		2.6	0.08
RS-498 1535-1540	135		0.004		3.0	0.09
RS-498 1540-1545	63		0.002		2.6	0.08
RS-498 1545-1550	291		0.008		3.2	0.09
RS-498 1550-1555	117		0.003		2.6	0.08
RS-498 1555-1560	191		0.006		3.2	0.09
RS-498 1560-1565	238		0.007		13.7	0.40
RS-498 1565-1570	113		0.003		4.3	0.13
RS-498 1570-1575	85		0.002		3.8	0.11
RS-498 1575-1580	44		0.001		1.8	0.05
RS-498 1580-1585	31		<0.001		1.6	0.05
RS-498 1585-1590	30		<0.001		1.6	0.05
RS-498 1590-1595	46		0.001		1.5	0.04
RS-498 1595-1600	37		0.001		1.6	0.05
RS-498 1600-1605	24		<0.001		1.3	0.04
RS-498 1605-1610	59		0.002		125.6	3.66
RS-498 1610-1615	29		<0.001		22.1	0.64
RS-498 1615-1620	212		0.006		1111.0	32.41
RS-498 1620-1625	82		0.002		204.0	5.95

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1625-1630	68		0.002		71.1	2.07
RS-498 1630-1635	22		<0.001		18.5	0.54
RS-498 1635-1640	53		0.002		39.9	1.16
RS-498 1640-1645	59		0.002		14.7	0.43
RS-498 1645-1650	31		<0.001		9.6	0.28
RS-498 1650-1655	20		<0.001		24.5	0.71
RS-498 1655-1660	28		<0.001		6.7	0.20
RS-498 1660-1665	106		0.003		3.5	0.10
RS-498 1665-1670	28		<0.001		2.2	0.06
RS-498 1670-1675	24		<0.001		2.8	0.08
RS-498 1675-1680	24		<0.001		3.6	0.11
RS-498 1680-1685	18		<0.001		2.6	0.08
RS-498 1685-1690	26		<0.001		1.5	0.04
RS-498 1690-1695	24		<0.001		1.1	0.03
RS-498 1695-1700	35		0.001		0.8	0.02
RS-498 1700-1705	28		<0.001		1.5	0.04
RS-498 1705-1710	83		0.002		2.9	0.08
RS-498 1710-1715	26		<0.001		0.8	0.02
RS-498 1715-1720	27		<0.001		4.6	0.13
RS-498 1720-1725	27		<0.001		6.0	0.18
RS-498 1725-1730	17		<0.001		13.1	0.38
RS-498 1730-1735	21		<0.001		2.6	0.08
RS-498 1735-1740	63		0.002		2.6	0.08
RS-498 1740-1745	20		<0.001		1.4	0.04
RS-498 1745-1750	13		<0.001		1.0	0.03

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REFERENCE : RS-498

REPORTED : 18 MAY 2000

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1750-1755	<5		<0.001		1.1	0.03
RS-498 1755-1760	10		<0.001		0.6	<0.02
RS-498 1760-1765	8		<0.001		1.5	0.04
RS-498 1765-1770	13		<0.001		0.8	0.02
RS-498 1770-1775	15		<0.001		<0.5	<0.02
RS-498 1775-1780	13		<0.001		1.7	0.05
RS-498 1780-1785	9		<0.001		<0.5	<0.02
RS-498 1785-1790	7		<0.001		<0.5	<0.02
RS-498 1790-1795	7		<0.001		1.0	0.03
RS-498 1795-1800	9		<0.001		<0.5	<0.02
RS-498 1800-1805	<5		<0.001		2.3	0.07
RS-498 1805-1810	8		<0.001		3.5	0.10
RS-498 1810-1815	<5		<0.001		<0.5	<0.02
RS-498 1815-1820	8		<0.001		<0.5	<0.02
RS-498 1820-1825	22		<0.001		<0.5	<0.02
RS-498 1825-1830	21		<0.001		0.5	<0.02
RS-498 1830-1835	19		<0.001		0.9	0.03
RS-498 1835-1840	38		0.001		1.2	0.04
RS-498 1840-1845	129		0.004		2.0	0.06
RS-498 1845-1850	29		<0.001		1.5	0.04
RS-498 1850-1855	33		<0.001		0.8	0.02
RS-498 1855-1860	28		<0.001		1.0	0.03
RS-498 1860-1865	28		<0.001		1.5	0.04
RS-498 1865-1870	36		0.001		4.0	0.12
RS-498 1870-1875	19		<0.001		1.4	0.04

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP057167

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-498

REPORTED : 18 MAY 2000

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-498 1875-1880	12		<0.001		1.3	0.04
RS-498 1880-1885	27		<0.001		1.6	0.05
RS-498 1885-1890	9		<0.001		<0.5	<0.02
RS-498 1890-1895	6		<0.001		0.7	0.02
RS-498 1895-1900	5		<0.001		1.9	0.06
RS-498 1900-1905	23		<0.001		1.2	0.04
RS-498 1905-1910	12		<0.001		1.8	0.05
RS-498 1910-1915	16		<0.001		0.6	<0.02
RS-498 1915-1920	6		<0.001		0.7	0.02
RS-498 1920-1925	8		<0.001		0.8	0.02
RS-498 1925-1930	20		<0.001		0.5	<0.02
RS-498 1930-1935	15		<0.001		<0.5	<0.02
RS-498 1935-1940	15		<0.001		0.7	0.02
RS-498 1940-1945	19		<0.001		1.2	0.04
RS-498 1945-1950	9		<0.001		<0.5	<0.02
RS-498 1950-1955	<5		<0.001		0.6	<0.02
89679	1944		0.057		33.3	0.97

AMERICAN ASSAY LABORATORIES
AAL 03-0 ICP PACKAGE DETECTION LIMITS

ELEMENT	Ag	Al	As	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
	30	0.01	0.5	3	1	0.1	0.01	.01	1	1	0.2	0.01	0.5	10	0.01	1	0.01	2	0.1	0.01	1	0.001	0.3	0.2	0.4	1	0.2	2	0.01	0.2	5	1	2	1

5.0 GRAMS OF PULP IS DIGESTED WITH HYDROCHLORIC AND NITRIC ACID AT 95 DEGREE CENTIGRADE FOR ONE HOUR.
DIGEST IS PARTIAL FOR Al, B, Ba, Ca, Co, Cr, Fe, K, La, Mg, Mn, Na, Ni, P, Sr, Th, Ti, U, V AND W.
ORGANIC SOLUTION EXTRACTION AND ULTRASONIC ICP FOR Ag, As, Bi, Cd, Cu, Ga, Mo, Pb, Sb, Se, Te AND Tl.
Hg BY COLD VAPOR AAS.

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431
PHONE: (775) 356-0606
FAX: (775) 356-1413

