60000585

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-475
AUTHOR	C. Ballew; R. Kellnet; K. Allen; J. Clark; M. Niomi; F. Stone D.G. Mackerrow
DATE OF DOC(S)	1999
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Project; Hecla Mining Co. Newmont Gold Co.; D.G. Mackerrow
COMMODITY If not obvious	gold; silver
NOTES	drill logs; assay; geology; photographs; geochemistry; total depth 1600'; handwritten notes; correspondence; invoices; petrographic report 154p

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

SS: DD 2/20/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

RS-475

475

6000 0585
4010

60000585

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-475
PAGE 1 OF 16
DATE 8/20/99
LOGGED BY KJA
TOTAL DEPTH 1600

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH S 30°E
INCLINATION -60°

AREA NW TARGET AREA
DRILLING CO. EKLUND
RIG TYPE RUC
HOLE SIZE
DOWN HOLE SURVEY BY

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 %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
5		Colluvium	Colluvium - clasts are monolithic consisting of a fine-grained slightly porphyritic rock w/ microphenocrysts of hematite replaced hornblende. (Fe. Mas. Flow).	MS MH.	Clasts are SP.																																				
30		TC Plag/±Sa	Porphyritic unit w/ common chloritically or white clay altered plagioclase phenos unit may contain rare sanadines	MH	P																																				
60		TC FeMag	Same unit as above w/ large increase in hematite replaced hornblende. Phenocrysts of chloritically and white clay alt. plag. ± sanadine are rare. Looks like Femag flow in places.	MH	P-SP																		Te	CaCO3 +MN																	

100

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-475
PAGE 2 OF 16
DATE 8/20/99
LOGGED BY KBA
TOTAL DEPTH 1600

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MASSIVE %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % TX-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
105		TC FeMag		MH	SP																																				
110																																									
115																																									
120		TC FeMag Auto-Bx	SAME UNIT AS ABOVE only Auto Breccia 115'-145' unit is BLEACHED w/t Silica veinlets	MS-MH	SP	1						X		Bleaching						X		1-2	SiO2										X								
125						1						X								X		1-2											X								
130			Possible Structural Zone Controlled ALT			1						X								X		1-2											X								
135						1						X								X		1-2											X								
140						1						X								X		1-2											X								
145											X								X			1											X								
150				MH																																					
155																																									
160																																									
165																																									
170																																									
175																																									
180																																									
185																																									
190			Possible Structure	MS-MH		1					X			Bleach					X			1	SiO2										X								
195		TC FeMag	SAME AS ABOVE - only NOT Auto Bxd	MH	SP																																				
200																																									

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-475
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TOTAL DEPTH 1600

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	BOX TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MASS	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 %	KA-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	OXIDOX	MIXCURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
205		TC FeMag	SAME AS ABOVE	MH	SP																																				
210				MH	SP																																				
215	Possible Structure		Bleached w/ common Lt GREEN clay filled fractures ± SiO2	MH-MS	SO	1						X		Bleach	+/-							2-4	Lt green clay ± SiO2	TR																	
220						1						X			+/-									TR																	
225						1						X			+/-									TR																	
230				MH																																					
235																																									
240																																									
245																																									
250																																									
255																																									
260																																									
265																																									
270	Possible Structure		Bleached w/ sulfide & ± SiO2 stockwork	MS-MH	SP						X			Bleach								1-2	SiO2 + sulf	1			X														
275						1					X											1-2		1			X														
280			@ 275-280 - Some of the pyrite has Replaced fine-Grained MARCASITE Blades			1					X											2		2			X		X													
285			@ 280-285 - MINOR VUGGY SILICA	MH		4					X											5		4			X															
290				MH		4					X											5		4			X														
295		TC Fe-mag	Possible increase in SERICITE phenos - Could this be RQL?	MH																																					
300																																									

Hecla MINING COMPANY

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EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION																	MINERALIZATION									METALLURGY				ANALYTICAL DATA				
						SILICIFICATION					ARGILLIC				PROPYLITIC %		POTASSIC %		OXIDATION			VIENING	SULFIDES			PY	CPY	MAR	K-SLF	STIBNITE	BARITE	OXIDE	SULF	CARBON	MOISURE	FROM	TO	W	Au	Ag
						5%	15%	+25%	MATRIX	QUARTS	5%	15%	+25%	TYPE	CHLORITE	CALCITE	K-SPAR	ALUNITE	5%	15%	+25%	% TYPE	5%	15%	+25%	%	%	%	%	%	%									
305		TC FeMag	Continuing Fe-Mag Flow tc w/ micro phenocrysts of Hematite Replacing Hornblend	M-H	SP																																			
310																																								
315																																								
320																																								
325																																								
330																																								
335																																								
340																																								
345																																								
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370																																								
375																																								
380																																								
385																																								
390																																								
395																																								
400																																								

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

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LOGGED BY KDA
TOTAL DEPTH 1600

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EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MASSIVE	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 %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDENITE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
405		TC Fe.Mag	SAME AS ABOVE	MH	SP																																				
410																																									
415																																									
420																																									
425																																									
430																																									
435																																									
440																																									
445																																									
450																																									
455																																									
460																																									
465																																									
470																																									
475																																									
480																																									
485																																									
490																																									
495																																									
500																																									

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ROSEBUD PROJECT
DRILL LOG

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX	QUARTS	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	K-SPAR	ALUNITE	POTASSIC % 5%	15%	+25%	OXIDATION %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	AS-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
505		TC FeMag	SAME AS ABOVE	MH	SP																																				
510																																									
515																																									
520																																									
525																																									
530																																									
535																																									
540																																									
545																																									
550																																									
555		Bleached TC FeMag	SAME UNIT AS ABOVE - Bleached w/ minor SiO2. plag phenos are chloritically alt. & Hematite Replaced Hornblende is Not Identifiable. Minor pyrite	MH	SP						X			Bleach									SiO2																		
560											X																														
565											X																														
570											X																														
575											X																														
580		TC FeMag		MH	SP																																				
585																																									
590																																									
595																																									
600																																									

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AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX	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 %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
605		TC FeMag	SAME AS ABOVE "Hematite Replaced Hornblende microphenocrysts ± plag ± SANIDINE	MH	SP																																				
610																																									
615																																									
620																																									
625																																									
630																																									
635																																									
640																																									
645																																									
650																																									
655																																									
660																																									
665																																									
670																																									
675																																									
680																																									
685																																									
690		TC FeMag	Minor Bleaching ± Silica ± Pyrite	MH	SP	1					1													1			Py													
695						1					1													1			Py													
700						1					1													1			Py													

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX	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 %	AS-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	AU	AG
705		TC?	Fine-grained, hematitic mud?	MS	FG																																				
710		TC FeMag	Slightly porphyritic w/hydrothermally alt plag phenos	MH	SP	1					1					1						1	CaCO3	1			Py														
715				MH	SP	1					1					1						1		1																	
720		TC FeMag	Fg-Slightly porphyritic unit w/ Abundant fine. Hematite. Replaced. Hornblende microphenocrysts	MH	SP											TR																									
725																TR																									
730																TR																									
735																TR																									
740																TR																									
745		TC Vesicular mottled flow	Fg-porphyritic vesicular or mottled flow vesicles are filled w/ Hematite or a light-Green clay. phenocrysts are dominantly Hematite Replaced micro-phenos + clay Alt microphenos													1						1	CaCO3																		
750																1						1																			
755																T.R.																									
760																T.R.																									
765																TR																									
770		TC FeMag	Bleached Fg-slightly porphyritic w/ chloritically alt plag phenos	MH	SP											TR								1			Py														
775																TR								1			Py														
780																TR								1			Py														
785		TC FeMag	Fg-Slightly porphyritic Hematite Replaced Hornblende microphenos Lieseganig Banded w/ FeOx.	MH	SP-Fg																																				
790																																									
795																																									
800																																									

Hecla MINING COMPANY

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX	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 %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	AU	AG
805		TC Fe-Mag	Fg. Slightly Porphyritic, HEMATITE Replaced Hornblend micro phenos w/ Lrge gang. BANDED FeOx.	MH	SP																																				
810																																									
815																																									
820																																									
825																																									
830																																									
835																																									
840			SAME AS ABOVE - only Auto Bx'd & Bleached	MH																							Py														
845																																									
850			SAME AS ABOVE	MH																																					
855																																									
860																																									
865																																									
870																																									
875																																									
880			SAA	MH																							Py														
885																																									
890			SAA	MH																																					
895																																									
900																																									

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

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 %	AC-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	AU	AG
905		TC Fe-Mag	Fg-Sp Hematite Replaced Hornblende Microphenocrysts. w/ Liesegang Banding	MH	SP																																				
910																																									
915																																									
920																																									
925																																									
930																																									
935																																									
940																																									
945																																									
950																																									
955																																									
960		TC Fg. Mud matrix?	Fine-Grained, very slightly porphyritic. thes. unit. has. no. or very little Hematite Replaced Hornblende Microphenocryst. Looks like the muddy matrix of Barlow Breccias in the Chocolate or Badger Formations	MS-MH	FG																																				
965																																									
970																																									
975																																									
980																																									
985																																									
990																																									
995																																									
1000																																									

Hecla MINING COMPANY

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MAGR %	SILICIFICATION QUARTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VEINING %	VEINING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AS-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1005		TC Fg-MUD MARLY	SAA	MS-MH	Fg																																				
1010																																									
1015																																									
1020																																									
1025																																									
1030																																									
1035																																									
1040																																									
1045		TC Fe-MAG	Slightly porphyritic w/ Abundant Hematite Replaced Hornblende microphenocrysts	M4	SP																																				
1050																																									
1055																																									
1060			SAA only Bleached			TR					1													TR			Py														
1065		TC Fe-Mag Auto Bx	SAA w/ Auto Bx'tion																																						
1070																																									
1075																																									
1080																																									
1085																																									
1090																																									
1095																																									
1100																																									

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX	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 %	AS-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1105		TC Fe-Mag Auto Bx	SAA	MH	SP																																				
1110																																									
1115																																									
1120																																									
1125																																									
1130																																									
1135																																									
1140			SAA - Bleached ± propylitization ± SiO2			1																		1																	
1145						5																		1																	
1150							X				1													2																	
1155		FAULT	FAULT - Propylitized gouge	S-MS								X												1																	
1160		Fgtc? Td? LBT?	Fine-grained, non-porphyritic, unit. Could be Dacer. or LBT unit.	MH	Fg																																				
1165																																									
1170																																									
1175																																									
1180																																									
1185																																									
1190																																									
1195																																									
1200																																									

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-475
PAGE 13 OF 16
DATE 8/23/99
LOGGED BY KDA
TOTAL DEPTH 1600

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX	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 %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1205		Fg Tal ? LBT ? Fg Tc ?	Fine-grained, Non-porphyritic!	MH	Fg																																				
1210						X					X											TR	Qtz																		
1215						X					X											TR	Qtz																		
1220			INCREASED SiO2 Flooding & stockwork Some chips LOOK LIKE SiO2 HEALED Hydro. ex's. w/ Common Marcasite. Blades Replaced By Pyrite	H			X				X											5	QTZ	2-3			X		X													
1225							X				X											5	QTZ	2-3			X		X													
1230							X				X											5	QTZ	2-3			X		X													
1235				MH		X					X											2		1			X		X													
1240						X					X											2		1			X		X													
1245				H			X				X											5		1			X		X													
1250				MH		X					X											2		1			X		X													
1255						X					X											1		1			X		X													
1260						X					X											1		1			X		X													
1265						X					X											1		1			X		X													
1270						X					X											1		1			X		X													
1275						X					X											1		1			X		X													
1280						X					X											1		1			X		X													
1285						X					X											1		1			X		X													
1290						X					X											1		1			X															
1295						X					X											1		1			X															
1300						X					X											1				?																

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-475
PAGE 14 OF 16
DATE 8/23/99
LOGGED BY KM
TOTAL DEPTH 1600

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MAGR	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 %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	DIFFICULT	MIXTURE	ANALYTICAL DATA: FROM	TO	W	AU	AG
1305		Fg TC, FgTd, FgLBT	SAA - Sulfides ARE Fine-GRAINED & commonly ARE Pyrite after MARCASITE.	MH	FG	X					X													1			X		X												
1310						1					X													1			X														
1315						1					X													1			X														
1320						1					X													1			X														
1325						1					X													1			X														
1330						1					X													1			X														
1335						1					X													1			X														
1340						1					X													1			X														
1345						1					X													1			X														
1350						1					X					1%								2-3			X														
1355						1																		1			X														
1360						1																		1			X														
1365						1					X													1			X														
1370						X					1													2-3			X														
1375				H		X					1													1			X														
1380						X					1													1			X														
1385							X				1													1			X														
1390							X				1													1			X														
1395							X				1													1			X														
1400				MH		X					1													1		?	X														

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-425
PAGE 15 OF 16
DATE 8/23/99
LOGGED BY KDA
TOTAL DEPTH 1600

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MASSIVE	SILICIFICATION QUARTS %	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-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	OXIDOX	MIXTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1405		FgTC? FgTR? FgLBT?	SAA	MH		-					X													1			X														
1410				MH		X					X													1			X														
1415						X					X													1			X														
1420						X					X													1			X														
1425						X					X													1			X														
1430						X					X													1			X														
1435				H			X				X													1			X														
1440				MH		X					X													3			X		X												
1445						X					X													1			X														
1450						X					X													1			X														
1455						X					X													1			X														
1460						X					X													1			X														
1465						X					X													1			X														
1470						X					X													1			X														
1475		TC? Felsic Flow	Fg Fe-mag Flow or Dike?	MH																																					
1480		Fg Auto Bx LBT?	LOOKS LIKE AUTOBRECCIATED VOLCANIC OR POSSIBLY PART OF EPICLASTIC UNIT "this could be the Lower Pink MATRIX BX. that sits on top OF TOS IN the MINE AREA.			X					X											1	White Clay	1			X														
1485						X					X											1		1			X														
1490						X					X													1			X														
1495						X					X													1			X														
1500						X					X													1		?	X														

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-475
PAGE 16 OF 16
DATE 8/23/99
LOGGED BY KDA
TOTAL DEPTH 1600

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MAGNET %	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-SUL %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1505		Fg auto BX LBT?	SAA	MH		1					X													1																	
1510		TOS	Bud-like Epiclastic w/strong volcanic component. There ARE several, but RARE clasts of F.F. ALS. phyllite clasts which INDICATE THIS IS TOS! If this is TOS – then from 1155 – 1505 would be LBT!	MH	clastic						X													TR																	
1515				MH							X													TR																	
1520				MS-MH							X				X									TR																	
1525											X				X									TR																	
1530											X				X									TR																	
1535											X				X									TR																	
1540											X				X									TR																	
1545											X				X									TR																	
1550											X				X									TR																	
1555											X				X									TR																	
1560											X				X									TR																	
1565											X				X									TR																	
1570											X				X									TR																	
1575											X				X									TR																	
1580											X				X									TR																	
1585											X				X									TR																	
1590											X				X									TR																	
		Fault	FAULT	S								X			X									X																	
1595		Fg Dacite	FINE-GRAINED, propylitized dacite	MS	Fg						X				X									X																	
1600											X				X									X																	

AMERICAN ASSAY LABORATORIES

AAL 01-2 ICP PACKAGE DETECTION LIMITS

ELEMENT	Ag	Al	As	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Se	Sr	Th	Ti	U	V	W	Zn
SAMPLES	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	0.3	0.01	2	3	1	3	0.01	0.2	1	1	1	0.01	10	0.01	1	0.01	2	1	0.01	1	0.001	3	3	0.1	1	2	0.01	8	1	2	1

0.500 GRAMS OF PULP IS DIGESTED WITH HYDROCHLORIC AND NITRIC ACID AT 95 DEGREE CENTIGRADE FOR ONE HOUR.
DIGEST IS PARTIAL FOR B, Ba, Ca, Cr, Fe, La, Mg, Mn, Sr, Ti AND W.
DIGEST IS LIMITED FOR Al, K AND Na.

CLIENT:	*NEWMONT GOLD COMPANY*
CLIENT REF:	ROSEBUD EXPLORATION
AAL REF:	SP054134
METHOD:	AAL 01-2 + Se

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

ELEMENT SAMPLES	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppb	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Se ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
RS-469 000-020	0.4	2.8	5	15	107	< 3	1.72	0.7	15	52	36	3.8	65	0.28	31	0.52	854	2	0.21	27	0.094	12	< 3	0.3	139	6	0.06	< 8	68	< 2	134
RS-469 020-040	0.3	1.38	42	5	69	< 3	0.32	< .2	3	10	13	3.23	729	0.17	21	0.1	113	3	0.07	4	0.014	17	29	4.7	82	11	0.01	< 8	30	< 2	24
RS-469 040-060	< .3	0.99	14	4	54	< 3	0.08	< .2	1	6	6	2.16	383	0.16	19	0.02	29	3	0.04	1	0.006	9	19	2.7	29	11	< .01	< 8	6	< 2	7
RS-469 060-080	0.8	1.33	97	5	90	< 3.	0.05	< .2	1	11	5	2.24	942	0.29	18	0.01	42	5	0.04	3	0.004	11	48	12.2	29	10	< .01	< 8	5	< 2	5
RS-469 080-100	< .3	1.31	5	< 3	137	< 3	0.05	< .2	1	6	3	1.76	63	0.2	23	0.02	28	3	0.03	1	0.01	13	10	1.2	36	12	0.01	< 8	5	< 2	7
RS-469 100-120	< .3	0.99	4	< 3	132	< 3	0.04	< .2	1	8	3	1.83	47	0.21	23	0.02	31	3	0.03	2	0.008	10	10	1.1	26	12	0.01	< 8	6	< 2	7
RS-469 120-140	0.3	0.72	3	< 3	133	< 3	0.04	< .2	< 1	8	4	1.96	2360	0.22	22	0.01	34	3	0.04	2	0.007	9	9	4.9	22	12	< .01	< 8	3	< 2	5
RS-469 140-160	< .3	0.81	10	< 3	96	< 3	0.07	< .2	2	4	2	1.96	62	0.2	26	0.02	1119	2	0.03	1	0.014	11	4	0.2	24	12	0.01	< 8	5	< 2	100
RS-469 160-180	0.3	1.29	< 2	3	95	< 3	0.26	0.3	6	5	4	2.67	50	0.19	20	0.09	1966	2	0.04	2	0.037	12	< 3	< .1	37	10	0.02	< 8	13	< 2	187
RS-469 180-200	< .3	1.16	3	4	72	< 3	0.34	1.6	3	3	3	2.4	243	0.2	19	0.09	861	2	0.04	2	0.035	10	< 3	< .1	13	10	0.02	< 8	10	< 2	339
RS-469 200-220	< .3	1.26	5	< 3	78	< 3	0.25	1.4	6	2	4	2.48	135	0.19	18	0.07	1789	2	0.03	3	0.029	14	< 3	0.1	28	11	0.01	< 8	9	< 2	269
RS-469 220-240	< .3	0.92	< 2	< 3	57	< 3	0.08	0.5	7	5	4	2.17	21	0.17	20	0.05	1455	2	0.04	2	0.024	10	< 3	0.1	47	11	0.02	< 8	8	< 2	186
RS-469 240-260	0.3	0.97	4	< 3	82	< 3	0.1	0.4	8	5	5	2.84	20	0.17	17	0.06	2314	2	0.04	3	0.037	11	< 3	< .1	52	10	0.02	< 8	11	< 2	204
RS-469 260-280	< .3	1.09	2	< 3	307	< 3	0.31	< .2	2	7	5	2.14	56	0.18	21	0.08	174	2	0.05	2	0.021	10	< 3	0.2	87	9	0.02	< 8	8	< 2	70
RS-469 280-300	< .3	1.93	< 2	< 3	56	< 3	1.55	0.2	3	2	3	1.74	16	0.22	27	0.19	883	< 1	0.09	1	0.039	10	< 3	< .1	146	6	0.01	< 8	3	< 2	100
RS-469 300-320	0.3	1.53	< 2	< 3	71	< 3	1.42	0.2	2	2	3	1.82	17	0.28	25	0.17	639	1	0.1	1	0.042	10	< 3	< .1	142	5	0.01	< 8	3	< 2	53
RS-469 320-340	< .3	0.82	< 2	< 3	134	< 3	0.93	0.2	2	2	3	1.77	10	0.2	20	0.09	728	1	0.1	1	0.04	12	< 3	< .1	97	5	0.03	< 8	3	2	56
RS-469 340-360	< .3	0.89	2	< 3	230	< 3	1.13	0.2	2	< 1	3	1.93	11	0.16	21	0.1	975	1	0.09	< 1	0.055	11	< 3	0.1	106	6	0.03	< 8	3	< 2	54
RS-469 360-380	< .3	1.07	2	< 3	439	< 3	1.24	< .2	2	4	3	1.94	12	0.16	21	0.14	827	1	0.08	1	0.037	11	< 3	0.1	126	6	0.02	< 8	4	< 2	89
RS-469 380-400	< .3	0.86	< 2	< 3	56	< 3	0.99	< .2	2	3	3	2.29	< 5	0.18	23	0.09	797	1	0.05	1	0.03	11	< 3	< .1	90	8	0.03	< 8	5	< 2	39
RS-469 400-420	< .3	0.85	< 2	< 3	61	< 3	0.76	< .2	2	7	4	2.47	< 5	0.2	19	0.11	627	1	0.08	1	0.032	8	< 3	< .1	62	9	0.04	< 8	7	< 2	66
RS-469 420-440	< .3	0.82	2	< 3	95	< 3	0.56	< .2	3	7	3	2.65	< 5	0.2	14	0.14	656	2	0.1	2	0.032	8	< 3	< .1	52	8	0.05	< 8	8	2	88
RS-469 440-460	< .3	0.95	2	< 3	66	< 3	0.47	< .2	3	9	4	2.8	6	0.2	15	0.14	521	2	0.1	2	0.037	6	3	< .1	61	8	0.04	< 8	7	3	66
RS-469 460-480	< .3	0.88	< 2	< 3	75	< 3	0.54	< .2	3	7	4	2.74	6	0.2	14	0.14	793	2	0.11	2	0.036	6	< 3	< .1	57	8	0.05	< 8	6	< 2	72
STANDARD C3/DS2	5.8	1.9	58	19	147	17	0.54	23.5	12	170	63	3.38	258	0.17	19	0.63	781	26	0.04	37	0.089	35	16	2.6	30	19	0.09	20	82	20	165
STANDARD G-2	< .3	1.45	< 2	< 3	285	< 3	0.69	0.2	5	86	4	2.04	< 5	0.67	8	0.61	534	2	0.25	8	0.092	3	< 3	0.1	112	4	0.13	< 8	41	2	42

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

5301 LONGLEY LANE
BUILDING E, SUITE 178
RENO, NEVADA 89511
PHONE: (775) 828-1158

21-Oct-99

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Page: 1
Copy: 1 of 3
Set : 1

Attn: Randy Vance
Received: 12-Oct-99 16:00
Project: RS-475 1200'-1600'
PO #:

Job: 993638R
Status: Final

Pulp

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm	Cu ICP ppm
RS-475 1200-1220	0.3	0.34	20	14	95	<1	1.02	<0.5	<1	8	2
RS-475 1220-1240	1.0	0.23	50	15	54	<1	0.26	<0.5	<1	20	3
RS-475 1240-1260	1.2	0.40	56	20	53	<1	0.60	<0.5	<1	19	4
RS-475 1260-1280	0.8	0.29	51	15	46	<1	0.57	<0.5	<1	20	4
RS-475 1280-1300	1.0	0.35	29	18	34	<1	0.97	<0.5	<1	19	4
RS-475 1300-1320	0.6	0.31	28	18	44	<1	1.14	<0.5	<1	12	3
RS-475 1320-1340	0.3	0.37	27	17	33	<1	0.96	<0.5	<1	12	3
RS-475 1340-1360	0.5	0.26	24	16	40	<1	1.08	<0.5	<1	11	2
RS-475 1360-1380	0.2	0.33	31	18	69	<1	0.79	<0.5	<1	11	2
RS-475 1380-1400	0.4	0.35	34	17	37	1	1.16	<0.5	<1	13	3
RS-475 1400-1420	0.4	0.34	42	17	106	<1	1.01	<0.5	<1	13	3
RS-475 1420-1440	0.5	0.33	28	23	68	<1	0.94	0.6	<1	15	3
RS-475 1440-1460	0.5	0.42	21	21	50	<1	0.90	0.5	<1	12	3
RS-475 1460-1480	0.9	0.43	33	18	47	<1	0.80	0.5	<1	19	3
RS-475 1480-1500	0.8	0.77	17	22	55	<1	1.49	<0.5	<1	13	5
RS-475 1500-1520	0.7	0.25	17	17	99	<1	1.68	<0.5	<1	10	3
RS-475 1520-1540	0.9	0.42	11	14	43	<1	1.51	<0.5	<1	9	3
RS-475 1540-1560	1.9	0.86	13	20	66	<1	1.18	<0.5	<1	12	4
RS-475 1560-1580	1.2	0.26	50	18	44	<1	1.16	0.5	1	12	4
RS-475 1580-1600	0.5	0.45	32	20	45	<1	0.26	0.6	1	29	4

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

5301 LONGLEY LANE
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RENO, NEVADA 89511
PHONE: (775) 828-1158

21-Oct-99

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Attn: Randy Vance
Received: 12-Oct-99 16:00
Project: RS-475 1200'-1600'
PO #:

Job: 993638R
Status: Final

Pulp

Sample Id	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm	P ICP ppm	Pb ICP ppm
RS-475 1200-1220	1.18	34	0.20	8	0.03	208	<1	<0.01	<1	145	29
RS-475 1220-1240	1.15	21	0.21	4	0.01	64	2	<0.01	1	110	21
RS-475 1240-1260	1.68	24	0.26	4	0.02	175	3	<0.01	1	104	24
RS-475 1260-1280	1.31	21	0.22	5	0.02	173	1	<0.01	1	118	24
RS-475 1280-1300	1.55	17	0.22	5	0.02	378	<1	<0.01	1	128	24
RS-475 1300-1320	1.63	27	0.21	5	0.02	363	<1	<0.01	<1	131	30
RS-475 1320-1340	1.56	31	0.25	6	0.03	372	<1	<0.01	<1	118	27
RS-475 1340-1360	1.38	31	0.22	6	0.02	304	<1	<0.01	<1	131	19
RS-475 1360-1380	1.65	24	0.22	7	0.02	210	<1	<0.01	<1	156	23
RS-475 1380-1400	1.51	41	0.26	7	0.03	375	<1	<0.01	<1	133	23
RS-475 1400-1420	1.57	69	0.24	7	0.03	469	<1	<0.01	<1	152	26
RS-475 1420-1440	2.24	72	0.23	5	0.02	484	<1	<0.01	<1	165	24
RS-475 1440-1460	2.03	31	0.22	5	0.02	248	<1	<0.01	<1	147	24
RS-475 1460-1480	1.64	38	0.29	7	0.02	315	<1	<0.01	<1	136	22
RS-475 1480-1500	2.11	27	0.35	8	0.04	435	<1	<0.01	<1	100	26
RS-475 1500-1520	1.51	34	0.26	10	0.03	651	<1	<0.01	<1	223	19
RS-475 1520-1540	1.25	38	0.36	13	0.05	546	<1	<0.01	<1	239	18
RS-475 1540-1560	1.88	24	0.53	14	0.09	563	<1	0.33	<1	206	22
RS-475 1560-1580	1.66	27	0.26	6	0.03	340	<1	0.70	<1	156	21
RS-475 1580-1600	1.88	24	0.37	12	0.03	166	1	<0.01	2	97	25

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

5301 LONGLEY LANE
BUILDING E, SUITE 178
RENO, NEVADA 89511
PHONE: (775) 828-1158

21-Oct-99

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Attn: Randy Vance
Received: 12-Oct-99 16:00
Project: RS-475 1200'-1600'
PO #:

Job: 993638R
Status: Final

Pulp

Sample Id	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-475 1200-1220	2	<0.5	175	<0.01	<0.5	<2	<1	34
RS-475 1220-1240	5	0.5	71	<0.01	<0.5	<2	<1	15
RS-475 1240-1260	6	1.3	107	<0.01	<0.5	<2	<1	18
RS-475 1260-1280	4	0.9	104	<0.01	<0.5	<2	<1	18
RS-475 1280-1300	4	<0.5	124	<0.01	<0.5	<2	<1	23
RS-475 1300-1320	3	<0.5	139	<0.01	<0.5	<2	<1	19
RS-475 1320-1340	3	<0.5	113	<0.01	<0.5	<2	<1	24
RS-475 1340-1360	<2	<0.5	139	<0.01	<0.5	<2	<1	16
RS-475 1360-1380	2	<0.5	127	<0.01	<0.5	<2	<1	19
RS-475 1380-1400	3	<0.5	196	<0.01	<0.5	<2	<1	16
RS-475 1400-1420	2	<0.5	165	<0.01	<0.5	<2	<1	20
RS-475 1420-1440	3	<0.5	127	<0.01	<0.5	<2	<1	19
RS-475 1440-1460	5	<0.5	133	<0.01	<0.5	<2	<1	22
RS-475 1460-1480	3	<0.5	125	<0.01	<0.5	<2	<1	19
RS-475 1480-1500	2	<0.5	164	<0.01	<0.5	2	<1	32
RS-475 1500-1520	2	<0.5	222	<0.01	<0.5	<2	<1	16
RS-475 1520-1540	<2	<0.5	197	<0.01	<0.5	<2	<1	35
RS-475 1540-1560	<2	<0.5	171	<0.01	<0.5	2	<1	53
RS-475 1560-1580	2	4.3	197	<0.01	<0.5	<2	<1	50
RS-475 1580-1600	<2	<0.5	86	<0.01	<0.5	<2	<1	49

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21-Oct-99

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Attn: Randy Vance
Received: 12-Oct-99 16:00
Project: RS-475 1200'-1600'
PO #:

Job: 993638R
Status: Final

Abbreviations:

Parameters:

Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead
Sb	: Antimony

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21-Oct-99

CHARLOTTE BALLEW
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Attn: Randy Vance
Received: 12-Oct-99 16:00
Project: RS-475 1200'-1600'
PO #:

Job: 993638R
Status: Final

Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc

Methods:

ICP	: Inductively Coupled Plasma
HYG	: Hydride Generation

Units:

ppm	: Parts per million
%	: percent
ppb	: Parts per billion

Quality codes:

<	: Less than

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CHARLOTTE BALLEW
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Attn: Randy Vance
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PO #:

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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 geologic 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.

Job approved by:

Signed:

.....

Dave Francisco
Laboratory Manager

cc: RANDY VANCE, NEWMONT MINING CORP.

Kurt

CUSTOMER——: NEWMONT GOLD COMPANY
MINE SITE——: ROSEBUD
HOLE NO.——: RS475
DATE——: 9/13/99

SILVER STATE SURVEYS, INC.

