60000541

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-434
AUTHOR	K. Allen; S. King; R. Schmidt; V. Reid; D. White
DATE OF DOC(S)	1998
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Hecla Mining Co.; Rosebud Project; Rosebud Mining Co., LLC
COMMODITY If not obvious	gold; silver
NOTES	drill logs; assay; geology; photographs; geochemistry; total depth 900'; invoices 64 p

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

SS: DD 3/19/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

RS-434

6000 0541
4010

60000541

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

Hecla MINING COMPANY

ROSEBUD PROJECT DIAMOND DRILL LOG

HOLE NUMBER	RS-434	LOCATION	EAST, SURFACE	REMARKS	
PAGE 1 OF	4	NORTHING		CORE BEGAN IN SILICIFIED	
DATE	04/09/98	EASTING		FAULT ZONE	
LOGGED BY	KSM	ELEVATION			
SCALE	1"=10'	AZIMUTH	—		
TOTAL DEPTH	900'	INCLINATION	-90°		

LITH.	OX/RED.	LITHOLOGY (CORE POINT)	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
700.0-747.8 FAULT		PILOTED INTO S. RIDGE FAULT ZONE 700.0-704.5': DARK FLESH BRN APHANITIC GROUNDMASS ~~AP~~ RESORBED PLAG PHENOCRYSTS NDW ALTERED TO WHT CLAY +/- PY +/- SILICA. 704.5-707.4': STR'LY GRN CLAY ALTERED PROTOLITH, POSSIBLY BUD WITH SILICIFICATION OVERPRINT. MOD. DISS'D MARC/PYRITE. MOD/STR LATE BARITE + WHT CLAY ON VUGS.	700 710		700-704.5': MONOLITHIC CRACKLE TO WKLY MILLED FAULT BXA. 704.5-~718': HETEROLITHIC MATRIX-SUPPORTED BXA 710.0': THIN GOUGEY VN/FLT AT 25° TO CIA. BARITE STIBNITE & WHT CLAY ON SHEAR. 40SS	700.0'-704.5': INTERMITTENT MOD./STR. STRANDS OF GRY SILICA - SULFIDE FLOODING. MOD. LATE BARITE & WHITE CLAY IN VUGS. DISS'D MARC/PY ESP. IN PHENO SITES. 706.0': BLUISH OPALESCENT SILICA GEL (?), WHT CLAY.
		FROM 707.4': STR'LY MIXED LITHOLOGIES IN FAULT BRECCIA CATACLASTIZED FAIRLY COMPETENT BRN UNIT & MUSHY SPECKLED GRN SILICIFIED BUD. (?) GRADES INTO: ~714'-~717.3': FG TO APHANITIC COMMONLY SHEARED OR MYLONITIZED BRN-TAN LITHOLOGIES TEND TO FORM CLASTS; SPECKLED GRN LITHOLOGY (POSSIBLY BUD-DERIVED) FORMS MATRIX, CREATING A JUMBLED, HYDROTHERMALLY OVERPRINTED MATRIX-SUPPORTED FLT BXA. FROM ~717.3-727' GRN BUD RK FLOUR DIMINISHES & IS REPLACED BY WHT CLAY, WAXY GRN CLAY & WK OPALESCENT BLUE SILICA/CLAY. 727.0-727.9': UNHEALED WHT CLAY GOUGE ZONE, CONTAINING MILLED WHT TO GRY SILICIFIED GRIT. 727.9-731.8': TOTAL GRY SILICA REPLACEMT WITH MULTI EPISODIC BRECCIATION. GRN TO GRY SILICIFIED WALLRK FRAGMENTS FLOAT IN LTER GRY SILICA MATRIX. THIS (MULTI-EPISODE) SILICA-FLOODING EVENT BXA IS OVERPRINTED BY SEMI-HEALED CLAST-SUPPORTED BXA PACKED W/ WHT CLAY SOOTY SULFIDES & TACK CEMENTED W/ BARITE A/O L. SILICA. 717.3-727.0': HYDROTHERMAL WAXY GRN & WHT CLAYS W/ VARIABLE SPOTTY SILICA & MASSIVE XTLLINE BARITE + MINOR RK FLOUR FORM MATRIX TO SOMEWHAT FINER GRAINED HETEROLITHIC FAULT BXA. FG BRN-TAN FRAGMTS + GRN CLAY ALTERED BUD (MINOR) + PALE GRY-WHT PERLITICALLY CRACKED PUNKY (JUVENILE ?) FRAGMTS, FROM 723.5'-727.0'. 731.8-737.9': STR'LY CLAY ALTERED, MOD'LY BLEACHED, HETEROLITHIC FAULT BRECCIA. BY ~735.5' STR'LY VNED WITH GRY SILICA. MOD/STR SPOTTING W/ MARC/PY. (SOOTY RIMS)	720 730 740 750		~718-727': HYDROTHERMAL MATRIX-SUPPORTED HETEROLITHIC BXA. 727.0-727.9': WHT CLAY GOUGE CONTAINING SILICIFIED WALLROCK GRIT. 727.9-731.8': MULTI-EPISODIC BXA TN IN TOTAL SILICA REPLACEMT. 731.8-737.9': CLAYSHOT HETEROLITHIC MATRIX-SUPPORTED RK FLOUR BXA @ 737.9-741.0': MANGLED HETEROLITH FLT BXA. LESS FINES. 741.0-746.8': UNHEALED LT. GRN CLAY MATRIXED MONOLITHIC CRACKLED BXA. 746.8'-747.8': BROKEN REPLACEMENT GRY SILICA. OVERPRINTS SANDY RK FLOUR.	~714': INCREASE IN GRY SILICIFIED VNING + MARC/PY + BOTH WHT & LT. GRN CLAY. 717.3-727.0': STR. WAXY GRN REPLACEMT CLAY. STR BUT SPOTTY OVERPRINTING SILICA. STR/MOD DISS'D & VN ASSOC'D MARC/PY. LATE WHT CLAY +/- SILICA VNLTS = STR. MOD. POSS. PYRARGERITE. FROM 725.5' INCREASED CLAY ALT'N. & BLCHING. 727.0-727.9': INTENSE CLAY, STR. BLCHING. 727.9-731.8': STRLY SILICIFIED FRAGMTS, INTENSE SILICA IN MATRIX, STR. SPOTTY MARC/PY. LATE CLAY + SOOTY PY IN MATRIX TO 729'.
747.8-788.4 DOZER						