CLIENT:	HECLA MINING CO.
CLIENT REF:	KURT ALLEN
AAL REF:	SP57167
METHOD:	AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-498 0000-0020	34	0.94	4.7	2.5	7	123.80	0.06	0.26	0.03	0.90	2.1	13.37	1.98	3.7	52	0.18	19.6	0.11	79	0.82	0.052	2.8	0.025	43.67	0.07	2.9	1.6	0.2	64.4	< .02	9.8	0.023	0.12	0.9	7	0.4	47.1
RS-498 0020-0040	20	0.94	3	1.3	4	56.30	0.05	0.28	0.03	1.30	2.2	16.36	2.26	3.7	21	0.14	17.5	0.09	103	1.13	0.045	3.4	0.033	23.24	0.02	1.62	1.4	0.1	36.7	< .02	9.3	0.027	0.08	1.4	6	0.4	80.6
RS-498 0040-0060	283	0.73	2.5	1.1	5	268.60	0.07	0.3	0.3	7.60	3.2	12.39	2.25	3.5	29	0.13	19.4	0.07	3700	1.36	0.033	2.7	0.03	21.26	< .01	3.89	1.2	0.2	32.2	< .02	9.3	0.022	2.11	1.2	5	0.7	151
RS-498 0060-0080	62	0.79	3.5	0.8	3	116.90	0.15	0.2	0.05	1.60	1.7	9.43	2.28	3.1	79	0.14	20.9	0.05	784	0.95	0.018	2.1	0.047	15.8	0.02	5.56	1.4	0.4	33.4	< .02	10	0.025	0.8	1.7	5	0.5	66.1
RS-498 0080-0100	66	0.88	2.0	0.5	5	99.60	0.17	0.23	0.04	1.60	3.8	17.6	2.16	3.3	34	0.13	18.4	0.05	479	1.02	0.021	3.7	0.028	28.36	0.01	3.5	1.4	0.2	19	< .02	8.8	0.027	1.07	1.4	6	0.3	83.3
RS-498 0100-0120	141	0.76	5.3	1.7	2	201.40	0.17	0.21	0.22	6.50	4.4	28.6	2.55	3.8	101	0.16	18.3	0.06	3035	1.46	0.036	6	0.034	18.9	0.01	2.44	1.4	0.3	27	< .02	9.5	0.027	1.23	1.2	5	0.5	125.9
RS-498 0120-0140	152	1.06	2.3	0.5	3	145.70	0.82	0.18	0.2	3.90	2.9	16.4	2.89	4.7	167	0.21	22.2	0.1	2663	1.96	0.037	2.8	0.048	20.98	< .01	2.9	1.5	0.2	24.9	< .02	10.3	0.024	1.86	1.4	5	0.4	133.9
RS-498 0140-0160	55	0.91	13.5	14.3	1.0	211.70	0.13	0.1	0.02	0.40	2.7	12.23	1.96	5.3	2374	0.14	24.3	0.01	479	1.6	0.011	2.1	0.058	21.82	0.15	17.2	0.8	1.5	299.5	< .02	10.3	0.002	1.57	1	4	< .2	17.2
RS-498 0160-0180	57	1.01	44.7	57.1	1	93.20	0.6	0.06	< .01	0.30	3.3	23.14	3.54	5.5	5766	0.05	18.8	0.01	90	6.9	0.005	4.2	0.048	22	0.04	32.95	0.9	3.7	299.1	0.03	8	< .001	0.38	1.1	4	0.3	19.9
RS-498 0180-0200	33	0.9	5.4	3.2	2	87.20	0.27	0.08	0.02	0.60	2.7	10.06	1.68	3.2	1480	0.12	19.6	0.03	58	1.42	0.011	1.2	0.03	64.47	0.02	11.13	1.3	1.3	140.8	< .02	10.6	0.025	0.22	0.9	4	0.4	30.8
RS-498 0200-0220	553	0.98	80.5	58.5	3	104.50	0.07	0.02	0.03	5.60	2.3	14.26	2.4	4.3	20407	0.11	16.6	0.01	46	3.95	0.01	2.6	0.019	24.47	1.81	76.68	1	19.7	50.8	< .02	6.8	0.009	0.82	0.8	3	0.3	16.4
RS-498 0220-0240	87	1.2	7.2	2.7	4	176.80	0.82	0.01	0.01	1.20	2.5	13.7	1.92	4.8	580	0.18	18.9	0.04	87	1.21	0.016	2.1	0.026	42.82	0.2	12	1.6	0.8	29.9	< .02	8.9	0.03	0.3	1	5	0.5	34.4
RS-498 0240-0260	56	0.93	17.1	8.1	2	105.50	0.08	< .01	0.05	1.00	3.5	22.19	1.56	3.7	2963	0.15	19.7	0.02	51	1.45	0.01	3.6	0.026	80.77	0.34	11.84	0.9	1.2	16.6	< .02	7.8	0.015	0.24	1.3	3	0.5	34.5
RS-498 0260-0280	63	1.01	3.1	2.1	4	142.50	0.17	< .01	0.01	0.50	1.6	8.26	2.05	3.4	238	0.16	21.8	0.04	90	0.72	0.01	1.6	0.041	16.01	0.03	7.87	1.5	0.3	13.1	< .02	9.2	0.038	0.26	1.4	5	0.6	30.6
RS-498 0280-0300	60	1.15	17.9	3.5	3	80.90	0.81	0.01	0.07	3.00	2.6	9.9	1.81	3.5	4972	0.12	19.4	0.03	77	1.51	0.012	21.1	0.051	24.44	0.85	15.21	1.9	1.3	14.1	< .02	7	0.024	0.32	5.3	4	0.6	26.7
RS-498 0300-0320	68	1.09	8.0	1.4	3	132.30	1.31	0.17	0.47	3.40	7.4	9.22	3.07	4.5	601	0.2	17.7	0.11	1770	1.99	0.047	134.2	0.048	33.26	0.02	4.99	1.5	0.5	9.9	< .02	8.8	0.054	0.31	1.2	6	0.6	189.3
RS-498 0320-0340	70	0.93	13.9	16.2	3	134.00	0.18	0.22	0.25	4.10	5.5	10.14	3.08	4.9	408	0.21	16.9	0.13	1464	2.03	0.049	119.5	0.045	24.17	0.23	5.96	1.5	1.6	20.4	< .02	8.8	0.046	0.42	0.8	6	0.5	200.6
RS-498 0340-0360	58	0.77	16.0	11.5	3	80.60	0.08	0.3	0.08	3.70	5.5	7.85	3.26	4.5	325	0.2	13.6	0.14	1402	2.81	0.05	147.2	0.043	12.26	0.43	10.07	1.3	1.6	9.4	< .02	8.6	0.046	0.35	0.8	6	0.5	169.2
RS-498 0360-0380	81	0.76	4.3	4.2	1	67.50	0.1	0.85	0.17	3.10	3.9	13.26	2.73	5	105	0.2	15	0.16	1465	3.14	0.057	110.2	0.039	81.27	0.24	3.7	1.4	0.2	22.5	< .02	9.2	0.052	0.25	1.5	6	0.4	111.9
RS-498 0380-0400	87	0.67	2.9	1.7	3	62.50	0.37	0.32	0.19	3.30	7.9	14.8	3.31	5.6	74	0.19	13	0.24	1362	4.78	0.088	190	0.044	23.5	0.08	3.25	1.3	0.2	14.3	< .02	9.8	0.054	0.11	1.2	7	0.3	118.8
RS-498 0400-0420	80	0.8	4.8	2.1	1	56.30	0.07	0.98	0.13	3.30	6.8	12.89	3.08	5.8	95	0.15	14.1	0.33	975	4.11	0.063	159.4	0.043	17.88	0.17	3.41	1.2	0.4	45.4	< .02	8.8	0.064	0.09	1	6	0.2	94.5
RS-498 0420-0440	86	0.44	4.4	1	4	52.00	0.05	0.62	0.18	3.00	5.4	37.73	2.82	4.4	53	0.15	11.9	0.2	1266	4.62	0.063	42.5	0.04	19.49	< .01	1.57	1.4	0.2	19.2	< .02	9.5	0.112	0.08	1	6	0.2	98
RS-498 0440-0460	94	0.86	2.4	0.7	1	69.60	0.07	0.69	0.17	3.40	6.2	50.53	2.96	5.9	42	0.2	12.7	0.36	889	3.83	0.093	10.1	0.042	31.18	0.05	1.32	1.4	0.3	25.2	0.02	8.8	0.091	0.09	1	6	0.3	100.3
RS-498 0460-0480	99	0.91	1.2	4.3	3	69.00	0.06	0.68	0.16	3.40	7	50.21	2.9	6.3	32	0.23	13.1	0.34	884	4.08	0.109	9.6	0.044	28.39	< .01	0.4	1.6	0.2	27	< .02	9.7	0.12	0.08	1.1	6	0.5	103.1
RS-498 0480-0500	71	0.87	1.8	2.6	1	57.80	0.04	1.06	0.12	3.30	5.9	39.17	3.03	6	33	0.2	14.7	0.27	1123	3.69	0.078	7.6	0.043	32.47	< .01	0.62	1.4	0.2	33.9	< .02	9.4	0.115	0.07	1.4	6	0.6	98.1
RS-498 0500-0520	57	0.72	2.7	1.9	3	66.00	0.04	0.93	0.13	2.80	4	38.53	2.67	4.8	28	0.21	14.5	0.15	1252	2.29	0.075	7.8	0.042	18.41	< .01	1.36	1.3	0.2	31.5	< .02	10.4	0.072	0.09	1.6	6	0.7	87.8
RS-498 0520-0540	53	0.72	3.8	1.3	3	138.50	0.04	1.04	0.22	2.50	4.4	30.19	2.6	4.6	20	0.19	14.1	0.15	1184	2.25	0.062	5.7	0.043	24.16	< .01	1.32	1.3	0.2	35	< .02	10.2	0.036	0.07	1.2	6	0.7	85.1
RS-498 0540-0560	38	0.69	3.7	1.3	4	65.60	0.04	0.92	0.21	2.80	4.8	48.05	2.63	4.5	17	0.18	12	0.16	1065	1.88	0.067	8	0.041	87.49	< .01	0.51	1.4	0.2	30.8	< .02	9	0.045	0.07	1.1	6	0.5	104.7
RS-498 0560-0580	56	0.84	3.2	1.1	3	61.60	0.04	1.07	0.17	2.90	3.8	37.15	2.53	4.8	16	0.19	13.8	0.19	1126	1.84	0.061	6.8	0.042	35.12	< .01	0.86	1.4	0.2	36	< .02	9.3	0.04	0.06	1.4	7	0.7	93.6
RS-498 0580-0600	51	0.8	2	1	3.0	55.30	0.0	0.89	0.16	2.50	3.8	27.85	2.33	4.5	19	0.19	14.4	0.15	840	1.91	0.065	5.4	0.044	14.16	0.01	2.18	1.2	0.2	32.9	< .02	9.2	0.061	0.07	1.2	6	1.1	83.1
RS-498 0600-0620	79	0.97	2.2	0.9	2	78.7	0.03	1	0.19	3.7	3.3	21.5	2.67	5.5	12	0.19	17.1	0.17	950	2.44	0.063	4.3	0.045	10.82	< .01	3.24	1.3	0.1	39.4	< .02	9.3	0.071	0.07	1.4	5	0.6	95.1
RS-498 0620-0640	48	0.96	2.3	1.2	2	60.4	0.03	0.79	0.13	2.7	2.5	12.21	2.52	5.5	16	0.19	19.2	0.17	644	1.43	0.046	3.1	0.047	7.54	< .01	5.72	1.5	0.2	34.5	< .02	9.4	0.05	0.07	1.1	6	0.6	71
RS-498 0640-0660	65	0.89	1.6	1.1	2	83.1	0.06	1.28	0.17	2.1	2	4.21	2.58	4.4	29	0.18	19.9	0.13	1049	1.75	0.019	1.9	0.073	6.59	< .01	5.67	1.4	0.2	38.3	< .02	9	0.06	0.07	2.4	6	0.6	90.9
STANDARD DS2	261	1.76	58.1	195	2	155.8	11.11	0.54	10.41	11.3	163.3	131.26	3.14	6.2	230	0.16	16.1	0.61	849	14.23	0.03	37.4	0.094	31.96	0.03	9.69	3	2.2	29.1	1.84	3.7	0.094	1.88	17.6	76	6.7	164.8
RS-498 0660-0680	137	0.97	8.8	38.9	3	128.9	0.04	0.22	0.07	1.7	2	3.45	2.32	3.8	439	0.15	21.2	0.06	399	6.69	0.011	1.2	0.053	14.72	1.26	20.26	1	3.9	12.9	< .02	7.1	0.04	0.44	0.9	5	1.4	58

AMERICAN ASSAY LABORATORIES
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CLIENT:	HECLA MINING CO.
CLIENT REF:	KURT ALLEN
AAL REF:	SP57167
METHOD:	AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Tl	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-498 0680-0700	119	0.97	6.5	33.2	1	196.9	0.14	0.31	0.05	1.1	2.7	4.86	2.32	3.9	452	0.15	19.4	0.07	620	10.55	0.012	2.3	0.046	10.85	0.77	15.45	1.1	2.9	16	< .02	7.2	0.027	0.28	1.3	7	1.4	40.3
RS-498 0700-0720	102	1.5	25.4	86.2	4	138.4	0.31	0.16	0.12	8.3	2.2	4.62	1.82	5.1	1406	0.15	20.6	0.05	541	2.29	0.012	1.9	0.045	21.94	1.44	15.35	0.9	3	8.7	< .02	7.1	0.011	0.42	2.1	5	0.5	91.3
RS-498 0720-0740	69	1.11	12.3	28.6	2	156.8	0.06	0.18	0.06	6.7	1.6	3.22	1.93	4.1	597	0.16	21	0.07	168	1.59	0.012	1.1	0.048	17.11	0.51	13.97	1.1	1	10.6	< .02	8.4	0.039	0.21	1.6	5	1.3	60.6
RS-498 0740-0760	63	1.09	3.6	4.2	1	55.9	0.28	0.36	0.08	1.7	2.5	4.98	2.22	4.6	211	0.19	15.3	0.15	302	1.47	0.042	1.8	0.045	6.44	0.16	7.4	1.4	0.4	26.6	< .02	8.7	0.031	0.08	1.1	6	0.7	57.2
RS-498 0760-0780	35	0.89	2.5	2.5	3	65.4	0.02	0.62	0.12	2.3	3.3	6.73	2.33	4.6	192	0.2	12.6	0.14	575	2.13	0.064	2.8	0.043	4.86	0.03	4.45	1.7	0.4	36.9	< .02	9	0.034	0.09	1.3	7	0.5	63.3
RS-498 0780-0800	34	0.96	1.8	0.6	3	63.3	0.05	0.73	0.08	2.3	3.4	5.05	2.36	4.7	72	0.19	13.1	0.18	608	1.86	0.058	2.5	0.044	4.38	0.01	1.5	1.6	0.3	31.9	< .02	9.4	0.035	0.08	1.5	7	0.4	74.5
RS-498 0800-0820	45	0.95	2	2.3	2	59.9	0.04	1.35	0.11	2.2	2.8	5.19	2.46	4.4	92	0.17	16.7	0.15	915	2.1	0.035	1.6	0.048	19.71	0.13	3.35	1.6	0.5	38.9	< .02	8.7	0.034	0.1	1.1	6	0.7	66.5
RS-498 0820-0840	150	1.07	8.6	13.4	2	29.8	0.09	0.27	0.24	3.3	2.5	5.5	2.39	4	1071	0.12	20.5	0.06	1699	1.91	0.01	1.2	0.048	24.04	1.39	12.42	1	1.8	9.8	< .02	6.9	0.024	0.25	1.1	4	1.1	91.1
RS-498 0840-0860	61	0.82	14.2	42.4	1	43.5	0.04	0.62	0.13	3.4	2.6	4.29	2.38	3.8	467	0.13	20.6	0.06	526	1.79	0.013	30.6	0.048	14.56	1.57	12.62	1.2	2.4	21.2	< .02	7.1	0.023	0.28	1.2	5	0.8	71.9
RS-498 0860-0880	102	0.97	3.6	12.1	2	76.4	0.03	1.13	0.13	3.2	4.1	5.24	2.52	4.6	140	0.17	16.3	0.19	711	2.19	0.043	51.4	0.044	9.98	0.12	3.43	1.5	0.8	38.1	< .02	8.3	0.041	0.1	1.2	6	0.6	90.5
RS-498 0880-0900	38	0.94	2.7	2.6	2	56	0.02	0.84	0.11	2.7	3.1	5.12	2.39	4.9	45	0.2	14.4	0.2	711	1.87	0.055	76.7	0.042	5.29	0.01	0.95	1.6	0.3	33.1	< .02	9.1	0.037	0.07	1.3	6	0.4	86.6
RS-498 0900-0920	30	0.96	3	0.7	1	58.6	0.03	0.94	0.11	2.6	2.3	5.18	2.71	5.1	17	0.2	15.5	0.19	882	1.76	0.065	67.9	0.046	4.8	< .01	0.49	1.7	0.3	33	< .02	9.5	0.034	0.06	1.1	6	0.4	74.8
RS-498 0920-0940	41	0.89	2.8	0.4	1	49.5	0.05	0.94	0.15	2.7	3.4	5.8	2.51	4.6	21	0.18	14.1	0.17	934	1.81	0.054	86.2	0.043	5.46	0.02	0.71	1.5	0.2	32.2	< .02	8.8	0.034	0.06	1.2	7	0.5	79.7
RS-498 0940-0960	48	0.69	2	1.7	< 1	49.6	0.08	0.96	0.16	2.6	3.2	6.49	2.4	3.8	27	0.16	13.1	0.13	993	2.27	0.06	84.5	0.049	6.36	0.06	1.07	1.3	0.3	34	< .02	8.5	0.043	0.06	1.7	7	0.6	71.8
RS-498 0960-0980	72	0.8	1.7	0.7	1	54.3	0.08	0.79	0.28	2.9	5.6	6.83	2.66	4.4	15	0.17	12.8	0.16	1013	3.37	0.064	135.1	0.048	3.91	< .01	0.66	1.5	0.3	31.7	< .02	8.2	0.073	0.06	2.5	8	0.5	85.2
RS-498 0980-1000	61	0.55	1.2	0.8	3	42.4	0.07	0.6	0.09	3.1	9.9	7.86	2.77	3.7	6	0.12	11.2	0.11	679	4.2	0.043	150.7	0.043	8.75	< .01	1.05	1.1	0.2	23.1	< .02	7.4	0.092	0.05	1.5	7	0.8	80.2
RS-498 1000-1020	71	0.68	1.7	0.8	1	50.1	0.03	0.75	0.13	3.4	5.8	9.44	2.78	4.5	8	0.16	12.7	0.16	943	3.54	0.058	135.3	0.047	13.04	< .01	0.52	1.4	0.2	26.5	< .02	8.9	0.083	0.05	1.5	8	0.7	86.7
RS-498 1020-1040	56	0.68	1.7	1.2	3	54.3	0.02	0.69	0.1	2.9	5.8	9.3	2.86	4.1	11	0.18	13.6	0.15	810	2.58	0.064	130.3	0.046	3.62	< .01	0.64	1.4	0.2	26.9	< .02	9.3	0.06	0.05	1.4	8	0.8	81.3
RS-498 1040-1060	32	0.63	1.5	0.8	1	49.2	0.02	0.66	0.11	2.8	5	29.13	2.66	4.1	7	0.18	15.6	0.16	695	1.96	0.055	89.6	0.047	4.71	< .01	1.47	1.4	0.1	26.9	< .02	10.3	0.055	0.06	1.1	9	0.7	82.9
RS-498 1060-1080	37	0.98	3.1	0.8	1	66.6	0.12	1.32	0.19	3.5	3.9	26.76	2.66	5.5	< 5	0.26	19.9	0.25	1261	1.45	0.058	4.5	0.047	6.16	< .01	0.39	1.5	0.1	44.2	< .02	10.5	0.039	0.11	1.4	7	0.5	78.3
RS-498 1080-1100	55	0.85	4.1	1.2	1	75.5	0.1	0.84	0.16	3.4	4.6	34.41	2.75	5.2	5	0.31	20.9	0.18	772	2.06	0.076	7.3	0.045	6.62	< .01	0.8	1.5	0.2	35.2	< .02	11.4	0.06	0.13	1.2	8	0.8	83.6
RS-498 1100-1120	51	0.93	7.5	0.9	< 1	65.6	0.05	0.94	0.11	3.1	7.4	38.25	2.47	5	50	0.24	20.4	0.13	662	2.39	0.089	9.9	0.038	8.14	0.18	0.86	0.9	0.2	51.2	< .02	8.9	0.035	0.11	1	7	1.1	85.9
RS-498 1120-1140	61	1.14	3.3	6.7	1	121.9	0.16	1.23	0.25	3.4	5.2	20.65	2.76	6.2	13	0.38	21.3	0.14	1022	2.02	0.159	4.6	0.062	10.71	0.03	0.57	1.3	0.2	61.4	< .02	8.5	0.066	0.11	2.1	10	0.9	88.3
RS-498 1140-1160	64	0.77	2.9	2.8	3	124.5	0.18	0.64	0.21	3.7	7.7	36.77	2.8	4.4	7	0.34	17.9	0.11	626	2.7	0.158	8.8	0.037	8.37	< .01	0.55	1.2	0.2	48.8	< .02	7.3	0.07	0.11	1.4	11	1.4	83.9
RS-498 1160-1180	42	0.76	4.1	2	1	72.5	0.17	0.86	0.17	3.8	11.5	23.64	3.83	4	43	0.24	18.5	0.14	699	3.44	0.071	326.5	0.047	8.2	< .01	0.58	1.2	0.1	75.2	< .02	6.9	0.036	0.08	0.9	13	0.6	80.8
RS-498 1180-1200	53	1.14	7.2	2	1	91.4	0.05	0.94	0.14	10.4	5.6	11.89	2.68	5.8	27	0.24	23.1	0.21	569	1.55	0.098	83.6	0.061	12.35	0.03	0.69	1.1	0.1	140.4	0.02	7.6	0.024	0.11	1.2	10	13.5	72.3
RS-498 1200-1220	66	0.96	2.7	2.5	2	118.1	0.07	0.96	0.15	3.5	4	15.08	2.26	4.7	16	0.31	21.5	0.15	578	1.74	0.122	18.7	0.049	9.72	0.02	0.74	1	0.1	102.3	< .02	6.9	0.037	0.09	1.1	10	1.2	81
RS-498 1220-1240	61	0.82	2.3	1.5	2	142.9	0.05	0.71	0.16	3	4.1	17.33	2.21	4	6	0.3	20.9	0.12	505	1.78	0.126	5	0.047	9.58	< .01	0.52	0.9	0.2	91.6	< .02	6.9	0.043	0.09	1.1	10	1.1	82.5
RS-498 1240-1260	81	0.77	1.9	2.6	< 1	164	0.06	0.63	0.17	3.2	6.4	24.64	2.36	3.8	18	0.29	19.8	0.12	500	2.22	0.145	6.5	0.044	10.28	< .01	0.48	0.7	< .1	80.9	< .02	6.5	0.052	0.08	1	9	0.9	82.8
RS-498 1260-1280	48	0.75	3.1	2.9	< 1	136.9	0.03	0.96	0.17	3.5	5.9	11.98	2.42	3.5	33	0.23	23	0.12	722	2.07	0.103	44.8	0.049	11.32	0.02	0.81	0.8	0.2	111	0.02	7.5	0.03	0.07	1	9	0.9	64.6
RS-498 1280-1300	56	0.84	3.3	0.9	< 1	129.2	0.02	1.1	0.18	2.8	6.9	4.7	2.91	3.7	< 5	0.33	23.9	0.09	918	1.9	0.111	99.8	0.044	11.73	< .01	0.49	0.8	0.2	111.2	< .02	7.7	0.024	0.08	0.8	8	1.6	47.1
RS-498 1300-1320	64	0.86	9.1	9.6	< 1	109.2	0.09	1.18	0.12	4.3	9.3	6.1	2.41	3.6	76	0.28	22.4	0.11	699	2.99	0.092	46.7	0.042	135.21	0.12	2.18	0.7	0.7	106.2	< .02	7.5	0.015	0.09	0.8	5	2	59.4
STANDARD DS2	267	1.75	57.6	202.4	2	154.4	10.44	0.54	9.97	11.2	163.1	130.19	3.11	6	223	0.17	16	0.6	835	13.93	0.031	36	0.089	33.88	0.02	9.21	2.7	2.1	29	1.9	3.5	0.091	1.8	17.8	74	6.7	166.6
RS-498 1320-1340	79	0.9	1.7	1.4	1	81.6	0.07	1.37	0.19	2.4	4.5	3.42	2.23	3	18	0.24	24.4	0.15	844	1.43	0.099	38.5	0.038	21.03	0.05	0.54	0.5	0.1	112	< .02	7.6	0.014	0.06	1.2	6	< .2	82.6
RS-498 1340-1360	211	0.92	2.7	6	1	206	0.43	1.59	0.25	2.5	7.1	4.9	2.12	3.5	80	0.3	25.9	0.15	657	4.89	0.069	49.1	0.041	33.88	0.13	1.08	0.5	0.5	101.4	< .02	7.1	0.009	0.1	1.1	5	0.3	76.6