Survey Certified By

RYAN KELLNER

PROJECTED DEPTH-: N/A

MEAS DEPTH (FEET)	TRUE VERTICAL DEPTH (FEET)	TRUE VERTICAL X-SECTION (FEET)	INCL (HORZ) (DEG)	DIRECTION (AZIMUTH)	RECTANGULAR COORDINATES N-S (FEET)	E-W (FEET)	DOGLEG SOFT (DEGREES)	CLOSURE DISTANCE (FEET)	CLOSURE DIR (DEG)	HOLE TEMP (F) (DEG)
0	0.00	0.00	-58.95	148.60	0.00	0.00	0.00	0.00	0.00	107.2
50	43.16	25.25	-60.39	149.28	-21.63	13.03	1.48	25.25	148.93	107.2
100	86.92	49.42	-61.79	149.18	-42.40	25.39	1.40	49.42	149.08	105.5
150	131.12	72.80	-62.45	148.72	-62.43	37.45	0.69	72.80	149.04	105.5
200	175.74	95.36	-63.90	149.49	-81.79	49.04	1.49	95.36	149.05	105.5
250	220.88	116.86	-65.17	149.05	-100.27	60.02	1.28	116.86	149.09	104.6
300	266.45	137.43	-66.23	148.89	-117.90	70.83	0.18	137.43	149.07	103.7
350	312.39	157.18	-67.26	149.45	-134.85	80.75	0.53	157.18	149.09	97.6
370	330.85	164.87	-67.51	149.44	-141.47	84.66	0.18	164.87	149.10	94.9
400	358.64	176.15	-68.29	150.06	-151.22	90.35	0.81	176.15	149.14	93.2
450	405.16	194.50	-68.65	149.48	-167.07	99.58	0.42	194.50	149.20	91.4
480	433.09	205.44	-68.58	148.96	-176.47	105.18	0.34	205.44	149.20	89.7
500	451.77	212.58	-69.60	149.71	-182.61	108.82	0.11	212.58	149.21	87.9
550	498.73	229.76	-70.21	148.26	-197.34	117.67	0.57	229.76	149.19	86.1
600	545.82	246.56	-70.49	146.34	-211.48	126.75	0.35	246.56	149.06	85.3
650	593.00	263.07	-70.87	145.04	-225.15	136.07	0.28	263.07	148.85	83.5
700	640.21	279.48	-70.64	141.99	-238.39	145.87	0.52	279.48	148.54	83.5
750	687.44	295.80	-71.06	143.03	-251.41	155.85	0.27	295.80	148.20	82.6
765	701.62	300.66	-70.87	141.76	-255.28	158.84	0.35	300.66	148.11	82.6
850	782.16	327.74	-71.83	144.75	-277.04	175.11	0.68	327.74	147.70	89.7
900	829.60	343.52	-71.35	146.86	-290.10	183.98	0.31	343.52	147.62	89.7
950	876.99	359.48	-71.42	145.37	-303.35	192.87	0.24	359.48	147.55	89.7
1000	924.40	375.35	-71.56	147.02	-316.54	201.71	0.27	375.35	147.49	89.7

CUSTOMER———: NEWMONT GOLD COMPANY
MINE SITE———: ROSEBUD
HOLE NO.———: RS475
DATE———: 9/13/99

SILVER STATE SURVEYS, INC.

Survey Certified By

RYAN KELLNER

PROJECTED DEPTH-: N/A

MEAS DEPTH (FEET)	TRUE VERTICAL DEPTH (FEET)	TRUE VERTICAL X-SECTION (FEET)	INCL (HORZ) (DEG)	DIRECTION (AZIMUTH)	RECTANGULAR COORDINATES N-/S- (FEET)	E-/W- (FEET)	DOGLEG SCAT (DEGREES)	CLOSURE DISTANCE (FEET)	CLOSURE DIR (DEG)	HOLE TEMP F (DEG)
1050	971.87	391.05	-71.82	144.89	-329.56	210.50	0.36	391.05	147.43	89.7
1100	1019.29	406.89	-71.24	146.14	-342.62	219.47	0.35	406.89	147.36	89.7
1150	1066.62	423.00	-71.17	146.36	-356.02	228.42	0.05	423.00	147.32	89.7
1200	1113.93	439.19	-71.03	145.19	-369.41	237.53	0.20	439.19	147.26	89.7
1250	1161.18	455.52	-70.82	146.90	-382.96	246.66	0.30	455.52	147.22	89.7
1300	1208.43	471.88	-70.97	145.00	-396.52	255.82	0.32	471.88	147.17	90.5
1350	1255.57	488.51	-70.13	143.74	-410.05	265.52	0.47	488.51	147.08	98.4
1400	1302.58	505.53	-70.01	143.62	-423.78	275.62	0.06	505.53	146.96	98.4
1450	1349.54	522.66	-69.83	142.82	-437.53	285.90	0.16	522.66	146.84	99.3
1500	1396.47	539.86	-69.81	142.33	-451.23	296.38	0.08	539.86	146.70	99.3
1550	1443.42	557.02	-69.96	144.18	-465.01	306.67	0.33	557.02	146.60	100.2
1600	1490.51	573.81	-70.79	145.24	-478.71	316.37	0.45	573.81	146.54	100.2
1650	1537.60	590.61	-69.91	143.41	-492.36	326.18	0.54	590.61	146.48	101.1
1700	1584.60	607.68	-70.13	145.71	-506.28	336.09	0.41	607.68	146.42	102.0
1750	1631.59	624.75	-69.93	144.38	-520.27	345.87	0.25	624.75	146.38	102.8
1800	1678.55	641.90	-69.92	144.48	-534.23	355.85	0.02	641.90	146.33	103.7
1850	1725.45	659.23	-69.51	144.98	-548.38	365.86	0.22	659.23	146.29	103.7
1900	1772.29	676.71	-69.53	145.04	-562.71	375.89	0.01	676.71	146.26	104.6
1950	1819.17	694.10	-69.76	144.86	-576.95	385.88	0.12	694.10	146.22	106.4
2000	1866.10	711.35	-69.88	145.24	-591.09	395.76	0.09	711.35	146.20	107.2
2050	1913.15	728.26	-70.56	145.12	-604.98	405.42	0.34	728.26	146.17	108.1
2100	1960.40	744.61	-71.26	145.05	-618.38	414.78	0.36	744.61	146.15	109.9
2150	2007.97	760.00	-72.83	148.44	-631.25	423.24	0.94	760.00	146.16	109.9

CUSTOMER——: NEWMONT GOLD COMPANY
MINE SITE——: ROSEBUD
HOLE NO.——: RS475
DATE——: 9/13/99

SILVER STATE SURVEYS, INC.

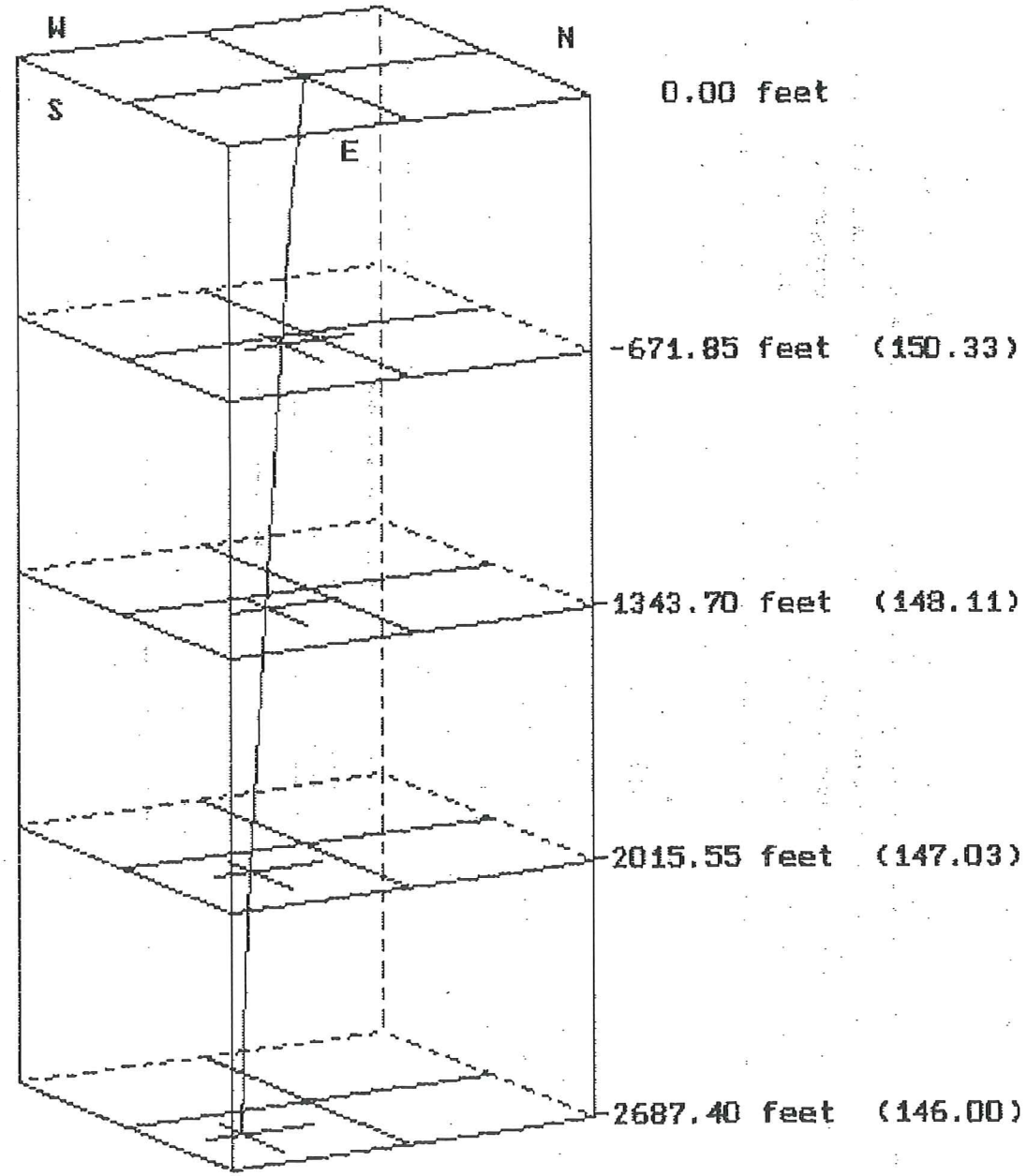
Survey Certified By

RYAN KELLNER

PROJECTED DEPTH-: N/A

MEAS DEPTH (FEET)	TRUE VERTICAL DEPTH (FEET)	TRUE VERTICAL X-SECTION (FEET)	INCL (HORZ) (DEG)	DIRECTION (AZIMUTH)	RECTANGULAR COORDINATES N+/S- (FEET)	E+/W- (FEET)	DOGLEG 60/FT (DEGREES)	CLOSURE DISTANCE (FEET)	CLOSURE DIR. (DEG)	HOLE TEMP (F) (DEG)
2200	2055.77	774.64	-73.08	149.60	-643.81	430.78	0.21	774.64	146.21	111.6
2250	2103.69	788.89	-73.75	148.44	-656.05	438.13	0.37	788.89	146.26	112.5
2300	2151.74	802.72	-74.11	148.24	-667.83	445.39	0.18	802.72	146.30	112.5
2350	2199.88	816.23	-74.53	147.49	-679.27	452.58	0.23	816.23	146.33	113.4
2400	2248.18	829.14	-75.54	144.29	-689.96	459.81	0.65	829.14	146.32	114.3
2450	2296.71	841.18	-76.56	142.37	-699.63	467.00	0.56	841.18	146.28	115.1
2500	2345.38	852.58	-76.92	138.35	-708.47	474.31	0.50	852.58	146.20	116.0
2550	2394.03	863.99	-76.39	136.58	-716.97	482.11	0.33	863.99	146.08	116.9
2600	2442.69	875.27	-77.10	135.16	-725.20	490.09	0.39	875.27	145.95	117.8
2650	2491.49	886.01	-77.66	135.33	-732.96	497.78	0.28	886.01	145.82	118.7
2700	2540.35	896.40	-77.84	133.08	-740.35	505.39	0.26	896.40	145.68	120.4
2750	2589.26	906.51	-78.22	132.38	-747.39	513.00	0.20	906.51	145.53	121.3
2800	2638.23	916.38	-78.46	133.66	-754.29	520.39	0.16	916.38	145.40	122.2
2850	2687.30	925.86	-79.38	138.26	-761.18	527.08	0.64	925.86	145.30	122.2

3D PROJECTION



Survey File: RS475B
Customer: NEWMONT
Date: 9-30-99
Time: 11:17:28

HORIZONTAL PROJECTION

Survey File: RS475B

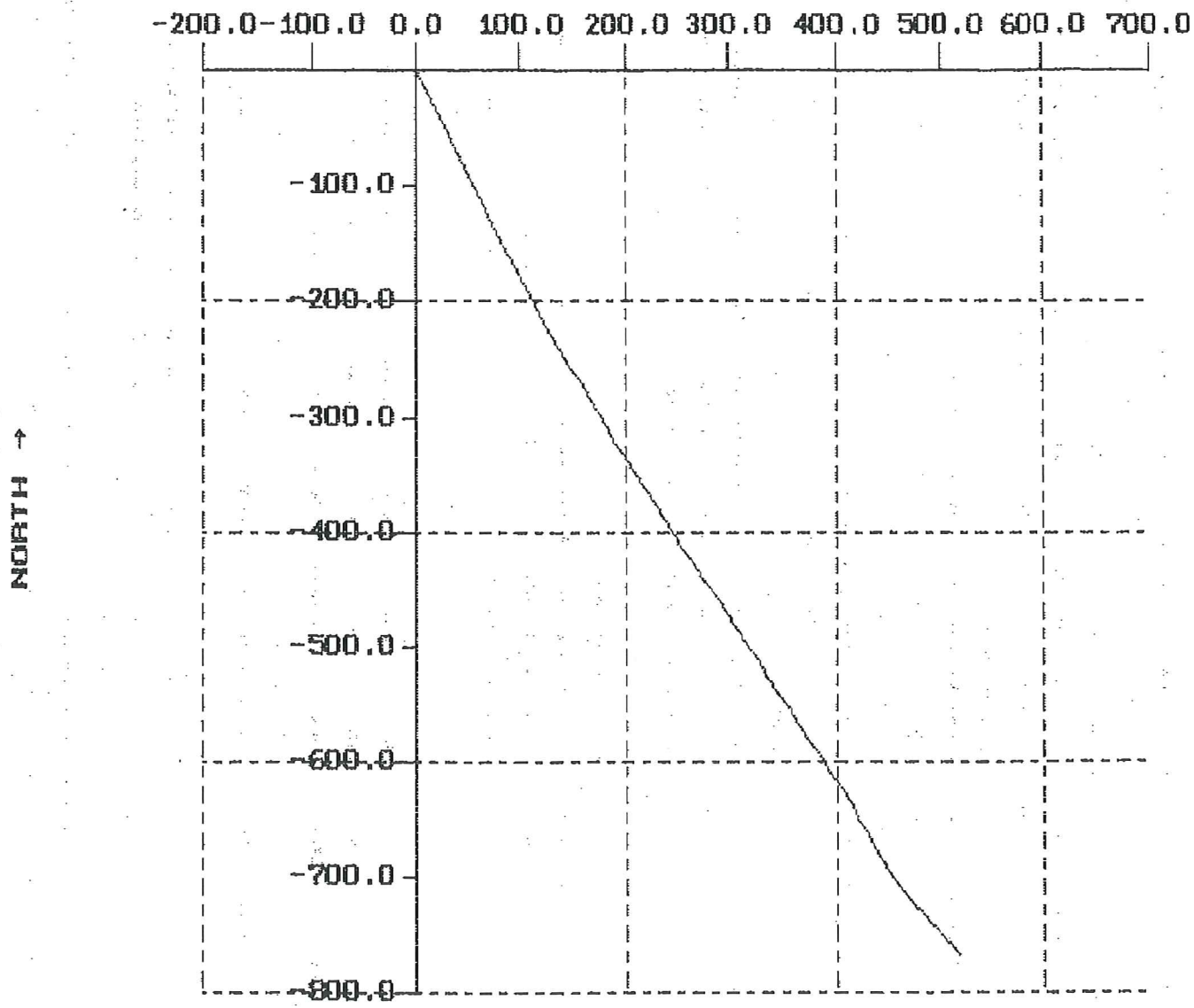
Customer: NEWMONT

Starting from 0.0 E/W 0.0 N/S

Bottom closure direction: 146.0

Time: 11:17:28

Date: 9-30-99



E/W Data Max: 517.0

E/W Data Min: 0.0

(scale in feet)

N/S Data Max: 0.0

N/S Data Min: -766.6

VERTICAL PROJECTION

Survey File: RS475B

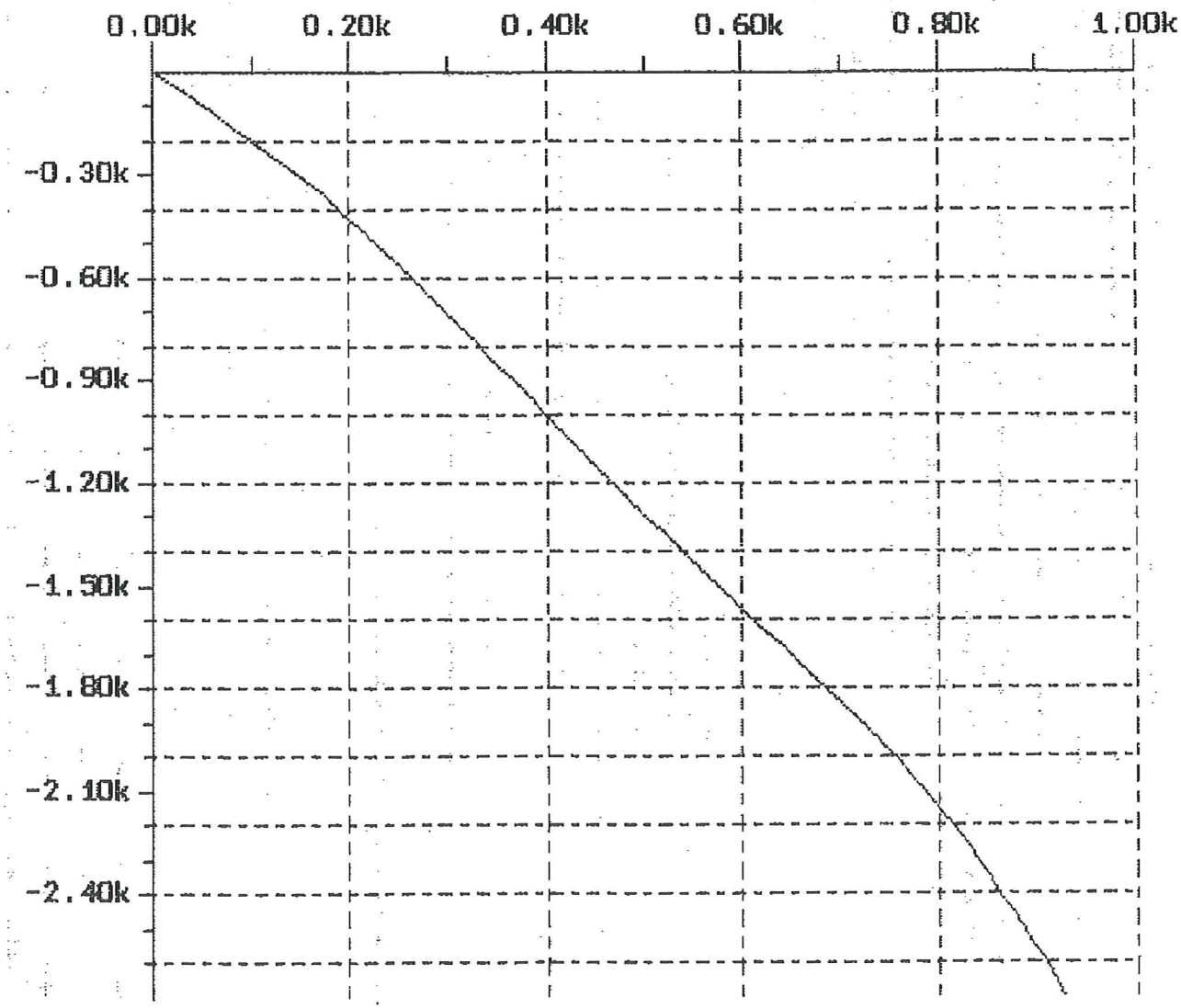
Customer: NEWMONT

Section direction: 146.0

Starting from 0.0 E/W 0.0 N/S

Time: 11:17:28

Date: 9-30-99



Horiz Data Max: 924.7

Horiz Data Min: 0.0

(scale in feet)

Vert Data Max: 0.0

Vert Data Min: -2687.4

BARRINGER LABORATORIES INC.

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PHONE: (775) 828-1158

17-Sep-99

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Attn: Randy Vance
Project: RS-475

PO #:

Received: 2-Sep-99 11:51

Job: 993395R

Status: Final

Rock

Sample Id	Au FA/AA ppb	Au FA/AA oz/ton
RS-475 45-50	<2	0.000
RS-475 95-100	<2	0.000
RS-475 110-115	<2	0.000
RS-475 115-120	10	0.000
RS-475 120-125	29	0.001
RS-475 125-130	<2	0.000
RS-475 130-135	<2	0.000
RS-475 135-140	4	0.000
RS-475 140-145	<2	0.000
RS-475 145-150	<2	0.000
RS-475 170-175	<2	0.000
RS-475 185-190	MS	MS
RS-475 210-215	5	0.000
RS-475 215-220	<2	0.000
RS-475 220-225	<2	0.000
RS-475 245-250	<2	0.000
RS-475 265-270	2	0.000
RS-475 270-275	<2	0.000
STD 275B	134	0.004
RS-475 275-280	44	0.001
RS-475 280-285	87	0.003
RS-475 285-290	46	0.001
RS-475 290-295	5	0.000
RS-475 345-350	<2	0.000
RS-475 395-400	<2	0.000
RS-475 445-450	<2	0.000
RS-475 495-500	7	0.000
RS-475 545-550	<2	0.000
RS-475 550-555	2	0.000
RS-475 555-560	54	0.002

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17-Sep-99

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Attn: Randy Vance
Project: RS-475

PO #:

Received: 2-Sep-99 11:51

Job: 993395R

Status: Final

Rock

Sample Id	Au FA/AA ppb	Au FA/AA oz/ton
RS-475 560-565	10	0.000
RS-475 565-570	56	0.002
RS-475 570-575	2	0.000
RS-475 595-600	<2	0.000
RS-475 645-650	<2	0.000
RS-475 685-690	4	0.000
RS-475 690-695	<2	0.000
RS-475 695-700	<2	0.000
RS-475 700-705	<2	0.000
RS-475 705-710	<2	0.000
RS-475 710-715	<2	0.000
RS-475 745-750	6	0.000
RS-475 760-765	10	0.000
RS-475 765-770	15	0.000
RS-475 770-775	82	0.002
STD 775B	3241	0.095
RS-475 775-780	68	0.002
RS-475 780-785	12	0.000
RS-475 795-800	7	0.000
RS-475 835-840	2	0.000
RS-475 840-845	76	0.002
RS-475 845-850	18	0.001
RS-475 875-880	12	0.000
RS-475 880-885	11	0.000
RS-475 885-890	14	0.000
RS-475 945-950	9	0.000
RS-475 995-1000	10	0.000
RS-475 1045-1050	20	0.001
RS-475 1050-1055	3	0.000
RS-475 1055-1060	12	0.000

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RENO, NEVADA 89511
PHONE: (775) 828-1158

17-Sep-99

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Attn: Randy Vance
Project: RS-475

PO #:

Received: 2-Sep-99 11:51

Job: 993395R

Status: Final

Rock

Sample Id	Au FA/AA ppb	Au FA/AA oz/ton
RS-475 1060-1065	6	0.000
RS-475 1095-1100	3	0.000
RS-475 1135-1140	3	0.000
RS-475 1140-1145	2	0.000
RS-475 1145-1150	8	0.000
RS-475 1150-1155	64	0.002
RS-475 1155-1160	44	0.001
RS-475 1160-1165	12	0.000
RS-475 1195-1200	4	0.000
RS-475 1205-1210	2	0.000
RS-475 1210-1215	4	0.000
RS-475 1215-1220	37	0.001
RS-475 1220-1225	47	0.001
STD 1225B	742	0.022
RS-475 1225-1230	35	0.001
RS-475 1230-1235	69	0.002
RS-475 1235-1240	54	0.002
RS-475 1240-1245	52	0.002
RS-475 1245-1250	52	0.002
RS-475 1250-1255	94	0.003
RS-475 1255-1260	45	0.001
RS-475 1260-1265	2	0.000
RS-475 1265-1270	32	0.001
RS-475 1270-1275	60	0.002
RS-475 1275-1280	67	0.002
RS-475 1280-1285	12	0.000
RS-475 1285-1290	16	0.000
RS-475 1290-1295	122	0.004
RS-475 1295-1300	44	0.001
RS-475 1300-1305	75	0.002

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

5301 LONGLEY LANE
BUILDING E, SUITE 178
RENO, NEVADA 89511
PHONE: (775) 828-1158

17-Sep-99

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Attn: Randy Vance
Project: RS-475

PO #:

Received: 2-Sep-99 11:51

Job: 993395R

Status: Final

Rock

Sample Id	Au FA/AA ppb	Au FA/AA oz/ton
RS-475 1305-1310	31	0.001
RS-475 1310-1315	70	0.002
RS-475 1315-1320	12	0.000
RS-475 1320-1325	18	0.001
RS-475 1325-1330	25	0.001
RS-475 1330-1335	34	0.001
RS-475 1335-1340	11	0.000
RS-475 1340-1345	34	0.001
RS-475 1345-1350	24	0.001
RS-475 1350-1355	7	0.000
RS-475 1355-1360	5	0.000
RS-475 1360-1365	96	0.003
RS-475 1365-1370	19	0.001
RS-475 1370-1375	13	0.000
RS-475 1375-1380	3	0.000
RS-475 1380-1385	5	0.000
RS-475 1385-1390	20	0.001
RS-475 1390-1395	28	0.001
RS-475 1395-1400	5	0.000
RS-475 1400-1405	<2	0.000
RS-475 1405-1410	23	0.001
RS-475 1410-1415	11	0.000
RS-475 1415-1420	13	0.000
RS-475 1420-1425	7	0.000
RS-475 1425-1430	12	0.000
RS-475 1430-1435	85	0.002
RS-475 1435-1440	48	0.001
RS-475 1440-1445	84	0.002
RS-475 1445-1450	20	0.001
RS-475 1450-1455	6	0.000

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17-Sep-99

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861 W. 6TH STREET
WINNEMUCCA NV 89445

Attn: Randy Vance
Project: RS-475

PO #:

Received: 2-Sep-99 11:51

Job: 993395R

Status: Final

Rock

Sample Id	Au FA/AA ppb	Au FA/AA oz/ton
RS-475 1455-1460	25	0.001
RS-475 1460-1465	6	0.000
RS-475 1465-1470	25	0.001
RS-475 1470-1475	3	0.000
RS-475 1475-1480	47	0.001
RS-475 1480-1485	22	0.001
RS-475 1485-1490	18	0.001
RS-475 1490-1495	2	0.000
RS-475 1495-1500	<2	0.000
RS-475 1500-1505	<2	0.000
RS-475 1505-1510	<2	0.000
RS-475 1510-1515	3	0.000
RS-475 1515-1520	<2	0.000
RS-475 1520-1525	3	0.000
RS-475 1525-1530	26	0.001
RS-475 1530-1535	<2	0.000
RS-475 1535-1540	23	0.001
RS-475 1540-1545	<2	0.000
RS-475 1545-1550	16	0.000
RS-475 1550-1555	6	0.000
RS-475 1555-1560	24	0.001
RS-475 1560-1565	68	0.002
RS-475 1565-1570	47	0.001
RS-475 1570-1575	39	0.001
RS-475 1575-1580	17	0.000
STD 1580B	1009	0.029
RS-475 1580-1585	10	0.000
RS-475 1585-1590	16	0.000
RS-475 1590-1595	26	0.001
RS-475 1595-1600	5	0.000

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PHONE: (775) 828-1158

INVOICE

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Date : **17-Sep-99**

Job : **993395R**

Invoice: **40837R**

Authority: Randy Vance PO #:
Project: RS-475 Terms:

	Preparation Charges:		
149	Rock 0-10 Lbs	3.50	$ 521.50
	Analyses:		
149	Au FA/AA	7.50	$1117.50
	Sub Total:		$1639.00
	Discount:	-30.00	$-491.70
	TOTAL DUE:		$1147.30

Remit to: Barringer Laboratories, Inc.
Department 0297
Denver, CO 80291-0297

--- Remittance Copy ---

MEETING THE ANALYTICAL CHALLENGES OF A CHANGING WORLD

BARRINGER LABORATORIES INC.

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17-Sep-99

CHARLOTTE BALLEW
NEWMONT GOLD CO.
861 W. 6TH STREET
WINNEMUCCA NV 89445

Attn: Randy Vance
Project: RS-475

Received: 2-Sep-99 11:51
PO #:

Job: 993395R

Status: Final

Abbreviations:

Parameters:

Au	: Gold

Methods:

FA/AA	: Fire Assay/Atomic Absorption Finish

Units:

ppb	: Parts per billion
oz/ton	: ounces per ton

Quality codes:

<	: Less than
MS	: Missing

BARRINGER LABORATORIES INC.

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17-Sep-99

CHARLOTTE BALLEW
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Page: 7
Copy: 1 of 3

Attn: Randy Vance
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PO #:

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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 geologic 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.

Job approved by:

Signed: Richard A. Grondin
.....
Chuck Whipple
Richard Grondin

cc: RANDY VANCE, NEWMONT MINING CORP.