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag
700.0	704.5					
704.5	707.4					
707.4	710.0					
710.0	713.0					
714.0	717.3					
717.3	720.4					
720.4	723.5					
723.5	725.2					
725.2	727.0					
727.0	727.9					
727.9	731.8					
731.8	735.2					
735.2	737.9					
737.9	741.0					
741.0	746.8					
746.8	747.8					
747.8	750.5					

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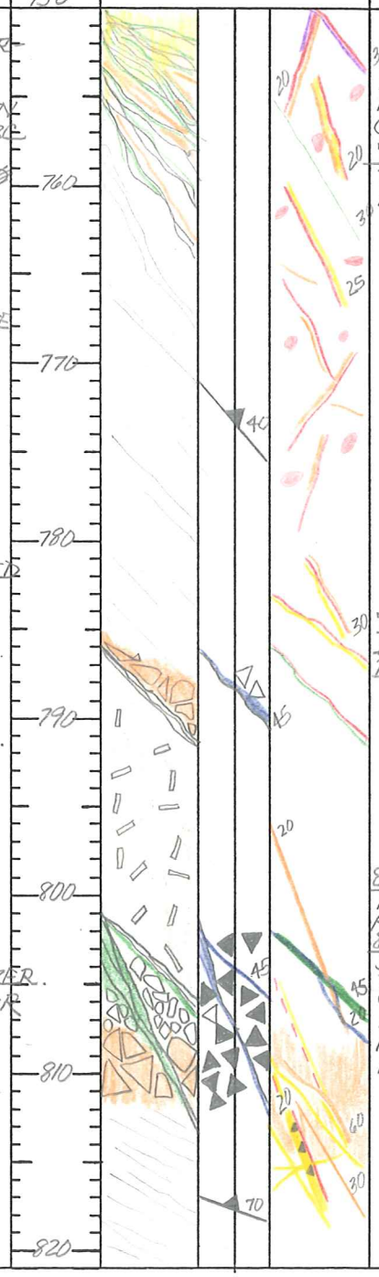
LITH.	OX/RED.	LITHOLOGY
747.8'-788.4' DOZER		737.9'-741.0': LOCALLY SILICIFIED / GRY SILICA VNED HETEROLITHIC MULTI-EPISODE BXA. DK GRN CLAY-ALTERED FRAGMTS FG BRN CHUNK OF OVERLYING 741.0-746.8': STRONG TO MODERATE GRN CLAY ALTERATN IN APHANITIC TAN-GRN ROCK. STRLY SPECKLED WITH MARC RIMMED WITH SOOTY PYRITE. PACKED IN LTER GRN CLAY GOUGE. UNHEALED, TIGHT, MATRIX-POOR CRACKLED BRECCIA. 746.8-747.8': >80% REPLACEMT SILICA OVERPRINTING RK FLOURY FAULT BXA. LOCALLY TOTAL GRY SILICA REPLACEMT. 747.8': SHARP CONTACT WITH DOZER. ~1-2" OF MYLONITE BELOW SHARP CONTACT W/ REPLACEMT SILICA. 747.8'-750.5': BROKEN ZONE. UNHEALED FRACTURING OVERPRINTS WK CATACLASIS. UNHEALED CRACKLE BXA STOCKWORK IS TIGHTLY PACK IN CRM GOUGE. 750.5'-~764': CATACLASTIC BACKGROUND TEXTURE IN DOZER CONT'D DOWNWARD DECREASING INTO WK BRAIDED MYLONITE TEXTURE TO ~764'. SPOTTY MOD. ARGILLIZATION. ~764': BELOW 764' MASSIVE TO FAINTLY FLOW BANDED APHANITIC TAN DOZER PREVAILS TO 786' FAINT RUDDY FeOx STAINING BEGINNING AT 765' PICKS OUT FLOW BANDING.
788.4-803.3 PORPHYRY DIKE		788.4-803.3': LT. GRY-GRN, HARD, APHANITIC LOCALLY RUBBLY AUTOBRECCIATED PORPHYRY DIKE. FLECKED WITH GRN CLAY ALTERED PLAG PHENOCRYSTS, ~10/SQ. INCH 802.0-803.3': MOSAIC TO MILLED MONOLITHIC DIKE BXA AT LOWER MARGIN WITH DOZER. DIKE FRAGMTS IN RUDDY RK FLOUR MATRIX.
803.3-811.3' BXA'D DOZER		803.3'-811.3: MILLED BRECCIA AT DIKE MARGIN IN DOZER. VARIABLY WKLY MILLED TO MOSAIC BRECCIA WITHIN DOZER 30° TO CIA TREND?
811.3-827.7' DOZER		