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CLIENT:	HECLA MINING CO.
CLIENT REF:	KURT ALLEN
AAL REF:	SP57167
METHOD:	AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-498 1360-1380	126	0.88	3	9	< 1	104.8	0.12	2.2	0.18	3	5.6	4.11	2.24	3.2	95	0.29	25.2	0.16	1036	2.39	0.06	45.1	0.044	46.65	0.13	1.24	0.6	0.4	103.8	< .02	6.7	0.007	0.12	1.3	5	0.3	66.1
RS-498 1380-1400	203	1.05	2.9	3.9	< 1	89.1	0.18	2.24	0.2	3.3	4.6	3.61	1.94	3.8	57	0.32	28.6	0.21	1019	1.65	0.061	34.7	0.051	39.53	0.04	0.68	0.7	0.3	117.4	< .02	6.6	0.008	0.12	1.5	3	0.3	66
RS-498 1400-1420	88	0.98	1.7	2.3	< 1	80.5	0.11	2.51	0.19	2.3	4.3	2.55	1.81	3	60	0.34	27.5	0.16	1051	1.14	0.052	23.1	0.045	34.03	0.03	0.62	0.7	0.2	118	< .02	6.3	0.006	0.12	1.6	5	< .2	48.3
RS-498 1420-1440	91	0.82	1.8	1.7	< 1	61.3	0.22	2.64	0.2	1.6	3	2.66	1.95	2.6	16	0.36	24.4	0.1	1063	1.49	0.034	37.6	0.043	22.75	0.02	0.53	0.5	< .1	105.6	< .02	6.5	0.009	0.11	1.1	5	0.3	39.9
RS-498 1440-1460	230	0.68	9.6	1.9	1	67.4	0.43	3.71	0.36	2.3	4.5	5.21	2.59	1.9	33	0.33	15.3	0.08	1825	1.4	0.017	47.8	0.036	40.38	1.66	2.78	0.7	0.4	98.2	0.03	3.7	0.004	0.22	0.7	3	0.3	74.8
RS-498 1460-1480	1542	0.51	53.2	34.7	< 1	35.5	0.92	1.9	0.47	4.3	10.2	12.09	4.48	1.9	39	0.29	8.8	0.04	983	2.11	0.012	98.6	0.026	62.37	4.13	11.13	0.9	12.4	63.6	0.08	2	0.003	0.49	0.4	5	0.6	69
RS-498 1480-1500	770	1.48	32.5	18.5	< 1	48.5	0.82	2.96	1.49	10.1	6.1	23.43	4.83	4.5	42	0.7	9.8	0.17	1430	1.85	0.018	8.3	0.026	71.74	4.17	6.67	1.6	7.6	115.3	0.04	1.7	0.001	0.49	0.5	7	0.5	119.1
RS-498 1500-1520	1553	0.97	45.4	41.4	< 1	38.1	0.46	1.59	0.83	7.3	7.1	24.25	4.16	3.3	130	0.52	10	0.08	813	2.33	0.012	6.7	0.028	42.57	4.29	15.23	1	18.9	67.5	0.03	1.7	0.002	0.71	0.5	6	0.4	112
RS-498 1520-1540	1609	0.61	79.3	53.8	1	30.7	0.69	0.88	0.57	5.8	5.7	37.22	4.02	2.1	135	0.36	13.4	0.04	525	2.23	0.009	9.3	0.024	68.5	4.1	12.06	0.7	20.5	42.3	< .02	2.4	0.001	0.43	0.7	4	0.5	119.4
RS-498 1540-1560	2447	0.69	99.4	175.9	< 1	28.6	0.39	1.03	0.52	5.9	5.3	24.14	3.85	2.3	121	0.41	16.1	0.05	574	2.33	0.011	6.7	0.026	45.47	4.22	14.73	0.7	26	51.6	0.02	3.4	0.001	0.68	0.7	3	0.3	123.1
RS-498 1560-1580	5086	0.79	122.1	98.8	< 1	40.8	0.41	0.86	0.44	4.9	7.7	31.91	3.37	2.7	182	0.42	14.4	0.04	486	2.22	0.009	9.3	0.019	43.9	3.29	11.74	0.7	16.9	44	0.04	2.8	0.001	0.46	0.6	3	0.5	95.9
RS-498 1580-1600	884	0.53	46.2	28.2	< 1	50.9	0.28	0.64	0.4	2.6	5.8	32.28	2.72	1.7	169	0.3	14.7	0.03	391	2.22	0.007	8.2	0.011	32.26	2.2	6.39	0.4	9.5	32.7	< .02	3.8	0.001	0.26	0.6	2	0.4	83.8
RS-498 1600-1620	99999	0.41	61	71.8	< 1	53.6	0.17	0.34	0.35	1.5	5.6	38.52	2.01	1.6	645	0.24	16.3	0.02	279	2.56	0.007	6.4	0.007	56.14	1.54	148.53	0.3	45.4	26.2	0.29	5.3	< .001	0.26	0.8	< 2	0.3	74.7
RS-498 1620-1640	66290	0.34	65.2	47.3	< 1	52.2	0.32	0.69	0.41	2.5	5.4	23.6	2.6	1.2	219	0.24	13.6	0.02	422	2.21	0.008	5.8	0.012	74.67	2.46	57.63	0.3	21.9	36.3	0.05	3.4	0.001	0.3	0.9	< 2	0.3	87.1
RS-498 1640-1660	13838	0.65	37.2	35.1	< 1	54.9	0.31	0.82	0.4	2.8	7.2	19.96	2.57	2.2	152	0.38	13.7	0.03	578	2.68	0.009	4.4	0.011	58.96	2.51	14.5	0.4	12	43.4	< .02	3.9	0.001	0.33	0.9	2	0.3	102.2
RS-498 1660-1680	1876	0.53	74	39.3	2	63	0.18	0.99	0.3	1.6	7	21.62	2.09	1.8	62	0.34	15	0.02	658	2.19	0.008	4.1	0.007	38.81	1.91	5.79	0.3	9	43.7	0.04	5	0.001	0.26	1	< 2	0.3	82.7
RS-498 1680-1700	903	0.48	9.5	21.4	< 1	62.4	0.13	2.09	0.26	1.2	4.3	12.38	1.37	1.6	45	0.35	15.9	0.02	884	1.61	0.009	2.5	0.008	26.77	1.18	3.67	0.5	3.4	67.1	< .02	5.1	< .001	0.25	0.9	< 2	0.2	70.7
RS-498 1700-1720	1588	0.55	66.9	30	< 1	72.9	0.13	0.53	0.29	1.4	5.1	9.92	2.16	1.9	62	0.34	18	0.02	324	2.05	0.012	68.4	0.008	36.06	1.76	4.44	0.3	9.7	38	0.03	5.6	0.001	0.21	1	2	0.4	83.3
RS-498 1720-1740	5515	0.84	28.4	15.2	< 1	63.2	0.34	1.42	0.44	3.2	6.2	6.95	2.94	2.9	57	0.5	17.5	0.04	941	2.55	0.011	84.8	0.013	33.41	2.41	8.75	0.7	8.5	63.6	< .02	5.2	0.001	0.33	1	4	0.2	84.1
RS-498 1740-1760	694	0.66	15.5	5.7	< 1	71.4	0.23	2.37	0.41	2.2	7.5	5.39	2.14	2.1	19	0.4	18.9	0.03	1269	2.5	0.01	85.4	0.013	23.18	1.06	3	0.7	3.7	78	0.02	5.1	0.001	0.17	1	4	< .2	79.2
RS-498 1760-1780	677	0.67	13	11.3	1	48.5	0.22	1.97	0.29	1.8	8.4	5.45	2.09	2.6	32	0.39	21.8	0.03	1316	1.95	0.014	76	0.012	22.04	0.9	3	0.6	3.1	78.5	< .02	5.9	0.001	0.16	0.9	2	< .2	74
RS-498 1780-1800	525	0.67	11.2	8.7	< 1	45.7	0.16	2.52	0.26	1.5	7.8	4.64	1.89	2.5	27	0.39	23.8	0.03	1320	2.19	0.016	65.9	0.01	24.03	0.74	2.55	0.6	2.8	93.9	< .02	7.2	0.001	0.14	1	2	< .2	77.9
RS-498 1800-1820	916	0.7	7.3	6.2	< 1	45.7	0.11	1.62	0.26	1.3	7	4.96	1.72	2.8	20	0.41	26.2	0.03	1011	2	0.017	64	0.007	38.3	0.57	1.96	0.4	1.8	78	< .02	8.5	0.001	0.13	1	2	< .2	73.3
RS-498 1820-1840	564	0.59	38.6	13.8	< 1	31.4	0.12	0.55	0.24	1.2	5.9	6.17	2.2	2	42	0.37	18.3	0.02	413	2.02	0.011	67.3	0.007	28.08	1.54	2.97	0.3	8.9	45.4	< .02	6	0.001	0.18	0.9	2	0.2	77.7
RS-498 1840-1860	886	0.6	30.3	43	1	71.2	0.18	0.59	0.32	1.6	7.4	5.17	1.9	2.1	45	0.39	19	0.02	358	1.93	0.011	45.2	0.007	33.16	1.52	3.19	0.4	8.1	47	0.02	6.5	0.001	0.2	1	2	< .2	79.2
RS-498 1860-1880	1057	0.87	11.8	16.9	2	39	0.25	0.91	0.31	1.7	7.2	20.32	1.68	3.2	94	0.49	20.3	0.03	572	1.56	0.015	4.7	0.011	26.29	1.22	3.29	0.5	4.2	55.5	< .02	7.1	0.001	0.25	1.2	3	< .2	80.2
RS-498 1880-1900	919	0.71	15.2	9.9	2	61.1	0.34	1.27	0.34	2.1	6.9	28.92	1.77	3.5	36	0.4	25.7	0.03	690	2.46	0.039	6.5	0.011	26.23	0.89	3.26	0.5	4.2	64	< .02	8.3	0.001	0.18	1	2	0.3	72.8
RS-498 1900-1920	1042	0.67	11.3	4.9	2	52.8	0.4	0.8	0.34	1.7	7.9	16.44	2.11	3.5	43	0.36	22.9	0.03	731	2.75	0.048	115.9	0.009	30.1	0.65	2.48	0.3	2.9	46.7	0.04	7.5	0.001	0.14	0.7	4	0.6	97.2
RS-498 1920-1940	772	0.75	12.8	5.4	< 1	42.5	0.46	1.2	0.33	3.1	10	6.73	1.89	3.3	36	0.31	21.9	0.04	643	3.83	0.417	103.2	0.01	31.55	0.67	2.39	0.4	3.3	131.3	< .02	4.5	0.001	0.17	1.1	3	2	95
RS-498 1940-1955	883	0.9	12.9	5.2	< 1	64.1	0.48	0.8	0.34	1.9	10.2	6.81	2.24	6.6	37	0.26	18.1	0.04	579	4.28	1.242	126.6	0.009	26.69	0.87	3.38	0.6	4.4	214.7	0.04	3.2	0.003	0.26	1.4	4	0.7	83.1
89679	35241	0.8	67.2	1925	< 1	66.6	0.6	0.88	0.21	2.9	23.6	10.98	1.86	2.5	197	0.37	14.5	0.08	251	8.67	0.023	11	0.056	23.21	1.85	10.78	0.2	18	76.6	0.03	2.8	0.001	0.28	0.5	2	0.4	79.9
STANDARD DS2	269	1.67	56.7	194.3	2	149.1	10.14	0.52	9.85	12.5	157.6	126.45	2.99	5.9	220	0.15	15.6	0.58	809	13.76	0.031	34.8	0.086	30.84	0.01	8.36	2.7	2.2	28.3	1.72	3.4	0.094	1.7	17.8	72	6.6	156