SURFACE DRILLHOLES
1-10-00
DHSTAKE.RW5 01/10/00 14:10:02

JOB:Name: DHSTAKE	Date: 7-3-1991	Time: 22:31:10.95		
M Setup:North Azimuth	Units: Feet	Scale: 1.000000	Curvature: Off	Angle: Degrees
Store:Point: 1	North: 2,204,321.0430	East: 482,158.2690	Elev: 5,414.00	DOZER
Store:Point: 2	North: 2,203,661.3400	East: 479,120.5940	Elev: 5,132.70	94003
Store:Point: 3	North: 2,206,056.0830	East: 479,594.8790	Elev: 5,646.44	USMM207
Occupy:Occ: 2	North: 2,203,661.3400	East: 479,120.5940	Elev: 5,132.70	94003
Backst:Occ: 2	BS pt: 3	BS azm: 11°12'09"	BS crl: 0°00'00"	
HI/HR :H Inst: 5.06	H Rod: 6.00			
Sd Shot:2-8	Ang R: 345°35'39"	Zen: 81°16'03"	S Dst: 2,030.665	478
Sd Shot:2-9	Ang R: 359°55'08"	Zen: 78°49'34"	S Dst: 1,951.520	477
Sd Shot:2-10	Ang R: 358°25'43"	Zen: 81°17'07"	S Dst: 1,321.590	476

SURFACE DRILLHOLES
1-10-00
DHSTAKE.CR5 01/10/00 14:10:52

Point	Northing	Easting	Elevation	Description
1	2,204,321.0430	482,158.2690	5,414.00	DOZER
2	2,203,661.3400	479,120.5940	5,132.70	94003
3	2,206,056.0830	479,594.8790	5,646.44	USMM207
8	2,205,665.3295	479,008.4403	5,440.06	478
9	2,205,539.9121	479,489.8871	5,509.94	477
10	2,204,949.2595	479,339.1511	5,332.00	476

INSPECTORATE

INSPECTORATE AMERICA CORPORATION
840 Greg Street
Sparks, Nevada 89431
Tel:775-359-6311
Fax: 775-359-2944

16-Nov-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Certificate of Analysis

Attn: Charlotte Ballew
Received: 23-Oct-99 11:07
Project: RS-475-99
PO #: Ref:99-37-29

Job: 993678R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 1600-1603	0.002	0.036
RS-475-99 1603-1607	0.002	0.036
RS-475-99 1607-1612	0.001	0.014
RS-475-99 1612-1616.5	0.002	0.009
RS-475-99 1616.5-1618.9	0.000	0.011
RS-475-99 1618.9-1623	0.000	0.007
RS-475-99 1623-1626.5	0.001	0.007
RS-475-99 1626.5-1628.8	0.002	0.020
RS-475-99 1628.8-1631.3	0.002	0.035
RS-475-99 1631.3-1636	0.000	0.003
RS-475-99 1636-1639.1	0.000	0.003
RS-475-99 1639.1-1642	0.002	0.018
RS-475-99 1642-1646.5	0.000	0.016
RS-475-99 1646.5-1649.5	0.000	0.004
RS-475-99 1649.5-1654	0.000	0.006
RS-475-99 1654-1657.8	0.000	0.003
RS-475-99 1657.8-1662.5	0.000	0.005
RS-475-99 1662.5-1667.5	0.001	0.009
RS-475-99 1667.5-1672.8	0.001	<0.003
RS-475-99 1672.8-1678	0.000	<0.003

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Project: RS-475-99
PO #: Ref:99-37-29

Job: 993678R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 1678-1683.2	0.001	<0.003
RS-475-99 1683.2-1688.5	0.000	<0.003
RS-475-99 1688.5-1692.5	0.000	<0.003
RS-475-99 1692.5-1697.5	0.000	<0.003
RS-475-99 1697.5-1703.2	0.001	<0.003
RS-475-99 1703.2-1707.5	0.001	<0.003
RS-475-99 1707.5-1712	0.001	<0.003
RS-475-99 1712-1717	0.000	<0.003
RS-475-99 1717-1722	0.001	0.012
RS-475-99 1722-1727	0.000	<0.003
RS-475-99 1727-1733	0.000	0.015
RS-475-99 1733-1737	0.001	<0.003
RS-475-99 1737-1742.5	0.001	0.006
RS-475-99 1742.5-1747.5	0.001	<0.003
RS-475-99 1747.5-1749.5	0.001	<0.003
RS-475-99 1749.5-1753	0.000	<0.003
RS-475-99 1753-1758	0.000	0.005
RS-475-99 1758-1763	0.000	0.007
RS-475-99 1763-1767.7	0.000	0.009
RS-475-99 1767.7-1772.7	0.000	0.005

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Certificate of Analysis

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Project: RS-475-99
PO #: Ref:99-37-29

Job: 993678R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 1772.7-1776.1	0.000	<0.003
RS-475-99 1776.1-1779	0.017	0.090
RS-475-99 1779-1784.5	0.000	0.006
RS-475-99 1784.5-1789.5	0.000	0.009
RS-475-99 1789.5-1793	0.000	0.006
RS-475-99 1793-1797	0.000	0.004
RS-475-99 1797-1800	0.002	0.009
RS-475-99 1800-1803.1	0.000	0.008
RS-475-99 1803.1-1807.9	0.000	0.007

Pulp

STD 1809.7 "B"	0.030	0.042

Drill Core

RS-475-99 1807.9-1813	0.000	0.005
RS-475-99 1813-1820	0.000	0.004
RS-475-99 1820-1830	0.000	0.005
RS-475-99 1830-1838.3	0.000	0.006

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Project: RS-475-99
PO #: Ref:99-37-29

Job: 993678R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 1838.3-1843.7	0.000	0.003
RS-475-99 1843.7-1846.7	0.000	<0.003
RS-475-99 1846.7-1851.1	0.001	0.004
RS-475-99 1851.1-1856.3	0.000	<0.003
RS-475-99 1856.3-1860	0.000	0.003
RS-475-99 1860-1870	0.000	<0.003
RS-475-99 1870-1880	0.000	<0.003
RS-475-99 1880-1885.3	0.001	0.003
RS-475-99 1885.3-1888	0.001	<0.003
RS-475-99 1888-1890.5	0.000	<0.003
RS-475-99 1890.5-1892.4	0.001	<0.003
RS-475-99 1892.4-1896.5	0.002	0.009
RS-475-99 1896.5-1903.5	0.001	0.006
RS-475-99 1903.5-1909	0.001	0.005
RS-475-99 1909-1914	0.000	<0.003
RS-475-99 1914-1919	0.000	<0.003
RS-475-99 1919-1923.4	0.000	<0.003
RS-475-99 1923.4-1925.1	0.001	0.008
RS-475-99 1925.1-1930	0.000	0.005
RS-475-99 1930-1934.5	0.000	0.003

Signed:

.....

Dave Francisco
Laboratory Manager

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

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840 Greg Street
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Project: RS-475-99
PO #: Ref:99-37-29

Job: 993678R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 1934.5-1939.5	0.001	0.006
RS-475-99 1939.5-1945	0.001	0.005
RS-475-99 1945-1955	0.000	0.005
RS-475-99 1955-1960.4	0.000	0.005
RS-475-99 1960.4-1963.8	0.001	0.034
RS-475-99 1963.8-1967.7	0.000	0.005
RS-475-99 1967.7-1972	0.000	0.005
RS-475-99 1972-1976.5	0.000	<0.003
RS-475-99 1976.5-1980	0.000	0.003
RS-475-99 1980-1985.3	0.000	0.011
RS-475-99 1985.3-1987	0.001	0.076
RS-475-99 1987-1991	0.006	0.058
RS-475-99 1991-1994.5	0.003	0.040
RS-475-99 1994.5-1997	0.002	0.049
RS-475-99 1997-2001	0.005	0.059
RS-475-99 2001-2005	0.004	0.064
RS-475-99 2005-2008	0.002	0.027
RS-475-99 2008-2013	0.001	0.056
RS-475-99 2013-2017	0.001	0.102
RS-475-99 2017-2022	0.000	0.025

INSPECTORATE

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16-Nov-99

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HECLA MINING COMPANY - ROSEBUD MINE
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Certificate of Analysis

Attn: Charlotte Ballew
Received: 23-Oct-99 11:07
Project: RS-475-99
PO #: Ref:99-37-29

Job: 993678R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 2022-2028	0.001	0.034
RS-475-99 2028-2033	0.000	0.049
RS-475-99 2033-2037.5	0.000	0.057
RS-475-99 2037.5-2042	0.000	0.119
RS-475-99 2042-2050	0.000	0.054
RS-475-99 2050-2060	0.001	0.058
RS-475-99 2060-2067.4	0.001	0.057

Pulp

STD 2067.4 "B"	0.200	0.200

Drill Core

RS-475-99 2067.4-2070.3	0.001	0.042
RS-475-99 2070.3-2075	0.001	0.056
RS-475-99 2075-2081	0.000	0.034
RS-475-99 2081-2087.5	0.000	0.045
RS-475-99 2087.5-2095	0.000	0.010
RS-475-99 2095-2099	0.000	0.028

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Received: 23-Oct-99 11:07
Project: RS-475-99
PO #: Ref:99-37-29

Job: 993678R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 2099-2107.5	0.000	0.051
RS-475-99 2107.5-2115	0.000	0.039
RS-475-99 2115-2124	0.000	0.006
RS-475-99 2124-2129	0.000	0.018
RS-475-99 2129-2134	0.000	0.016
RS-475-99 2134-2140	0.000	0.009
RS-475-99 2140-2150	0.000	0.034
RS-475-99 2150-2156.6	0.000	0.005
RS-475-99 2156.6-2160	0.000	0.016
RS-475-99 2160-2165	0.000	0.007
RS-475-99 2165-2170.5	0.000	0.010
RS-475-99 2170.5-2175.5	0.000	0.010
RS-475-99 2175.5-2180	0.001	0.013
RS-475-99 2180-2185	0.000	0.008
RS-475-99 2185-2190	0.000	0.015
RS-475-99 2190-2194.8	0.000	0.034
RS-475-99 2194.8-2199.5	0.000	0.023
RS-475-99 2199.5-2207	0.000	0.012
RS-475-99 2207-2211.5	0.000	0.017
RS-475-99 2211.5-2220	0.000	0.027

INSPECTORATE AMERICA CORPORATION
840 Greg Street
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16-Nov-99

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P O BOX 2610
WINNEMUCCA NV 89446

Certificate of Analysis

Attn: Charlotte Ballew
Received: 23-Oct-99 11:07
Project: RS-475-99
PO #: Ref:99-37-29

Job: 993678R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 2220-2224.2	0.000	0.020
RS-475-99 2224.2-2229.7	0.000	0.015
RS-475-99 2229.7-2236	0.000	0.013
RS-475-99 2236-2241.3	0.000	0.010
RS-475-99 2241.3-2244.6	0.014	0.022
RS-475-99 2244.6-2251	0.000	0.009
RS-475-99 2251-2257.5	0.000	0.014
RS-475-99 2257.5-2261.2	0.000	0.012
RS-475-99 2261.2-2265	0.000	0.010
RS-475-99 2265-2270	0.000	0.006
RS-475-99 2270-2275.5	0.000	0.010
RS-475-99 2275.5-2280	0.000	0.006
RS-475-99 2280-2285.5	0.000	0.018
RS-475-99 2285.5-2290	0.000	0.026
RS-475-99 2290-2297	0.000	0.020
RS-475-99 2297-2300	0.000	0.031
RS-475-99 2300-2305	0.001	0.041
RS-475-99 2305-2310	0.002	0.033
RS-475-99 2310-2312.5	0.000	0.035
RS-475-99 2312.5-2320	0.000	<0.003

INSPECTORATE

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16-Nov-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Certificate of Analysis

Attn: Charlotte Ballew
Received: 23-Oct-99 11:07
Project: RS-475-99
PO #: Ref:99-37-29

Job: 993678R
Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 2320-2322	0.000	0.018
RS-475-99 2322-2325	0.000	<0.003
RS-475-99 2325-2330	0.002	0.019
RS-475-99 2330-2340	0.001	0.027
RS-475-99 2340-2350.5	0.000	0.018
RS-475-99 2350.5-2360	0.000	0.013
RS-475-99 2360-2370	0.000	0.007
RS-475-99 2370-2380	0.001	0.022
RS-475-99 2380-2390	0.001	0.013
RS-475-99 2390-2400	0.001	0.016
RS-475-99 2400-2407	0.001	0.042
RS-475-99 2407-2410	0.003	0.038
RS-475-99 2410-2415.6	0.001	0.013
RS-475-99 2415.6-2420.9	0.004	0.150
RS-475-99 2420.9-2423.8	0.001	0.086
RS-475-99 2423.8-2427	0.001	0.050
RS-475-99 2427-2429.2	0.002	0.079
RS-475-99 2429.2-2437.5	0.001	0.038
RS-475-99 2437.5-2444	0.000	0.023
RS-475-99 2444-2448	0.001	0.029

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Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 2448-2451.7	0.000	0.022
RS-475-99 2451.7-2457	0.001	0.045
RS-475-99 2457-2462	0.001	0.043
RS-475-99 2462-2469	0.000	0.030
RS-475-99 2469-2473.7	0.000	0.015
RS-475-99 2473.7-2479	0.000	0.011
RS-475-99 2479-2485.6	0.001	0.014
RS-475-99 2485.6-2495.6	0.000	0.013
RS-475-99 2495.6-2505	0.000	0.013
RS-475-99 2505-2511.3	0.001	0.057
RS-475-99 2511.3-2513.6	0.002	0.130
RS-475-99 2513.6-2520	0.001	0.034
RS-475-99 2520-2530	0.001	0.059
RS-475-99 2530-2540	0.000	0.008
RS-475-99 2540-2550	0.000	0.020
RS-475-99 2550-2556	0.000	0.010
RS-475-99 2556-2561.2	0.001	0.032
RS-475-99 2561.2-2570	0.000	0.010
RS-475-99 2570-2580	0.001	0.022
RS-475-99 2580-2586.3	0.001	0.070

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Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 2586.3-2590	0.001	0.029
RS-475-99 2590-2594.7	0.001	0.010
RS-475-99 2594.7-2602.1	0.000	0.020
RS-475-99 2602.1-2608	0.000	0.047
RS-475-99 2608-2615.4	0.000	0.027
RS-475-99 2615.4-2621	0.000	0.005
RS-475-99 2621-2626.5	0.000	0.004
RS-475-99 2626.5-2631.5	0.000	0.004

Pulp

STD 2631.5 "B"	0.002	0.012

Drill Core

RS-475-99 2631.5-2637.1	0.001	0.011
RS-475-99 2637.1-2643.1	0.000	<0.003
RS-475-99 2643.1-2647.6	0.000	<0.003
RS-475-99 2647.6-2653.6	0.000	0.006
RS-475-99 2653.6-2660	0.000	0.017

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Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 2660-2670	0.000	0.011
RS-475-99 2670-2680	0.000	0.003
RS-475-99 2680-2690	0.000	0.006
RS-475-99 2690-2700	0.000	0.011
RS-475-99 2700-2710	0.000	<0.003
RS-475-99 2710-2720	0.000	<0.003
RS-475-99 2720-2730	0.000	0.005
RS-475-99 2730-2733.8	0.000	0.004
RS-475-99 2733.8-2734.5	0.000	0.014
RS-475-99 2734.5-2740.5	0.000	0.004
RS-475-99 2740.5-2750.5	0.000	0.004
RS-475-99 2750.5-2761	0.000	0.010
RS-475-99 2761-2771	0.000	0.006
RS-475-99 2771-2781	0.000	0.004
RS-475-99 2781-2791	0.000	0.004
RS-475-99 2791-2800	0.000	0.003
RS-475-99 2800-2810	0.000	0.005
RS-475-99 2810-2816.5	0.000	0.005
RS-475-99 2816.5-2819.5	0.001	0.027
RS-475-99 2819.5-2824.5	0.000	0.024

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Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-475-99 2824.5-2830	0.000	0.018
RS-475-99 2830-2840	0.001	0.007
RS-475-99 2840-2850	0.000	0.007

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Drill Core

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-475-99 1600-1654	0.1	0.40	4	16	390	<1	1.26	0.9	<1	24
RS-475-99 1654-1717	<0.1	0.40	3	22	87	<1	0.96	0.9	<1	19
RS-475-99 1717-1767.7	<0.1	0.52	<2	20	114	2	1.17	1.0	<1	18
RS-475-99 1767.7-1807.9	0.4	0.80	<2	29	412	3	1.35	1.1	7	26
RS-475-99 1807.9-1860	<0.1	0.91	87	36	546	4	1.83	1.6	5	11
RS-475-99 1860-1896.5	<0.1	1.07	<2	27	111	2	1.09	0.9	6	22
RS-475-99 1896.5-1925.1	<0.1	1.08	<2	41	104	5	0.75	1.5	5	20
RS-475-99 1925.1-1963.8	0.1	1.43	<2	26	595	4	2.99	1.1	6	11
RS-475-99 1963.8-1985.3	<0.1	1.23	<2	43	449	11	2.29	1.7	14	16
RS-475-99 1985.3-2013	2.4	0.43	135	36	104	5	4.08	6.5	10	50
RS-475-99 2013-2067.4	1.8	0.19	69	32	123	<1	7.10	6.8	8	30
RS-475-99 2067.4-2115	1.1	0.18	117	28	144	6	8.60	2.1	7	31
RS-475-99 2115-2165	0.9	0.17	22	32	115	7	8.60	1.6	9	23
RS-475-99 2165-2211.5	0.9	0.22	46	27	158	7	8.90	6.0	6	28
RS-475-99 2211.5-2265	1.0	0.18	30	37	137	6	7.50	2.4	8	32
RS-475-99 2265-2312.5	1.0	0.30	25	35	136	6	7.90	2.0	9	28
RS-475-99 2320-2322	0.9	0.85	40	43	135	5	4.76	1.6	10	36
RS-475-99 2325-2380	1.6	0.24	16	32	144	2	5.80	1.7	7	35
RS-475-99 2380-2429.2	0.8	0.77	107	43	99	8	4.20	1.9	12	34
RS-475-99 2429.2-2479	2.2	1.07	173	60	58	11	2.86	2.4	16	43

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Drill Core

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-475-99 2479-2530	0.9	1.25	59	51	63	5	3.91	2.0	13	28
RS-475-99 2530-2580	1.8	0.99	82	51	86	8	3.40	2.1	14	26
RS-475-99 2580-2631.5	1.1	0.85	38	46	134	6	3.74	1.8	11	32
RS-475-99 2631.5-2680	0.6	0.59	119	40	147	7	4.34	2.0	11	40
RS-475-99 2680-2733.8	0.7	0.25	28	35	116	<1	4.82	2.2	7	47
RS-475-99 2733.8-2734.5	0.7	0.16	35	37	65	9	4.57	1.8	7	7
RS-475-99 2734.5-2791	0.5	0.20	26	39	77	5	4.44	2.2	8	10
RS-475-99 2791-2850	0.5	0.55	23	41	112	5	3.62	3.1	11	16

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-475-99 1600-1654	2	1.54	27	0.38	54	0.04	745	2	2.09	1
RS-475-99 1654-1717	3	1.72	31	0.33	55	0.04	502	<1	2.30	1
RS-475-99 1717-1767.7	3	2.01	44	0.31	48	0.09	580	<1	1.79	2
RS-475-99 1767.7-1807.9	41	2.95	44	0.22	14	0.31	215	<1	0.74	23
RS-475-99 1807.9-1860	15	3.78	305	0.12	20	0.38	421	<1	0.87	21
RS-475-99 1860-1896.5	12	2.94	68	0.10	22	0.52	350	<1	0.98	19
RS-475-99 1896.5-1925.1	24	4.49	81	0.12	19	0.49	163	<1	1.04	33
RS-475-99 1925.1-1963.8	18	2.92	51	0.23	24	0.72	530	<1	0.76	47

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Drill Core

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-475-99 1963.8-1985.3	44	4.60	31	0.23	11	0.52	313	<1	0.80	36
RS-475-99 1985.3-2013	54	4.15	51	0.12	3	0.23	316	28	14.44	54
RS-475-99 2013-2067.4	51	3.15	58	0.14	3	0.57	311	46	16.43	75
RS-475-99 2067.4-2115	31	3.29	64	0.11	3	1.52	255	45	2.54	44
RS-475-99 2115-2165	33	3.31	71	0.12	2	0.99	265	41	3.13	53
RS-475-99 2165-2211.5	47	2.85	88	0.15	2	0.85	280	46	14.53	64
RS-475-99 2211.5-2265	44	3.51	105	0.11	<2	0.51	309	36	5.14	66
RS-475-99 2265-2312.5	39	3.70	47	0.12	3	1.05	364	34	3.50	42
RS-475-99 2320-2322	37	4.42	34	0.12	4	0.86	568	9	2.34	23
RS-475-99 2325-2380	30	3.16	47	0.14	3	0.62	443	30	2.65	40
RS-475-99 2380-2429.2	49	4.88	51	0.12	3	1.04	521	10	2.59	28
RS-475-99 2429.2-2479	75	6.22	61	0.04	3	1.16	518	<1	2.34	19
RS-475-99 2479-2530	60	5.36	27	0.09	3	1.15	598	<1	1.99	14
RS-475-99 2530-2580	63	5.62	37	0.09	3	1.14	547	<1	2.14	16
RS-475-99 2580-2631.5	44	4.47	44	0.12	4	0.99	556	1	2.07	19
RS-475-99 2631.5-2680	51	4.08	336	0.17	4	1.00	471	10	2.49	35
RS-475-99 2680-2733.8	38	3.08	27	0.10	2	0.28	319	38	4.42	54
RS-475-99 2733.8-2734.5	33	3.08	20	0.08	2	0.12	344	51	3.38	67
RS-475-99 2734.5-2791	44	3.40	31	0.07	2	0.45	367	46	4.21	56
RS-475-99 2791-2850	42	4.74	31	0.07	2	0.80	515	15	4.94	26

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Job: 993678R
Status: Final

Drill Core

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-475-99 1600-1654	83	30	<2	<0.5	172	<0.01	<0.5	<2	<1	88
RS-475-99 1654-1717	89	32	<2	<0.5	164	<0.01	<0.5	<2	<1	97
RS-475-99 1717-1767.7	70	32	<2	<0.5	270	<0.01	<0.5	<2	<1	87
RS-475-99 1767.7-1807.9	489	38	<2	<0.5	480	0.01	<0.5	18	<1	63
RS-475-99 1807.9-1860	866	33	7	<0.5	422	0.01	<0.5	34	<1	65
RS-475-99 1860-1896.5	996	27	<2	<0.5	264	<0.01	<0.5	10	<1	57
RS-475-99 1896.5-1925.1	885	39	<2	<0.5	345	<0.01	<0.5	12	<1	66
RS-475-99 1925.1-1963.8	541	35	<2	<0.5	711	0.02	<0.5	16	<1	59
RS-475-99 1963.8-1985.3	614	38	<2	<0.5	706	0.02	<0.5	27	<1	64
RS-475-99 1985.3-2013	754	36	9	<0.5	539	<0.01	<0.5	12	<1	453
RS-475-99 2013-2067.4	929	31	11	1.4	718	<0.01	<0.5	12	<1	486
RS-475-99 2067.4-2115	833	28	13	<0.5	780	<0.01	<0.5	9	<1	88
RS-475-99 2115-2165	970	26	6	<0.5	868	<0.01	<0.5	6	<1	105
RS-475-99 2165-2211.5	823	28	4	<0.5	1149	<0.01	<0.5	10	<1	431
RS-475-99 2211.5-2265	856	32	3	<0.5	885	<0.01	<0.5	5	<1	166
RS-475-99 2265-2312.5	887	29	3	<0.5	866	<0.01	<0.5	8	<1	118
RS-475-99 2320-2322	692	27	3	<0.5	600	<0.01	<0.5	12	<1	87
RS-475-99 2325-2380	722	29	5	<0.5	762	<0.01	<0.5	5	<1	97
RS-475-99 2380-2429.2	787	34	3	<0.5	562	<0.01	<0.5	12	<1	96
RS-475-99 2429.2-2479	798	43	3	<0.5	384	<0.01	<0.5	14	<1	91

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Drill Core

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-475-99 2479-2530	693	35	2	<0.5	456	<0.01	<0.5	23	<1	77
RS-475-99 2530-2580	707	38	2	<0.5	425	<0.01	<0.5	16	<1	79
RS-475-99 2580-2631.5	689	30	<2	<0.5	529	<0.01	<0.5	12	<1	79
RS-475-99 2631.5-2680	936	35	6	<0.5	623	<0.01	<0.5	22	<1	94
RS-475-99 2680-2733.8	822	30	2	<0.5	744	<0.01	<0.5	5	<1	155
RS-475-99 2733.8-2734.5	737	29	<2	<0.5	736	<0.01	<0.5	2	<1	121
RS-475-99 2734.5-2791	863	33	<2	<0.5	674	<0.01	<0.5	4	<1	141
RS-475-99 2791-2850	700	34	<2	<0.5	494	<0.01	<0.5	23	<1	162

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Abbreviations:

Parameters:

Au	: Gold
Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead

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Sb	: Antimony
Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc

Methods:

FA/AA	: Fire Assay/Atomic Absorption Finish
AA	: Atomic Absorption
ICP	: Inductively Coupled Plasma
HYG	: Hydride Generation

Units:

oz/ton	: ounces per ton
ppm	: Parts per million
%	: percent
ppb	: Parts per billion

Quality codes:

<	: Less than

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Job: 993678R
Status: Final

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 geologic 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.

Job approved by:

Signed:

.....
Dave Francisco
Laboratory Manager

Michael N. Spilde
Electron Microscopy Consultant
2114 Oxford Avenue SE
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(505) 277-5430 cell: (505)379-3980

ANALYSIS REPORT

DATE: November 7, 1999

TO: James Clark
Applied Petrographics
4501 N. Paseo Pitiquito
Tucson, AZ 85750

SAMPLES: Petrographic thin section, number RS-475-99

METHOD

An unpolished petrographic thin section and accompanying photo documentation was received on October 15, 1999. The section was lightly polished, cleaned, and coated with a layer of evaporated carbon to prevent charging in the electron microprobe.

Preliminary examination and mapping was done on a JEOL 5800 scanning electron microscope (SEM) utilizing an Oxford Isis analytical system. Individual map acquisition time was approximately 20 minutes. Additional mapping and quantitative analyses were carried out on a JEOL 733 electron microprobe equipped with 5 wavelength dispersive spectrometers (WDS) and an Oxford/Link energy dispersive spectrometer (EDS). Map acquisition in this case was approximately 1 hour. The analyses were performed at 20 kV accelerating potential and 25 nA beam current. Detection limit for Au was 0.028 wt%.

SUMMARY OF OBSERVATIONS

One specific grain had been targeted in photo documentation supplied with the sample. The target grain was tested by qualitative EDS on the SEM and determined to be chalcopyrite. The X-ray spectrum is shown Figure 1.

Four x-ray maps were collected at 4 separate areas on the sample using the SEM. The maps were acquired at 100 and 200x magnification; a map at 100x covers an area approximately 1.2 mm across, while at 200x, the area is 0.6 mm across. An additional map at higher magnification (1100x) was also collected. Three of the maps were acquired in areas with some concentration of sulfide grains, and the elements S, Fe, Cu, Se, Au, and Pb were mapped. No substantial indications of gold were detected in any of the maps. Sulfide minerals found in this survey were pyrite, sphalerite and galena. The galena appears to contain small amounts of Se, shown in the spectrum in Figure 2, which probably substitutes for S in the galena crystal structure.

The EDS maps were used to search for areas of high gold concentration, i.e. elemental Au. A few indistinct areas were found in the EDS maps that might represent low concentrations of Au. However the sensitivity of EDS maps for low concentration levels is poor. One of the areas, where Au in the EDS X-ray map coincided with pyrite, was examined with a WDS map on the microprobe. The WDS has greater sensitivity to low elemental concentrations. The Au $L\alpha$ line was mapped using a PET crystal with a background channel collected on a second PET crystal. The background map was subtracted from the Au map to eliminate the appearance of false concentrations due to differences in atomic number between different mineral phases. In addition, S, Fe, Cu, Zn, and Pb maps were also collected by EDS simultaneously with the Au map. Figure 4A and 4B show the results of the mapped area. The gold map exhibits an apparent concentration in the upper left corner of the image, indicated by an arrow. However this is due to the location of the Au $L\alpha$ line near the flank of the Zn $K\beta$ line. Note that the apparent "high" Au concentration coincides with a high concentration of Zn in the Zn map. Lower amounts of Au appear in the map, which coincide with pyrite. When the background is subtracted from Au map, the resulting image (Fig. 4B) shows only a few small spots associated with pyrite and sphalerite that may contain detectable gold.

On the basis of this X-ray map, pyrite, chalcopyrite and sphalerite in the sample were quantitatively analyzed on the microprobe. Table 1 shows the results of 10 analyses on the various sulfide minerals. The sphalerite noted in the map did not contain detectable Au, nor did chalcopyrite. However, some of the pyrite grains contained low levels of Au, around 400-600 ppm. There are several different pyrite morphologies that are present in the sample: suhedral to euhedral, cubic crystals (designated as type 1) and irregular, blebby to elongate pyrite grains (type 2). Both of these types are shown in Figure 3. The cubic, type 1 pyrite grains showed no detectable evidence of Au, although some of the type 2 grains did. Furthermore several of the pyrite grains that showed detectable Au appeared to have formed from the replacement of an

earlier sulfide, probably galena. The presence of detectable Au in the pyrite analyses may indicate that the Au is associated with the pyrite and could be chemically incorporated into the pyrite structure or could be present as minute inclusions within the pyrite. Since the type 2 pyrite makes up less than 1 % (visually estimated) of the overall sample volume, the bulk Au in the sample must be less than 1 ppm.

CONCLUSIONS

No detectable concentrations of elemental gold were found by X-ray mapping. However, some pyrite grains contain small amounts of Au. The Au-bearing grains tend to be irregular and also have replacement textures, probably replacing earlier galena. The more euhedral grains did not contain detectable Au. The two distinct types of grain morphologies may represent different generations of pyrite, and the gold-bearing pyrite may be a later generation.

TABLES AND FIGURES

Table 1. Microprobe analyses of pyrite, chalcopyrite and sphalerite.

Point	Fe	S	Cu	Zn	Au	Total
1. Type 2 pyrite	45.57	52.24	0.071	0.022	0.067	97.98
2. Sphalerite	2.46	32.26	0.000	62.01	BDL	98.47
3. Chalcopyrite	30.00	33.32	34.04	BDL	BDL	97.36
4. Type 1 pyrite	45.05	54.15	0.547	0.128	BDL	99.87
5. Type 1 pyrite	46.20	53.00	BDL	BDL	BDL	99.21
6. Type 2 pyrite	45.26	53.58	BDL	BDL	BDL	98.84
7. Type 2 pyrite	45.86	52.12	BDL	BDL	0.047	98.02
8. Type 2 pyrite	45.78	52.88	0.035	BDL	0.067	98.76
9. Type 1 pyrite	45.32	52.72	BDL	BDL	BDL	98.06
10. Type 1 pyrite	46.28	54.38	BDL	BDL	BDL	100.66

Notes: BDL, below minimum detection limit.

Type 1 pyrite is generally cubic; Type 2 pyrite is irregular or blebby.

Analyses 7 & 8 are irregular pyrite that appears to replace galena.

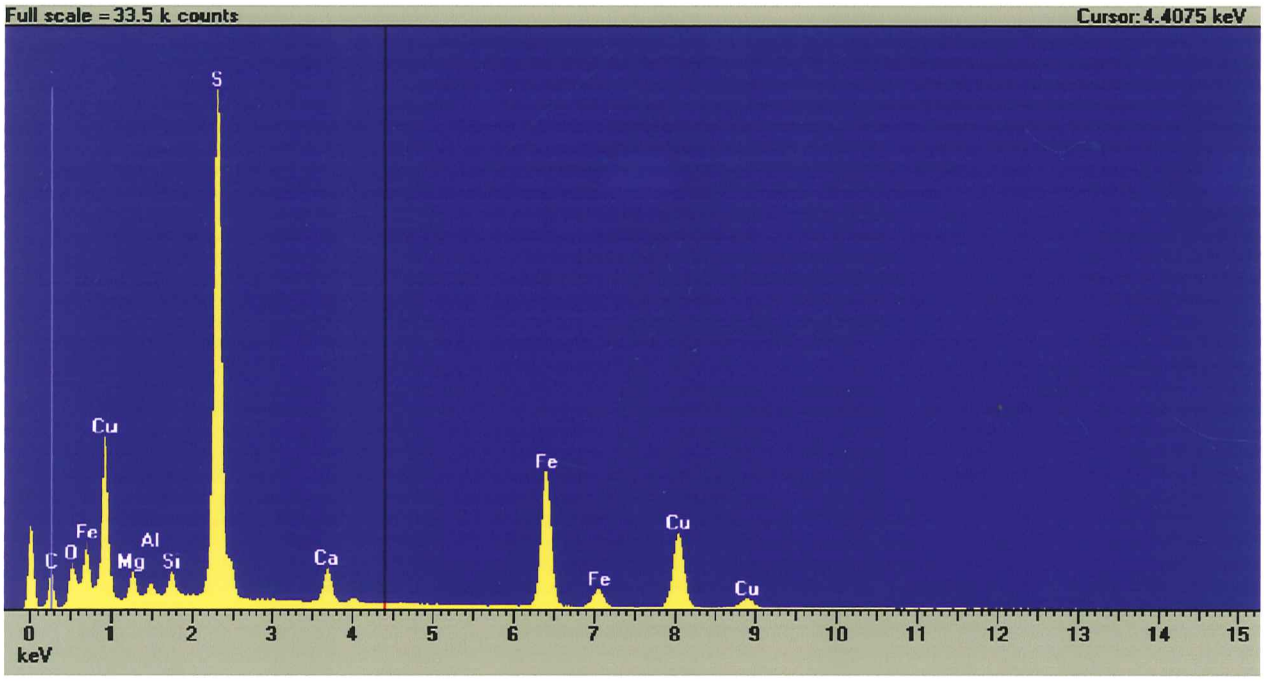


Figure 1. Energy dispersive X-ray spectrum of the target grain outlined in the optical photomicrographs. The major peaks for Cu, Fe and S indicate that the grain is chalcopyrite. The other elements are from the surround rock.