FT



STRUCTURE	ALTERATION AND MINERALIZATION
747.8-750.5': CATACLASTIZED & OVERPRINTED W/ UNHEALED TIGHT GOUGE PACKED CRACKLE BRECCIA. CONTINUOUS DOZER. 750.5-~764': WK SHEAR TEXTURE, ARGILLIZATION IN UNFAULTED DOZER.	737.9-741.0': STR. SILICA +/- SOOTY SULFIDE VNING. SPOTTY STR. GRN CLAY ALT'N IN SOME FRAGMTS. SILICA + BARITE LOCALLY 741.0-746.8': MOD. TO STR. ARGILLIZATION. STR. DISS'D MARC + PY. WK SILICIFICATION AT 746.0-746.8'. 746.8-747.8': >80% REPLACEMT SILICA +/- GRY SULFIDE 747.8-750.5': MOD. GRY SILICA VNING. MOD. ARGILLIZATION OF UNHEALED BXA MATRIX. SPOTTY WK SILICIFICATION OF DOZER WALLROCK. 750.5-754.2': MOD/STR GRY SILICA-SULFIDE VNING +/- L. WHT CLAY. WK WALLROCK SILICIFICATN & ARGILLIZATION. 754.2'-~784': WK SILICA + WHT CLAY + MARC / PY VNLTS & FRAX COATINGS. WK/MOD. PYRITIC BLEBS IN GROUNDMASS. 784.0'-788.4' STRLY ARGILLIZED. MOD/STR GRY SILICA + WHT CLAY VNLTS. MOD. DISS'D MARC BLADES IN ~~GRN~~ ARGILLIZED RK.
786.0'-788.4': DIKE MARGIN BRECCIA. MONOLITHIC DOZER.	788.4'-801.9': WK WHT CLAY + MARCASITE VNLTS, MOD. DISS'D MARC IN PHENOS 801.9-807.3': MOD. SILICA + MARC + WHT CLAY. 807.3-~812': STR. SILICA + MARC + WHT CLAY VNS. LOCAL STR. ARGILLIZATION IN BXA FRAGMTS.
801.9-803.3': INTERNAL INTRUSION BXA. FULLY HEALED. X-CUT BY VNING. 803.3': PUNKY GRN CLAY SHEAR AT DIKE MARGIN. 803.3-811.3': WALLRK INTRUSION BXA. FULLY HEALED. X-CUT BY ALL HYDROTHERMAL VNS, BXA.	811.3-825.1': MOD. SILICA + MARC +/- WHT CLAY VNLTS & MOD. SILICA-CEMENTED BRECCIA VNS ~~AT~~ SUB // TO CIA.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
747.8	750.5				
750.5	754.2				
754.2	759.6				
759.6	764.5				
764.5	769.4				
769.4	774.6				
774.6	780.0				
780.0	784.0				
784.0	788.4				
788.4	792.8				
792.8	796.7				
796.7	801.9				
801.9	803.3				
803.3	807.3				
807.3	811.3				
811.3	815.6				
815.6	820.5				