AMERICAN ASSAY LABORATORIES
AAL 03-0 ICP PACKAGE DETECTION LIMITS

ELEMENT	Ag	Al	As	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
	30	0.01	0.5	3	1	0.1	0.01	.01	1	1	0.2	0.01	0.5	10	0.01	1	0.01	2	0.1	0.01	1	0.001	0.3	0.2	0.4	1	0.2	2	0.01	0.2	5	1	2	1

5.0 GRAMS OF PULP IS DIGESTED WITH HYDROCHLORIC AND NITRIC ACID AT 95 DEGREE CENTIGRADE FOR ONE HOUR.
DIGEST IS PARTIAL FOR Al, B, Ba, Ca, Co, Cr, Fe, K, La, Mg, Mn, Na, Ni, P, Sr, Th, Ti, U, V AND W.
ORGANIC SOLUTION EXTRACTION AND ULTRASONIC ICP FOR Ag, As, Bi, Cd, Cu, Ga, Mo, Pb, Sb, Se, Te AND Tl.
Hg BY COLD VAPOR AAS.

AMERICAN ASSAY LABORATORIES
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CLIENT:	HECLA MINING CO.
CLIENT REF:	KURT ALLEN
AAL REF:	SP57167
METHOD:	AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-498 0000-0020	34	0.94	4.7	2.5	7	123.80	0.06	0.26	0.03	0.90	2.1	13.37	1.98	3.7	52	0.18	19.6	0.11	79	0.82	0.052	2.8	0.025	43.67	0.07	2.9	1.6	0.2	64.4	< .02	9.8	0.023	0.12	0.9	7	0.4	47.1
RS-498 0020-0040	20	0.94	3	1.3	4	56.30	0.05	0.28	0.03	1.30	2.2	16.36	2.26	3.7	21	0.14	17.5	0.09	103	1.13	0.045	3.4	0.033	23.24	0.02	1.62	1.4	0.1	36.7	< .02	9.3	0.027	0.08	1.4	6	0.4	80.6
RS-498 0040-0060	283	0.73	2.5	1.1	5	268.60	0.07	0.3	0.3	7.60	3.2	12.39	2.25	3.5	29	0.13	19.4	0.07	3700	1.36	0.033	2.7	0.03	21.26	< .01	3.89	1.2	0.2	32.2	< .02	9.3	0.022	2.11	1.2	5	0.7	151
RS-498 0060-0080	62	0.79	3.5	0.8	3	116.90	0.15	0.2	0.05	1.60	1.7	9.43	2.28	3.1	79	0.14	20.9	0.05	784	0.95	0.018	2.1	0.047	15.8	0.02	5.56	1.4	0.4	33.4	< .02	10	0.025	0.8	1.7	5	0.5	66.1
RS-498 0080-0100	66	0.88	2.0	0.5	5	99.60	0.17	0.23	0.04	1.60	3.8	17.6	2.16	3.3	34	0.13	18.4	0.05	479	1.02	0.021	3.7	0.028	28.36	0.01	3.5	1.4	0.2	19	< .02	8.8	0.027	1.07	1.4	6	0.3	83.3
RS-498 0100-0120	141	0.76	5.3	1.7	2	201.40	0.17	0.21	0.22	6.50	4.4	28.6	2.55	3.8	101	0.16	18.3	0.06	3035	1.46	0.036	6	0.034	18.9	0.01	2.44	1.4	0.3	27	< .02	9.5	0.027	1.23	1.2	5	0.5	125.9
RS-498 0120-0140	152	1.06	2.3	0.5	3	145.70	0.82	0.18	0.2	3.90	2.9	16.4	2.89	4.7	167	0.21	22.2	0.1	2663	1.96	0.037	2.8	0.048	20.98	< .01	2.9	1.5	0.2	24.9	< .02	10.3	0.024	1.86	1.4	5	0.4	133.9
RS-498 0140-0160	55	0.91	13.5	14.3	1.0	211.70	0.13	0.1	0.02	0.40	2.7	12.23	1.96	5.3	2374	0.14	24.3	0.01	479	1.6	0.011	2.1	0.058	21.82	0.15	17.2	0.8	1.5	299.5	< .02	10.3	0.002	1.57	1	4	< .2	17.2
RS-498 0160-0180	57	1.01	44.7	57.1	1	93.20	0.6	0.06	< .01	0.30	3.3	23.14	3.54	5.5	5766	0.05	18.8	0.01	90	6.9	0.005	4.2	0.048	22	0.04	32.95	0.9	3.7	299.1	0.03	8	< .001	0.38	1.1	4	0.3	19.9
RS-498 0180-0200	33	0.9	5.4	3.2	2	87.20	0.27	0.08	0.02	0.60	2.7	10.06	1.68	3.2	1480	0.12	19.6	0.03	58	1.42	0.011	1.2	0.03	64.47	0.02	11.13	1.3	1.3	140.8	< .02	10.6	0.025	0.22	0.9	4	0.4	30.8
RS-498 0200-0220	553	0.98	80.5	58.5	3	104.50	0.07	0.02	0.03	5.60	2.3	14.26	2.4	4.3	20407	0.11	16.6	0.01	46	3.95	0.01	2.6	0.019	24.47	1.81	76.68	1	19.7	50.8	< .02	6.8	0.009	0.82	0.8	3	0.3	16.4
RS-498 0220-0240	87	1.2	7.2	2.7	4	176.80	0.82	0.01	0.01	1.20	2.5	13.7	1.92	4.8	580	0.18	18.9	0.04	87	1.21	0.016	2.1	0.026	42.82	0.2	12	1.6	0.8	29.9	< .02	8.9	0.03	0.3	1	5	0.5	34.4
RS-498 0240-0260	56	0.93	17.1	8.1	2	105.50	0.08	< .01	0.05	1.00	3.5	22.19	1.56	3.7	2963	0.15	19.7	0.02	51	1.45	0.01	3.6	0.026	80.77	0.34	11.84	0.9	1.2	16.6	< .02	7.8	0.015	0.24	1.3	3	0.5	34.5
RS-498 0260-0280	63	1.01	3.1	2.1	4	142.50	0.17	< .01	0.01	0.50	1.6	8.26	2.05	3.4	238	0.16	21.8	0.04	90	0.72	0.01	1.6	0.041	16.01	0.03	7.87	1.5	0.3	13.1	< .02	9.2	0.038	0.26	1.4	5	0.6	30.6
RS-498 0280-0300	60	1.15	17.9	3.5	3	80.90	0.81	0.01	0.07	3.00	2.6	9.9	1.81	3.5	4972	0.12	19.4	0.03	77	1.51	0.012	21.1	0.051	24.44	0.85	15.21	1.9	1.3	14.1	< .02	7	0.024	0.32	5.3	4	0.6	26.7
RS-498 0300-0320	68	1.09	8.0	1.4	3	132.30	1.31	0.17	0.47	3.40	7.4	9.22	3.07	4.5	601	0.2	17.7	0.11	1770	1.99	0.047	134.2	0.048	33.26	0.02	4.99	1.5	0.5	9.9	< .02	8.8	0.054	0.31	1.2	6	0.6	189.3
RS-498 0320-0340	70	0.93	13.9	16.2	3	134.00	0.18	0.22	0.25	4.10	5.5	10.14	3.08	4.9	408	0.21	16.9	0.13	1464	2.03	0.049	119.5	0.045	24.17	0.23	5.96	1.5	1.6	20.4	< .02	8.8	0.046	0.42	0.8	6	0.5	200.6
RS-498 0340-0360	58	0.77	16.0	11.5	3	80.60	0.08	0.3	0.08	3.70	5.5	7.85	3.26	4.5	325	0.2	13.6	0.14	1402	2.81	0.05	147.2	0.043	12.26	0.43	10.07	1.3	1.6	9.4	< .02	8.6	0.046	0.35	0.8	6	0.5	169.2
RS-498 0360-0380	81	0.76	4.3	4.2	1	67.50	0.1	0.85	0.17	3.10	3.9	13.26	2.73	5	105	0.2	15	0.16	1465	3.14	0.057	110.2	0.039	81.27	0.24	3.7	1.4	0.2	22.5	< .02	9.2	0.052	0.25	1.5	6	0.4	111.9
RS-498 0380-0400	87	0.67	2.9	1.7	3	62.50	0.37	0.32	0.19	3.30	7.9	14.8	3.31	5.6	74	0.19	13	0.24	1362	4.78	0.088	190	0.044	23.5	0.08	3.25	1.3	0.2	14.3	< .02	9.8	0.054	0.11	1.2	7	0.3	118.8
RS-498 0400-0420	80	0.8	4.8	2.1	1	56.30	0.07	0.98	0.13	3.30	6.8	12.89	3.08	5.8	95	0.15	14.1	0.33	975	4.11	0.063	159.4	0.043	17.88	0.17	3.41	1.2	0.4	45.4	< .02	8.8	0.064	0.09	1	6	0.2	94.5
RS-498 0420-0440	86	0.44	4.4	1	4	52.00	0.05	0.62	0.18	3.00	5.4	37.73	2.82	4.4	53	0.15	11.9	0.2	1266	4.62	0.063	42.5	0.04	19.49	< .01	1.57	1.4	0.2	19.2	< .02	9.5	0.112	0.08	1	6	0.2	98
RS-498 0440-0460	94	0.86	2.4	0.7	1	69.60	0.07	0.69	0.17	3.40	6.2	50.53	2.96	5.9	42	0.2	12.7	0.36	889	3.83	0.093	10.1	0.042	31.18	0.05	1.32	1.4	0.3	25.2	0.02	8.8	0.091	0.09	1	6	0.3	100.3
RS-498 0460-0480	99	0.91	1.2	4.3	3	69.00	0.06	0.68	0.16	3.40	7	50.21	2.9	6.3	32	0.23	13.1	0.34	884	4.08	0.109	9.6	0.044	28.39	< .01	0.4	1.6	0.2	27	< .02	9.7	0.12	0.08	1.1	6	0.5	103.1
RS-498 0480-0500	71	0.87	1.8	2.6	1	57.80	0.04	1.06	0.12	3.30	5.9	39.17	3.03	6	33	0.2	14.7	0.27	1123	3.69	0.078	7.6	0.043	32.47	< .01	0.62	1.4	0.2	33.9	< .02	9.4	0.115	0.07	1.4	6	0.6	98.1
RS-498 0500-0520	57	0.72	2.7	1.9	3	66.00	0.04	0.93	0.13	2.80	4	38.53	2.67	4.8	28	0.21	14.5	0.15	1252	2.29	0.075	7.8	0.042	18.41	< .01	1.36	1.3	0.2	31.5	< .02	10.4	0.072	0.09	1.6	6	0.7	87.8
RS-498 0520-0540	53	0.72	3.8	1.3	3	138.50	0.04	1.04	0.22	2.50	4.4	30.19	2.6	4.6	20	0.19	14.1	0.15	1184	2.25	0.062	5.7	0.043	24.16	< .01	1.32	1.3	0.2	35	< .02	10.2	0.036	0.07	1.2	6	0.7	85.1
RS-498 0540-0560	38	0.69	3.7	1.3	4	65.60	0.04	0.92	0.21	2.80	4.8	48.05	2.63	4.5	17	0.18	12	0.16	1065	1.88	0.067	8	0.041	87.49	< .01	0.51	1.4	0.2	30.8	< .02	9	0.045	0.07	1.1	6	0.5	104.7
RS-498 0560-0580	56	0.84	3.2	1.1	3	61.60	0.04	1.07	0.17	2.90	3.8	37.15	2.53	4.8	16	0.19	13.8	0.19	1126	1.84	0.061	6.8	0.042	35.12	< .01	0.86	1.4	0.2	36	< .02	9.3	0.04	0.06	1.4	7	0.7	93.6
RS-498 0580-0600	51	0.8	2	1	3.0	55.30	0.0	0.89	0.16	2.50	3.8	27.85	2.33	4.5	19	0.19	14.4	0.15	840	1.91	0.065	5.4	0.044	14.16	0.01	2.18	1.2	0.2	32.9	< .02	9.2	0.061	0.07	1.2	6	1.1	83.1
RS-498 0600-0620	79	0.97	2.2	0.9	2	78.7	0.03	1	0.19	3.7	3.3	21.5	2.67	5.5	12	0.19	17.1	0.17	950	2.44	0.063	4.3	0.045	10.82	< .01	3.24	1.3	0.1	39.4	< .02	9.3	0.071	0.07	1.4	5	0.6	95.1
RS-498 0620-0640	48	0.96	2.3	1.2	2	60.4	0.03	0.79	0.13	2.7	2.5	12.21	2.52	5.5	16	0.19	19.2	0.17	644	1.43	0.046	3.1	0.047	7.54	< .01	5.72	1.5	0.2	34.5	< .02	9.4	0.05	0.07	1.1	6	0.6	71
RS-498 0640-0660	65	0.89	1.6	1.1	2	83.1	0.06	1.28	0.17	2.1	2	4.21	2.58	4.4	29	0.18	19.9	0.13	1049	1.75	0.019	1.9	0.073	6.59	< .01	5.67	1.4	0.2	38.3	< .02	9	0.06	0.07	2.4	6	0.6	90.9
STANDARD DS2	261	1.76	58.1	195	2	155.8	11.11	0.54	10.41	11.3	163.3	131.26	3.14	6.2	230	0.16	16.1	0.61	849	14.23	0.03	37.4	0.094	31.96	0.03	9.69	3	2.2	29.1	1.84	3.7	0.094	1.88	17.6	76	6.7	164.8
RS-498 0660-0680	137	0.97	8.8	38.9	3	128.9	0.04	0.22	0.07	1.7	2	3.45	2.32	3.8	439	0.15	21.2	0.06	399	6.69	0.011	1.2	0.053	14.72	1.26	20.26	1	3.9	12.9	< .02	7.1	0.04	0.44	0.9	5	1.4	58