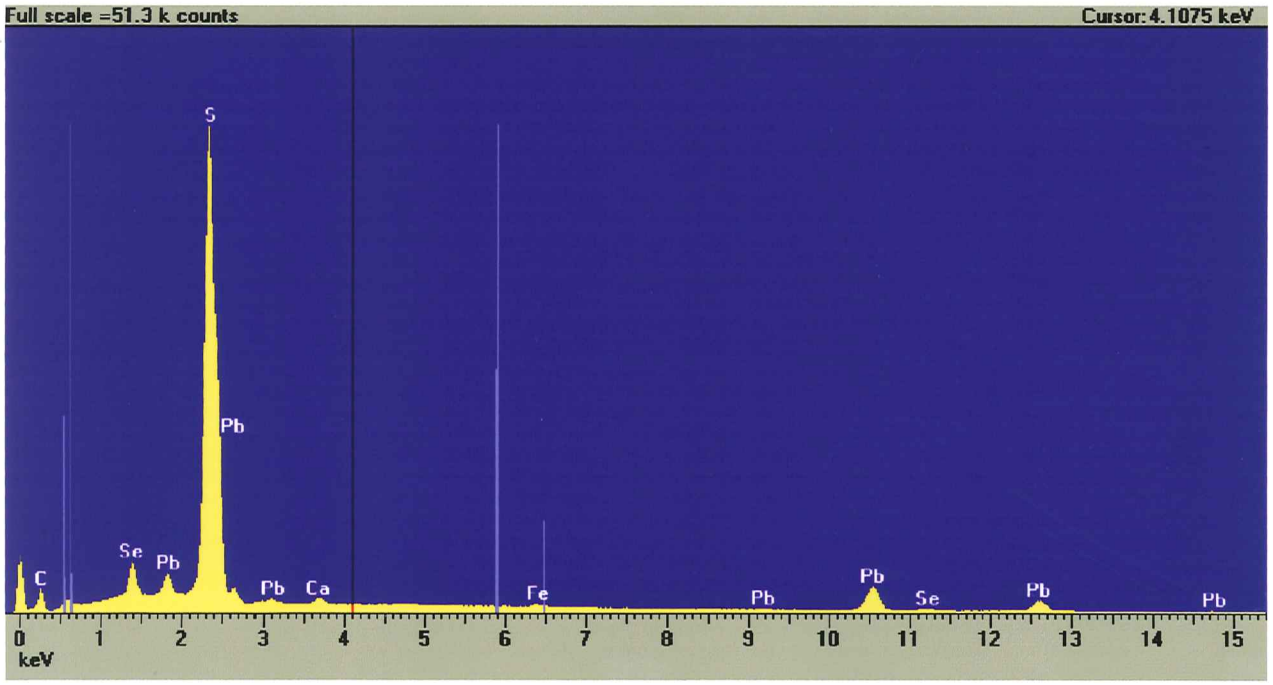
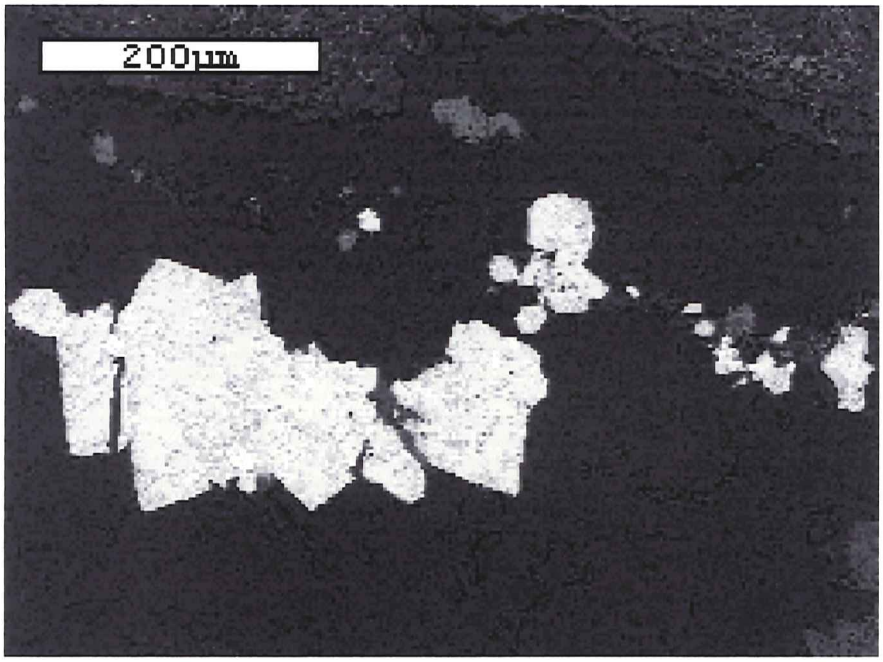


Figure 2. X-ray spectrum of a galena grain. Note the presence of Se.



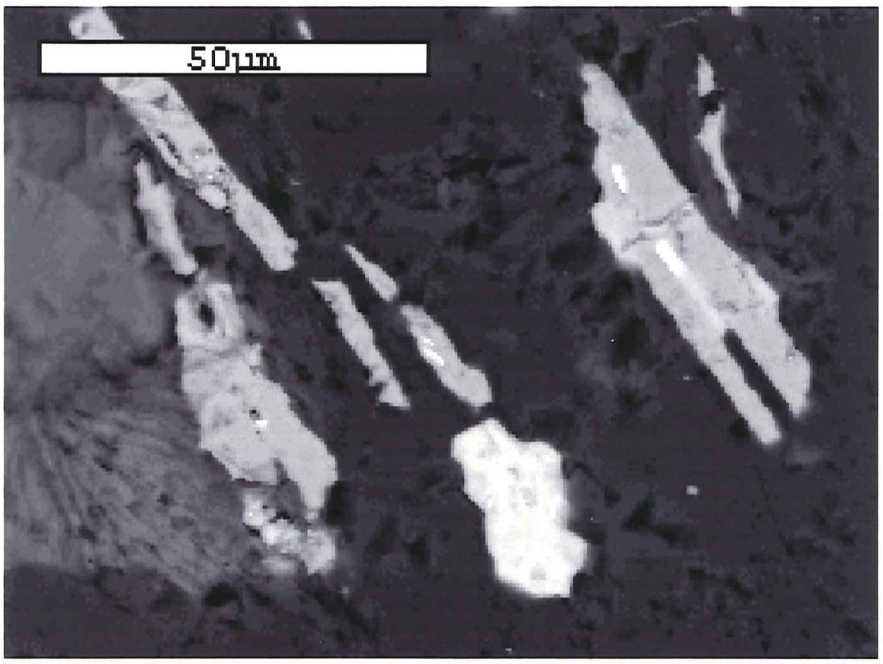


Figure 3. Backscattered electron (BSE) images of two types of pyrite in the sample. The cubic pyrite (type 1) is shown on the top and the irregular pyrite (type 2) is on the bottom.

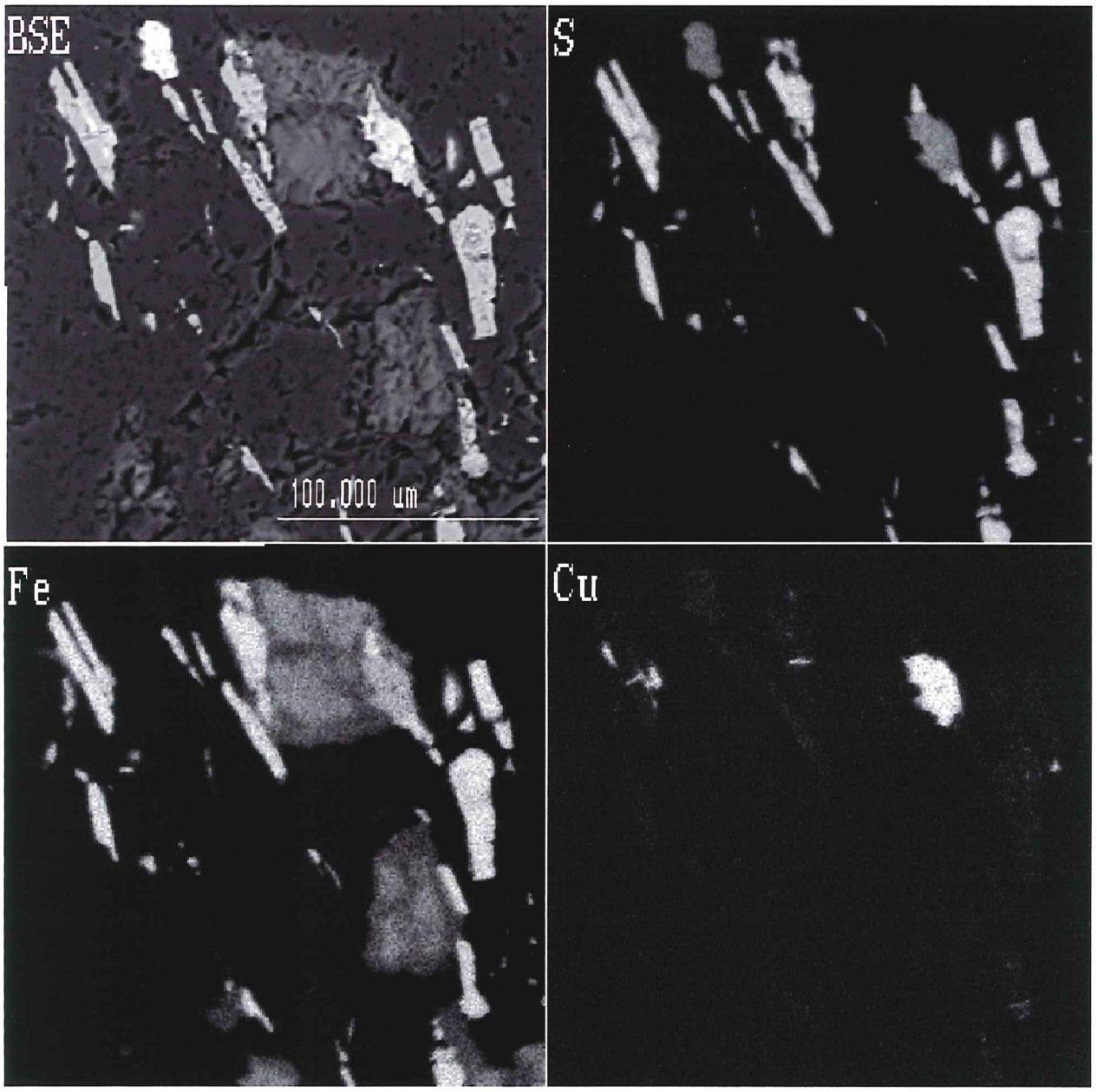


Figure 4A. BSE image and X-ray maps for S Kα, Fe Kα, and Cu Kα line, collected by EDS. Scale bar = 100 mm.

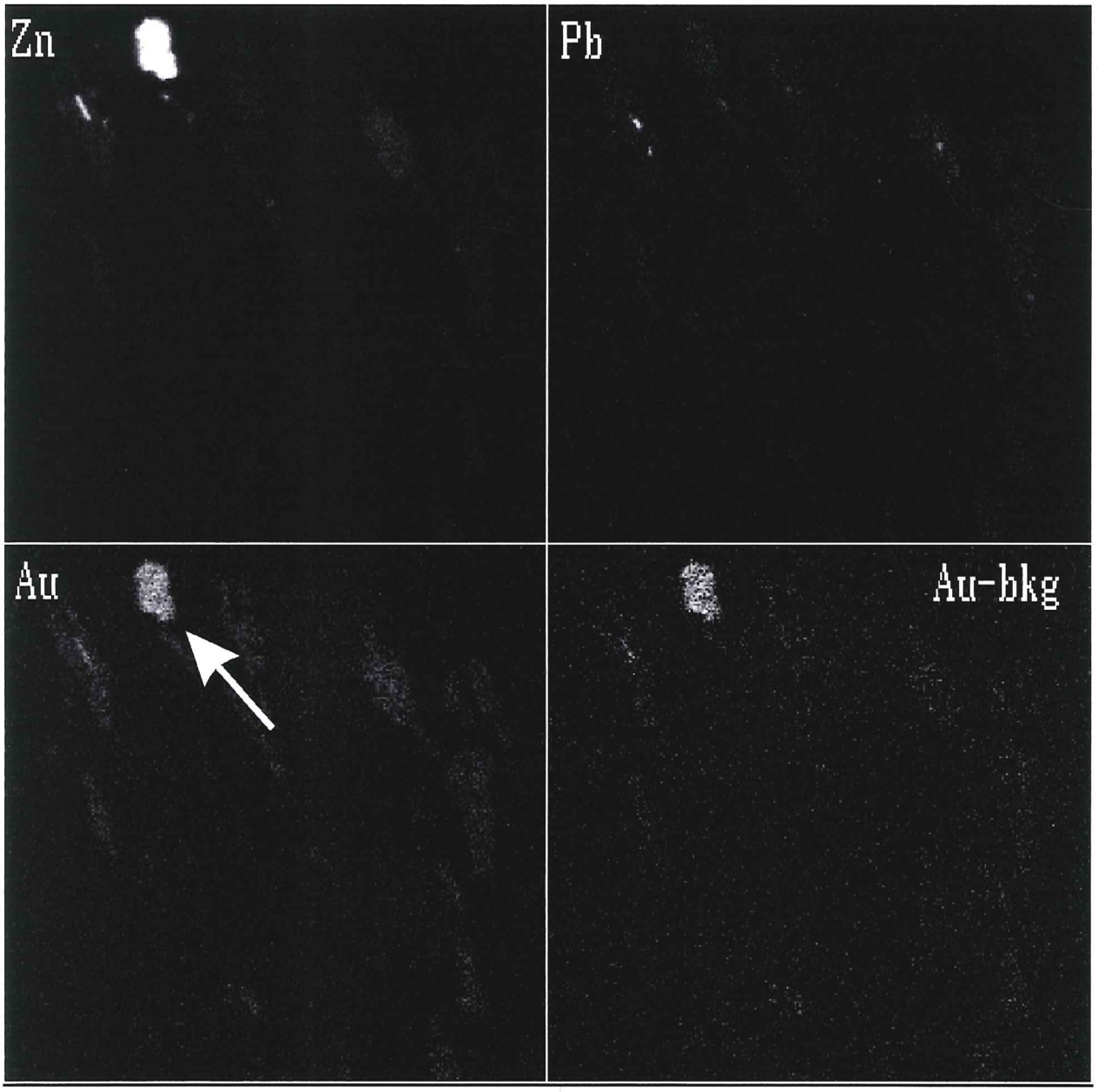


Figure 4B. X-ray maps for Zn Kα, Pb Mα, (collected by EDS), and Au Lα line (collected by WDS), along with a map for Au - background. Scale bar same as Fig. 3A.

775-359-6311

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Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped 10-20-99
Shipped Via _____
# of Cartons _____
# of Samples 220 + 3 Pulps

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
Kurt Allen : Rosebud Mine	Charlotte Bollen
Fax # 1-775-623-6967	Newmont Gold
Randy Vance : Newmont Gold	861 W 6th St. Winnemucca NV
861 W 6th Street	89445
Winnemucca NV 89445	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
220	core	RS-475-99	Au Ag Use Rosebud
		See attachment for sample interval	Mine development Protocol
			NGC 30 element ICP
			Partial digestion
			Composite as shown
			on attachment
3	Pulps	standards: 1807.9B, 2067.4B, 2631.5B	Au lot Fa/AA
			No Ag No ICP

RS-475-99
MS-3
(RMG1)
1807.9B

PEEL HERE

RS-475-99
G 0 1 - 52
G 0 1 - 52
2067.4B

PEEL HERE

RS-475-99
MS-2
(RMG1)
2631.5B

COARSE REJECTS/PULPS

☒ Return/collect after analysis
☐ Return/collect after 30 days
☐ Discard after 30 days
IF NOT MARKED, REJECT DISCARDED AFTER 30 DAYS

PULP (Free storage for 6 months)

☒ Return/collect after analysis
☐ Return/collect at 6 months
☐ Discard at 6 months
IF NOT MARKED, PULP IS DISCARDED AFTER 6 MONTHS

COARSE REJECTS/PULPS WILL BE DISCARDED UNLESS OTHERWISE REQUESTED

☐ Fire Assay/Gravimetric
☐ NaCN/A.A.

RESULTS REPORTED IN:
☐ ppb ☐ PPM
☒ oz/T ☐ grams/T

TRACE ELEMENT METHOD

☐ Wet Chem./A.A.
☐ Wet Chem./ICP

RESULTS REPORTED IN:
☐ ppm ☐ Percent %
☒ oz/T ☐ grams/T

ADDITIONAL INSTRUCTIONS:
In two shipments 10/20 & 10/21

NOV96:PM5:RENO3:GEOCHEM

RS-475-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number
1600	1603	3	x	x			1
1603	1607	4	x	x			2
1607	1612	5	x	x			3
1612	1616.5	4.5	x	x			4
1616.5	1618.9	2.4	x	x			5
1618.9	1623	4.1	x	x			6
1623	1626.5	3.5	x	x			7
1626.5	1628.8	2.3	x	x			8
1628.8	1631.3	2.5	x	x			9
1631.3	1636	4.7	x	x			10
1636	1639.1	3.1	x	x			11
1639.1	1642	2.9	x	x			12
1642	1646.5	4.5	x	x			13
1646.5	1649.5	3	x	x			14
1649.5	1654	4.5	x	x	x	54	15
1654	1657.8	3.8	x	x			16
1657.8	1662.5	4.7	x	x			17
1662.5	1667.5	5	x	x			18
1667.5	1672.8	5.3	x	x			19
1672.8	1678	5.2	x	x			20
1678	1683.2	5.2	x	x			21
1683.2	1688.5	5.3	x	x			22
1688.5	1692.5	4	x	x			23
1692.5	1697.5	5	x	x			24
1697.5	1703.2	5.7	x	x			25
1703.2	1707.5	4.3	x	x			26
1707.5	1712	4.5	x	x			27
1712	1717	5	x	x	x	63	28
1717	1722	5	x	x			29
1722	1727	5	x	x			30
1727	1733	6	x	x			31
1733	1737	4	x	x			32
1737	1742.5	5.5	x	x			33
1742.5	1747.5	5	x	x			34
1747.5	1749.5	2	x	x			35
1749.5	1753	3.5	x	x			36
1753	1758	5	x	x			37
1758	1763	5	x	x			38
1763	1767.7	4.7	x	x	x	50.7	39

1767.7	1772.7	5	x	x			40	
1772.7	1776.1	3.4	x	x			41	
1776.1	1779	2.9	x	x			42	
1779	1784.5	5.5	x	x			43	
1784.5	1789.5	5	x	x			44	
1789.5	1793	3.5	x	x			45	
1793	1797	4	x	x			46	
1797	1800	3	x	x			47	
1800	1803.1	3.1	x	x			48	
1803.1	1807.9	4.8	x	x	x	40.2	49	1807.9B
1807.9	1813	5.1	x	x			50	
1813	1820	7	x	x			51	
1820	1830	10	x	x			52	
1830	1838.3	8.3	x	x			53	
1838.3	1843.7	5.4	x	x			54	
1843.7	1846.7	3	x	x			55	
1846.7	1851.1	4.4	x	x			56	
1851.1	1856.3	5.2	x	x			57	
1856.3	1860	3.7	x	x	x	52.1	58	
1860	1870	10	x	x			59	
1870	1880	10	x	x			60	
1880	1885.3	5.3	x	x			61	
1885.3	1888	2.7	x	x			62	
1888	1890.5	2.5	x	x			63	
1890.5	1892.4	1.9	x	x			64	
1892.4	1896.5	4.1	x	x	x	36.5	65	
1896.5	1903.5	7	x	x			66	
1903.5	1909	5.5	x	x			67	
1909	1914	5	x	x			68	
1914	1919	5	x	x			69	
1919	1923.4	4.4	x	x			70	
1923.4	1925.1	1.7	x	x	x	28.6	71	
1925.1	1930	4.9	x	x			72	
1930	1934.5	4.5	x	x			73	
1934.5	1939.5	5	x	x			74	
1939.5	1945	5.5	x	x			75	
1945	1955	10	x	x			76	
1955	1960.4	5.4	x	x			77	
1960.4	1963.8	3.4	x	x	x	38.7	78	

1963.8	1967.7	3.9	x	x			79	
1967.7	1972	4.3	x	x			80	
1972	1976.5	4.5	x	x			81	
1976.5	1980	3.5	x	x			82	
1980	1985.3	5.3	x	x	x	21.5	83	
1985.3	1987	1.7	x	x			84	
1987	1991	4	x	x			85	
1991	1994.5	3.5	x	x			86	
1994.5	1997	2.5	x	x			87	
1997	2001	4	x	x			88	
2001	2005	4	x	x			89	
2005	2008	3	x	x			90	
2008	2013	5	x	x	x	27.7	91	
2013	2017	4	x	x			92	
2017	2022	5	x	x			93	
2022	2028	6	x	x			94	
2028	2033	5	x	x			95	
2033	2037.5	4.5	x	x			96	
2037.5	2042	4.5	x	x			97	
2042	2050	8	x	x			98	
2050	2060	10	x	x			99	
2060	2067.4	7.4	x	x	x	54.4	100	2067.4B
2067.4	2070.3	2.9	x	x			101	
2070.3	2075	4.7	x	x			102	
2075	2081	6	x	x			103	
2081	2087.5	6.5	x	x			104	
2087.5	2095	7.5	x	x			105	
2095	2099	4	x	x			106	
2099	2107.5	8.5	x	x			107	
2107.5	2115	7.5	x	x	x	47.6	108	
2115	2124	9	x	x			109	
2124	2129	5	x	x			110	
2129	2134	5	x	x			111	
2134	2140	6	x	x			112	
2140	2150	10	x	x			113	
2150	2156.6	6.6	x	x			114	
2156.6	2160	3.4	x	x			115	
2160	2165	5	x	x		50	116	

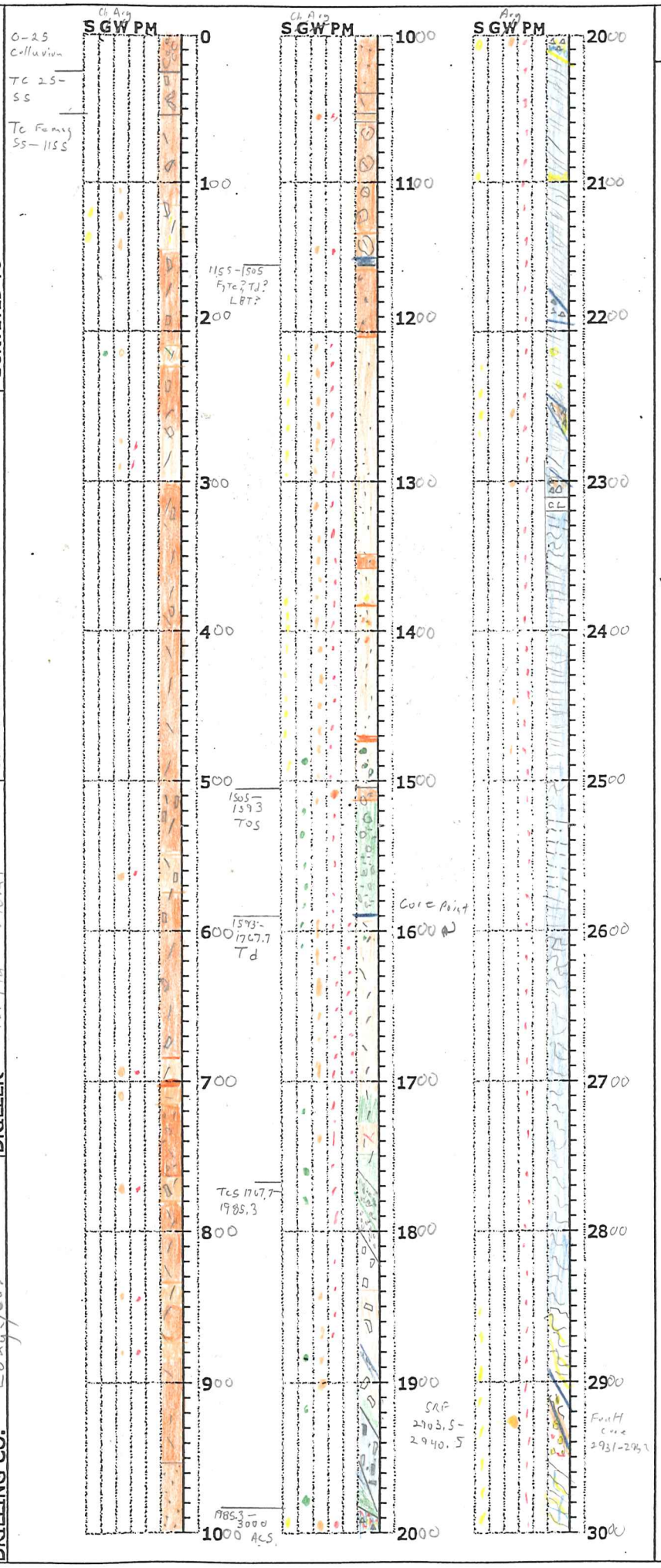
2165	2170.5	5.5	x	x			117
2170.5	2175.5	5	x	x			118
2175.5	2180	4.5	x	x			119
2180	2185	5	x	x			120
2185	2190	5	x	x			121
2190	2194.8	4.8	x	x			122
2194.8	2199.5	4.7	x	x			123
2199.5	2207	7.5	x	x			124
2207	2211.5	4.5	x	x	x	46.5	125
2211.5	2220	8.5	x	x			126
2220	2224.2	4.2	x	x			127
2224.2	2229.7	5.5	x	x			128
2229.7	2236	6.3	x	x			129
2236	2241.3	5.3	x	x			130
2241.3	2244.6	3.3	x	x			131
2244.6	2251	6.4	x	x			132
2251	2257.5	6.5	x	x			133
2257.5	2261.2	3.7	x	x			134
2261.2	2265	3.8	x	x	x	53.5	135
2265	2270	5	x	x			136
2270	2275.5	5.5	x	x			137
2275.5	2280	4.5	x	x			138
2280	2285.5	5.5	x	x			139
2285.5	2290	4.5	x	x			140
2290	2297	7	x	x			141
2297	2300	3	x	x			142
2300	2305	5	x	x			143
2305	2310	5	x	x			144
2310	2312.5	2.5	x	x	x	47.5	145
2312.5	2320	7.5	NO SAMPLE				
2320	2322	2	x	x			146
2322	2325	3	NO SAMPLE				
2325	2330	5	x	x			147
2330	2340	10	x	x			148
2340	2350.5	10.5	x	x			149
2350.5	2360	9.5	x	x			150
2360	2370	10	x	x			151
2370	2380	10	x	x	x	55	152

2380	2390	10	x	x			153	
2390	2400	10	x	x			154	
2400	2407	7	x	x			155	
2407	2410	3	x	x			156	
2410	2415.6	5.6	x	x			157	
2415.6	2420.9	5.3	x	x			158	
2420.9	2423.8	2.9	x	x			159	
2423.8	2427	3.2	x	x			160	
2427	2429.2	2.2	x	x	x	49.2	161	
2429.2	2437.5	8.3	x	x			162	
2437.5	2444	6.5	x	x			163	
2444	2448	4	x	x			164	
2448	2451.7	3.7	x	x			165	
2451.7	2457	5.3	x	x			166	
2457	2462	5	x	x			167	
2462	2469	7	x	x			168	
2469	2473.7	4.7	x	x			169	
2473.7	2479	5.3	x	x	x	49.8	170	
2479	2485.6	6.6	x	x			171	
2485.6	2495.6	10	x	x			172	
2495.6	2505	9.4	x	x			173	
2505	2511.3	6.3	x	x			174	
2511.3	2513.6	2.3	x	x			175	
2513.6	2520	6.4	x	x			176	
2520	2530	10	x	x	x	51	177	
2530	2540	10	x	x			178	
2540	2550	10	x	x			179	
2550	2556	6	x	x			180	
2556	2561.2	5.2	x	x			181	
2561.2	2570	8.8	x	x			182	
2570	2580	10	x	x	x	50	183	
2580	2586.3	6.3	x	x			184	
2586.3	2590	3.7	x	x			185	
2590	2594.7	4.7	x	x			186	
2594.7	2602.1	7.4	x	x			187	
2602.1	2608	5.9	x	x			188	
2608	2615.4	7.4	x	x			189	
2615.4	2621	5.6	x	x			190	
2621	2626.5	5.5	x	x			191	
2626.5	2631.5	5	x	x	x	51.5	192	2631.5B

2631.5	2637.1	5.6	x	x			193	
2637.1	2643.1	6	x	x			194	
2643.1	2647.6	4.5	x	x			195	
2647.6	2653.6	6	x	x			196	
2653.6	2660	6.4	x	x			197	
2660	2670	10	x	x			198	
2670	2680	10	x	x	x	48.5	199	
2680	2690	10	x	x			200	
2690	2700	10	x	x			201	
2700	2710	10	x	x			202	
2710	2720	10	x	x			203	
2720	2730	10	x	x			204	
2730	2733.8	3.8	x	x	x	53.8	205	
2733.8	2734.5	0.7	x	x			206	
2734.5	2740.5	6	x	x			207	
2740.5	2750.5	10	x	x			208	
2750.5	2761	10.5	x	x			209	
2761	2771	10	x	x			210	
2771	2781	10	x	x			211	
2781	2791	10	x	x	x	56.5	212	
2791	2800	9	x	x			213	
2800	2810	10	x	x			214	
2810	2816.5	6.5	x	x			215	
2816.5	2819.5	3	x	x			216	
2819.5	2824.5	5	x	x			217	
2824.5	2830	5.5	x	x			218	
~~2830~~	~~2833~~	~~3~~	~~x~~	~~x~~			~~219~~	
2830	2840	~~7~~ 10	x	x			~~220~~	219
2840	2850	10	x	x	x	59	~~221~~	220

ROSEBUD MINING COMPANY, LLC.