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LITH.	OX/RED	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
811.3 - 827.7		~820.5 - 825.1': FIRST FAINT AUTOBRECCIA TEXTURE IN DOZER.	820			
		825.1 - 827.0': SILICA CEMENTED 1.5' FINE MILLED BRECCIA VN.				825.1 - 827.0': STR SILICA, WK/MOD PY/MARC.
827.7 - 843.9 BXA'D DOZER		827.7 - 834.5': STRONGLY TO MOD'LY CLAY ALTERED STR'D BRECCIATED DOZER. MONOLITHIC CRACKLE BRECCIA, WEAKLY CEMENTED WITH SILICA +/- MARC, LOCALLY SILICIFIED.	830		832.1': GRN CLAY ALTERED, PUNKY SHEAR	827.7 - 834.8': SPOTTY MOD. TO STR. LT. GRN CLAY, DISS'D PY ~ MOD. & MOD TO STR SILICA & IN MATRIX.
		834.5 - 843.9': MILLED MYLONITE TO CRACKLE BRECCIA. CONT'D BRECCIATION IN DOZER. HEALED, WKLY TO MODLY SILICIFIED. MOD TO STR. DULL BRASSY PYRITE IN SILICA CEMENT IN CRACKLE BXA, X-CUTTING CEMENTED BRECCIA & DISS'D IN DULL BRASSY BLEB. OVERPRINTS FAINT RUDDY FeOx STAINING. BXAT'N ENDS ABRUPTLY AT 843.9. MULTI-EPISODIC, WITH MILLED MYLONITIC TEXTURES PRE-DATING SILICA-MARC CEMENTED CRACKLE BRECCIATION.	840			834.8' - 843.9': VARIABLY WK TO STR. SPOTTY SILICIFICATION +/- DISS'D PY. MOD. PYRITE BLEBBING STR. SILICA -PY VNING.
843.9 - 900' DOZER		843.9' - ~863': LT. TAN-GRY, MASSIVE, APHANITIC MOD'LY WKLY FRAX DOZER. WK/MOD. SILICA + MARC/PY VNING. TRACE FLOW BANDING.	850			843.9 - ~863': WK/MOD. SILICA + MARC/PY VNLTS. WHT CLAY X PY ON FRAX. DK GRN CLAY/CHL & RUDDY FeOx SELVAGES ON LARGER VNLTS.
		~863' - 878.7': CONT'D LT. TAN-GRY MASSIVE UNBXA'D DOZER W/ WK LOCAL BANDING. JOINTING A/O FRACTURING INCREASED TO MOD/STR.	860		FROM 863': INCREASE TO STRONG UNHEALED FRAX & VNTS.	~863 - ~880': MOD/STR WHT CLAY + MARC/PY +/- SILICA ON FRAX, VNLTS. RUDDY FeOx SELVAGES
			870		872.7 - 873.5': LT. GRN PUNKY WALLRK ALTN & UNHEALED BXA ON SHEAR AT 15° TO CA	~870': INCREASED WHT CLAY ON FRAX & VNS. VERY LOCAL INCREASES IN WALLRK ARGILLIZATION - FROM TRACE TO MOD., PROXIMAL TO SOME VEINS & FRACTURING.
		878.7' - 890.7': CONT'D LT. TAN-GRY, MASSIVE, APHANITIC DOZER. FRACTURING IS INCREASINGLY SUB // TO C/A & CARRIES MOD/STR WHT CLAY + MARC/PY +/- GRN CHL(?) +/- QZ IN INCREASING AMOUNTS DOWNHOLE.	880			~880': INCREASED DK GRN CLAY/CHL ON FRAX COATINGS W/ MARC, WHT CLAY & +/- SILICA.
			890			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
815.6	820.5				
820.5	825.1				
825.1	827.7				
827.7	831.1				
831.1	834.8				
834.8	839.1				
839.1	843.9				
843.9	848.8				
848.8	853.7				
853.7	859.0				
859.0	863.7				
863.7	868.6				
868.6	873.6				
873.6	878.7				
878.7	882.0				
882.0	885.5				
885.5	890.7				

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
843.9 – 900' DOZER		890.7-900': LT. GRY-TAN MASSIVE APHANITIC DOZER. VNING & FRACTURING DECREASED TO MODERATE.	890		894.0-895.0': SEMI-HEALED VN MOSAIC BXA	890.7-900': SPOTTY MOD. ARGILLIZATION. MOD. TO WK MARC/PY +/- WHT OR GRN CLAY. RARE RUDDY FeOx SELVAGES.
		900' TD.	900			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
~~885.5~~	~~890.7~~				
890.7	895.0				
895.0	900.0				