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CLIENT:	HECLA MINING CO.
CLIENT REF:	KURT ALLEN
AAL REF:	SP57167
METHOD:	AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-498 0680-0700	119	0.97	6.5	33.2	1	196.9	0.14	0.31	0.05	1.1	2.7	4.86	2.32	3.9	452	0.15	19.4	0.07	620	10.55	0.012	2.3	0.046	10.85	0.77	15.45	1.1	2.9	16	< .02	7.2	0.027	0.28	1.3	7	1.4	40.3
RS-498 0700-0720	102	1.5	25.4	86.2	4	138.4	0.31	0.16	0.12	8.3	2.2	4.62	1.82	5.1	1406	0.15	20.6	0.05	541	2.29	0.012	1.9	0.045	21.94	1.44	15.35	0.9	3	8.7	< .02	7.1	0.011	0.42	2.1	5	0.5	91.3
RS-498 0720-0740	69	1.11	12.3	28.6	2	156.8	0.06	0.18	0.06	6.7	1.6	3.22	1.93	4.1	597	0.16	21	0.07	168	1.59	0.012	1.1	0.048	17.11	0.51	13.97	1.1	1	10.6	< .02	8.4	0.039	0.21	1.6	5	1.3	60.6
RS-498 0740-0760	63	1.09	3.6	4.2	1	55.9	0.28	0.36	0.08	1.7	2.5	4.98	2.22	4.6	211	0.19	15.3	0.15	302	1.47	0.042	1.8	0.045	6.44	0.16	7.4	1.4	0.4	26.6	< .02	8.7	0.031	0.08	1.1	6	0.7	57.2
RS-498 0760-0780	35	0.89	2.5	2.5	3	65.4	0.02	0.62	0.12	2.3	3.3	6.73	2.33	4.6	192	0.2	12.6	0.14	575	2.13	0.064	2.8	0.043	4.86	0.03	4.45	1.7	0.4	36.9	< .02	9	0.034	0.09	1.3	7	0.5	63.3
RS-498 0780-0800	34	0.96	1.8	0.6	3	63.3	0.05	0.73	0.08	2.3	3.4	5.05	2.36	4.7	72	0.19	13.1	0.18	608	1.86	0.058	2.5	0.044	4.38	0.01	1.5	1.6	0.3	31.9	< .02	9.4	0.035	0.08	1.5	7	0.4	74.5
RS-498 0800-0820	45	0.95	2	2.3	2	59.9	0.04	1.35	0.11	2.2	2.8	5.19	2.46	4.4	92	0.17	16.7	0.15	915	2.1	0.035	1.6	0.048	19.71	0.13	3.35	1.6	0.5	38.9	< .02	8.7	0.034	0.1	1.1	6	0.7	66.5
RS-498 0820-0840	150	1.07	8.6	13.4	2	29.8	0.09	0.27	0.24	3.3	2.5	5.5	2.39	4	1071	0.12	20.5	0.06	1699	1.91	0.01	1.2	0.048	24.04	1.39	12.42	1	1.8	9.8	< .02	6.9	0.024	0.25	1.1	4	1.1	91.1
RS-498 0840-0860	61	0.82	14.2	42.4	1	43.5	0.04	0.62	0.13	3.4	2.6	4.29	2.38	3.8	467	0.13	20.6	0.06	526	1.79	0.013	30.6	0.048	14.56	1.57	12.62	1.2	2.4	21.2	< .02	7.1	0.023	0.28	1.2	5	0.8	71.9
RS-498 0860-0880	102	0.97	3.6	12.1	2	76.4	0.03	1.13	0.13	3.2	4.1	5.24	2.52	4.6	140	0.17	16.3	0.19	711	2.19	0.043	51.4	0.044	9.98	0.12	3.43	1.5	0.8	38.1	< .02	8.3	0.041	0.1	1.2	6	0.6	90.5
RS-498 0880-0900	38	0.94	2.7	2.6	2	56	0.02	0.84	0.11	2.7	3.1	5.12	2.39	4.9	45	0.2	14.4	0.2	711	1.87	0.055	76.7	0.042	5.29	0.01	0.95	1.6	0.3	33.1	< .02	9.1	0.037	0.07	1.3	6	0.4	86.6
RS-498 0900-0920	30	0.96	3	0.7	1	58.6	0.03	0.94	0.11	2.6	2.3	5.18	2.71	5.1	17	0.2	15.5	0.19	882	1.76	0.065	67.9	0.046	4.8	< .01	0.49	1.7	0.3	33	< .02	9.5	0.034	0.06	1.1	6	0.4	74.8
RS-498 0920-0940	41	0.89	2.8	0.4	1	49.5	0.05	0.94	0.15	2.7	3.4	5.8	2.51	4.6	21	0.18	14.1	0.17	934	1.81	0.054	86.2	0.043	5.46	0.02	0.71	1.5	0.2	32.2	< .02	8.8	0.034	0.06	1.2	7	0.5	79.7
RS-498 0940-0960	48	0.69	2	1.7	< 1	49.6	0.08	0.96	0.16	2.6	3.2	6.49	2.4	3.8	27	0.16	13.1	0.13	993	2.27	0.06	84.5	0.049	6.36	0.06	1.07	1.3	0.3	34	< .02	8.5	0.043	0.06	1.7	7	0.6	71.8
RS-498 0960-0980	72	0.8	1.7	0.7	1	54.3	0.08	0.79	0.28	2.9	5.6	6.83	2.66	4.4	15	0.17	12.8	0.16	1013	3.37	0.064	135.1	0.048	3.91	< .01	0.66	1.5	0.3	31.7	< .02	8.2	0.073	0.06	2.5	8	0.5	85.2
RS-498 0980-1000	61	0.55	1.2	0.8	3	42.4	0.07	0.6	0.09	3.1	9.9	7.86	2.77	3.7	6	0.12	11.2	0.11	679	4.2	0.043	150.7	0.043	8.75	< .01	1.05	1.1	0.2	23.1	< .02	7.4	0.092	0.05	1.5	7	0.8	80.2
RS-498 1000-1020	71	0.68	1.7	0.8	1	50.1	0.03	0.75	0.13	3.4	5.8	9.44	2.78	4.5	8	0.16	12.7	0.16	943	3.54	0.058	135.3	0.047	13.04	< .01	0.52	1.4	0.2	26.5	< .02	8.9	0.083	0.05	1.5	8	0.7	86.7
RS-498 1020-1040	56	0.68	1.7	1.2	3	54.3	0.02	0.69	0.1	2.9	5.8	9.3	2.86	4.1	11	0.18	13.6	0.15	810	2.58	0.064	130.3	0.046	3.62	< .01	0.64	1.4	0.2	26.9	< .02	9.3	0.06	0.05	1.4	8	0.8	81.3
RS-498 1040-1060	32	0.63	1.5	0.8	1	49.2	0.02	0.66	0.11	2.8	5	29.13	2.66	4.1	7	0.18	15.6	0.16	695	1.96	0.055	89.6	0.047	4.71	< .01	1.47	1.4	0.1	26.9	< .02	10.3	0.055	0.06	1.1	9	0.7	82.9
RS-498 1060-1080	37	0.98	3.1	0.8	1	66.6	0.12	1.32	0.19	3.5	3.9	26.76	2.66	5.5	< 5	0.26	19.9	0.25	1261	1.45	0.058	4.5	0.047	6.16	< .01	0.39	1.5	0.1	44.2	< .02	10.5	0.039	0.11	1.4	7	0.5	78.3
RS-498 1080-1100	55	0.85	4.1	1.2	1	75.5	0.1	0.84	0.16	3.4	4.6	34.41	2.75	5.2	5	0.31	20.9	0.18	772	2.06	0.076	7.3	0.045	6.62	< .01	0.8	1.5	0.2	35.2	< .02	11.4	0.06	0.13	1.2	8	0.8	83.6
RS-498 1100-1120	51	0.93	7.5	0.9	< 1	65.6	0.05	0.94	0.11	3.1	7.4	38.25	2.47	5	50	0.24	20.4	0.13	662	2.39	0.089	9.9	0.038	8.14	0.18	0.86	0.9	0.2	51.2	< .02	8.9	0.035	0.11	1	7	1.1	85.9
RS-498 1120-1140	61	1.14	3.3	6.7	1	121.9	0.16	1.23	0.25	3.4	5.2	20.65	2.76	6.2	13	0.38	21.3	0.14	1022	2.02	0.159	4.6	0.062	10.71	0.03	0.57	1.3	0.2	61.4	< .02	8.5	0.066	0.11	2.1	10	0.9	88.3
RS-498 1140-1160	64	0.77	2.9	2.8	3	124.5	0.18	0.64	0.21	3.7	7.7	36.77	2.8	4.4	7	0.34	17.9	0.11	626	2.7	0.158	8.8	0.037	8.37	< .01	0.55	1.2	0.2	48.8	< .02	7.3	0.07	0.11	1.4	11	1.4	83.9
RS-498 1160-1180	42	0.76	4.1	2	1	72.5	0.17	0.86	0.17	3.8	11.5	23.64	3.83	4	43	0.24	18.5	0.14	699	3.44	0.071	326.5	0.047	8.2	< .01	0.58	1.2	0.1	75.2	< .02	6.9	0.036	0.08	0.9	13	0.6	80.8
RS-498 1180-1200	53	1.14	7.2	2	1	91.4	0.05	0.94	0.14	10.4	5.6	11.89	2.68	5.8	27	0.24	23.1	0.21	569	1.55	0.098	83.6	0.061	12.35	0.03	0.69	1.1	0.1	140.4	0.02	7.6	0.024	0.11	1.2	10	13.5	72.3
RS-498 1200-1220	66	0.96	2.7	2.5	2	118.1	0.07	0.96	0.15	3.5	4	15.08	2.26	4.7	16	0.31	21.5	0.15	578	1.74	0.122	18.7	0.049	9.72	0.02	0.74	1	0.1	102.3	< .02	6.9	0.037	0.09	1.1	10	1.2	81
RS-498 1220-1240	61	0.82	2.3	1.5	2	142.9	0.05	0.71	0.16	3	4.1	17.33	2.21	4	6	0.3	20.9	0.12	505	1.78	0.126	5	0.047	9.58	< .01	0.52	0.9	0.2	91.6	< .02	6.9	0.043	0.09	1.1	10	1.1	82.5
RS-498 1240-1260	81	0.77	1.9	2.6	< 1	164	0.06	0.63	0.17	3.2	6.4	24.64	2.36	3.8	18	0.29	19.8	0.12	500	2.22	0.145	6.5	0.044	10.28	< .01	0.48	0.7	< .1	80.9	< .02	6.5	0.052	0.08	1	9	0.9	82.8
RS-498 1260-1280	48	0.75	3.1	2.9	< 1	136.9	0.03	0.96	0.17	3.5	5.9	11.98	2.42	3.5	33	0.23	23	0.12	722	2.07	0.103	44.8	0.049	11.32	0.02	0.81	0.8	0.2	111	0.02	7.5	0.03	0.07	1	9	0.9	64.6
RS-498 1280-1300	56	0.84	3.3	0.9	< 1	129.2	0.02	1.1	0.18	2.8	6.9	4.7	2.91	3.7	< 5	0.33	23.9	0.09	918	1.9	0.111	99.8	0.044	11.73	< .01	0.49	0.8	0.2	111.2	< .02	7.7	0.024	0.08	0.8	8	1.6	47.1
RS-498 1300-1320	64	0.86	9.1	9.6	< 1	109.2	0.09	1.18	0.12	4.3	9.3	6.1	2.41	3.6	76	0.28	22.4	0.11	699	2.99	0.092	46.7	0.042	135.21	0.12	2.18	0.7	0.7	106.2	< .02	7.5	0.015	0.09	0.8	5	2	59.4
STANDARD DS2	267	1.75	57.6	202.4	2	154.4	10.44	0.54	9.97	11.2	163.1	130.19	3.11	6	223	0.17	16	0.6	835	13.93	0.031	36	0.089	33.88	0.02	9.21	2.7	2.1	29	1.9	3.5	0.091	1.8	17.8	74	6.7	166.6
RS-498 1320-1340	79	0.9	1.7	1.4	1	81.6	0.07	1.37	0.19	2.4	4.5	3.42	2.23	3	18	0.24	24.4	0.15	844	1.43	0.099	38.5	0.038	21.03	0.05	0.54	0.5	0.1	112	< .02	7.6	0.014	0.06	1.2	6	< .2	82.6
RS-498 1340-1360	211	0.92	2.7	6	1	206	0.43	1.59	0.25	2.5	7.1	4.9	2.12	3.5	80	0.3	25.9	0.15	657	4.89	0.069	49.1	0.041	33.88	0.13	1.08	0.5	0.5	101.4	< .02	7.1	0.009	0.1	1.1	5	0.3	76.6