HOLE #	RS-475-99
START HOLE	
FINISH HOLE	
HOLE TYPE	RC/core
LOGGED BY	D.G. Mulcahey
BEARING	S 300 E
ANGLE	-60
T.D	3000
SURVEYED TO	3000
PAGE 1 OF 1	
COLLAR COORDINATES	
NORTH	
EAST	
ELEV	
DRILLER	Martin Nieni
DRILLING CO.	Longyear



ALTERATION INTENSITY

1 WEAK	2 MODERATE	3 STRONG

VERITHIN COLOR

737	SILICIFICATION
751	GREEN CLAY
747½	WHITE CLAY
755	PYRITE
757	MARCASITE

GRAPHIC LOG

VERITHIN COLOR

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

Fe ox
Argillic/white clay
Sulfides
Chlorite / Propy.
Calcareous / Calcite Vn

BARRINGER LABORATORIES, INC.

RENO, NEVADA, U.S.A., 5301 Longley Lane, Bldg. E, Reno, NV, 89511, TEL: 702-828-1158, FAX: 702-828-1263

BARRINGER LABORATORIOS de MEXICO, S.A.de C.V.
Carretera Panamericana, KM 10445
Durango, Durango, Mexico C.P. 34030
TEL/FAX (52)(18) 12-00-52

BARRINGER LABORATORIES del PERU S.A.
Avenida Domingo Orué 489
Surquillo, Lima 34, Peru
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FAX (011-51-1) 442-7195

BARRINGER de COLOMBIA
Calle 80 Sur N. 47D-65, L-106
Sabaneta, Colombia
TEL (574) 301-0704

BARRINGER LABORATORIOS de MEXICO, S.A. de C.V.
Blvd. García Morales 829-A, Bodega #2
Colonia La Manga
Hermosillo, Sonora, Mexico C.P. 83210
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Km 7.5 Carretera Norte
Managua, Nicaragua
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McCLELLAND/BARRINGER LABORATORIOS HONDURAS
Kilometro 5,
Boulevard Suyapa
Tegucigalpa, M.D.C., Honduras
TEL (011-50-4) 231-1841

Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped 9-17-99
Shipped Via _____
# of Cartons _____
# of Samples 44 + 2 Pulps

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
Fax to Kurt Allen	Kurt Allen
Rosebud Mining Co. L.L.C.	Rosebud Mining Co. LLC
Fax # 775 623-6967	P.O. Box 261
	Winnemucca NV 89446
	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
44	Core	RS-475-99	Au, Ag - Use Rosebud
		See attachment for Sample Intervals	Mine development Protocol
			NGC 30 element ICP
			Total Digestion co-posite as
			shown on attachment
2	Pulps	Standards 2888.4B, 2938.0B	Au 1 AT FA/AA
			No Ag No ICP

RS-475-99
G03-176
G03-176
2888.4B

RS-475-99
MS-3
(RMG1)
2938.0B

COARSE REJECT (Free storage for 30 days)
- [x] Return/collect after analysis
- [ ] Return/collect after 30 days
- [ ] Discard after 30 days

IF NOT MARKED, REJECT DISCARDED AFTER 30 DAYS

PULP (Free storage for 6 months)
- [x] Return/collect after analysis
- [ ] Return/collect at 6 months
- [ ] Discard at 6 months

IF NOT MARKED, PULP IS DISCARDED AFTER 6 MONTHS

COARSE REJECTS/PULPS WILL BE DISCARDED UNLESS OTHERWISE REQUESTED

Au - GOLD METHOD
- [x] Fire Assay/A.A.
- [ ] Fire Assay/Gravimetric
- [ ] NaCN/A.A.

RESULTS REPORTED IN:
- [ ] ppb
- [ ] PPM
- [x] oz/T
- [ ] grams/T

TRACE ELEMENT METHOD
- [ ] Wet Chem./A.A.
- [ ] Wet Chem./ICP

RESULTS REPORTED IN:
- [ ] ppm
- [ ] Percent %
- [x] oz/T
- [ ] grams/T

ADDITIONAL INSTRUCTIONS:
Rush as per Kurt Allens instructions.

NOV96:PM5:RENO3:GEOCHEM

RS-475-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number	Pulps
2850	2854	4	x	x			1	
2854	2857.5	3.5	x	x			2	
2857.5	2861.5	4	x	x			3	
2861.5	2863.2	1.7	x	x	x	13.2	4	
2863.2	2866	2.8	x	x			5	
2866	2868.8	2.8	x	x	x	5.6	6	
2868.8	2872	3.2	x	x	x	3.2	7	
2872	2876.5	4.5	x	x			8	
2876.5	2879.5	3	x	x	x	7.5	9	
2879.5	2883.5	4	x	x	x	4	10	
2883.5	2884.7	1.2	x	x			11	
2884.7	2886	1.3	x	x	x	2.5	12	
2886	2888.4	2.4	x	x	x	2.4	13	2888.4B
2888.4	2890.5	2.1	x	x	x	2.1	14	
2890.5	2894.5	4	x	x			15	
2894.5	2899	4.5	x	x	x	8.5	16	
2899	2901	2	x	x			17	
2901	2903.5	2.5	x	x	x	4.5	18	
2903.5	2906.5	3	x	x	x	3	19	
2906.5	2911.5	5	x	x			20	
2911.5	2915	3.5	x	x	x	8.5	21	
2915	2920	5	x	x			22	
2920	2924.5	4.5	x	x			23	
2924.5	2928	3.5	x	x	x	13	24	
2928	2931	3	x	x			25	
2931	2933	2	x	x			26	
2933	2938	5	x	x	x	10	27	2938.0B
2938	2941.5	3.5	x	x			28	
2941.5	2944	2.5	x	x			29	
2944	2948	4	x	x			30	
2948	2951	3	x	x			31	
2951	2955	4	x	x	x	17	32	
2955	2959	4	x	x			33	
2959	2963.5	4.5	x	x	x	8.5	34	
2963.5	2965.5	2	x	x			35	
2965.5	2970.5	5	x	x			36	
2970.5	2975.5	5	x	x			37	
2975.5	2978	2.5	x	x			38	
2978	2981.4	3.4	x	x	x	17.9	39	
2981.4	2982.9	1.5	x	x			40	
2982.9	2987	4.1	x	x			41	
2987	2990.5	3.5	x	x			42	
2990.5	2995.5	5	x	x			43	
2995.5	3000	4.5	x	x	x	18.6	44	

BARRINGER LABORATORIES INC.

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BUILDING E, SUITE 178
RENO, NEVADA 89511
PHONE: (775) 828-1158

4-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Page: 1
Copy: 1 of 2
Set : 1

Attn: Kurt Allen
Project: RS-475-99 2850-3000 PO #:

Received: 18-Sep-99 17:58

Job: 993485R Status: Final

Rock

Sample Id	Au FA/AA/AAS ppb	Au FA/AA/AAS oz/ton	Ag AA ppm	Ag AA oz/ton
RS-475-99 2850-2854	74	0.002	1.6	0.0
RS-475-99 2854-2857.5	187	0.005	3.6	0.1
RS-475-99 2857.5-2861.5	20	0.001	0.7	0.0
RS-475-99 2861.5-2863.2	16	0.000	0.9	0.0
RS-475-99 2863.2-2866	12	0.000	0.4	0.0
RS-475-99 2866-2868.8	17	0.000	0.7	0.0
RS-475-99 2868.8-2872	35	0.001	0.4	0.0
RS-475-99 2872-2876.5	21	0.001	1.4	0.0
RS-475-99 2876.5-2879.5	21	0.001	0.9	0.0
RS-475-99 2879.5-2883.5	28	0.001	2.2	0.1
RS-475-99 2883.5-2884.7	36	0.001	1.0	0.0
RS-475-99 2884.7-2886	13	0.000	0.5	0.0
RS-475-99 2886-2888.4	12	0.000	0.9	0.0
STD 2888.4 "B"	6942	0.203	NA	NA
RS-475-99 2888.4-2890.5	25	0.001	0.5	0.0
RS-475-99 2890.5-2894.5	22	0.001	1.6	0.0
RS-475-99 2894.5-2899	25	0.001	2.1	0.1
RS-475-99 2899-2901	18	0.001	1.3	0.0
RS-475-99 2901-2903.5	17	0.000	1.4	0.0
RS-475-99 2903.5-2906.5	17	0.000	1.1	0.0
RS-475-99 2906.5-2911.5	21	0.001	1.7	0.0
RS-475-99 2911.5-2915	9	0.000	1.0	0.0
RS-475-99 2915-2920	29	0.001	0.4	0.0
RS-475-99 2920-2924.5	9	0.000	1.7	0.0
RS-475-99 2924.5-2928	9	0.000	1.0	0.0
RS-475-99 2928-2931	20	0.001	1.6	0.0
RS-475-99 2931-2933	20	0.001	1.3	0.0
RS-475-99 2933-2938	14	0.000	1.2	0.0
STD 2938.0 "B"	1191	0.035	NA	NA
RS-475-99 2938-2941.5	12	0.000	1.1	0.0

Joint Venture

Hecla

BARRINGER LABORATORIES INC.

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4-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-475-99 2850-3000 PO #:

Received: 18-Sep-99 17:58

Job: 993485R Status: Final

Rock

Sample Id	Au FA/AA/AAS ppb	Au FA/AA/AAS oz/ton	Ag AA ppm	Ag AA oz/ton
RS-475-99 2941.5-2944	13	0.000	1.2	0.0
RS-475-99 2944-2948	17	0.000	1.5	0.0
RS-475-99 2948-2951	14	0.000	1.4	0.0
RS-475-99 2951-2955	19	0.001	1.4	0.0
RS-475-99 2955-2959	9	0.000	0.9	0.0
RS-475-99 2959-2963.5	11	0.000	1.4	0.0
RS-475-99 2963.5-2965.5	25	0.001	2.0	0.1
RS-475-99 2965.5-2970.5	20	0.001	1.6	0.0
RS-475-99 2970.5-2975.5	12	0.000	1.5	0.0
RS-475-99 2975.5-2978	12	0.000	0.7	0.0
RS-475-99 2978-2981.4	13	0.000	1.3	0.0
RS-475-99 2981.4-2982.9	17	0.000	0.4	0.0
RS-475-99 2982.9-2987	11	0.000	1.2	0.0
RS-475-99 2987-2990.5	5	0.000	1.1	0.0
RS-475-99 2990.5-2995.5	10	0.000	1.4	0.0
RS-475-99 2995.5-3000	15	0.000	1.5	0.0

BARRINGER LABORATORIES INC.

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4-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 18-Sep-99 17:58
Project: RS-475-99 2850-3000
PO #:

Job: 993485R
Status: Final

Abbreviations:

Parameters:

Au	: Gold
Ag	: Silver

Methods:

FA/AA/AAS	: Fire Assay/Atomic Absorption Finish
AA	: Atomic Absorption

Units:

ppb	: Parts per billion
oz/ton	: ounces per ton
ppm	: Parts per million

Quality codes:

NA	: Not Analyzed

BARRINGER LABORATORIES INC.

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4-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 18-Sep-99 17:58
Project: RS-475-99 2850-3000
PO #:

Job: 993485R
Status: Final

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 geologic 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.

Job approved by:

Signed: Richard A. Grondin
Rich Grondin

BARRINGER LABORATORIES INC.

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13-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 13-Oct-99 09:33
Project: RS-475 Composite
PO #:

Job: 993639R
Status: Final

Pulp

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-475 2850-2863.5	1.8	0.76	23	39	88	8	2.85	4.3	11	33
RS-475 2863.5-2868.8	0.6	0.57	6	33	87	4	3.44	6.2	8	88
RS-475 2868.8-2872	0.4	1.06	6	38	70	5	3.48	1.1	11	22
RS-475 2872-2879.5	1.5	0.39	35	33	104	3	4.56	6.5	8	43
RS-475 2879.5-2883.5	2.0	0.45	132	42	71	8	2.01	12.7	14	59
RS-475 2883.5-2886	1.0	0.49	158	32	83	2	5.50	2.2	6	104
RS-475 2886-2888.4	1.1	0.19	1178	22	98	1	3.06	2.9	3	134
RS-475 2888.4-2890.5	0.4	0.84	208	42	93	8	2.86	3.4	7	58
RS-475 2890.5-2899	1.6	0.59	74	42	79	7	1.24	10.4	10	65
RS-475 2899-2903.5	1.1	0.74	67	39	92	10	1.71	12.3	10	128
RS-475 2903.5-2906.5	0.6	1.18	36	43	88	4	0.58	9.0	10	137
RS-475 2906.5-2915	1.0	0.77	40	36	96	5	1.65	11.4	9	108
RS-475 2915-2928	1.1	0.80	30	34	178	7	3.56	7.3	6	162
RS-475 2928-2938	1.1	1.19	56	43	79	7	1.99	9.5	12	143
RS-475 2938-2955	1.8	0.87	41	37	99	7	1.80	9.4	9	112
RS-475 2955-2963.5	1.1	0.73	42	37	83	6	2.74	8.8	10	144
RS-475 2963.5-2981.4	1.4	0.63	39	39	109	8	2.72	10.0	11	85
RS-475 2981.4-3000	1.4	0.76	21	36	114	3	3.42	5.7	9	87

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13-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 13-Oct-99 09:33
Project: RS-475 Composite
PO #:

Job: 993639R
Status: Final

Pulp

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-475 2850-2863.5	60	3.68	49	0.12	2	0.58	310	14	10.24	24
RS-475 2863.5-2868.8	60	3.07	52	0.17	2	0.56	314	16	14.43	34
RS-475 2868.8-2872	39	3.89	31	0.14	4	1.15	504	<1	1.74	13
RS-475 2872-2879.5	84	3.52	42	0.09	2	1.60	609	17	15.21	30
RS-475 2879.5-2883.5	130	4.30	59	0.14	2	0.71	307	43	29.50	71
RS-475 2883.5-2886	74	3.39	31	0.16	2	1.48	683	4	3.10	12
RS-475 2886-2888.4	53	2.04	31	0.05	<2	0.62	404	3	6.42	10
RS-475 2888.4-2890.5	68	4.37	24	0.12	2	1.08	418	9	6.30	14
RS-475 2890.5-2899	135	4.06	38	0.14	2	0.58	297	27	23.70	50
RS-475 2899-2903.5	114	3.74	35	0.11	2	0.66	299	30	29.66	60
RS-475 2903.5-2906.5	103	4.28	28	0.10	3	0.91	160	32	20.70	51
RS-475 2906.5-2915	103	3.58	42	0.14	3	0.69	252	26	26.11	46
RS-475 2915-2928	85	3.15	24	0.10	3	1.01	522	22	16.81	36
RS-475 2928-2938	93	4.35	42	0.19	3	0.82	220	32	21.58	58
RS-475 2938-2955	107	3.74	42	0.15	3	0.77	333	31	22.16	50
RS-475 2955-2963.5	97	3.63	35	0.13	3	1.07	365	27	21.29	54
RS-475 2963.5-2981.4	111	4.07	35	0.16	3	1.03	387	27	22.81	58
RS-475 2981.4-3000	75	3.68	28	0.17	3	1.02	379	12	9.34	36

BARRINGER LABORATORIES INC.

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13-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 13-Oct-99 09:33
Project: RS-475 Composite
PO #:

Job: 993639R
Status: Final

Pulp

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-475 2850-2863.5	517	31	3	<0.5	281	<0.01	<0.5	32	<1	305
RS-475 2863.5-2868.8	429	30	2	5.1	419	<0.01	<0.5	33	<1	408
RS-475 2868.8-2872	648	23	<2	<0.5	277	<0.01	<0.5	20	<1	82
RS-475 2872-2879.5	337	38	4	1.6	402	<0.01	<0.5	29	<1	401
RS-475 2879.5-2883.5	464	60	12	9.3	167	<0.01	<0.5	36	<1	770
RS-475 2883.5-2886	397	31	<2	<0.5	486	<0.01	<0.5	23	<1	112
RS-475 2886-2888.4	546	821	3	11.7	245	<0.01	<0.5	11	<1	191
RS-475 2888.4-2890.5	363	52	<2	1.8	309	<0.01	<0.5	38	<1	191
RS-475 2890.5-2899	331	67	8	9.5	117	<0.01	<0.5	55	<1	633
RS-475 2899-2903.5	379	47	6	7.1	203	<0.01	<0.5	93	<1	779
RS-475 2903.5-2906.5	574	45	5	6.5	127	<0.01	<0.5	129	<1	569
RS-475 2906.5-2915	429	44	4	9.3	177	<0.01	<0.5	85	<1	696
RS-475 2915-2928	396	34	4	3.1	402	<0.01	<0.5	89	<1	455
RS-475 2928-2938	405	45	6	7.8	234	<0.01	<0.5	111	<1	578
RS-475 2938-2955	343	46	4	7.3	192	<0.01	<0.5	92	<1	594
RS-475 2955-2963.5	450	41	6	4.9	216	<0.01	<0.5	84	<1	567
RS-475 2963.5-2981.4	579	48	6	7.7	217	<0.01	<0.5	58	<1	603
RS-475 2981.4-3000	446	37	2	9.1	259	<0.01	<0.5	48	<1	276

BARRINGER LABORATORIES INC.

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PHONE: (775) 828-1158

13-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 13-Oct-99 09:33
Project: RS-475 Composite
PO #:

Job: 993639R
Status: Final

Abbreviations:

Parameters:

Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead
Sb	: Antimony

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

5301 LONGLEY LANE
BUILDING E, SUITE 178
RENO, NEVADA 89511
PHONE: (775) 828-1158

13-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
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Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc

Methods:

ICP	: Inductively Coupled Plasma
HYG	: Hydride Generation

Units:

ppm	: Parts per million
%	: percent
ppb	: Parts per billion

Quality codes:

<	: Less than

BARRINGER LABORATORIES INC.

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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 geologic 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.

Job approved by:

Signed: Richard A. Grondin
Rich Grondin

Newmont Gold Core Form

Hole# RS-475-99 **Az/Incl** 530°E / 60°

Logged by D.G. MacKerron **Area** Northwest of Mine **Total Depth** 300

Date 9-30-99 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
1600			Td	Rhy	Grey, white, brown									1600 - 1767.7 DOZER	0	1	0	0	0	1	0	0	0	1	1	1	2
														Fine chlorite filled fractures to 1619													
1620																											
																2				0							
														1630.3 - 1631.3 Fault Breccia		1											1
1640																											
																											2
																											1
1660																											
1680																											
1700																											2
														1703.2 - 1717 Fracture Zone													
1720																0				1					Tr		1
																1				0				2	1		
1740																											
																0				1				1	0		0
														1767.7 Erosional contact at 40° tca													
1760																											
			TCS	Epcl. Sed					40					1767.7 - 1807.9 TCS EPICLASTIC SEDIMENST	0	1	0	0	0	2	0	0	0	1	0	0	0
1780														Variable grain size sediments from claystone to conglomerate						1							1/0
					Purple									1793 - Purple matrix sandstone						0							
1800																											

Newmont Gold Core Form

Hole# RS-475-99 **Az/Incl** 530°E / 60°
Logged by D.G. MacKiernan **Area** Northwest of Mine **Total Depth** 3000
Date 10-1-99 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments
1800			TCS	clyst S.S.										1767.7 TCS. EPICLASTIC SEDIMENTS
				Rhy Porphyr	Purple Brown				30					
1820														1807.9- TCS Rhyolite Porphyry 1892.4
														Biotite and feldspar Porphyry
1840														
1860														
1880														
				EPI. SEDS.	GRN									1892.4-1896.5 TCS Epiclastic sandstone in fault zone.
1900				Rhyo Porph	Purple brown				30					
														1896.5-1923.4 Course phorphyry continues
1920				Biotite Rhyo Porphy	Pink Grey				30					1925.1- 1963.8 Fine Biotite rhyolite porphyry High biotite content
1940														
1960				Clyst S.S.		Purple brown			60					1963.8 TCS CLAYSTONE AND SANDSTONE
1980				ALS	Shale	Black			60					1985.3- 3000 ALS. Phillitic Shale and Siltstone
														1985.3- 2013 Sheared zone

Footage	Alteration: Silic	argillic	clay	prop	Sericite	Chlorite		Met.: FEOX	CO3	Sulfide	Mineralogy: Pyrite	Marcasite	Calc/Dolo	Clay
1800	0	1	0	0	0	0		0	0	0	1	0	1	0
		0									Tr			
1820														
1840		1				1								1
						0								0
						1								
1860														
						0								1
1880											1			
		2				1					3			
1900											1			
		1												
														0
1920		0									Tr			
						0								
1940														
1960											0			
1980		1							2		2		2	
		1												
		0									1			

Newmont Gold Core Form

Hole# RS-475-99
Logged by D.G. MacHerron
Date 10-2-99
Area Northwest of Mine
Coords
Az/Incl S 30°E / 60°
Total Depth 3000
Contractor Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Alteration:	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay	
2000			ACS	Shale	Black									1985.3-3000 ACS Phyllitic Shale AND Siltstone	1	0	0	0	0	0		0	1	0	1	0	2	0	
																1													
																0													
								40						2013 Disruption below contact ends	0								3						
2020																													
2040																													
2060																													
2080																													
															2														
2100															0													0	
2120																													
2140																													
2160																													
														2186 - 2194.8 Bedding fault															
2180								40																					
								80																					
2200																													

Newmont Gold Core Form

Hole# RS-475-99 **Az/Incl** S 30°E/60°

Logged by D.G. Macherron **Area** Northwest of Mine **Total Depth** 3000

Date 10-4-91 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
2200			ALS	Sltst.	Blue									1985.3-3000 A.L.S. PHILLITIC SHALE AND SILTSTON	0	0	0	0	0	0	0	3	0	1	0	2	0
2220																											
2240														2214 - 2229.7 Sheared metamorphic qtz and calcite.													
														2241.3 - 2244.6 Bedding shear													
2260														2251 - 2261.2 Bedding shear with metamorphic qtz masses													
2280														2272 - 2297 Irregular spaced bedding shears													70/0
2300														2297 - 2320.5 Bedding Shear/Fault zone													
2320				Sltst.	Gray											1											
2340																											75/0
				Sltst.	Blue											0											
2360																											70/0
2380																											
2400																											1

Newmont Gold Core Form

Hole# RS-475-99 **Az/Incl** S 30°E / 60°

Logged by D G MacKerron **Area** Northwest of Mine **Total Depth** 3000

Date 10-4-99 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
2400			ALS	Shale Sltst	Blc Gray									1985.3-2000 ALS. SHALE AND SILTSTONE	0	0	0	0	0	0	0	3	0	1	0	1	0
														2407-2410 20° TCU qtz VEIN													
2420														2422.6 Arsenopyrite crystals on edge of metamorphic qtz vein 2420.9-2423.8	1/0							2			Tr/0 Tr/0		
2440														2451.7-2457 Highly foliated siltstone intervals													1/0
				Siltstone																							
2460				Shale Siltst.																							1/0
				Siltstone																							
2480				Shale/ Siltst.																							0
2500									40					2511.3-2513.6 Fault zone		1/0											
2520																											
2540				Siltst.																							
2560				Shale					70					2556-2558 Fault zone	1	1/0											
2580				Chrt.										2586-2590 Metamorphic qtz and shear slide	1	1/0											
2600																											

Newmont Gold Core Form

Hole# RS-475-98 **Az/Incl** S30°E / 60°

Logged by D.G. Mackerron **Area** Northwest of Mine **Total Depth** 3000

Date 10-12-98 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: veln	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
2600			ALS	Shale	Black									1983-3000 ALS. Phillitic shale and siltstone	2	0	0	0	0	0	0	1	0	1	0	1	0
															1											3	
															0							3				1	
														2602.1 – 2609.5 qtz/calcite stockwork	1							2				3	
2620																											
														2615.4 – 2621 Two folds with very shallow axis (30° to)								3				1	
																						1					
2640																						3					
														2615.4 – 2626.5 qtz/calcite stockwork	3							0					
															3							2					
																										2	
2660														2643.1 – 2643.8 metamorphic qtz								1				1	
																						3					
														2645.3 – 2646 metamorphic quartz													
2680														2659.5 Weakly laminated brownish gray black shale dominates lithology													
2700																											
2720																						2					
														2733.8 – 2734.5 Fine grained intrusive													
																						3					
2740																											
2760																											
2780																						1				2	
																						3					
2800																											

Newmont Gold Core Form

Hole# RS-475-99 **Az/Incl** S30°E /60°

Logged by D. G Matherrow **Area** Northwest of Mint **Total Depth** 3000

Date 9-16 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: veln	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
2800			ALS	Sl Sr S:Mgr	Black & Gray									1985.3 - 3000 A.L.S. PHILLITIC SHALE AND SILTSTONE	0	0	0	0	0	0	0	3	0	1	0	1	0
																										2	
																						1					
																										3	
2820																											
																						2				2	
																						3				3	
																						1				1	
2840																											
																						3					
																						1				1	0
2860															1												
															3												
														2863.2 - 2866	Tr							0					
														Bedded white quartz	1												
2880														2866 - 2872 Gray coarse	2												
														siltstone	3												
															1												Tr
															Tr												0
									30					2877 - 2877.5	1												
2900									20					qtz/cal stockwork in shale	2												1
														2883.5 - 2884.7		3											
														qtz/cal stockwork in shale	3	0											0
									30					2884.7 - 2886													
														qtz stockwork in siltstone													Tr
2920																											Q
														2886 - 2888.4 Sulfide	2	T											Tr
														Banded vein. Sulfide													
														bands to 1.5m thick	1	2											1
														Bands are irregular in		3											
2940														shape. Dip is 30° to	2	0											0
														Arsenopyrite, sphalerite,	1												
														Galena													
														2903.5 - 2906.5 milled Bxo													
2960														2906.5 - 2923 Intense		1 0											+
														stockwork													0
														2923 - 2931 moderate stockwork													
														2931 - 2938 milled Bxo													
														with white clay and qtz													L
2980														bxo fragments.													D
															Tr							Tr					
3000														TD 3000													

28-Sep-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Page: 1
Copy: 1 of 1
Set : 1

Received: 18-Sep-99 17:58

Attn: Kurt Allen
Project: RS-475-99 2850-3000
PO #:

Status: Preliminary

Job: 993485R

Rock

Sample Id	Au FA/AA ppb	Au FA/AA oz/ton	Ag AA ppm	Ag AA oz/ton
RS-475-99 2850-2854	74	0.002	1.6	0.0
RS-475-99 2854-2857.5	187	0.005	3.6	0.1
RS-475-99 2857.5-2861.5	20	0.001	0.7	0.0
RS-475-99 2861.5-2863.2	16	0.000	0.9	0.0
RS-475-99 2863.2-2866	12	0.000	0.4	0.0
RS-475-99 2866-2868.8	17	0.000	0.7	0.0
RS-475-99 2868.8-2872	35	0.001	0.4	0.0
RS-475-99 2872-2876.5	21	0.001	1.4	0.0
RS-475-99 2876.5-2879.5	21	0.001	0.9	0.0
RS-475-99 2879.5-2883.5	28	0.001	2.2	0.1
RS-475-99 2883.5-2884.7	36	0.001	1.0	0.0
RS-475-99 2884.7-2886	13	0.000	0.5	0.0
RS-475-99 2886-2888.4	12	0.000	0.9	0.0
~~STD 2888.4 "B"~~	~~6942~~	~~0.203~~	~~NA~~	~~0.0~~
RS-475-99 2888.4-2890.5	25	0.001	0.5	0.0
RS-475-99 2890.5-2894.5	22	0.001	1.6	0.0
RS-475-99 2894.5-2899	25	0.001	2.1	0.1
RS-475-99 2899-2901	18	0.001	1.3	0.0
RS-475-99 2901-2903.5	17	0.000	1.4	0.0
RS-475-99 2903.5-2906.5	17	0.000	1.1	0.0
RS-475-99 2906.5-2911.5	21	0.001	1.7	0.0
RS-475-99 2911.5-2915	9	0.000	1.0	0.0
RS-475-99 2915-2920	29	0.001	0.4	0.0
RS-475-99 2920-2924.5	9	0.000	1.7	0.0
RS-475-99 2924.5-2928	9	0.000	1.0	0.0
RS-475-99 2928-2931	20	0.001	1.6	0.0
RS-475-99 2931-2933	20	0.001	1.3	0.0
RS-475-99 2933-2938	14	0.000	1.2	0.0
~~STD 2938.0 "B"~~	~~1191~~	~~0.035~~	~~NA~~	~~0.0~~
RS-475-99 2938-2941.5	12	0.000	1.1	0.0

Metallic Screen

28-Sep-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Page: 2
Copy: 1 of 1
Set : 1

Attn: Kurt Allen
Project: RS-475-99 2850-3000

PO #:

Received: 18-Sep-99 17:58

Job: 993485R

Status: Preliminary

Rock

Sample Id	Au FA/AA ppb	Au FA/AA oz/ton	Ag AA ppm	Ag AA oz/ton
RS-475-99 2941.5-2944	13	0.000	1.2	0.0
RS-475-99 2944-2948	17	0.000	1.5	0.0
RS-475-99 2948-2951	14	0.000	1.4	0.0
RS-475-99 2951-2955	19	0.001	1.4	0.0
RS-475-99 2955-2959	9	0.000	0.9	0.0
RS-475-99 2959-2963.5	11	0.000	1.4	0.0
RS-475-99 2963.5-2965.5	25	0.001	2.0	0.1
RS-475-99 2965.5-2970.5	20	0.001	1.6	0.0
RS-475-99 2970.5-2975.5	12	0.000	1.5	0.0
RS-475-99 2975.5-2978	12	0.000	0.7	0.0
RS-475-99 2978-2981.4	13	0.000	1.3	0.0
RS-475-99 2981.4-2982.9	17	0.000	0.4	0.0
RS-475-99 2982.9-2987	11	0.000	1.2	0.0
RS-475-99 2987-2990.5	5	0.000	1.1	0.0
RS-475-99 2990.5-2995.5	10	0.000	1.4	0.0
RS-475-99 2995.5-3000	15	0.000	1.5	0.0

BARRINGER LABORATORIES, INC.

RENO, NEVADA, U.S.A.
5301 Longley Lane, Bldg. E,
Reno, NV, 89511
702-828-1158, FAX 702-828-1263

BARRINGER LABORATORIOS
de MEXICO, S.A.de C.V.
20 De Noviembre #1920-5 Ote.
Durango, Durango, Mexico 34000
TEL (011-52) (18) 17-98-80

BARRINGER LABORATORIOS
de MEXICO, S.A. de C.V.
Blvd. García Morales 829-A, Bodega #2
Colonia La Manga
Hermosillo, Sonora, Mexico C.P. 83210
TEL/FAX (62) 61-04-15

BARRINGER LABORATORIES
del PERU S.A.
Avenida Jose Ramirez Gaston 242
Miraflores, Lima 18, Peru
TEL(01151) (14) 49-17-88

Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped _____
Shipped Via _____
# of Cartons _____
# of Samples _____

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
FAX to Kurt Allen	Kurt Allen
# 775-623-6967	Rosebud Mining Co.
	P.O. Box 2610
	Winnemucca, NV 89446
	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
9	Pulp	RS-475-99	Au/Ag Metallic Screen
		2876.5 - 2879.5	Assays using 150 mesh screen.
		2879.5 - 2883.5	Screen Entire Pulp (600g)
		2883.5 - 2884.7	Fire Assay Entire Coarse
		2884.7 - 2886	Fraction w/ Gravimetric Finish.
		2886 - 2888.4	Fire Assay the Fine Fraction
		2888.4 - 2890.5	using 1 AT w/ AA finish
		2890.5 - 2894.5	
		2894.5 - 2899	Report all weights & assays.
		2899 - 2901	

COARSE REJECT (Free storage for 30 days)
- ☐ Return/collect after analysis
- ☐ Return/collect after 30 days
- ☐ Discard after 30 days

IF NOT MARKED, REJECT DISCARDED AFTER 30 DAYS

PULP (Free storage for 6 months)
- ☐ Return/collect after analysis
- ☐ Return/collect at 6 months
- ☐ Discard at 6 months

IF NOT MARKED, PULP IS DISCARDED AFTER 6 MONTHS

COARSE REJECTS/PULPS WILL BE DISCARDED UNLESS OTHERWISE REQUESTED

Au - GOLD METHOD
- ☐ Fire Assay/A.A.
- ☐ Fire Assay/Gravimetric
- ☐ NaCN/A.A.