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-434 DATE: 04/09/98 LOGGED BY: HBM PAGE 1 OF 3

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY /FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
700.0	710.0	100.0	100.0	77.0										
710.0	714.0	75.0	75.0	0										
714.0	721.5	109.3	109.3	50.7										
721.5	730.0	105.0	105.0	44.0										
730.0	736.0	103.3	103.3	25.0										
736.0	743.0	97.0	100.0	15.0										
743.0	750.0	105.0	114.3	20.0										
750.0	760.0	97.0	97.0	67.0										
760.0	770.0	102.0	102.0	60.0										
770.0	780.0	98.0	98.0	72.0										
780.0	790.0	85.0	85.0	50.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-434 DATE: 04/10/98 LOGGED BY: HBM PAGE 2 OF 3

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)
790.0	800.0	104.0	104.0	83.0										
800.0	810.0	100.0	100.0	77.0										
810.0	820.0	100.0	100.0	76.0										
820.0	830.0	100.0	100.0	77.0										
830.0	840.0	105.0	105.0	65.0										
840.0	850.0	98.0	98.0	86.0										
850.0	860.0	98.0	98.0	74.0										
860.0	868.6	100.0	100.0	36.0										
868.6	878.7	100.0	100.0	41.6										
878.7	888.8	100.0	100.0	10.0										
888.8	899.0	102.0	102.0	76.2										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-434 DATE: 04/11/98 LOGGED BY: HSM PAGE 3 OF 3

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)
899.0	900.0	110.0	110.0	110.0										
	TD.													

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

Quick LOG

HOLE NUMBER RS-434
PAGE 1 OF 4
DATE 6/25/98
LOGGED BY CBA
TOTAL DEPTH 700' RVC PRE-COLLAR
900' CORE

LOCATION EAST ZONE
NORTHING
EASTING
ELEVATION
AZIMUTH VERT
INCLINATION -90°

AREA EAST ZONE
DRILLING CO. EKLUND
RIG TYPE RVC
HOLE SIZE 5 1/2
DOWN HOLE SURVEY BY WELNAV

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 %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MIXCURE	ANALYTICAL DA: FROM	TO	W	Au
10		CO1	Colluvium																		X																			
20		TCLLT																			X																			
30																					X																			
40																				X																				
50																				X																				
60																			X																					
70																			X																					
80																			X																					
90																																								
100																																								
110																																								
120																																								
130																																								
140																																								
150																																								
160																																								
170																																								
180																																								
190																																								
200																																								

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER: RS-434
PAGE 2 OF 4
DATE
LOGGED BY
TOTAL DEPTH

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 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	MOCLURE	ANALYTICAL DA: FROM	TO	W	Au
210		TUFF																																						
220																																								
230																																								
240																																								
250																																								
260	V.T.	U. TRO	Soft, LIGHT GREEN, CLAY VITROPHYRE contains some fragments of FGOP ??																																					
270																																								
280																																								
290																																								
300																																								
310																																								
320																																								
330																																								
340																																								
350																																								
360		VITRO																																						
370		U BUD																																						
380																																								
390																																								
400																																								

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-434
PAGE 3 OF 4
DATE
LOGGED BY
TOTAL DEPTH

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																	MINERALIZATION									METALLURGY				ANALYTICAL DA			
						SILICIFICATION					ARGILLIC				PROPYLITIC %		POTASSIC %		OXIDATION			VIENING		SULFIDES			PY	CPY	MAR	AC-SUL	STIBNITE	BARITE								
						5%	15%	+25%	MATRIX %	CLASTS %	5%	15%	+25%	TYPE	CHLORITE	CALCITE	K-SPAR	ALUNITE	5%	15%	+25%	%	TYPE	5%	15%	+25%	%	%	%	%	%	%	OXIDE	SULF	CARBON	MIXTURE	FROM	TO	W	Au
410		UBUD																																						
420																																								
430																																								
440																																								
450																																								
460																																								
470																																								
480																																								
490																																								
500																																								
510																																								
520																																								
530																																								
540																																								
550		PABX	FINE-GRAINED, SLIGHTLY PORPHYRITIC AUTOBRECCIATED RHYOLITE? LATITE?																																					
560																																								
570																																								
580																																								
590																																								
600																																								

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-434
PAGE 4 OF 4
DATE
LOGGED BY
TOTAL DEPTH