AMERICAN ASSAY LABORATORIES
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CLIENT:	HECLA MINING CO.
CLIENT REF:	KURT ALLEN
AAL REF:	SP57167
METHOD:	AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-498 1360-1380	126	0.88	3	9	< 1	104.8	0.12	2.2	0.18	3	5.6	4.11	2.24	3.2	95	0.29	25.2	0.16	1036	2.39	0.06	45.1	0.044	46.65	0.13	1.24	0.6	0.4	103.8	< .02	6.7	0.007	0.12	1.3	5	0.3	66.1
RS-498 1380-1400	203	1.05	2.9	3.9	< 1	89.1	0.18	2.24	0.2	3.3	4.6	3.61	1.94	3.8	57	0.32	28.6	0.21	1019	1.65	0.061	34.7	0.051	39.53	0.04	0.68	0.7	0.3	117.4	< .02	6.6	0.008	0.12	1.5	3	0.3	66
RS-498 1400-1420	88	0.98	1.7	2.3	< 1	80.5	0.11	2.51	0.19	2.3	4.3	2.55	1.81	3	60	0.34	27.5	0.16	1051	1.14	0.052	23.1	0.045	34.03	0.03	0.62	0.7	0.2	118	< .02	6.3	0.006	0.12	1.6	5	< .2	48.3
RS-498 1420-1440	91	0.82	1.8	1.7	< 1	61.3	0.22	2.64	0.2	1.6	3	2.66	1.95	2.6	16	0.36	24.4	0.1	1063	1.49	0.034	37.6	0.043	22.75	0.02	0.53	0.5	< .1	105.6	< .02	6.5	0.009	0.11	1.1	5	0.3	39.9
RS-498 1440-1460	230	0.68	9.6	1.9	1	67.4	0.43	3.71	0.36	2.3	4.5	5.21	2.59	1.9	33	0.33	15.3	0.08	1825	1.4	0.017	47.8	0.036	40.38	1.66	2.78	0.7	0.4	98.2	0.03	3.7	0.004	0.22	0.7	3	0.3	74.8
RS-498 1460-1480	1542	0.51	53.2	34.7	< 1	35.5	0.92	1.9	0.47	4.3	10.2	12.09	4.48	1.9	39	0.29	8.8	0.04	983	2.11	0.012	98.6	0.026	62.37	4.13	11.13	0.9	12.4	63.6	0.08	2	0.003	0.49	0.4	5	0.6	69
RS-498 1480-1500	770	1.48	32.5	18.5	< 1	48.5	0.82	2.96	1.49	10.1	6.1	23.43	4.83	4.5	42	0.7	9.8	0.17	1430	1.85	0.018	8.3	0.026	71.74	4.17	6.67	1.6	7.6	115.3	0.04	1.7	0.001	0.49	0.5	7	0.5	119.1
RS-498 1500-1520	1553	0.97	45.4	41.4	< 1	38.1	0.46	1.59	0.83	7.3	7.1	24.25	4.16	3.3	130	0.52	10	0.08	813	2.33	0.012	6.7	0.028	42.57	4.29	15.23	1	18.9	67.5	0.03	1.7	0.002	0.71	0.5	6	0.4	112
RS-498 1520-1540	1609	0.61	79.3	53.8	1	30.7	0.69	0.88	0.57	5.8	5.7	37.22	4.02	2.1	135	0.36	13.4	0.04	525	2.23	0.009	9.3	0.024	68.5	4.1	12.06	0.7	20.5	42.3	< .02	2.4	0.001	0.43	0.7	4	0.5	119.4
RS-498 1540-1560	2447	0.69	99.4	175.9	< 1	28.6	0.39	1.03	0.52	5.9	5.3	24.14	3.85	2.3	121	0.41	16.1	0.05	574	2.33	0.011	6.7	0.026	45.47	4.22	14.73	0.7	26	51.6	0.02	3.4	0.001	0.68	0.7	3	0.3	123.1
RS-498 1560-1580	5086	0.79	122.1	98.8	< 1	40.8	0.41	0.86	0.44	4.9	7.7	31.91	3.37	2.7	182	0.42	14.4	0.04	486	2.22	0.009	9.3	0.019	43.9	3.29	11.74	0.7	16.9	44	0.04	2.8	0.001	0.46	0.6	3	0.5	95.9
RS-498 1580-1600	884	0.53	46.2	28.2	< 1	50.9	0.28	0.64	0.4	2.6	5.8	32.28	2.72	1.7	169	0.3	14.7	0.03	391	2.22	0.007	8.2	0.011	32.26	2.2	6.39	0.4	9.5	32.7	< .02	3.8	0.001	0.26	0.6	2	0.4	83.8
RS-498 1600-1620	99999	0.41	61	71.8	< 1	53.6	0.17	0.34	0.35	1.5	5.6	38.52	2.01	1.6	645	0.24	16.3	0.02	279	2.56	0.007	6.4	0.007	56.14	1.54	148.53	0.3	45.4	26.2	0.29	5.3	< .001	0.26	0.8	< 2	0.3	74.7
RS-498 1620-1640	66290	0.34	65.2	47.3	< 1	52.2	0.32	0.69	0.41	2.5	5.4	23.6	2.6	1.2	219	0.24	13.6	0.02	422	2.21	0.008	5.8	0.012	74.67	2.46	57.63	0.3	21.9	36.3	0.05	3.4	0.001	0.3	0.9	< 2	0.3	87.1
RS-498 1640-1660	13838	0.65	37.2	35.1	< 1	54.9	0.31	0.82	0.4	2.8	7.2	19.96	2.57	2.2	152	0.38	13.7	0.03	578	2.68	0.009	4.4	0.011	58.96	2.51	14.5	0.4	12	43.4	< .02	3.9	0.001	0.33	0.9	2	0.3	102.2
RS-498 1660-1680	1876	0.53	74	39.3	2	63	0.18	0.99	0.3	1.6	7	21.62	2.09	1.8	62	0.34	15	0.02	658	2.19	0.008	4.1	0.007	38.81	1.91	5.79	0.3	9	43.7	0.04	5	0.001	0.26	1	< 2	0.3	82.7
RS-498 1680-1700	903	0.48	9.5	21.4	< 1	62.4	0.13	2.09	0.26	1.2	4.3	12.38	1.37	1.6	45	0.35	15.9	0.02	884	1.61	0.009	2.5	0.008	26.77	1.18	3.67	0.5	3.4	67.1	< .02	5.1	< .001	0.25	0.9	< 2	0.2	70.7
RS-498 1700-1720	1588	0.55	66.9	30	< 1	72.9	0.13	0.53	0.29	1.4	5.1	9.92	2.16	1.9	62	0.34	18	0.02	324	2.05	0.012	68.4	0.008	36.06	1.76	4.44	0.3	9.7	38	0.03	5.6	0.001	0.21	1	2	0.4	83.3
RS-498 1720-1740	5515	0.84	28.4	15.2	< 1	63.2	0.34	1.42	0.44	3.2	6.2	6.95	2.94	2.9	57	0.5	17.5	0.04	941	2.55	0.011	84.8	0.013	33.41	2.41	8.75	0.7	8.5	63.6	< .02	5.2	0.001	0.33	1	4	0.2	84.1
RS-498 1740-1760	694	0.66	15.5	5.7	< 1	71.4	0.23	2.37	0.41	2.2	7.5	5.39	2.14	2.1	19	0.4	18.9	0.03	1269	2.5	0.01	85.4	0.013	23.18	1.06	3	0.7	3.7	78	0.02	5.1	0.001	0.17	1	4	< .2	79.2
RS-498 1760-1780	677	0.67	13	11.3	1	48.5	0.22	1.97	0.29	1.8	8.4	5.45	2.09	2.6	32	0.39	21.8	0.03	1316	1.95	0.014	76	0.012	22.04	0.9	3	0.6	3.1	78.5	< .02	5.9	0.001	0.16	0.9	2	< .2	74
RS-498 1780-1800	525	0.67	11.2	8.7	< 1	45.7	0.16	2.52	0.26	1.5	7.8	4.64	1.89	2.5	27	0.39	23.8	0.03	1320	2.19	0.016	65.9	0.01	24.03	0.74	2.55	0.6	2.8	93.9	< .02	7.2	0.001	0.14	1	2	< .2	77.9
RS-498 1800-1820	916	0.7	7.3	6.2	< 1	45.7	0.11	1.62	0.26	1.3	7	4.96	1.72	2.8	20	0.41	26.2	0.03	1011	2	0.017	64	0.007	38.3	0.57	1.96	0.4	1.8	78	< .02	8.5	0.001	0.13	1	2	< .2	73.3
RS-498 1820-1840	564	0.59	38.6	13.8	< 1	31.4	0.12	0.55	0.24	1.2	5.9	6.17	2.2	2	42	0.37	18.3	0.02	413	2.02	0.011	67.3	0.007	28.08	1.54	2.97	0.3	8.9	45.4	< .02	6	0.001	0.18	0.9	2	0.2	77.7
RS-498 1840-1860	886	0.6	30.3	43	1	71.2	0.18	0.59	0.32	1.6	7.4	5.17	1.9	2.1	45	0.39	19	0.02	358	1.93	0.011	45.2	0.007	33.16	1.52	3.19	0.4	8.1	47	0.02	6.5	0.001	0.2	1	2	< .2	79.2
RS-498 1860-1880	1057	0.87	11.8	16.9	2	39	0.25	0.91	0.31	1.7	7.2	20.32	1.68	3.2	94	0.49	20.3	0.03	572	1.56	0.015	4.7	0.011	26.29	1.22	3.29	0.5	4.2	55.5	< .02	7.1	0.001	0.25	1.2	3	< .2	80.2
RS-498 1880-1900	919	0.71	15.2	9.9	2	61.1	0.34	1.27	0.34	2.1	6.9	28.92	1.77	3.5	36	0.4	25.7	0.03	690	2.46	0.039	6.5	0.011	26.23	0.89	3.26	0.5	4.2	64	< .02	8.3	0.001	0.18	1	2	0.3	72.8
RS-498 1900-1920	1042	0.67	11.3	4.9	2	52.8	0.4	0.8	0.34	1.7	7.9	16.44	2.11	3.5	43	0.36	22.9	0.03	731	2.75	0.048	115.9	0.009	30.1	0.65	2.48	0.3	2.9	46.7	0.04	7.5	0.001	0.14	0.7	4	0.6	97.2
RS-498 1920-1940	772	0.75	12.8	5.4	< 1	42.5	0.46	1.2	0.33	3.1	10	6.73	1.89	3.3	36	0.31	21.9	0.04	643	3.83	0.417	103.2	0.01	31.55	0.67	2.39	0.4	3.3	131.3	< .02	4.5	0.001	0.17	1.1	3	2	95
RS-498 1940-1955	883	0.9	12.9	5.2	< 1	64.1	0.48	0.8	0.34	1.9	10.2	6.81	2.24	6.6	37	0.26	18.1	0.04	579	4.28	1.242	126.6	0.009	26.69	0.87	3.38	0.6	4.4	214.7	0.04	3.2	0.003	0.26	1.4	4	0.7	83.1
89679	35241	0.8	67.2	1925	< 1	66.6	0.6	0.88	0.21	2.9	23.6	10.98	1.86	2.5	197	0.37	14.5	0.08	251	8.67	0.023	11	0.056	23.21	1.85	10.78	0.2	18	76.6	0.03	2.8	0.001	0.28	0.5	2	0.4	79.9
STANDARD DS2	269	1.67	56.7	194.3	2	149.1	10.14	0.52	9.85	12.5	157.6	126.45	2.99	5.9	220	0.15	15.6	0.58	809	13.76	0.031	34.8	0.086	30.84	0.01	8.36	2.7	2.2	28.3	1.72	3.4	0.094	1.7	17.8	72	6.6	156