RESULTS REPORTED IN:
☐ ppb ☐ PPM
☐ oz/T ☐ grams/T

TRACE ELEMENT METHOD
- ☐ Wet Chem./A.A.
- ☐ Wet Chem./ICP

RESULTS REPORTED IN:
☐ ppm ☐ Percent %
☐ oz/T ☐ grams/T

ADDITIONAL INSTRUCTIONS: _____

The Rosebud Mining Company LLC
P.O. Box 2610
Winnemucca, NV 89446
Phone (702) 623-6912
Fax (702) 623-6967
Hecla Mining Company – Manager of Mining

Facsimile Cover Sheet

DATE: 9/28/99

TO: Fred Stone

FROM: Kurt Allen

NUMBER OF PAGES INCLUDING COVER: 2

MESSAGE: Following is the submittal form for completing Metallic Screen Assays on 9 pulps from core hole RS-475-99. I will send the original submittal w/ your driver today.

IF YOU DO NOT RECEIVE LEGIBLE COPIES OF ALL PAGES, PLEASE CALL BACK AS SOON AS POSSIBLE.

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

5301 LONGLEY LANE
BUILDING E. SUITE 176
RENO, NEVADA 89511
PHONE: (775) 828-1158

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

4-Oct-99

Page: 1
Copy: 1 of 2
Set : 1

Attn: Kurt Allen
Project: RS-475-99 2850-3000 PO #:

Received: 18-Sep-99 17:58

Job: 993485R

Status: Final

Rock

Sample Id	Au FA/AA/AAS ppb	Au FA/AA/AAS oz/ton	Ag AA ppm	Ag AA oz/ton
RS-475-99 2850-2854	74	0.002	1.6	0.0
RS-475-99 2854-2857.5	187	0.005	3.6	0.1
RS-475-99 2857.5-2861.5	20	0.001	0.7	0.0
RS-475-99 2861.5-2863.2	16	0.000	0.9	0.0
RS-475-99 2863.2-2866	12	0.000	0.4	0.0
RS-475-99 2866-2868.8	17	0.000	0.7	0.0
RS-475-99 2868.8-2872	35	0.001	0.4	0.0
RS-475-99 2872-2876.5	21	0.001	1.4	0.0
RS-475-99 2876.5-2879.5	21	0.001	0.9	0.0
RS-475-99 2879.5-2883.5	28	0.001	2.2	0.1
RS-475-99 2883.5-2884.7	36	0.001	1.0	0.0
RS-475-99 2884.7-2886	13	0.000	0.5	0.0
RS-475-99 2886-2888.4	12	0.000	0.9	0.0
STD 2888.4 "B"	6942	0.203	NA	NA
RS-475-99 2888.4-2890.5	25	0.001	0.5	0.0
RS-475-99 2890.5-2894.5	22	0.001	1.6	0.0
RS-475-99 2894.5-2899	25	0.001	2.1	0.1
RS-475-99 2899-2901	18	0.001	1.3	0.0
RS-475-99 2901-2903.5	17	0.000	1.4	0.0
RS-475-99 2903.5-2906.5	17	0.000	1.1	0.0
RS-475-99 2906.5-2911.5	21	0.001	1.7	0.0
RS-475-99 2911.5-2915	9	0.000	1.0	0.0
RS-475-99 2915-2920	29	0.001	0.4	0.0
RS-475-99 2920-2924.5	9	0.000	1.7	0.0
RS-475-99 2924.5-2928	9	0.000	1.0	0.0
RS-475-99 2928-2931	20	0.001	1.6	0.0
RS-475-99 2931-2933	20	0.001	1.3	0.0
RS-475-99 2933-2938	14	0.000	1.2	0.0
STD 2938.0 "B"	1191	0.035	NA	NA
RS-475-99 2938-2941.5	12	0.000	1.1	0.0

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

4-Oct-99

Page: 2
Copy: 1 of 2
Set : 1

Attn: Kurt Allen
Project: RS-475-99 2850-3000 PO #:

Received: 18-Sep-99 17:58

Job: 993485R

Status: Final

Rock

Sample Id	Au FA/AA/AAS ppb	Au FA/AA/AAS oz/ton	Ag AA ppm	Ag AA oz/ton
RS-475-99 2941.5-2944	13	0.000	1.2	0.0
RS-475-99 2944-2948	17	0.000	1.5	0.0
RS-475-99 2948-2951	14	0.000	1.4	0.0
RS-475-99 2951-2955	19	0.001	1.4	0.0
RS-475-99 2955-2959	9	0.000	0.9	0.0
RS-475-99 2959-2963.5	11	0.000	1.4	0.0
RS-475-99 2963.5-2965.5	25	0.001	2.0	0.1
RS-475-99 2965.5-2970.5	20	0.001	1.6	0.0
RS-475-99 2970.5-2975.5	12	0.000	1.5	0.0
RS-475-99 2975.5-2978	12	0.000	0.7	0.0
RS-475-99 2978-2981.4	13	0.000	1.3	0.0
RS-475-99 2981.4-2982.9	17	0.000	0.4	0.0
RS-475-99 2982.9-2987	11	0.000	1.2	0.0
RS-475-99 2987-2990.5	5	0.000	1.1	0.0
RS-475-99 2990.5-2995.5	10	0.000	1.4	0.0
RS-475-99 2995.5-3000	15	0.000	1.5	0.0

Met Screen Job 993547-Preliminary Au

	Job #	Hole #	From	To	Pre Sc. Wgt	Wgt -150	Wgt +150	Total Wght	+ 150 Au mg	-150 opt	Calc OPT
1	993547	RS-475	2876.5	2879.5	NA	424.92	4.54	429.459	0.001	0.001	**0.001057**
2	993547	RS-475	2879.5	2883.5	NA	306.55	2.32	308.871	0.001	0.001	**0.001087**
3	993547	RS-475	2883.5	2884.7	NA	127.80	1.00	128.804	0.001	0.001	**0.001219**
4	993547	RS-475	2884.7	2886.0	NA	195.51	3.58	199.09	0.001	0.001	**0.001129**
5	993547	RS-475	2886.0	2888.4	NA	472.22	11.87	484.088	0.004	0.001	**0.001216**
6	993547	RS-475	2888.4	2890.5	NA	347.11	9.00	356.108	0.002	0.001	**0.001139**
7	993547	RS-475	2890.5	2894.5	NA	420.34	18.70	439.037	0.004	0.001	**0.001223**
8	993547	RS-475	2894.5	2899.0	NA	368.67	2.95	371.617	0.001	0.001	**0.001071**
9	993547	RS-475	2899.0	2901.0	NA	192.50	2.44	194.942	0.053	0.001	**0.008917**

Kurt- I am going to have this job resplit and redone. We missed doing silver.

10/15 '99 13:58 NO.995 04/06
8281263
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P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

13-Oct-99

Page: 1
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Set : 1

Attn: Kurt Allen
Project: RS-475 Composite
PO #:

Received: 13-Oct-99 09:33

Job: 993639R

Status: Final

Pulp

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-475 2850-2863.5	1.8	0.76	23	39	88	8	2.85	4.3	11	33
RS-475 2863.5-2868.8	0.6	0.57	6	33	87	4	3.44	6.2	8	88
RS-475 2868.8-2872	0.4	1.06	6	38	70	5	3.48	1.1	11	22
RS-475 2872-2879.5	1.5	0.39	35	33	104	3	4.56	6.5	8	43
RS-475 2879.5-2883.5	2.0	0.45	132	42	71	8	2.01	12.7	14	59
RS-475 2883.5-2886	1.0	0.49	158	32	83	2	5.50	2.2	6	104
RS-475 2886-2888.4	1.1	0.19	1178	22	98	1	3.06	2.9	3	134
RS-475 2888.4-2890.5	0.4	0.84	208	42	93	8	2.86	3.4	7	58
RS-475 2890.5-2899	1.6	0.59	74	42	79	7	1.24	10.4	10	65
RS-475 2899-2903.5	1.1	0.74	67	39	92	10	1.71	12.3	10	128
RS-475 2903.5-2906.5	0.6	1.18	36	43	88	4	0.58	9.0	10	137
RS-475 2906.5-2915	1.0	0.77	40	36	96	5	1.65	11.4	9	108
RS-475 2915-2928	1.1	0.80	30	34	178	7	3.56	7.3	6	162
RS-475 2928-2938	1.1	1.19	56	43	79	7	1.99	9.5	12	143
RS-475 2938-2955	1.8	0.87	41	37	99	7	1.80	9.4	9	112
RS-475 2955-2963.5	1.1	0.73	42	37	83	6	2.74	8.8	10	144
RS-475 2963.5-2981.4	1.4	0.63	39	39	109	8	2.72	10.0	11	85
RS-475 2981.4-3000	1.4	0.76	21	36	114	3	3.42	5.7	9	87

10/15 '99 13:58 NO.995 04/06
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P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

13-Oct-99

Page: 1
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Set : 1

Attn: Kurt Allen
Project: RS-475 Composite
PO #:

Received: 13-Oct-99 09:33

Job: 993639R

Status: Final

Pulp

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-475 2850-2863.5	1.8	0.76	23	39	88	8	2.85	4.3	11	33
RS-475 2863.5-2868.8	0.6	0.57	6	33	87	4	3.44	6.2	8	88
RS-475 2868.8-2872	0.4	1.06	6	38	70	5	3.48	1.1	11	22
RS-475 2872-2879.5	1.5	0.39	35	33	104	3	4.56	6.5	8	43
RS-475 2879.5-2883.5	2.0	0.45	132	42	71	8	2.01	12.7	14	59
RS-475 2883.5-2886	1.0	0.49	158	32	83	2	5.50	2.2	6	104
RS-475 2886-2888.4	1.1	0.19	1178	22	98	1	3.06	2.9	3	134
RS-475 2888.4-2890.5	0.4	0.84	208	42	93	8	2.86	3.4	7	58
RS-475 2890.5-2899	1.6	0.59	74	42	79	7	1.24	10.4	10	65
RS-475 2899-2903.5	1.1	0.74	67	39	92	10	1.71	12.3	10	128
RS-475 2903.5-2906.5	0.6	1.18	36	43	88	4	0.58	9.0	10	137
RS-475 2906.5-2915	1.0	0.77	40	36	96	5	1.65	11.4	9	108
RS-475 2915-2928	1.1	0.80	30	34	178	7	3.56	7.3	6	162
RS-475 2928-2938	1.1	1.19	56	43	79	7	1.99	9.5	12	143
RS-475 2938-2955	1.8	0.87	41	37	99	7	1.80	9.4	9	112
RS-475 2955-2963.5	1.1	0.73	42	37	83	6	2.74	8.8	10	144
RS-475 2963.5-2981.4	1.4	0.63	39	39	109	8	2.72	10.0	11	85
RS-475 2981.4-3000	1.4	0.76	21	36	114	3	3.42	5.7	9	87

10/15 '99 13:58 NO.995 05/06
8281263
BARRINGER LABS

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

13-Oct-99

Page: 2
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Set : 1

Attn: Kurt Allen
Project: RS-475 Composite .
PO #:
Received: 13-Oct-99 09:33

Job: 993639R

Status: Final

Pulp

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-475 2850-2863.5	60	3.68	49	0.12	2	0.58	310	14	10.24	24
RS-475 2863.5-2868.8	60	3.07	52	0.17	2	0.56	314	16	14.43	34
RS-475 2868.8-2872	39	3.89	31	0.14	4	1.15	504	<1	1.74	13
RS-475 2872-2879.5	84	3.52	42	0.09	2	1.60	609	17	15.21	30
RS-475 2879.5-2883.5	130	4.30	59	0.14	2	0.71	307	43	29.50	71
RS-475 2883.5-2886	74	3.39	31	0.16	2	1.48	683	4	3.10	12
RS-475 2886-2888.4	53	2.04	31	0.05	<2	0.62	404	3	6.42	10
RS-475 2888.4-2890.5	68	4.37	24	0.12	2	1.08	418	9	6.30	14
RS-475 2890.5-2899	135	4.06	38	0.14	2	0.58	297	27	23.70	50
RS-475 2899-2903.5	114	3.74	35	0.11	2	0.66	299	30	29.66	60
RS-475 2903.5-2906.5	103	4.28	28	0.10	3	0.91	160	32	20.70	51
RS-475 2906.5-2915	103	3.58	42	0.14	3	0.69	252	26	26.11	46
RS-475 2915-2928	85	3.15	24	0.10	3	1.01	522	22	16.81	36
RS-475 2928-2938	93	4.35	42	0.19	3	0.82	220	32	21.58	58
RS-475 2938-2955	107	3.74	42	0.15	3	0.77	333	31	22.16	50
RS-475 2955-2963.5	97	3.63	35	0.13	3	1.07	365	27	21.29	54
RS-475 2963.5-2981.4	111	4.07	35	0.16	3	1.03	387	27	22.81	58
RS-475 2981.4-3000	75	3.68	28	0.17	3	1.02	379	12	9.34	36

10/15 '99 13:59 NO.995 06/06
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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

13-Oct-99

Page: 3
Copy: 1 of 2
Set : 1

Attn: Kurt Allen
Project: RS-475 Composite
PO #:

Received: 13-Oct-99 09:33

Job: 993639R

Status: Final

Pulp

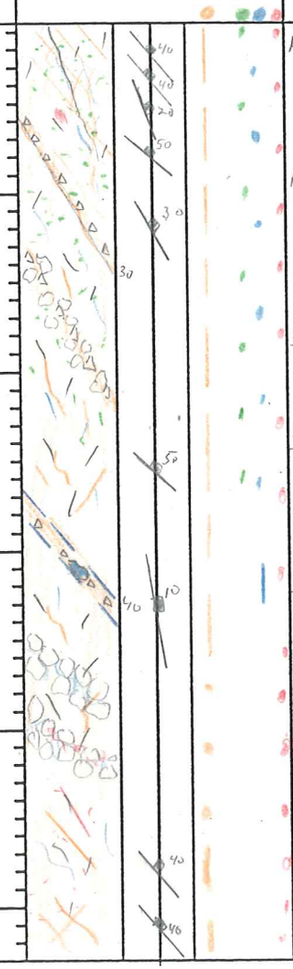
Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-475 2850-2863.5	517	31	3	<0.5	281	<0.01	<0.5	32	<1	305
RS-475 2863.5-2868.8	429	30	2	5.1	419	<0.01	<0.5	33	<1	408
RS-475 2868.8-2872	648	23	<2	<0.5	277	<0.01	<0.5	20	<1	82
RS-475 2872-2879.5	337	38	4	1.6	402	<0.01	<0.5	29	<1	401
RS-475 2879.5-2883.5	464	60	12	9.3	167	<0.01	<0.5	36	<1	770
RS-475 2883.5-2886	397	31	<2	<0.5	486	<0.01	<0.5	23	<1	112
RS-475 2886-2888.4	546	821	3	11.7	245	<0.01	<0.5	11	<1	191
RS-475 2888.4-2890.5	363	52	<2	1.8	309	<0.01	<0.5	38	<1	191
RS-475 2890.5-2899	331	67	8	9.5	117	<0.01	<0.5	55	<1	633
RS-475 2899-2903.5	379	47	6	7.1	203	<0.01	<0.5	93	<1	779
RS-475 2903.5-2906.5	574	45	5	6.5	127	<0.01	<0.5	129	<1	569
RS-475 2906.5-2915	429	44	4	9.3	177	<0.01	<0.5	85	<1	696
RS-475 2915-2928	396	34	4	3.1	402	<0.01	<0.5	89	<1	455
RS-475 2928-2938	405	45	6	7.8	234	<0.01	<0.5	111	<1	578
RS-475 2938-2955	343	46	4	7.3	192	<0.01	<0.5	92	<1	594
RS-475 2955-2963.5	450	41	6	4.9	216	<0.01	<0.5	84	<1	567
RS-475 2963.5-2981.4	579	48	6	7.7	217	<0.01	<0.5	58	<1	603
RS-475 2981.4-3000	446	37	2	9.1	259	<0.01	<0.5	48	<1	276

- quartz, chalcedony, silicification
- faults, fractures
- FeOx
- sulfide
- calcite, carbonate
- argillization, white clays
- propylitization
- potassic alteration
- chlorite, chloritic clays

Hecla
MINING COMPANY

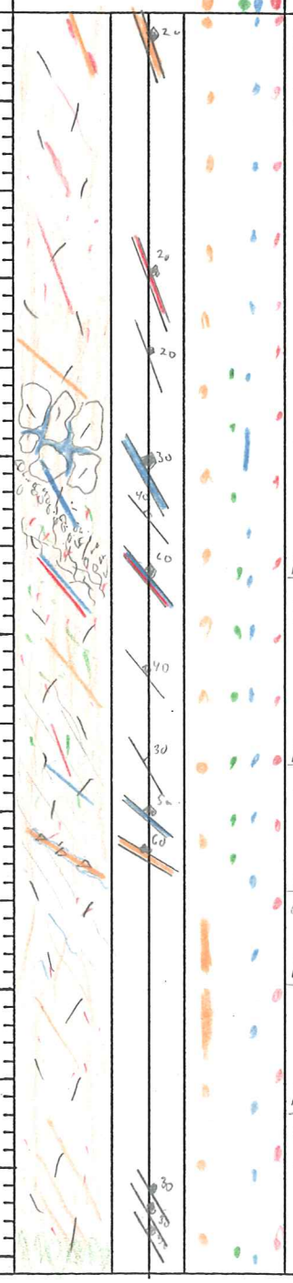
ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	RS-475-99	LOCATION	Near Mine Area	REMARKS	
PAGE 1 OF	22	NORTHING			Surface exploration
DATE	9-29-99	EASTING			Pilot to 1600
LOGGED BY	D.G. Mackerrow	ELEVATION			
SCALE	1" = 10'	AZIMUTH			
TOTAL DEPTH		INCLINATION			

LITH	OX/RE	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	1600-1767.7 DOZER Fine grain rhyolite. Pale greenish gray in color. Rock is in the footwall of a fault (Cave). Chlorite filled vesicle that appears slightly elongate in one axis Vesicles decrease at 1625	1600, 1610, 1620, 1630, 1640, 1650		Heavy fracturing from 1600 to 1619.5 and moderate fracturing to 1626.5 Heavy fracturing 1626.5-1635 1610-1610.5 Breccia clast in clay matrix 1617-1618 white clay healed fracture on narrow mosaic fracture 1618.9-1636 white clay on fracture and calcite vein fragment 1636-1642 Auto breccia texture with minor flow	1600-1636 moderate levels of white clay on fracture 1605 - ½" in diameter pyrite mass 1618.9-1626.5 white clay healed in weak mosaic breccia 1641 pyrite mix increases forming veinlets and small masses of dark sulfide. White clay veins and crackle breccia matrix continues

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
1600	1603					
1603	1607					
1607	1612					
1612	1616.5					
1616.5	1618.9					
1618.9	1623					
1623	1626.5					
1626.5	1628.8					
1628.8	1631.3					
1631.3	1636					
1636	1639.1					
1639.1	1642					
1642	1646.5					
1646.5	1649.5					
1649.5	1654					

HOLE NUMBER RS-475-99 PAGE 2 OF 22

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	1600-1767.7 DOZER Fine grain rhyolite flow continues. Textures vary between weakly flow banded and auto brecciated. Pale whitish gray color with a faint tint of green from chlorite in vesicles and on fractures 1718.5 Argillization ends and chloritic alteration dominates to 1733	1650 1660 1670 1680 1690 1700 1710 1720		Fracturing decreases below 1636 with 40° tca the dominate orientation. 1672.8 calcite healed auto breccia 1676 Vesicles alighment 1678-1680 Crackle Breccia 1697.3 2" white clay/calcite vein with fragments 1688.5 Flow foliation at 30° tca 1694-1717 moderate fracture with white clay	1649.5 highangle white clay healed Crackle breccia with mixed py/marc 1670 chlorite on fractures of trace levels 1684 Pyrite/marcasite masses decrease along with white clay 1715-1716.5 White clay filled fx up to ½" thick Pyrite/Marc. in the clay vein

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
1649.5	1654					
1654	1657.8					
1657.8	1662.5					
1662.5	1667.5					
1667.5	1672.8					
1672.8	1678					
1678	1683.2					
1683.2	1688.5					
1688.5	1692.5					
1692.5	1697.5					
1697.5	1703.2					
1703.2	1707.5					
1707.5	1712					
1712	1717					
1717	1722					

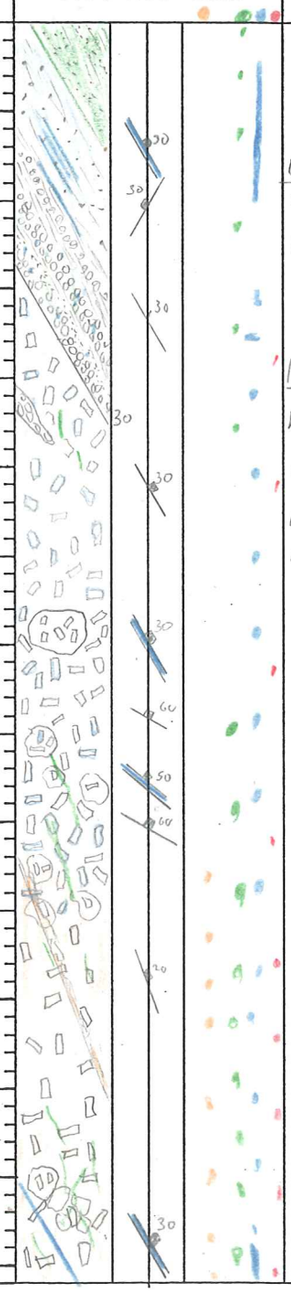
HOLE NUMBER RS-475-99 PAGE 3 OF 22

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	1600-1767.7 DOZER Fine grain rhyolite continues small chlorite filled vesicles present. 1749.5-1767.7 Very regular flow banded Dozer. Contact with TCS is 40° tca with low amplitude irregularities. Sulfide content is less the 1%	1720 1730 1740 1750 1760 1770 1780 1790	40 50 50 20 20 40 40 40 30 30	1727-1733 Vesicular bands are 0-5° tca	1733 - 1749.5 Argillization over prints chlorite Pyrite and pyrite after marcasite from veinlets and sulfide masses 1733-1749.5 Pyrite is 1-3% in vein and disseminated masses 1757-1758 Calcite vn swarm 1763-1767.7 spotty traces of silicification along individual flow band
TCS	R	1767.7-1807.9 TCS EPICLASTIC SEDIMENTS AND RHYOLITE PORPHYRY Variable grain size sediments from claystone to conglomerate. Bedding dips 30° tca clast of ALS. shale present in conglomerate. Clast size to ½" dia. ALS. content ≈ 30% Average grain size is granule			1767.7 · Erosional contact between TCS and Td Phenocryst averaging 1-2 mm 1781.9 Pyrite on fracture 1789.5-1793 Increasing clay matrix	1767.8 ½" Calcite vein parallel to contact 1772 "2" Pyrite masses along a 20° tca fracture 1768.5 Finer grain clast are argillic. 1778 white clay on ff

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1722	1727				
1727	1733				
1733	1737				
1737	1742.5				
1742.5	1747.5				
1747.5	1749.5				
1749.5	1753				
1753	1758				
1758	1763				
1763	1767.7				
1767.7	1772.7				
1772.7	1776.1				
1776.1	1779				
1779	1784.5				
1784.5	1789.5				

HOLE NUMBER RS-475-99 PAGE 4 OF 23

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
TCS	R	1767.7-1807.9 TCS EPICLASTIC SEDIMENTS AND RHYOLITE FLOW Variable grain sized sediments from claystone to conglomerate. There is a fining up sequence that repeats at 1781.7 1791-1793 clay rich sandstone is pale gray green. 1793 medium to coarse sandstone with a high % matrix supporting grains. Core become purple gray from clay derived from conglomerate	1790 1800 1810 1820 1830 1840 1850 1860		1795-1801 Fractuic zone with calcite veins 1807.9 Sharp contact between porphyritic flow and sandstone 1806.9-1807.9 Basal conglomerate. 1830-1840 Narrow flow breccia	1807.9 Pyrite in flow ≤ .1% Calcite veinlets and rinds on phenocryst.
		1807.9-1896.5 TCS RHYOLITE PORPHYRY Porphyritic rhyolite flow Dark purple brown with small Biotites and 7% feldspar phenos Clast of rounded gray intrusive "float" in the intrusive. These light gray clast have a higher Biotite content				1838.2-1846.7 Argillization 1841.5-1843.7 white clay on Fr 1859 Calcite vein with crystal development

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	
1789.5	1793					
1793	1797					
1797	1800					
1800	1803.1					
1803.1	1807.9					
1807.9	1813					
1813	1820					
1820	1830					
1830	1838.3					
1838.3	1843.7					
1843.7	1846.7					
1846.7	1851.1					
1851.1	1856.3					
1856.3	1860					

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
TCS	R	1807.9–1896.5 TCS RHYOLITE PORPHYRY Rhyolite porphyry with biotite and feldspar phenocrysts. Pale green gray in color. 1892.4–1896.5 T.C.S. Sandstone in fault zone ALS. sand grains present 1896.5–1923.4 Rhyolite porphyry continues Pine 1905 white clay in fx 1923.4–1925.1 Epiclastic Sandstone with high % clay matrix 1925.1–1963.8 Rhyolitic Biotite Porphyry Pale gray biotite rich Porphyry	1860 1870 1880 1890 1900 1910 1920 1930	30 40 30 40 20 30 20 30 30 40	1860–1885.3 Discontinuous Flow breccia 1870–1880 internal breccia with green clay matrix 1885.3–1903.5 Moderate intensity fracture zone, ground central Breccia interval at 1892.4–1896.5 Footwall fractures continue to 1905 1921.8–1923.4 Basal breccia 1925.1–1927 Contact zone is moderately sheared	Chlorite stained internal flow breccia matrix 1870 white clay coat fine fractures 1883–1885 Disseminated pyrite weakly aggregate 1888–1896.5 Large pyrite (≤2") masses 1900–1905 white clay on fx 1919 phenocrysts are rind by calcite again 1923.4–1925.1 weak calcareous reaction 1925.1 Porphyry is calcareous	1860 1870 1880 1885.3 1888 1890.5 1892.4 1896.5 1903.5 1909 1914 1919 1923.4 1925.1	1870 1880 1885.3 1888 1890.5 1892.4 1896.5 1903.5 1909 1914 1919 1923.4 1925.1 1930				

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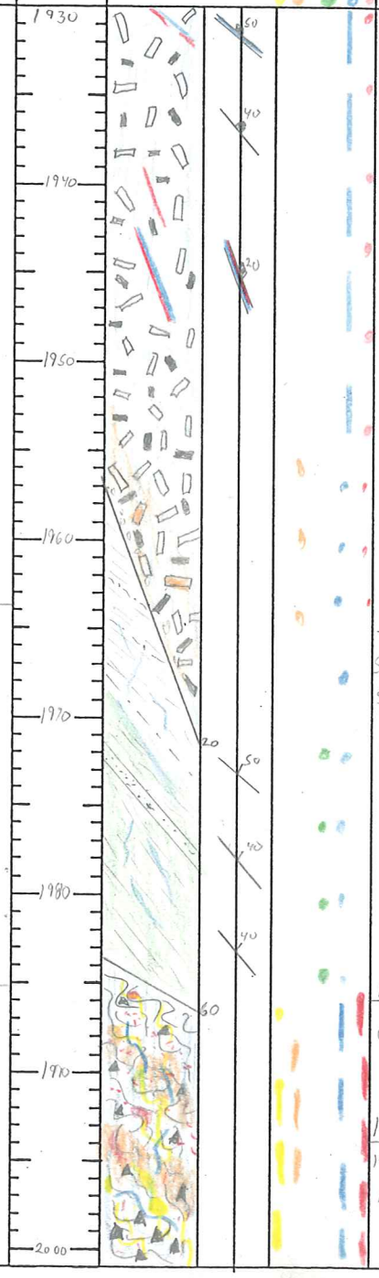
LITH.	OX/RED.	LITHOLOGY	STRUCTURE	ALTERATION AND MINERALIZATION
TCS	R	1925.1-1963.8 TCS BIOTITE RHYOLITE PORPHYRY Porphoritic rhyolite flow of fine Biotite and feldspar phenocryst. Flow is texturally different from first porphyry encountered		Fine grained disseminated pyrite and pyrite veinlets
		1963.8-1985.3 TCS EPICLASTIC SILTSTONE SANDSTONE AND CLAYSTONE Purple brown siltstone with narrow (2") beds of sandstone. Purple color fades from 1974-1976, Calcite vein and weak to moderate calcareous reaction	1963.8 20° TCA Sharp contact Some sediment trap in flow	1963.8-1985.3 Pyrite below measurable levels in tcs 1972-1985.3 Chloritic alteration overprints purple brown claystone
ALS.	R	1985.3-3000 ALS PHILLITIC SHALE AND SILTSTONE Black carbonaceous shale with fine disseminated py. Heavy calcite and qtz veining	1985.3 Depositional Contact 60° tca 1985.3-2013 Highly sheared zone below the contact	1985.3 Shale is hard but generally highly calcareous



ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1930	1934.5				
1934.5	1939.5				
1939.5	1945				
1945	1950				
1950	1960.4				
1960.4	1963.8				
1963.8	1967.7				
1967.7	1972				
1972	1976.5				
1976.5	1980				
1980	1985.3				
1985.3	1987				
1987	1991				
1991	1994.5				
1994.5	1997				
1997	2001				

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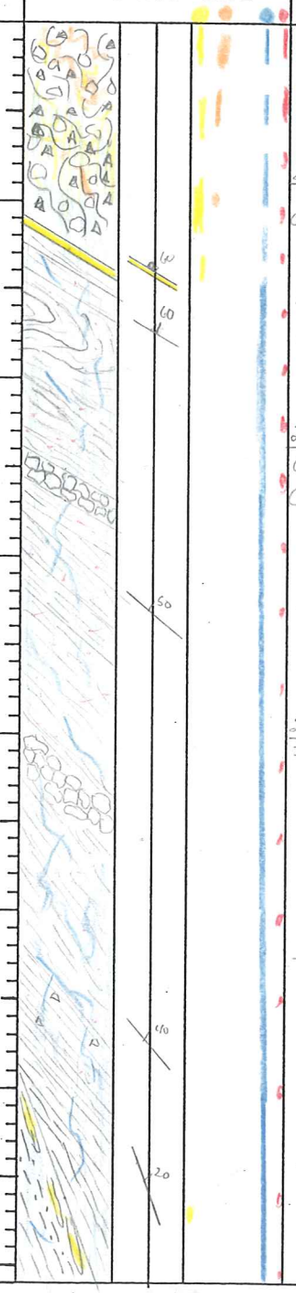
ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
A.L.S.	R	1985.3-3000 A.L.S. PHILLITIC SHALE AND SILTSTONE Interbedded phillitic shale and siltstone. Calcite veining is moderate to heavy 2013 core is moderate to highly calcareous shale and siltstone. 2067.4 - 2069.4 2" bedded qtz vein in siltstone bed between 2067.4 - 2073	2000 2010 2020 2030 2040 2050 2060 2070		2013 .5' calcite and quartz vein at base of shear zone below the contact. 2025 - 2027 Calcite healed crackle breccia 2042 - 2044 Internal bedded breccia 2054 - 2058 Crackle breccia	Syngenetic pyrite disseminated through the shale. Sediments are moderate to highly calcareous