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																	MINERALIZATION									METALLURGY				ANALYTICAL DAT			
						SILICIFICATION					ARGILLIC				PROPYLITIC %		POTASSIC %		OXIDATION			VIENING		SULFIDES			PY	CPY	MAR	AC-SULF	STIBNITE	BARITE	OXIDE	SULF	CARBON	MIXTURE	FROM	TO	W	Au
						5%	15%	+25%	MATRIX %	CLASTS %	5%	15%	+25%	TYPE	CHLORITE	CALCITE	K-SPAR	ALUNITE	5%	15%	+25%	%	TYPE	5%	15%	+25%	%	%	%	%	%	%									
610		MBUD																																						
620																																								
630																																								
640																																								
650																																								
660																																								
670																																								
680																																								
690																																								
700		PG?	SILICA FLOODED LT PINK (BMB?) FINE-GRAINED - NO PHENOS																																					
			RUC PRE-COLLAR TD = 700'																																					

American Assay Laboratories

INVOICE

Remit To: P.O. Box11530
Reno, Nevada 89510
Phone NO.: 702-356-0606
Fax No.: 702-356-1413

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431

(702) 356-0606

INVOICE NO: SP 0048542-IN
INVOICE DATE: 04/29/98

INVOICE TO:
THE ROSEBUD MINING CO., LLC
HECLA MINING COMPANY, OPERATOR
P.O. BOX 2610
WINNEMUCCA NV 89446

THE ROSEBUD MINING CO., LLC
HECLA MINING COMPANY, OPERATOR
P.O. BOX 2610
WINNEMUCCA NV 89446

CUSTOMER P.O.	PROJECT	TERMS
RS-434	DEVELOPMENT	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
52	SAMPLES RECEIVED	.00	.00
51	JAW CRUSHING CHARGE	2.60	132.60
51	COARSE MILLING CHARGE	9.00	459.00
51	SPLITTING CHARGE	2.40	122.40
51	RING MILLING CHARGE	2.00	102.00
52	Au (1 A.T. FIRE ASSAY)	8.00	416.00
7	Au ANALYSES/GRAVIMETRIC	8.75	61.25
52	HYDROCHLORIC/NITRIC DIGESTION	2.00	104.00
52	Ag ANALYSES	1.00	52.00

86-5110-477

NET INVOICE:	1,449.25
LESS DISCOUNT:	289.85
FREIGHT:	.00
INVOICE TOTAL:	1,159.40

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048542

American Assay Laboratories

PO BOX 11530
RENO NV,USA
Ph.(702) 356-0606, Fax.(702) 356-1413

HECLA MINING COMPANY

COPIES TO : KURT ALLEN
:
:
:

CLIENT REFERENCE No: RS-434
No. SAMPLES : 52
MAIN SAMPLE TYPE : DRILL CORE

RECEIVED : 15 APR 1998
REPORTED : 28 APR 1998

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

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048542

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 28 APR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-434 700.0-704.5	0.004			0.11
RS-434 704.5-707.4	0.012			0.42
RS-434 707.4-710.0	0.004			0.62
RS-434 710-713	0.002			0.09
RS-434 714.0-717.3	0.010			0.15
RS-434 717.3-720.4	0.006	0.006		0.32
RS-434 720.4-723.5	0.003			0.49
RS-434 723.5-725.2	0.008			0.63
RS-434 725.2-727.0	0.003			0.33
RS-434 727.0-727.9	0.008			0.49
RS-434 727.9-731.8	0.005			1.37
RS-434 731.8-735.2	0.010			0.10
RS-434 735.2-737.9	0.024			0.17
RS-434 737.9-741.0	0.010			0.27
RS-434 741.0-746.8	0.081		0.076	0.64
RS-434 746.8-747.8	0.015			0.19
RS-434 747.8-750.5	0.021			0.11
RS-434 750.5-754.2	0.017			0.09
RS-434 754.2-759.6	0.029			0.05
RS-434 759.6-764.5	0.043			0.09
RS-434 764.5-769.4	0.048	0.043		0.04
RS-434 769.4-774.6	0.096		0.149	0.27
RS-434 774.6-780.0	0.025			0.07
RS-434 780-784	0.012			0.06
RS-434 784.0-788.4	0.018			0.07

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ANALYSIS REPORT SP048542

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 28 APR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-434 788.4-792.8	0.031			0.06
RS-434 792.8-796.7	0.010			0.08
RS-434 796.7-801.9	0.013			0.10
RS-434 801.9-803.3	0.226		0.207	0.62
RS-434 803.3-807.3	0.226		0.073	0.11
RS-434 807.3-811.3	0.200		0.195	0.23
RS-434 811.3-815.6	0.065		0.088	0.11
RS-434 815.6-820.5	0.037			0.18
RS-434 820.5-825.1	0.005			0.10
RS-434 825.1-827.7	0.006			0.07
RS-434 827.7-831.1	0.005			0.09
RS-434 831.1-834.8	0.064		0.070	0.11
RS-434 834.8-839.1	0.016			0.29
RS-434 839.1-843.9	0.010			0.07
RS-434 843.9-848.8	0.001			0.02
RS-434 848.8-853.7	0.003			<0.02
RS-434 853.7-859.0	0.001			0.07
RS-434 859.0-863.7	0.001			0.02
RS-434 863.7-868.6	0.001			0.03
RS-434 868.6-873.6	0.003			0.08
RS-434 873.6-878.7	0.001			0.04
RS-434 878.7-882.0	0.001			0.04
RS-434 882.0-885.5	0.002			0.05
RS-434 885.5-890.7	0.005			0.07
RS-434 890.7-895.0	0.003			0.05