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* HECLA MINING COMPANY *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-498 / VS 000.00

LOCATION: GATOR

SURVEY DATE: 04/12/2000

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

TIE-ON COORDINATES AT: 0 M.D.
TAKEN FROM: COLLAR

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 090.00
WATER CONTACT= 376'

****
****** DEPTH MEASURED IN FEET *******
****

COMMENTS: **** EKLUND ****
** DON SCHOORL **

PROJECTED F/1365' T/1500'.

****
****
*** THIS DIRECTIONAL SURVEY REPORT IS ****
** CORRECT TO THE BEST OF MY KNOWLEDGE ***
* AND IS SUPPORTED BY ACTUAL FIELD DATA! *
** **
** **
** ********** **
** COMPANY REPRESENTATIVE **
****
****

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0588-311 WELL NAME: RS-498 / VS 000.00

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R PROP.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION	TEMP. DEG F
0.0	0.00	0.00	0.000	-89.75	156.46	0.00 N	0.00 E	0.00		0.00	AT 000.00	
50.0	50.00	-0.26	-0.032	-89.25	293.88	0.03 N	0.26 W	1.90	0.95	0.26	AT 277.24	074.78
100.0	99.99	-0.89	-0.076	-89.20	255.28	0.08 N	0.89 W	1.03	0.51	0.90	AT 274.88	074.12
150.0	149.99	-1.03	-0.294	-89.16	033.25	0.29 N	1.03 W	3.06	1.53	1.07	AT 285.95	073.58
200.0	199.98	-0.34	-1.071	-88.45	045.95	1.07 N	0.34 W	1.51	0.75	1.12	AT 342.28	073.09
250.0	249.96	0.99	-1.898	-87.90	067.05	1.90 N	0.99 E	1.72	0.86	2.14	AT 027.48	072.72
300.0	299.89	3.32	-3.048	-86.14	061.89	3.05 N	3.32 E	3.56	1.78	4.50	AT 047.40	072.42
350.0	349.76	6.46	-4.621	-85.79	064.88	4.62 N	6.46 E	0.82	0.41	7.94	AT 054.43	072.32
400.0	399.63	9.83	-6.069	-85.80	068.57	6.07 N	9.83 E	0.54	0.27	11.55	AT 058.31	068.05
450.0	449.49	13.26	-7.549	-85.62	064.86	7.55 N	13.26 E	0.66	0.33	15.26	AT 060.35	070.04
500.0	499.30	17.23	-9.282	-84.44	067.63	9.28 N	17.23 E	2.41	1.20	19.57	AT 061.69	070.70
550.0	549.01	22.12	-11.399	-83.32	065.73	11.40 N	22.12 E	2.28	1.14	24.88	AT 062.74	071.16
600.0	598.67	27.41	-13.922	-83.21	063.31	13.92 N	27.41 E	0.61	0.30	30.75	AT 063.08	071.60
650.0	648.29	32.76	-16.894	-82.72	058.72	16.89 N	32.76 E	1.49	0.75	36.86	AT 062.72	071.78
700.0	697.88	37.88	-20.722	-82.53	047.81	20.72 N	37.88 E	2.82	1.41	43.17	AT 061.32	071.81
750.0	747.44	42.04	-25.841	-82.14	030.86	25.84 N	42.04 E	4.57	2.29	49.35	AT 058.42	071.87
800.0	796.93	45.27	-32.204	-81.41	023.36	32.20 N	45.27 E	2.59	1.30	55.56	AT 054.58	071.54
850.0	846.42	47.53	-38.922	-82.23	013.22	38.92 N	47.53 E	3.31	1.66	61.43	AT 050.68	070.85
900.0	896.00	47.94	-45.374	-82.69	353.48	45.37 N	47.94 E	5.23	2.62	66.01	AT 046.57	071.01
950.0	945.62	47.22	-51.455	-83.24	352.94	51.46 N	47.22 E	1.11	0.55	69.84	AT 042.54	071.31
1000.0	995.22	47.08	-57.727	-82.28	003.82	57.73 N	47.08 E	3.34	1.67	74.49	AT 039.20	071.61
1050.0	1044.66	47.63	-65.161	-80.57	004.58	65.16 N	47.63 E	3.43	1.71	80.71	AT 036.16	072.03
1100.0	1093.97	48.23	-73.426	-80.35	003.78	73.43 N	48.23 E	0.51	0.26	87.85	AT 033.30	072.81
1150.0	1143.23	49.05	-81.984	-79.84	007.09	81.98 N	49.05 E	1.53	0.76	95.54	AT 030.89	073.38
1200.0	1192.39	50.15	-91.033	-79.15	006.78	91.03 N	50.15 E	1.38	0.69	103.93	AT 028.85	075.37
1250.0	1241.56	50.87	-100.075	-79.93	002.10	100.07 N	50.87 E	2.31	1.15	112.26	AT 026.94	076.55
1300.0	1290.86	50.91	-108.404	-80.88	358.25	108.40 N	50.91 E	2.29	1.15	119.76	AT 025.16	077.27
1350.0	1340.21	50.75	-116.401	-80.71	359.54	116.40 N	50.75 E	0.53	0.27	126.98	AT 023.56	078.80
1400.0	1389.56	50.77	-124.437	-80.79	000.65	124.44 N	50.77 E	0.39	0.20	134.39	AT 022.19	079.57
1450.0	1438.92	50.82	-132.444	-80.78	000.16	132.44 N	50.82 E	0.16	0.08	141.86	AT 020.99	079.62
1500.0	1488.27	50.84	-140.460	-80.77	000.12	140.46 N	50.84 E	0.02	0.01	149.38	AT 019.90	079.61