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
2001	2005				
2005	2008				
2008	2013				
2013	2017				
2017	2022				
2022	2028				
2028	2033				
2033	2037.5				
2037.5	2042				
2042	2050				
2050	2060				
2060	2067.4				
2067.4	2070.3				

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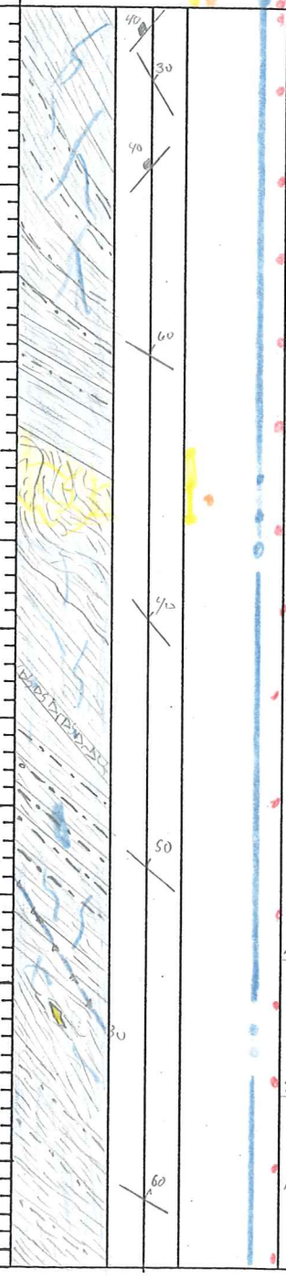
ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS	R	1985.3-3000 ALS PHILLITIC SHALE AND INTERBEDDED SILTSTONE Dark gray black shale with light gray siltstone interbeds Calcite veins cross cut bedding and locally show minor off sets in bedding 2127 - metamorphic quartz .3' Thick sheared on both sides	2070 2080 2090 2100 2110 2120 2130 2140		2095 - 3001 Crackle breccia associated with metamorphic qtz masses 3009-3009.5 Bedded crackle breccia 2123-2123.5 Sheared shale at 30° to c 2128-2130 Crackle breccia with weak shearing on a 40° to c plane	2095-2099 Silicification and micro veinlets of qtz. Traces of white clay with qtz vein

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	
2070.3	2075					
2075	2081					
2081	2087.5					
2087.5	2095					
2094	2099					
2099	2107.5					
2107.5	2115					
2115	2124					
2124	2129					
2129	2134					
2134	2140					

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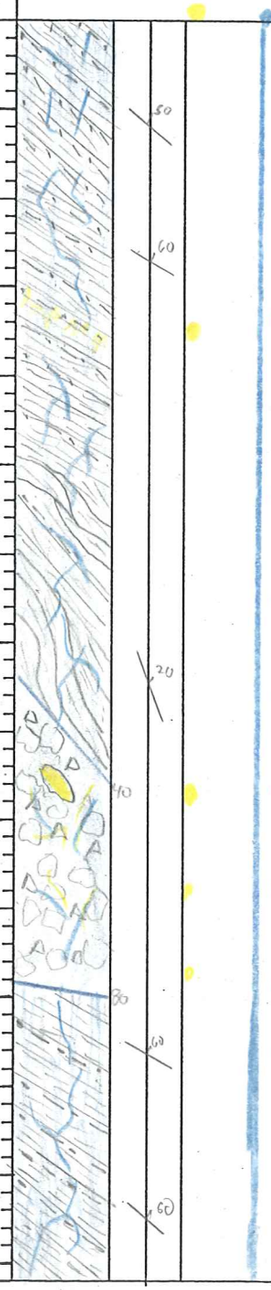
ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS.	R	1985.3-3000 ALS PHILLITIC SHALE AND INTERBEDDED SILTSTONE Dark gray black sediments continue 2180-2194.8 Fault zone appears to be parallel to bedding	2140 2150 2160 2170 2180 2190 2200 2210		Minimal cross cutting fracturing 2163.5-2169.5 Local disrupted bedding 2180-2194.8 Fault zone with calcite and quartz stockwork.s	Syngenetic pyrite is very fine and only sulfid 2156.6-2160 Very fine qtz veinlets and weak silicificati 2180-2194.8 spotty traces of silicificatio 2182-2182.6 metamorphic qtz vein

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
2140	2150				
2150	2156.6				
2156.6	2160				
2160	2165				
2165	2170.5				
2170.5	2175.5				
2175.5	2180				
2180	2185				
2185	2190				
2190	2194.8				
2194.8	2199.5				
2199.5	2207				
2205	2211.5				

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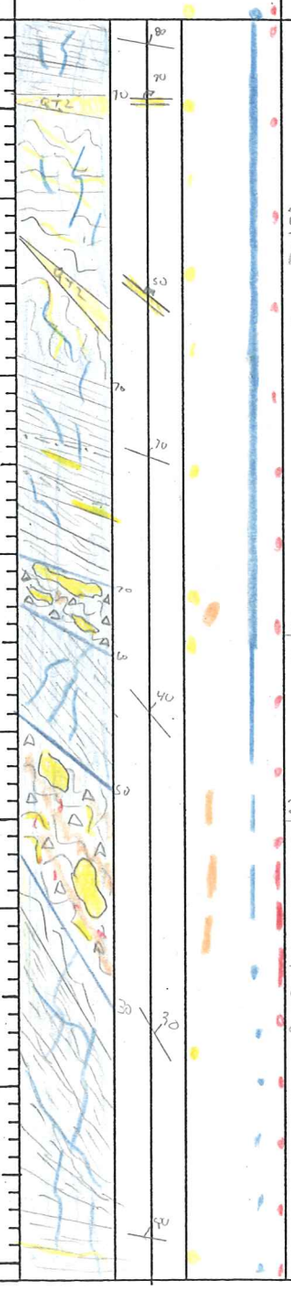
ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
ALS	R	1985.3-3000 ALS. PHILLITIC SHALE AND SILTSTONE Dark gray shale and Light gray siltstone continues Sediments are moderate to highly calcareous 2251-2261.2 Bedding plane shear with metamorphic qtz masses. 4" interval of coarse siltstone derived from reworked Tuff. Pyrite forms 1/8" aggregations. Selective silicification of the breccia	2210 2220 2230 2240 2250 2260 2270 2280		2220.7-2229.7 Bedding shear with high qtz vein lets 2241.3-2244.6 Metamorphic qtz in a bedding shear 2251-2261.2 Bedding shear with metamorphic qtz 2261.2 Bedding continues to be disrupted	2778-2282 spotty narrow silicifiate	2211.5 2220 2224.2 2229.7 2236 2241.3 2244.6 2251 2257.5 2261.2 2265 2270 2275.5 2280	2220 2224.2 2229.7 2236 2241.3 2244.6 2251 2257.5 2261.2 2265 2270 2275.5 2280				

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ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
ALS.	R	1985.3–3000 ALS. PHILLITIC SHALE AND SILTSTONE.. Black shale and interbedded siltston 2301–2302 Sheared Intrusive	2280, 2290, 2300, 2310	60, 50	2290 Bed becomes highly disrupted. Bedding become steep at 2297 2297–2322 Bedding breccia	2287 white clay on fracture surface	2280	2285.5				
							2285.5	2290				
							2290	2297				
							2297	2300				
							2300	2305				
							2305	2310				
							2310	2312.5				
		2312.5–2320 Core Loss		Core Loss			NO SAMPLE					
		2320–2322 ALS. Phillitic shale and siltstone	2320				2320	2322				
		2322–2325 Core Loss		Core Loss			NO SAMPLE					
		2320.5–2353.2 Siltstone. Medium grained siltstone derived from reworked Tuff. Small clusters of pyrite	2330, 2340, 2350	80, 50		2320.5–2353.2 weakly argillized siltstone with minor qtz veins 2348 Pyrite after marcasite in weak white clay	2325	2330				
							2330	2340				
							2340	2350.5				

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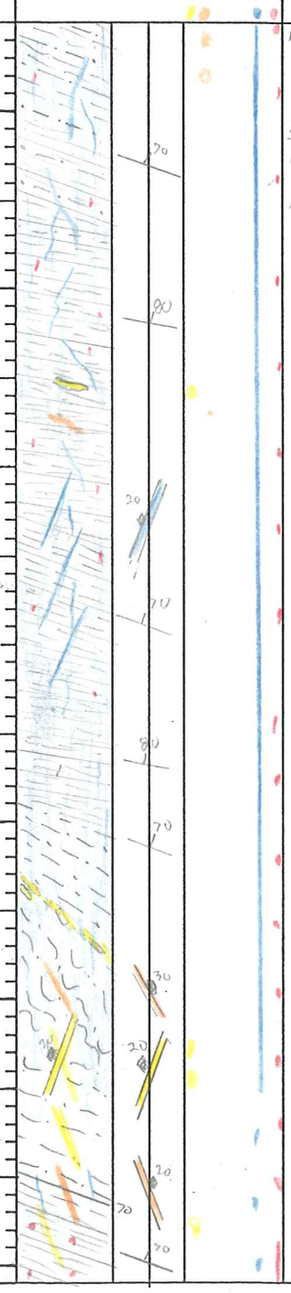
ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
ALS	R	1985.3 – 3000 ALS. PHILLITIC SHALE AND SILTSTONE. 2353.2 ALS. Shale with minor siltstone beds continues to 2392. Bedding is 60° to 80° tca. Shale is highly calcareous metamorphic qtz masses. Pyrite is syngenetic in origin. 2407 – 2410 20° tca qtz vein with open vugs	2350 2360 2370 2380 2390 2400 2410 2420		Minimal fracture cross cut bedding 2349 – 2354 Gradational contact between siltstone and shale	Calcite veins cross cut beds 2372 Traces of white clay 2400 – 2400.8 Bedded metamorphic qtz 2396 – white clay veinlets, 30° tca 2415 – white clay on 20° tca. fx 2415.6 Large (1/8") syngenetic pyrite crystals	2350.5 2360 2370 2380 2390 2400 2407 2410 2415.6	2360 2370 2380 2390 2400 2407 2410 2415.6 2420.9					

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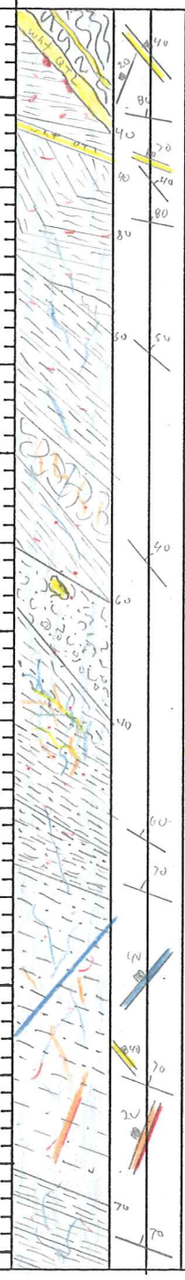
ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
A.L.S.	R	1985.3-3000 A.L.S. PHILLITIC SHALE AND INTERBEDDED SILTSTONE Dark gray to black phillitic shale and medium gray siltstone 2420.9-2423.8 Metamorphic qtz with sheared shale from 2420.9 to 2422.6. Arsenopyrite crystal along margin of white metamorphic qtz. 2451.7-2457 siltstone interbed Bedding in interval is highly foliated and locally brecciated 2457-2462 Interbedded interval of thicker siltstone and shales 2469-2473.7 Transitional zone of increasing gray siltstone. 2473.7-2485.6 Tuffaceous derived siltstone. Feldspar grains still remain	2420 2430 2440 2450 2460 2470 2480 2490		2422.7-2423.8 QTZ vein is cross cut by fracture at 200 tco 2431- Bedding shifted from 40° to around 80° to in 1", very tight fold 2431 ¼" offsetting of calcite veins across bedding planes	Syngenetic pyrite through out the shale at 1-3% Crystals up to ¼" diamet. 2426-2427 white clay on fracture with quartz veinlet. Possible py/marcasite blend. 2422.7-2423.8 metamorphic qtz vein with pyrite masses and traces of arsenopyrite crystal 2452 - 5" metamorphic quartz 2479-2485.6 white clay with Py/marcasite veinlets cross cut bedding 20° t.c. 2477.5 - 2477.8 course crystaline calcite vein with white clays on fracture	2420.9 2423.8 2427 2429.2 2437.5 2444 2448 2451.7 2457 2462 2469 2473.7 2479 2485.6	2423.8 2427 2429.2 2437.5 2444 2448 2451.7 2457 2462 2469 2473.7 2479 2485.6 2495.6					

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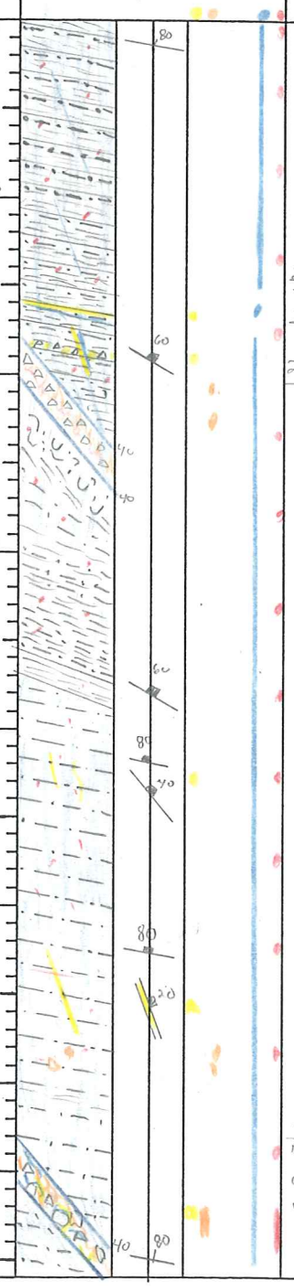
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS.	R.	1785.3 – 3000 A.L.S. PHILLITIC SHALE AND INTERBEDDED SILTSTONE Fine grained sediments continue 2528 – 2529 Course siltstone reworked tuffaceous material Pino 2548 white clay	2490 2500 2510 2520 2530 2540 2550 2560		2509 60° tcu fx with 30° to fx axis 2508 - 3" crackle breccia 2511.3 - 2513.6 Fault zone 2556 – 2561.2 Disrupted siltstone and shale with quartz veins	2511.3 – 2513.6 Disseminated pyrite increases in fault to 3% 2543.5 bedded pyrite 1/8" thick 2544 – 2547 qtz vein with white clay traces 2547 – 2549 white clay on fractures

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
2485.6	2495.6				
2495.6	2505				
2505	2511.3				
2511.3	2513.6				
2513.6	2520				
2520	2530				
2530	2540				
2540	2550				
2550	2556				
2556	2561.2				

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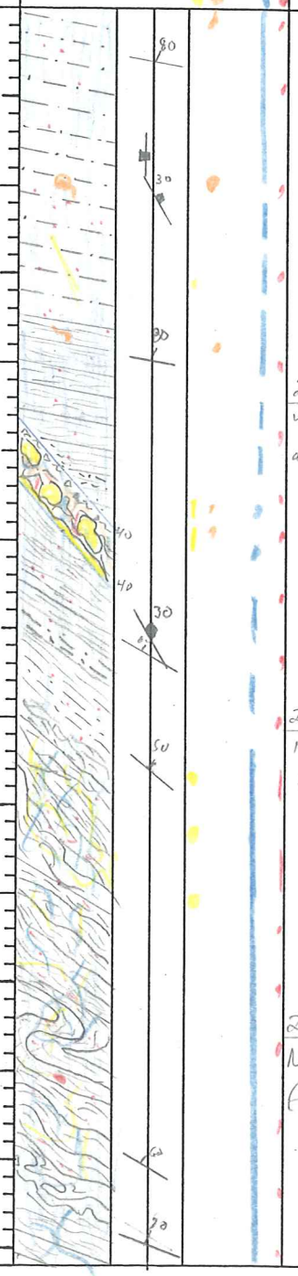
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS.	R	1985.3-3000 A.L.S. PHILLITIC SHALE AND INTERBEDDED SILTSTONE Fine grained siltstone and shales 2586.3-2590 sheared up interval of metamorphic quartz and shale. 2600.5-2609.5 stockwork of calcite and quartz veinlets. Locally spotted by white clay development 2615.4-2627 stockwork intensifies around fold. Calcite and quartz veins	2560 2570 2580 2590 2600 2610 2620 2630		2586 40° tcu plane with .3' of breccia above first qtz mass 2602.1 - 2609.5 Heavy qtz/calcite stock work 2615.4-2621 Nose of a shallow fold	2602.1-2608 silicified shale in stockwork zone

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
2561.2	2570				
2570	2580				
2580	2586.3				
2586.3	2590				
2570	2594.7				
2594.7	2602.1				
2602.1	2608				
2608	2615.4				
2615.4	2621				
2621	2626.5				
2626.5	2631.5				

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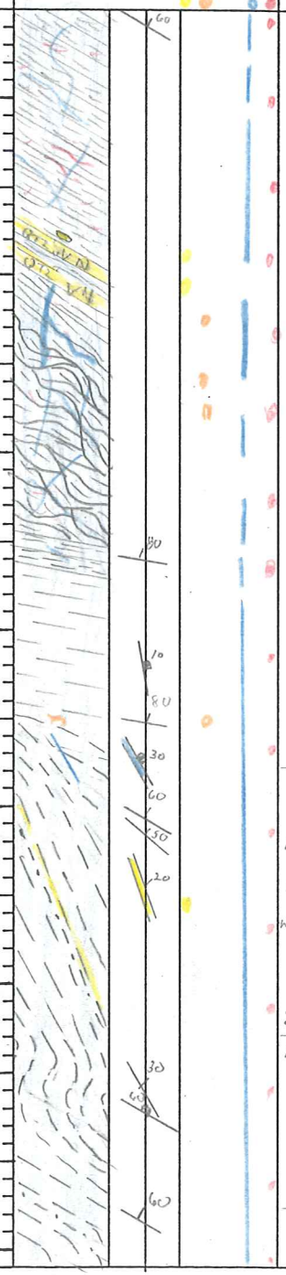
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
A.L.S.	R	1985.3–3000 ALS PHILLITIC SHALE AND INTERBEDDED SILTSTONE Phillitic gray black shale and medium gray siltstone 2643.1–2647.6 metamorphic qtz masses with sheared shale between individual qtz masses 2647.6–2653.6 sheared zone of shale with narrow breccias along boundarys of irregular bedding orientation 2665 shale becomes brownish gray black and phillitic texture is more obvious 2681–2682 Gray siltstone bed	2630 2640 2650 2660 2670 2680 2690 2700		2659.5 Bedding becomes generally regular and shale bedding becomes massive 2690.4–2691.4 Narrow fold 2700 steepening bedding	2643.1–2643.8 metamorphic qtz mass 2644.8–2645.9 metamorphic qtz mass 2659.5 Pyrite becomes very fine and disseminated in brownish black phillitic shale 2670 - white clay in fxs 2680.3–2680.6 Bedded metamorphic quartz from ¼" to 1" thick

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	A
2631.5	2637.1					
2637.1	2643.1					
2643.1	2647.6					
2647.6	2653.6					
2653.6	2660					
2660	2670					
2670	2680					
2680	2690					
2690	2700					

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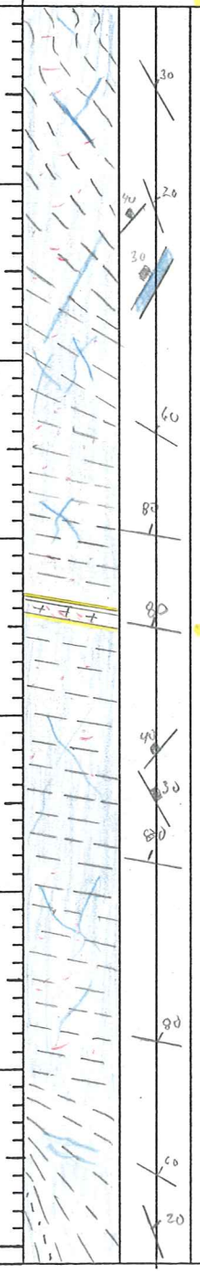
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
ALS	R	1985.3-3000 ALS PHILLITIC SHALE AND INTERBEDDED SILTSTONE Brownish gray black phillitic texture weakly laminated shale continues. Shale is moderately calcareous and contains calcite veins. Metamorphic white qtz veinlets occasionally are present. 2733.8-2734.5 Fine grained intrusive pale gray. Footwall surface has a 1" qtz vein	2700 2710 2720 2730 2740 2750 2760 2770		2719-2722 Fracture zone 2733.8-2734.5 Very sharp contact. 2763-2765 Bedding is folded from 80° ten to 20° ten	Calcite veinlets form bladded surfaces or open fractures. 2772 2" white qtz vein or moss parallel to bedding	2700 2710 2720 2730 2733.8 2734.5 2740.5 2750.5 2761	2710 2720 2730 2733.8 2734.5 2740.5 2750.5 2761 2771				

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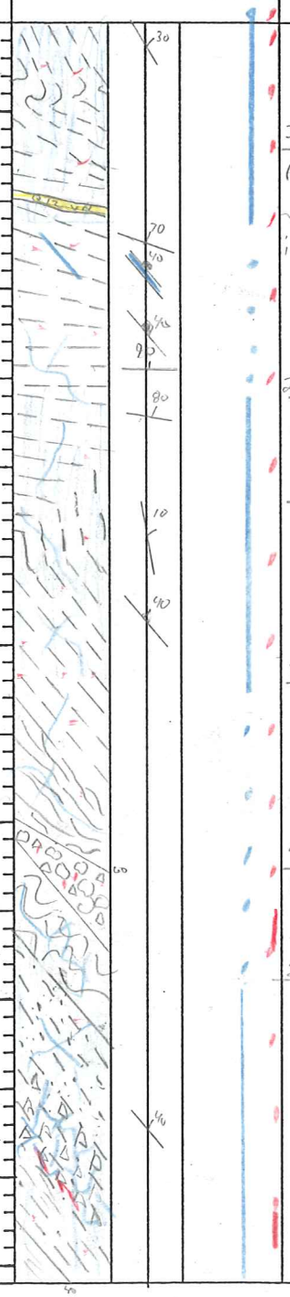
ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
A.L.S.	R	1985.3-3000 A.L.S. PHILLITIC SHALE AND SILTSTONE Phillitic calcareous shale gray black shale. 2808-2814.5 calcite and quartz stock work. Bedded pyrite mussel with disrupted bedding 2814.5-2840 Coarse siltstone with rework volcanic texture thin interbedded shale	2770 2780 2790 2800 2810 2820 2830 2840		2772.5-2775 Folded bedding with sharp change in orientation 2797 Bedding fold 90° in a 1" interval from 80° to 10° to 2795.8 3" long vug with 2816.5-2819.5 Bedded breccia 2819.5-2824.5 Contorted bedding	2787.5 open vug with large calcite crystals up to ½" diameter 2795.6-2795.9 Open vug with large calcite veins 2830-2833 Calcite healed fracture zone	2771 2781 2791 2800 2810 2816.5 2819.5 2824.5 2830 2833	2781 2791 2800 2810 2816.5 2819.5 2824.5 2830 2833 2840				

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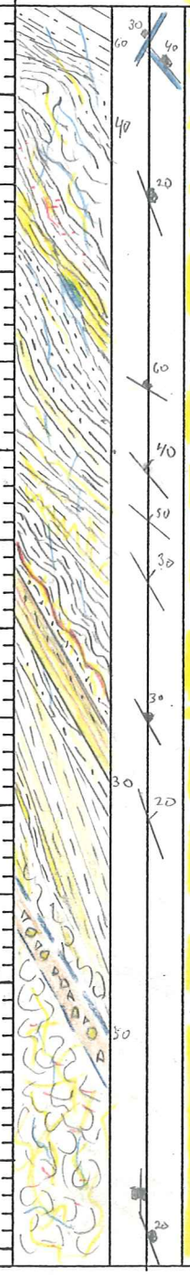
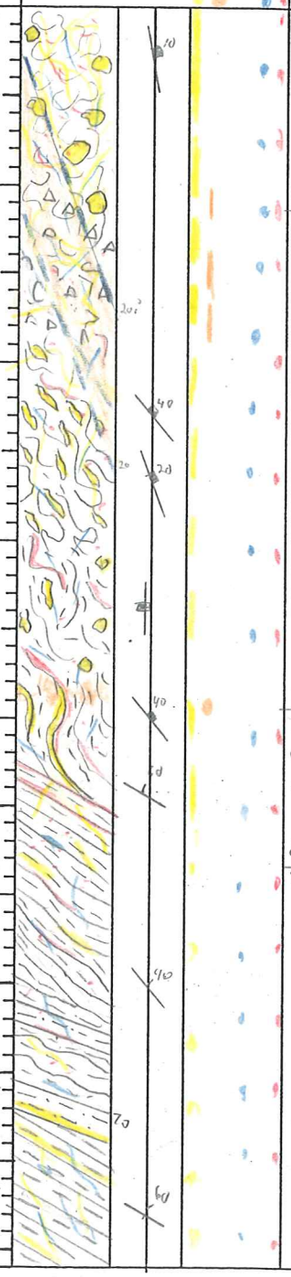
LITH.	OX/RED.	LITHOLOGY	FT.	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	A
ALS.	R	MBS, 3 3000 ALS. PHILLITIC SHALE AND SILTSTONE .. Interbedded shale and siltstone	2840			2840.5-2840.9 Increased bedded pyrite 3-5%	2840	2850					
		Continued on page 20.	2850										

HOLE NUMBER RS-475-99 PAGE 20 OF 24

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS.	R	1985.3 3000 ALS. Phillitic shale and siltstone Dark gray black shale with graphitic coating on bedding surface, medium gray coarse siltstone with beds up to 4'. Siltstone containing qtz grains making it harder than shale. Shale beds are locally highly deformed. Bedding orientations very significantly indicating local and regional folding. Thin Section 2887.8 Calcite veins and concretions beds are present. Syngenetic Pyrite forms crystals up to 1/8" in diameter and fine bedded pyrite. 2899-2903.5 Bedded qtz and shale Beds become disrupted approaching fault breccia begining at 2903.5 Pinch 2905 wl clyHCLT Bxd Dichite 2903.5-2906.5 Highly brecciated shale with quartz fragments with white clay stringers. 2906.5-2911.3 Fracture plane 0° tca 2903.5-2940.5 Fault zone qtz/calcite stockwork fragment Total bedding disruption. QTZ cuts calcite veins	2850 2860 2870 2880 2890 2900 2910 2920		2859 - bedding steepens and mini folds are seen along steep 20° tca fracture. 2863 Bedded qtz at 40° tca with calcite cross cutting 2871 60° tca fracture with 0° to fracture axis slicks 2884.35-2884.7 Very intense qtz calcite stockwork in shale 2884.7 2886 Increasing silica replacing siltstone bed 2886-2888.4 Sulfided banded Semi translucent qtz vein, ≤5 mm black sulfide rich irregular bands Parrallel Dip	Crystalline calcite coats fracture surface plus white calcite cross cuts bedding 2860-2868 silicification of surrounding shale phase 2861.5-2868 white metamorphic bedded quartz increase to 260% between 2863.5-2868, calcite veinlets and fracture coating also present. 2872-2872.5 calcite/qtz stockwork 2882-2883.5 1/4" bedded Pyrite 2886-2888.4 Black bands of sulfide are very irregular in shape 2886-2888.4 Sulfides in vein consist of py arsenopyrite galena and sphalerite. Possible traces of pyrrhotite and calcopyrite. Sphalerite crystal was ≤1.5 mm dia. Crystal mass. Galena was in small vugs. Arsenopyrite formed bands up to 3mm. From 2888.4 Pyrite as beds and disseminations present

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
2850	2854				
2854	2857.5				
2857.5	2861.5				
2861.5	2863.2				
2863.2	2866				
2866	2868.8				
2868.8	2872				
2872	2876.5				
2876.5	2879.5				
2879.5	2883.5				
2883.5	2884.7				
2884.7	2886				
2886	2888.4				
2888.4	2890.5				
2890.5	2894.5				
2894.5	2899				
2899	2901				
2901	2903.5				
2903.5	2906.5				
2906.5	2911.5				
2911.5	2915				
2915	2920				

HOLE NUMBER RS-475-99 PAGE 21 OF

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS.	R	1985.3-3000 ALS. Phillitic shale and siltstone Fault zone continues from 2903.5 to 2940.5. Highly disrupted beds, with very heavy quartz/calcite stockwork. Fracture surfaces at 0° tca. to 30° tca Pimo 2937 white clay 2981.4-2982.9 siltstone bed with a 3" quartz vein at base of bed. Pimo 2976.5 white clay	2920 2930 2940 2950 2960 2970 2980 2990		2931-2938 Milled breccia with white clay and qtz fragment. Possible shear plane of 20° tca 2960.5-2962.5 Bedded qtz at 00 tca from local folding 2976.5-2978 broken siltstone bed. Lower contact is broken	Pyrite appears syngenetic 2959.7 white clay in broken zone

ANALYTICAL DATA					
FROM	TO	W	Au	Ag	Au2
2920	2924.5				
2924.5	2928				
2928	2931				
2931	2933				
2933	2938				
2938	2941.5				
2941.5	2944				
2944	2948				
2948	2951				
2951	2955				
2955	2959				
2959	2963.5				
2963.5	2965.5				
2965.5	2970.5				
2970.5	2975.5				
2975.5	2978				
2978	2981.4				
2981.4	2982.9				
2982.9	2987				
2987	2990.5				

HOLE NUMBER RS-475-94 PAGE 22 OF

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
ALS.	R	1985.3-3000 ALS. Phyllitic Shale and Siltstone	2990	60	Bedding is becoming uniform with only minor Disruption	Narrow 1-2" Silicified beds are present between calcareous bed	2990.5	2995.5				
			300				2995.5	3000				