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048542

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 28 APR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-434 895-900	0.002			0.05
31007	0.538			2.69

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ANALYSIS REPORT SP048542

American Assay Laboratories

PO BOX 11530
RENO NV,USA
Ph.(702) 356-0606, Fax.(702) 356-1413

HECLA MINING COMPANY

COPIES TO : KURT ALLEN
:
:
:

CLIENT REFERENCE No: RS-434 RECEIVED : 15 APR 1998

No. SAMPLES : 52 REPORTED : 28 APR 1998

MAIN SAMPLE TYPE : DRILL CORE

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

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048542

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 28 APR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-434 700.0-704.5	0.004			0.11
RS-434 704.5-707.4	0.012			0.42
RS-434 707.4-710.0	0.004			0.62
RS-434 710-713	0.002			0.09
RS-434 714.0-717.3	0.010			0.15
RS-434 717.3-720.4	0.006	0.006		0.32
RS-434 720.4-723.5	0.003			0.49
RS-434 723.5-725.2	0.008			0.63
RS-434 725.2-727.0	0.003			0.33
RS-434 727.0-727.9	0.008			0.49
RS-434 727.9-731.8	0.005			1.37
RS-434 731.8-735.2	0.010			0.10
RS-434 735.2-737.9	0.024			0.17
RS-434 737.9-741.0	0.010			0.27
RS-434 741.0-746.8	0.081		0.076	0.64
RS-434 746.8-747.8	0.015			0.19
RS-434 747.8-750.5	0.021			0.11
RS-434 750.5-754.2	0.017			0.09
RS-434 754.2-759.6	0.029			0.05
RS-434 759.6-764.5	0.043			0.09
RS-434 764.5-769.4	0.048	0.043		0.04
RS-434 769.4-774.6	0.096		0.149	0.27
RS-434 774.6-780.0	0.025			0.07
RS-434 780-784	0.012			0.06
RS-434 784.0-788.4	0.018			0.07

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048542

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 28 APR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-434 788.4-792.8	0.031			0.06
RS-434 792.8-796.7	0.010			0.08
RS-434 796.7-801.9	0.013			0.10
RS-434 801.9-803.3	0.226		0.207	0.62
RS-434 803.3-807.3	0.226		0.073	0.11
RS-434 807.3-811.3	0.200		0.195	0.23
RS-434 811.3-815.6	0.065		0.088	0.11
RS-434 815.6-820.5	0.037			0.18
RS-434 820.5-825.1	0.005			0.10
RS-434 825.1-827.7	0.006			0.07
RS-434 827.7-831.1	0.005			0.09
RS-434 831.1-834.8	0.064		0.070	0.11
RS-434 834.8-839.1	0.016			0.29
RS-434 839.1-843.9	0.010			0.07
RS-434 843.9-848.8	0.001			0.02
RS-434 848.8-853.7	0.003			<0.02
RS-434 853.7-859.0	0.001			0.07
RS-434 859.0-863.7	0.001			0.02
RS-434 863.7-868.6	0.001			0.03
RS-434 868.6-873.6	0.003			0.08
RS-434 873.6-878.7	0.001			0.04
RS-434 878.7-882.0	0.001			0.04
RS-434 882.0-885.5	0.002			0.05
RS-434 885.5-890.7	0.005			0.07
RS-434 890.7-895.0	0.003			0.05

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048542

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 28 APR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-434 895-900	0.002			0.05
31007	0.538			2.69