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*  1500.0 FEET EQUALS      149.38    FEET AT   019.90       *
*                          ********                         *
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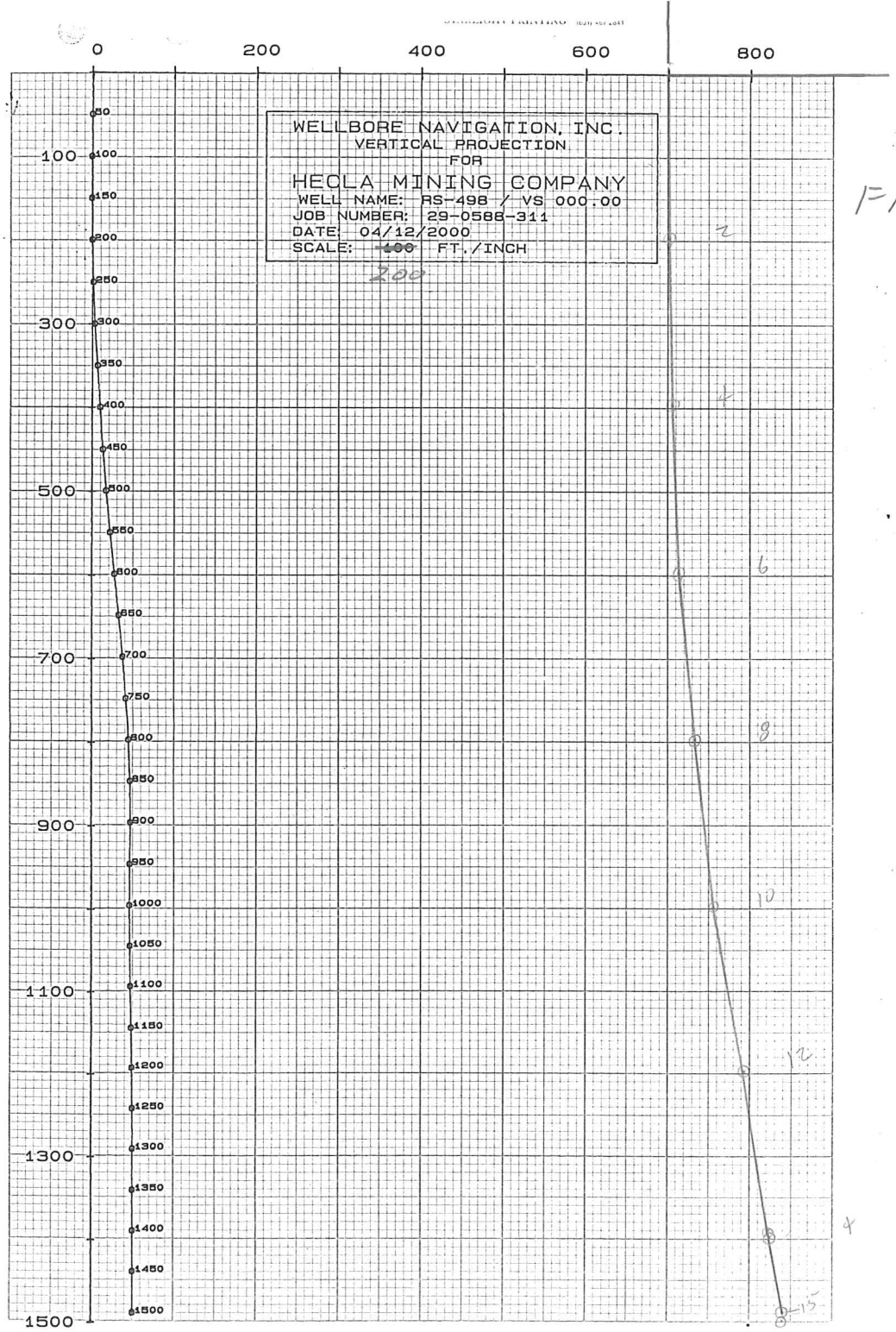
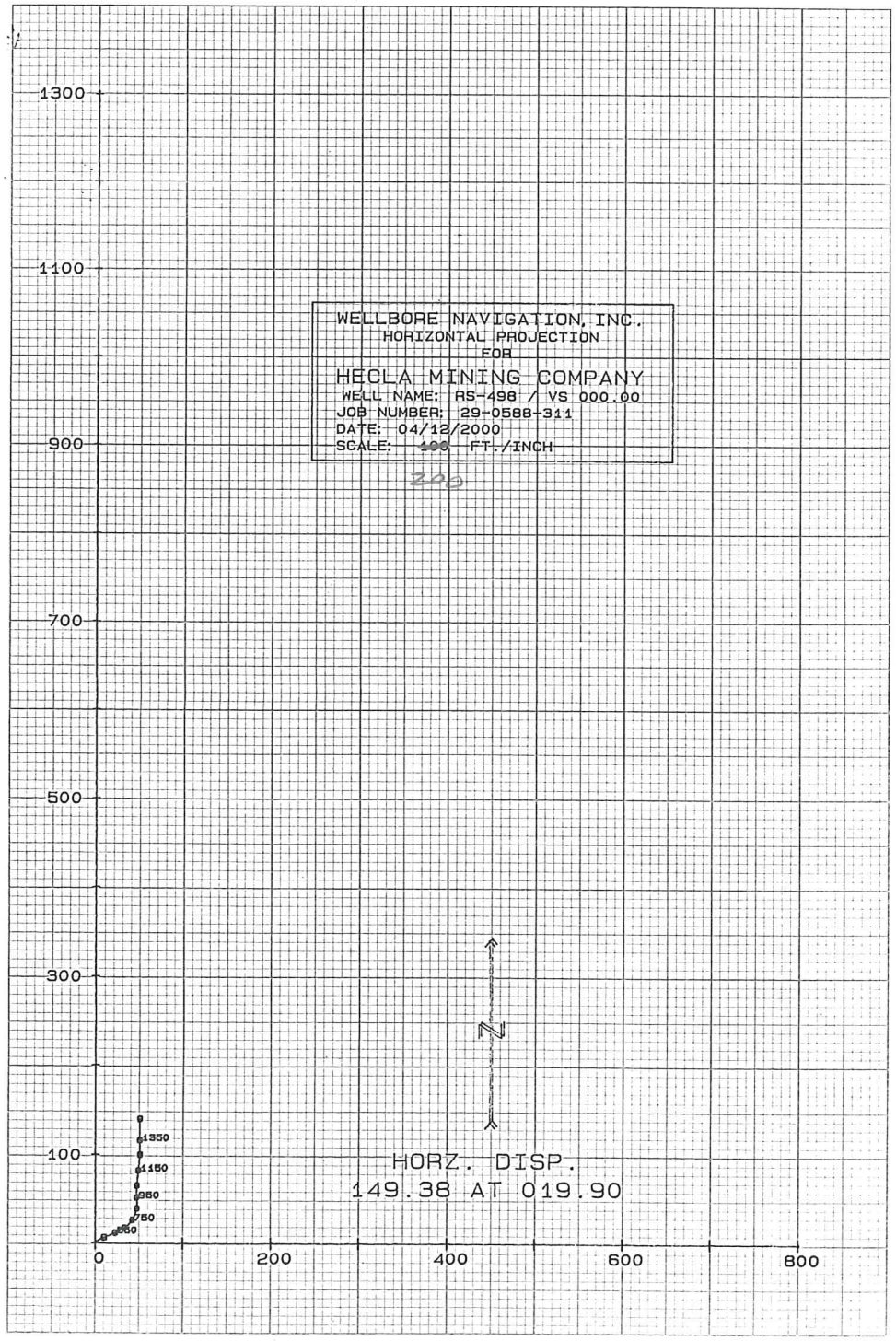
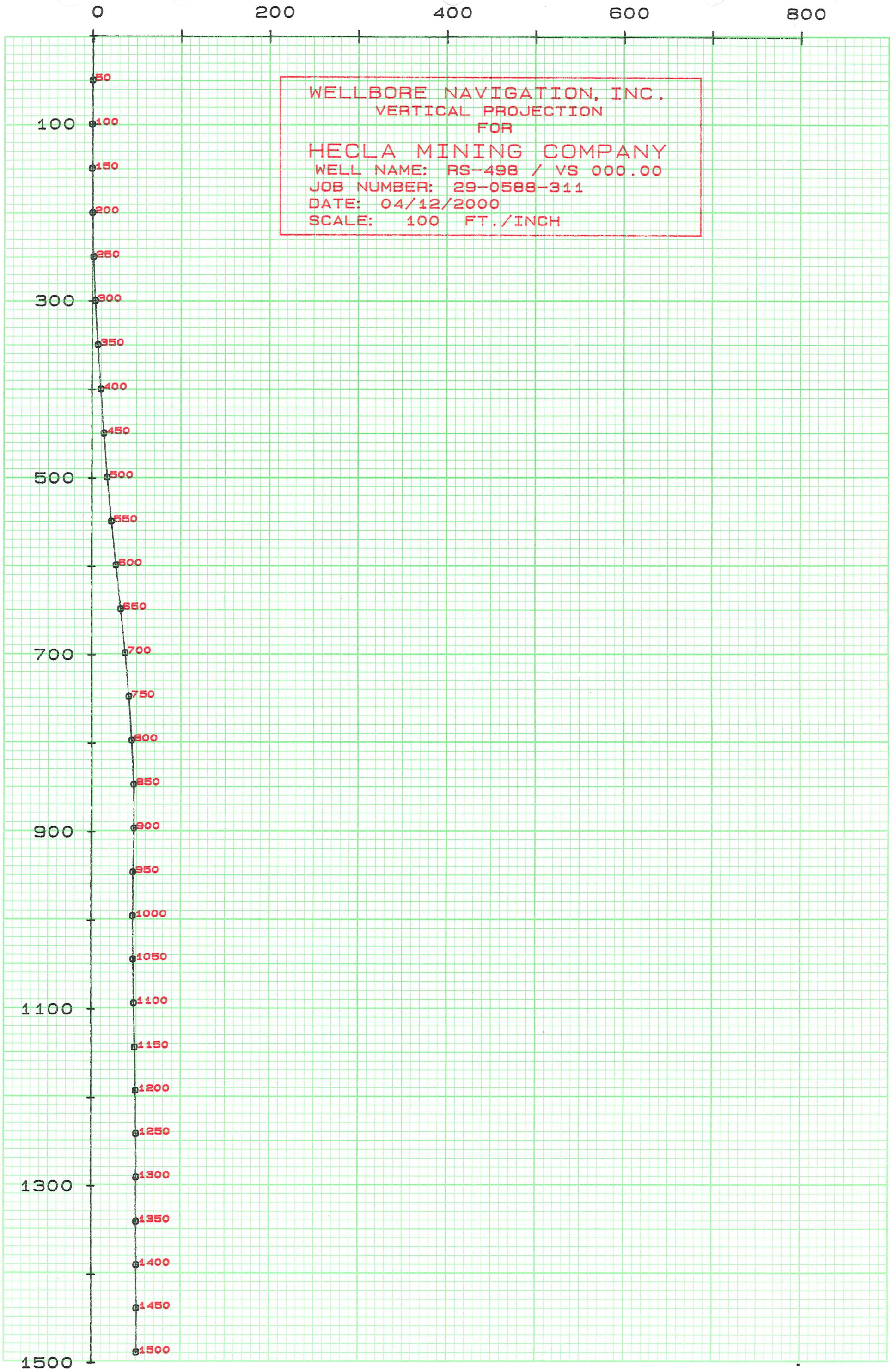
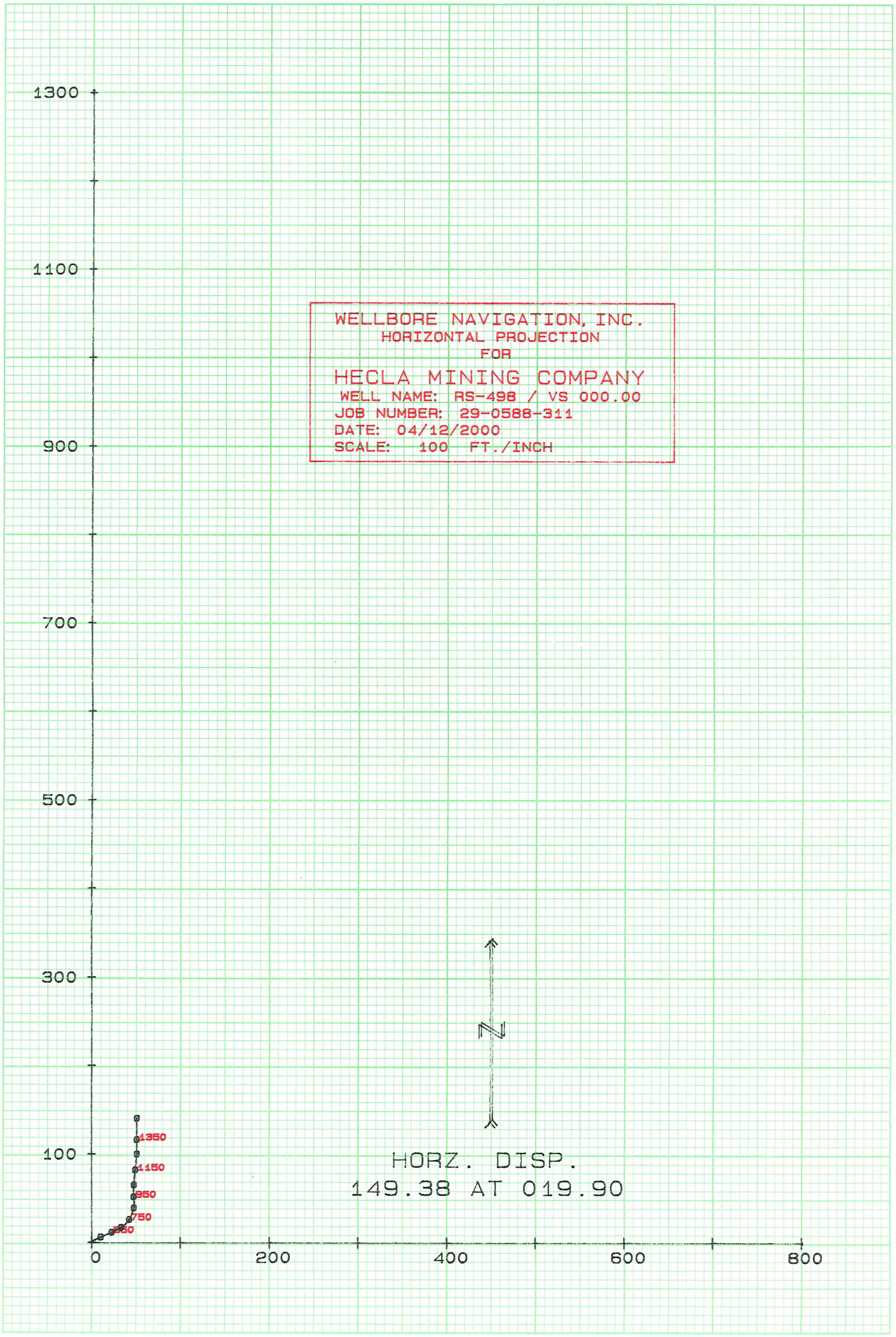

WELLBORE NAVIGATION, INC.
VERTICAL PROJECTION
FOR
HECLA MINING COMPANY
WELL NAME: RS-498 / VS 000.00
JOB NUMBER: 29-0588-311
DATE: 04/12/2000
SCALE: ~~100~~ 200 FT./INCH
0
200
400
600
800
100
300
500
700
900
1100
1300
1500
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
2
4
6
8
10
12
14
15

FACE NORTH


WELLBORE NAVIGATION, INC.
HORIZONTAL PROJECTION
FOR
HECLA MINING COMPANY
WELL NAME: RS-498 / VS 000.00
JOB NUMBER: 29-0588-311
DATE: 04/12/2000
SCALE: ~~100~~ 200 FT./INCH
1300
1100
900
700
500
300
100
0
200
400
600
800
1350
1150
950
750
550
N
HORZ. DISP.
149.38 AT 019.90

STARLIGHT PRINTING (801) 467-2841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