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D475-99 DATE: 9-29-99 LOGGED BY: D.G. Macherrow PAGE 1 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
1600	1600.5	0	100	0										
1600.5	1607	54	100	15										
1607	1616.5	74	100	42										
1616.5	1626.5	78	81	51										
1626.5	1636	85	118	34										
1636	1646.5	100	100	92										
1646.5	1657	100	102	80										
1657	1667.5	98	100	69										
1667.5	1678	100	100	85										
1678	1688.5	100	100	90										
1688.5	1697.5	100	95	82										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 9-30-99 LOGGED BY: D.G. MacKerrow PAGE 2 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
1697.5	1707.5	55	100	52										
1707.5	1716.5	69	100	41										
1716.5	1727	100	100	90										
1727	1737	98	100	94										
1737	1747.5	76	100	57										
1747.5	1758	100	102	93										
1758	1768.5	100	100	95										
1768.5	1779	85	100	75										
1779	1789.5	92	100	57										
1789.5	1793	94	100	77										
1793	1800	46	100	5										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-1-99 LOGGED BY: D.G. Muckerrow PAGE 3 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
1800	1810	100	100	65										
1810	1813	100	93	80										
1813	1820	100	113	90										
1820	1830	100	99	91										
1830	1840	100	89	62										
1840	1850	95	106	89										
1850	1860	100	104	99										
1860	1870	100	100	96										
1870	1880	82	100	60										
1880	1890.5	100	96	48										
1890.5	1896.5	47	100	28										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-1-99 LOGGED BY: D.G. Muckerrow PAGE 4 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
1896.5	1903.5	37	100	20										
1903.5	1914	95	100	71										
1914	1924	99	105	74										
1924	1934.5	69	96	48										
1934.5	1945	89	93	68										
1945	1955.5	100	100	94										
1955.5	1966	98	100	92										
1966	1976.5	100	94	84										
1976.5	1987	100	95	61										
1987	1994.5	0	66	0										
1994.5	1997	84	124	84										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-2-99 LOGGED BY: D.G. MacKerrow PAGE 5 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
1997	2005	100	95	52										
2005	2011	72	93	0										
2011	2017	78	100	6										
2017	2022	60	100	40										
2022	2028	42	100	18										
2028	2033	94	100	38										
2033	2037.5	96	100	13										
2037.5	2042	22	100	11										
2042	2050	91	100	52										
2050	2060	81	100	30										
2060	2066	100	93	55										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-3-99 LOGGED BY: D.G. MacKerron PAGE 6 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2066	2075	100	94	43										
2075	2081	100	108	27										
2081	2087.5	100	104	28										
2087.5	2094	83	101	11										
2094	2099	16	100	0										
2099	2107.5	65	100	16										
2107.5	2115	100	97	7										
2115	2124	78	92	12										
2124	2126	35	135	0										
2126	2129	20	100	0										
2129	2134	62	100	8										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-3-99 LOGGED BY: D. G. MacKerrow PAGE 7 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2134	2140	27	100	0										
2140	2145.5	78	100	0										
2145.5	2150	51	100	8										
2150	2160	73	100	19										
2160	2163.5	83	114	11										
2163.5	2170.5	100	97	33										
2170.5	2175.5	98	100	0										
2175.5	2180	100	100	22										
2180	2182	0	100	0										
2182	2188.5	72	100	25										
2188.5	2193.5	46	94	16										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-3-99 LOGGED BY: D.G. Mackerrow PAGE 8 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2193.5	2199.5	58	100	18										
2199.5	2200	6	120	0										
2200	2207	100	98	17										
2207	2211.5	128	140	75										
2211.5	2220	100	82	12										
2220	2230.5	100	96	28										
2230.5	2240.5	98	101	12										
2240.5	2249.5	63	100	12										
2249.5	2257.5	26	100	6										
2257.5	2265	69	103	0										
2265	2275.5	77	100	6										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-4-99 LOGGED BY: D.G. MacKerrow PAGE 9 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2275.5	2283	29	100	0										
2283	2285.5	0	100	0										
2285.5	2292	17	100	0										
2292	2295	50	100	0										
2295	2300	24	108	0										
2300	2305	0	100	0										
2312.5	2320	0	Core loss 0	0										
2320	2320.5	0	100	0										
2320.5	2322	40	53	0										
2322	2325	0	Core loss 0	0										
2325	2326	0	120	0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-4-99 LOGGED BY: D.G. MacKerrow PAGE 10 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2326	2330	50	107	12										
2330	2340	100	50	72										
2340	2350.5	98	97	69										
2350.5	2360	100	100	40										
2360	2370	100	101	14										
2370	2380	73	100	18										
2380	2390	100	102	47										
2390	2400	100	103	70										
2400	2410	87	100	55										
2410	2420	84	100	29										
2420	2427	78	98	27										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-11-99 LOGGED BY: D.G. Mackerrow PAGE 11 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2427	2437.5	100	100	52										
2437.5	2448	91	100	28										
2448	2458.5	100	98	47										
2458.5	2469	97	98	26										
2469	2479	96	103	69										
2479	2489.5	100	100	68										
2489.5	2500	90	100	24										
2500	2510	100	102	23										
2510	2520	71	98	36										
2520	2530	87	100	42										
2530	2540	100	103	88										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-11-99 LOGGED BY: D.G. Mackercrow PAGE 12 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2540	2550	100	102	48										
2550	2560	87	100	60										
2560	2570	95	100	55										
2570	2580	100	100	65										
2580	2590	34	100	0										
2590	2600.5	88	100	56										
2600.5	2611	76	100	16										
2611	2621	95	102	62										
2621	2631.5	80	98	18										
2631.5	2641.5	62	100	0										
2641.5	2650	32	100	8										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-13-99 LOGGED BY: D.G. Mackerrow PAGE 12 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY /FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2650	2660	74	100	15										
2660	2670	94	100	22										
2670	2680	98	100	74										
2680	2690	100	102	84										
2690	2700	100	100	31										
2700	2710	100	102	63										
2710	2719	100	102	68										
2719	2729.5	85	100	28										
2729.5	2740	100	102	68										
2740	2750.5	100	102	74										
2750.5	2761	100	102	48										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-13-99 LOGGED BY: D.G. MacHerrow PAGE 13 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2761	2771.5	96	98	51										
2771.5	2781.5	72	101	35										
2781.5	2792	90	98	53										
2792	2800	100	102	40										
2800	2810	91	103	58										
2810	2819.5	67	103	10										
2819.5	2830	71	102	52										
2830	2840	50	98	23										
2840	2850	74	102	33										
		Continued on Page 14												

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 9-15-99 LOGGED BY: D.G. MacKenzie PAGE 14 OF 16

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
2850	2857.5	73	100	24										
2857.5	2866	100	100	36										
2866	2876.5	100	100	38										
2876.5	2886	100	109	51										
2886	2887.5	100	86	40										
2887.5	2888	100	100	100										
2888	2892.5	71	100	22										
2892.5	2899.5	40	107	8										
2899.5	2901	0	106	0										
2901	2906.5	0	109	0										
2906.5	2911.5	100	100	56										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D475-99 DATE: 9-15-99 LOGGED BY: D.G. Mackerrow PAGE 15 OF 16

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY /FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
2911.5	2915	100	94	57										
2915	2920	48	100	14										
2920	2924.5	71	104	44										
2924.5	2930	36	100	22										
2930	2933	0	100	0										
2933	2938	0	88	0										
2938	2940.5	0	100	0										
2940.5	2944	77	100	0										
2944	2948	52	100	20										
2948	2955	71	97	11										
2955	2959	0	100	0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D475-99 DATE: 9-15-99 LOGGED BY: D.G. Mackenzie PAGE 16 OF 16

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
2959	2960.5	60	100	0										
2960.5	2965.5	46	110	0										
2965.5	2970.5	99	94	36										
2970.5	2978	73	100	0										
2978	2982.5	73	96	33										
2982.5	2990.5	100	100	29										
2990.5	3000	100	100	17										

NEWMONT GOLD COMPANY- DAILY CORE RIG REPORT

98C 03432

HOLE ID: RS 475
SITE ID: 99RS A.B.
AREA: Rose Bud
BID SHEET #: LY-1

RIG ID: LS244 #12 4385
☐VERTICAL DOWN ☐ANGLE 59 / ____ AZ
EST. TD: 3000
☐final ☐precollar ☑tail ☐wedge / ☐support only

DRILLER: J Stirm 12
HELPER: T Warnick 12
METHOD: ☑Core* ☐UG.Core*
Core Size* ☑HQ ☐NQ ☐BQ ☐Other____

CONTRACTOR: Boart Longyear
NEWMONT RIG ID: P12
DATE: 8-13-99
SHIFT: (B)

RUN RECORD

Military Time From	Military Time To	Footage Start	Footage Stop	Distance Run	Distance Recvr	Circ %
1900		2911.5	2915	3.5	3.5	
		2915	2920	5.0	5.0	
		2920	2924.5	4.5	4.5	
		2924.5	2930	5.5	5.5	
		2930	2933	3.0	3.0	
		2933	2938	5.0	4.0	
		2938	2940.5	2.5	2.5	
		2940.5	2944	3.5	3.5	
		2944	2948	4.0	4.0	
		2948	2955	7.0	7.0	
		2955	2959	4.0	4.0	
		2959	2960.5	1.5	1.5	
		2960.5	2965.5	5.0	5.0	
	0700	2965.5				
		2911.5	2965.5	54	53	

Time	RIG CHECKS/ACTIVITY	Intls

BITS /SHELLS

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on ____
Depth off ____
Type ____
Stock # ____
Serial # ____
Est.$$ ____

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on ____
Depth off ____
Type ____
Stock # ____
Serial # ____
Est.$$ ____

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on ____
Depth off ____
Type ____
Stock # ____
Serial # ____
Est.$$ ____

MATERIAL RECORD

Materials utilized or Lost/chargeable *(if contractor issued, an estimated cost is required.)*

Qty	Description	NGC	Stock #	CON	Est. $$	Qty	Description	NGC	Stock #	CON	Est. $$

HOURLY ACTIVITY RECORD

Military Time From	Military Time To	1 Move to Hole	2 Move to Project	3 Rig Up/Dn	4 Coring	5 Drill Cave	6 Ream	7 Reentry	8 Setup/Pull Casing	9 Mix Mud	10 Cement	11 Stabilize Hole	12 Fish	13 Reduce/set wedge	14 Abandon Hole	15 Standby or other delays	16 Contractor No charge
1900	0700				12												
TOTALS:					12												

LOSS CONTROL/PRESHIFT INSPECTION

I have inspected equipment and site: Jerry Stirm

COMMENTS: Key comments to column #.

4 coring

Total Chargeable Hours

PAGE 1 OF 1

AUXILIARY RECORD

	Qty	Charged by
Water Truck 3614		☐hr ☐day ☐NC
Extra Labor		☐hr ☐day ☐NC
Mobilization/Demobilization		☐hr ☐flat rate ☐NC
LP 4246 PU 4353		☐day ☐man ☐NC
Trl 4247		☐hr ☐day ☐NC

APPROVAL: Date

Contractor ____
Newmont D S Mafen
Remarks Rose Bud Hecla

NEWMONT GOLD COMPANY- DAILY CORE RIG REPORT

98C 03432

HOLE ID: RS 475
SITE ID: 99RS AR
AREA: Rose Bud
BID SHEET #: LY-1

RIG ID: LS244 #12 4385
☐VERTICAL DOWN ☐ANGLE 59 / ____ AZ
EST. TD: 3000
☐final ☐precollar ☐tail ☐wedge /☐support only

DRILLER: J Stirm 12
HELPER: J Warnick 12
METHOD: ☐Core* ☐UG.Core*
Core Size* ☐HQ ☐NQ ☐BQ ☐Other____

CONTRACTOR: Boart Longyear
NEWMONT RIG ID: R12
DATE: 8-13-99
SHIFT: (B)

RUN RECORD

Military Time From	Military Time To	Footage Start	Footage Stop	Distance Run	Distance Recvr	Circ %
1900		2911.5	2915	3.5	3.5	
		2915	2920	5.0	5.0	
		2920	2924.5	4.5	4.5	
		2924.5	2930	5.5	5.5	
		2930	2933	3.0	3.0	
		2933	2938	5.0	5.0	
		2938	2940.5	2.5	2.5	
		2940.5	2944	3.5	3.5	
		2944	2948	4.0	4.0	
		2948	2955	7.0	7.0	
		2955	2959	4.0	4.0	
		2959	2960.5	1.5	1.5	
		2960.5	2965.5	5.0	5.0	
	0700	2965.5				
		2911.5	2965.5	54	53	

BITS /SHELLS

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on ____
Depth off ____
Type ____
Stock # ____
Serial # ____
Est.$$ ____

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on ____
Depth off ____
Type ____
Stock # ____
Serial # ____
Est.$$ ____

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on ____
Depth off ____
Type ____
Stock # ____
Serial # ____
Est.$$ ____

MATERIAL RECORD

Materials utilized or Lost/chargeable *(if contractor issued, an estimated cost is required.)*

Qty	Description	NGC	Stock #	CON	Est. $$	Qty	Description	NGC	Stock #	CON	Est. $$

HOURLY ACTIVITY RECORD

Military Time From	Military Time To	1 Move to Hole	2 Move to Project	3 Rig Up/Dn	4 Coring	5 Drill Cave	6 Ream	7 Reentry	8 Setup/Pull Casing	9 Mix Mud	10 Cement	11 Stabilize Hole	12 Fish	13 Reduce/set wedge	14 Abandon Hole	15 Standby or other delays	16 Contractor No charge
1900	0700				12												
TOTALS:					12												

Total Chargeable Hours

LOSS CONTROL/PRESHIFT INSPECTION

I have inspected equipment and site: Jerry Stirm

COMMENTS: Key comments to column #.

4 coring

PAGE 1 OF 1

RIG CHECKS/ACTIVITY

Time		Intls

AUXILIARY RECORD

	Qty	Charged by
Water Truck 3614		☐hr ☐day ☐NC
Extra Labor		☐hr ☐day ☐NC
Mobilization/Demobilization		☐hr ☐flat rate ☐NC
LP 4246 PU 4353		☐day ☐man ☐NC
Trl 4247		☐hr ☐day ☐NC

APPROVAL:

Contractor ____ Date ____
Newmont D S Mc Lean ____
Remarks Rose Bud Hecla

NEWMONT GOLD COMPANY- DAILY CORE RIG REPORT

98C 03434

HOLE ID: ~~Rose~~ RS 475
SITE ID:
AREA: Rose Bud
BID SHEET #: LY-1

RIG ID: LS 244 #12 4385
☐VERTICAL DOWN ☒ANGLE 59 / ____ AZ
EST. TD: 3000
☐final ☐precollar ☒tail ☐wedge / ☐support only

DRILLER: M Niemi 3
HELPER: M Linder 3
METHOD: ☒Core* ☐UG.Core*
Core Size* ☒HQ ☐NQ ☐BQ ☐Other

CONTRACTOR: Bear Longyear
NEWMONT RIG ID: P-12
DATE: 8-13-99
SHIFT: A

RUN RECORD

Military Time From	Military Time To	Footage Start	Footage Stop	Distance Run	Distance Recvr	Circ %
1600		2895	2901	1.5	1.5	95
		2901	2906.5	5.5	5.5	
		2906.5	2911.5	5.0	5.0	
				12	12	
				~~12~~		

BITS /SHELLS

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on
Depth off
Type
Stock #
Serial #
Est.$$

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on
Depth off
Type
Stock #
Serial #
Est.$$

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on
Depth off
Type
Stock #
Serial #
Est.$$

MATERIAL RECORD

Materials utilized or Lost/chargeable *(if contractor issued, an estimated cost is required.)*

Qty	Description	NGC	Stock #	CON	Est. $$	Qty	Description	NGC	Stock #	CON	Est. $$

HOURLY ACTIVITY RECORD

Military Time From	Military Time To	1 Move to Hole	2 Move to Project	3 Rig Up/Dn	4 Coring	5 Drill Cave	6 Ream	7 Reentry	8 Setup/Pull Casing	9 Mix Mud	10 Cement	11 Stabilize Hole	12 Fish	13 Reduce/set wedge	14 Abandon Hole	15 Standby or other delays	16 Contractor No charge
1600	1900				3												
TOTALS:					3												

LOSS CONTROL/PRESHIFT INSPECTION

I have inspected equipment and site:

COMMENTS: Key comments to column #.

4 Coring

Total Chargeable Hours

PAGE 1 OF 1

RIG CHECKS/ACTIVITY

Time	RIG CHECKS/ACTIVITY	Intls

AUXILIARY RECORD

	Qty	Charged by
Water Truck 3614		☐hr ☐day ☐NC
Extra Labor		☐hr ☐day ☐NC
Mobilization/Demobilization		☐hr ☐flat rate ☐NC
LP 4346 PV 4235		☐day ☐man ☐NC
Yr 14247		☐hr ☐day ☐NC

APPROVAL: Date

Contractor
Newmont ~~Rose Bud~~ [illegible]
Remarks Rose Bud Heela
3350

NEWMONT GOLD COMPANY- DAILY CORE RIG REPORT

98C 03434

HOLE ID: ~~Rose~~ RS 475
SITE ID:
AREA: Rose Bud
BID SHEET #: LY-1

RIG ID: LS 244 # 12 4385
☐VERTICAL DOWN ☐ANGLE 59 / ____ AZ
EST. TD: 3000
☐final ☐precollar ☐tail ☐wedge /☐support only

DRILLER: M Niemi 3
HELPER: M Linder 3
METHOD: ☐Core* ☐UG.Core*
Core Size* ☐HQ ☐NQ ☐BQ ☐Other____

CONTRACTOR: Bart Longyear
NEWMONT RIG ID: R-12
DATE: 8-13-99
SHIFT: A

RUN RECORD

Military Time From	Military Time To	Footage Start	Footage Stop	Distance Run	Distance Recvr	Circ %
1600		2897.5	2901	1.5	1.5	95
		2901	2906.5	5.5	5.5	
		2906.5	2911.5	5.0	5.0	
				12	12	
				~~12~~		

BITS /SHELLS

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on
Depth off
Type
Stock #
Serial #
Est.$$

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on
Depth off
Type
Stock #
Serial #
Est.$$

☐BIT ☐NEW ☐NGC
☐REAMER ☐USED ☐CON
Depth on
Depth off
Type
Stock #
Serial #
Est.$$

MATERIAL RECORD

Materials utilized or Lost/chargeable *(if contractor issued, an estimated cost is required.)*

Qty	Description	NGC	Stock #	CON	Est. $$	Qty	Description	NGC	Stock #	CON	Est. $$

HOURLY ACTIVITY RECORD

Military Time From	Military Time To	1 Move to Hole	2 Move to Project	3 Rig Up/Dn	4 Coring	5 Drill Cave	6 Ream	7 Reentry	8 Setup/Pull Casing	9 Mix Mud	10 Cement	11 Stabilize Hole	12 Fish	13 Reduce/set wedge	14 Abandon Hole	15 Standby or other delays	16 Contractor No charge	⇩ COMMENTS: Key comments to column #.
1600	1900				3													4 Coring
TOTALS:					3													Total Chargeable Hours

LOSS CONTROL/PRESHIFT INSPECTION

I have inspected equipment and site: Mark E Z

PAGE 1 OF 1

RIG CHECKS/ACTIVITY

Time	RIG CHECKS/ACTIVITY	Intls

AUXILIARY RECORD

	Qty	Charged by
Water Truck 3614		☐hr ☐day ☐NC
Extra Labor		☐hr ☐day ☐NC
Mobilization/Demobilization		☐hr ☐flat rate ☐NC
LP 4346 PV. 4235		☐day ☐man ☐NC
Tr 4247		☐hr ☐day ☐NC

APPROVAL:

Date

Contractor
Newmont ~~Rose Bud~~
Remarks Rose Bud Hecla 3350

RS-475-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number
1600	1603	3	x	x			1
1603	1607	4	x	x			2
1607	1612	5	x	x			3
1612	1616.5	4.5	x	x			4
1616.5	1618.9	2.4	x	x			5
1618.9	1623	4.1	x	x			6
1623	1626.5	3.5	x	x			7
1626.5	1628.8	2.3	x	x			8
1628.8	1631.3	2.5	x	x			9
1631.3	1636	4.7	x	x			10
1636	1639.1	3.1	x	x			11
1639.1	1642	2.9	x	x			12
1642	1646.5	4.5	x	x			13
1646.5	1649.5	3	x	x			14
1649.5	1654	4.5	x	x	x	54	15
1654	1657.8	3.8	x	x			16
1657.8	1662.5	4.7	x	x			17
1662.5	1667.5	5	x	x			18
1667.5	1672.8	5.3	x	x			19
1672.8	1678	5.2	x	x			20
1678	1683.2	5.2	x	x			21
1683.2	1688.5	5.3	x	x			22
1688.5	1692.5	4	x	x			23
1692.5	1697.5	5	x	x			24
1697.5	1703.2	5.7	x	x			25
1703.2	1707.5	4.3	x	x			26
1707.5	1712	4.5	x	x			27
1712	1717	5	x	x	x	63	28
1717	1722	5	x	x			29
1722	1727	5	x	x			30
1727	1733	6	x	x			31
1733	1737	4	x	x			32
1737	1742.5	5.5	x	x			33
1742.5	1747.5	5	x	x			34
1747.5	1749.5	2	x	x			35
1749.5	1753	3.5	x	x			36
1753	1758	5	x	x			37
1758	1763	5	x	x			38
1763	1767.7	4.7	x	x	x	50.7	39

1767.7	1772.7	5	x	x			40	
1772.7	1776.1	3.4	x	x			41	
1776.1	1779	2.9	x	x			42	
1779	1784.5	5.5	x	x			43	
1784.5	1789.5	5	x	x			44	
1789.5	1793	3.5	x	x			45	
1793	1797	4	x	x			46	
1797	1800	3	x	x			47	
1800	1803.1	3.1	x	x			48	
1803.1	1807.9	4.8	x	x	x	40.2	49	1807.9B
1807.9	1813	5.1	x	x			50	
1813	1820	7	x	x			51	
1820	1830	10	x	x			52	
1830	1838.3	8.3	x	x			53	
1838.3	1843.7	5.4	x	x			54	
1843.7	1846.7	3	x	x			55	
1846.7	1851.1	4.4	x	x			56	
1851.1	1856.3	5.2	x	x			57	
1856.3	1860	3.7	x	x	x	52.1	58	
1860	1870	10	x	x			59	
1870	1880	10	x	x			60	
1880	1885.3	5.3	x	x			61	
1885.3	1888	2.7	x	x			62	
1888	1890.5	2.5	x	x			63	
1890.5	1892.4	1.9	x	x			64	
1892.4	1896.5	4.1	x	x	x	36.5	65	
1896.5	1903.5	7	x	x			66	
1903.5	1909	5.5	x	x			67	
1909	1914	5	x	x			68	
1914	1919	5	x	x			69	
1919	1923.4	4.4	x	x			70	
1923.4	1925.1	1.7	x	x	x	28.6	71	
1925.1	1930	4.9	x	x			72	
1930	1934.5	4.5	x	x			73	
1934.5	1939.5	5	x	x			74	
1939.5	1945	5.5	x	x			75	
1945	1955	10	x	x			76	
1955	1960.4	5.4	x	x			77	
1960.4	1963.8	3.4	x	x	x	38.7	78	

1963.8	1967.7	3.9	x	x			79	
1967.7	1972	4.3	x	x			80	
1972	1976.5	4.5	x	x			81	
1976.5	1980	3.5	x	x			82	
1980	1985.3	5.3	x	x	x	21.5	83	
1985.3	1987	1.7	x	x			84	
1987	1991	4	x	x			85	
1991	1994.5	3.5	x	x			86	
1994.5	1997	2.5	x	x			87	
1997	2001	4	x	x			88	
2001	2005	4	x	x			89	
2005	2008	3	x	x			90	
2008	2013	5	x	x	x	27.7	91	
2013	2017	4	x	x			92	
2017	2022	5	x	x			93	
2022	2028	6	x	x			94	
2028	2033	5	x	x			95	
2033	2037.5	4.5	x	x			96	
2037.5	2042	4.5	x	x			97	
2042	2050	8	x	x			98	
2050	2060	10	x	x			99	
2060	2067.4	7.4	x	x	x	54.4	100	2067.4B
2067.4	2070.3	2.9	x	x			101	
2070.3	2075	4.7	x	x			102	
2075	2081	6	x	x			103	
2081	2087.5	6.5	x	x			104	
2087.5	2095	7.5	x	x			105	
2095	2099	4	x	x			106	
2099	2107.5	8.5	x	x			107	
2107.5	2115	7.5	x	x	x	47.6	108	
2115	2124	9	x	x			109	
2124	2129	5	x	x			110	
2129	2134	5	x	x			111	
2134	2140	6	x	x			112	
2140	2150	10	x	x			113	
2150	2156.6	6.6	x	x			114	
2156.6	2160	3.4	x	x			115	
2160	2165	5	x	x		50	116	

2165	2170.5	5.5	x	x			117
2170.5	2175.5	5	x	x			118
2175.5	2180	4.5	x	x			119
2180	2185	5	x	x			120
2185	2190	5	x	x			121
2190	2194.8	4.8	x	x			122
2194.8	2199.5	4.7	x	x			123
2199.5	2207	7.5	x	x			124
2207	2211.5	4.5	x	x	x	46.5	125
2211.5	2220	8.5	x	x			126
2220	2224.2	4.2	x	x			127
2224.2	2229.7	5.5	x	x			128
2229.7	2236	6.3	x	x			129
2236	2241.3	5.3	x	x			130
2241.3	2244.6	3.3	x	x			131
2244.6	2251	6.4	x	x			132
2251	2257.5	6.5	x	x			133
2257.5	2261.2	3.7	x	x			134
2261.2	2265	3.8	x	x	x	53.5	135
2265	2270	5	x	x			136
2270	2275.5	5.5	x	x			137
2275.5	2280	4.5	x	x			138
2280	2285.5	5.5	x	x			139
2285.5	2290	4.5	x	x			140
2290	2297	7	x	x			141
2297	2300	3	x	x			142
2300	2305	5	x	x			143
2305	2310	5	x	x			144
2310	2312.5	2.5	x	x	x	47.5	145
2312.5	2320	7.5	NO SAMPLE				
2320	2322	2	x	x			146
2322	2325	3	NO SAMPLE				
2325	2330	5	x	x			147
2330	2340	10	x	x			148
2340	2350.5	10.5	x	x			149
2350.5	2360	9.5	x	x			150
2360	2370	10	x	x			151
2370	2380	10	x	x	x	55	152

2380	2390	10	x	x			153	
2390	2400	10	x	x			154	
2400	2407	7	x	x			155	
2407	2410	3	x	x			156	
2410	2415.6	5.6	x	x			157	
2415.6	2420.9	5.3	x	x			158	
2420.9	2423.8	2.9	x	x			159	
2423.8	2427	3.2	x	x			160	
2427	2429.2	2.2	x	x	x	49.2	161	
2429.2	2437.5	8.3	x	x			162	
2437.5	2444	6.5	x	x			163	
2444	2448	4	x	x			164	
2448	2451.7	3.7	x	x			165	
2451.7	2457	5.3	x	x			166	
2457	2462	5	x	x			167	
2462	2469	7	x	x			168	
2469	2473.7	4.7	x	x			169	
2473.7	2479	5.3	x	x	x	49.8	170	
2479	2485.6	6.6	x	x			171	
2485.6	2495.6	10	x	x			172	
2495.6	2505	9.4	x	x			173	
2505	2511.3	6.3	x	x			174	
2511.3	2513.6	2.3	x	x			175	
2513.6	2520	6.4	x	x			176	
2520	2530	10	x	x	x	51	177	
2530	2540	10	x	x			178	
2540	2550	10	x	x			179	
2550	2556	6	x	x			180	
2556	2561.2	5.2	x	x			181	
2561.2	2570	8.8	x	x			182	
2570	2580	10	x	x	x	50	183	
2580	2586.3	6.3	x	x			184	
2586.3	2590	3.7	x	x			185	
2590	2594.7	4.7	x	x			186	
2594.7	2602.1	7.4	x	x			187	
2602.1	2608	5.9	x	x			188	
2608	2615.4	7.4	x	x			189	
2615.4	2621	5.6	x	x			190	
2621	2626.5	5.5	x	x			191	
2626.5	2631.5	5	x	x	x	51.5	192	2631.5B

2631.5	2637.1	5.6	x	x			193	
2637.1	2643.1	6	x	x			194	
2643.1	2647.6	4.5	x	x			195	
2647.6	2653.6	6	x	x			196	
2653.6	2660	6.4	x	x			197	
2660	2670	10	x	x			198	
2670	2680	10	x	x	x	48.5	199	
2680	2690	10	x	x			200	
2690	2700	10	x	x			201	
2700	2710	10	x	x			202	
2710	2720	10	x	x			203	
2720	2730	10	x	x			204	
2730	2733.8	3.8	x	x	x	53.8	205	
2733.8	2734.5	0.7	x	x			206	
2734.5	2740.5	6	x	x			207	
2740.5	2750.5	10	x	x			208	
2750.5	2761	10.5	x	x			209	
2761	2771	10	x	x			210	
2771	2781	10	x	x			211	
2781	2791	10	x	x	x	56.5	212	
2791	2800	9	x	x			213	
2800	2810	10	x	x			214	
2810	2816.5	6.5	x	x			215	
2816.5	2819.5	3	x	x			216	
2819.5	2824.5	5	x	x			217	
2824.5	2830	5.5	x	x			218	
2830	2840	10	x	x			219	
2840	2850	10	x	x	x	59	220	
2850	2854	4	x	x			221	
2854	2857.5	3.5	x	x			222	
2857.5	2861.5	4	x	x			223	
2861.5	2863.2	1.7	x	x	x	13.2	224	
2863.2	2866	2.8	x	x			225	
2866	2868.8	2.8	x	x	x	5.6	226	
2868.8	2872	3.2	x	x	x	3.2	227	
2872	2876.5	4.5	x	x			228	
2876.5	2879.5	3	x	x	x	7.5	229	
2879.5	2883.5	4	x	x	x	4	230	
2883.5	2884.7	1.2	x	x			231	
2884.7	2886	1.3	x	x	x	2.5	232	
2886	2888.4	2.4	x	x	x	2.4	233	2888.4B
2888.4	2890.5	2.1	x	x	x	2.1	234	
							235	
2890.5	2894.5	4	x	x			236	

2894.5	2899	4.5	x	x	x	8.5	237	
2899	2901	2	x	x			238	
2901	2903.5	2.5	x	x	x	4.5	239	
2903.5	2906.5	3	x	x	x	3	240	
2906.5	2911.5	5	x	x			241	
2911.5	2915	3.5	x	x	x	8.5	242	
2915	2920	5	x	x			243	
2920	2924.5	4.5	x	x			244	
2924.5	2928	3.5	x	x	x	13	245	
2928	2931	3	x	x			246	
2931	2933	2	x	x			247	
2933	2938	5	x	x	x	10	248	2938.0B
2938	2941.5	3.5	x	x			249	
2941.5	2944	2.5	x	x			250	
2944	2948	4	x	x			251	
2948	2951	3	x	x			252	
2951	2955	4	x	x	x	17	253	
2955	2959	4	x	x			254	
2959	2963.5	4.5	x	x	x	8.5	255	
2963.5	2965.5	2	x	x			256	
2965.5	2970.5	5	x	x			257	
2970.5	2975.5	5	x	x			258	
2975.5	2978	2.5	x	x			259	
2978	2981.4	3.4	x	x	x	17.9	260	
2981.4	2982.9	1.5	x	x			261	
2982.9	2987	4.1	x	x			262	
2987	2990.5	3.5	x	x			263	
2990.5	2995.5	5	x	x			264	
2995.5	3000	4.5	x	x	x	18.6	265	

RS-475-99
BOX 128
DEPTH
2711_0-2719_5

2720
RS-475-99
BOX 129
DEPTH
2719_5-2728_5

RS-475-99
BOX 130
DEPTH
2728_5-2737_0

RS-475-99
BOX 131
DEPTH
2737_0-2746_0

RS-475-99
BOX 132
DEPTH
2746_0-2755_0

RS-475-99
BOX 133
DEPTH
2755_0-2764_0

Bag of abandonite from Vau
132 bags RS - 474 - 199
4 Bags of cement
All casing