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048338

PO BOX 11530
RENO NV.USA
Ph.(702) 356-0606, Fax.(702) 356-1413

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

: NSI

CLIENT REFERENCE No: RS-434 RUC

RECEIVED : 20 MAR 1998

No. SAMPLES : 70

REPORTED : 30 MAR 1998

MAIN SAMPLE TYPE : DRILL CUTTINGS

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

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048338

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 30 MAR 1998

SAMPLES	Au(OZ)	Au(RZ)	Ag(OZ)
RS-434 000-010	<0.001		<0.02
RS-434 010-020	<0.001		<0.02
RS-434 020-030	<0.001		<0.02
RS-434 030-040	<0.001		<0.02
RS-434 040-050	0.001		0.15
RS-434 050-060	<0.001		<0.02
RS-434 060-070	<0.001		<0.02
RS-434 070-080	<0.001		<0.02
RS-434 080-090	<0.001		0.02
RS-434 090-100	0.002		0.16
RS-434 100-110	0.003		0.06
RS-434 110-120	0.001		<0.02
RS-434 120-130	<0.001		<0.02
RS-434 130-140	<0.001		<0.02
RS-434 140-150	<0.001		<0.02
RS-434 150-160	0.003	0.002	0.06
RS-434 160-170	<0.001		<0.02
RS-434 170-180	<0.001		<0.02
RS-434 180-190	<0.001		<0.02
RS-434 190-200	<0.001		<0.02
RS-434 200-210	<0.001		<0.02
RS-434 210-220	<0.001		0.02
RS-434 220-230	0.003	0.003	0.09
RS-434 230-240	0.002		0.06
RS-434 240-250	0.004		0.09

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048338

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 30 MAR 1998

SAMPLES	Au(OZ)	Au(RZ)	Ag(OZ)
RS-434 250-260	0.001		0.04
RS-434 260-270	<0.001		0.04
RS-434 270-280	0.007	0.010	0.13
RS-434 280-290	<0.001		<0.02
RS-434 290-300	<0.001		<0.02
RS-434 300-310	<0.001		<0.02
RS-434 310-320	<0.001		<0.02
RS-434 320-330	<0.001		<0.02
RS-434 330-340	<0.001		<0.02
RS-434 340-350	<0.001		<0.02
RS-434 350-360	<0.001	<0.001	<0.02
RS-434 360-370	0.001		0.04
RS-434 370-380	0.002		0.03
RS-434 380-390	<0.001		0.04
RS-434 390-400	0.001		0.03
RS-434 400-410	0.002		0.03
RS-434 410-420	0.001		0.08
RS-434 420-430	0.001		0.02
RS-434 430-440	0.001		0.06
RS-434 440-450	0.001		0.04
RS-434 450-460	0.005		0.06
RS-434 460-470	0.004		0.03
RS-434 470-480	0.003		0.04
RS-434 480-490	0.009		0.05
RS-434 490-500	0.002		0.03

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048338

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 30 MAR 1998

SAMPLES	Au(OZ)	Au(RZ)	Ag(OZ)
RS-434 500-510	0.002		0.04
RS-434 510-520	0.018	0.017	0.08
RS-434 520-530	0.002		0.08
RS-434 530-540	<0.001		0.02
RS-434 540-550	0.001		0.06
RS-434 550-560	0.003		0.07
RS-434 560-570	0.002		0.11
RS-434 570-580	0.001		0.04
RS-434 580-590	0.002		0.07
RS-434 590-600	0.003		0.06
RS-434 600-610	0.009		0.08
RS-434 610-620	0.007	0.009	0.11
RS-434 620-630	0.004		0.23
RS-434 630-640	0.004		0.67
RS-434 640-650	0.009		0.19
RS-434 650-660	0.007		0.18
RS-434 660-670	0.007		0.26
RS-434 670-680	0.009		0.11
RS-434 680-690	0.021	0.020	0.93
RS-434 690-700	0.008		0.61

American Assay Laboratories

INVOICE

Remit To: P.O. Box11530
Reno, Nevada 89510
Phone NO.: 702-356-0606
Fax No.: 702-356-1413

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431

(702) 356-0606

INVOICE NO: SP 0048338-IN
INVOICE DATE: 03/31/98

INVOICE TO:
THE ROSEBUD MINING CO., LLC
HECLA MINING COMPANY, OPERATOR
P.O. BOX 2610
WINNEMUCCA NV 89446

THE ROSEBUD MINING CO., LLC
HECLA MINING COMPANY, OPERATOR
P.O. BOX 2610
WINNEMUCCA NV 89446

CUSTOMER P.O.	PROJECT	TERMS
RS-434	DEVELOPMENT	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
70	SAMPLES RECEIVED	.00	.00
70	DRYING	1.00	70.00
70	EXCESSIVE WETNESS	1.00	70.00
70	JAW CRUSHING CHARGE	1.30	91.00
70	SPLITTING CHARGE	1.20	84.00
70	FINE MILLING CHARGE	2.00	140.00
70	Au (1 A.T. FIRE ASSAY)	8.00	560.00
70	HYDROCHLORIC/NITRIC DIGESTION	2.00	140.00
70	Ag ANALYSES	1.00	70.00

86-5210-477
RDA

NET INVOICE:	1,225.00
LESS DISCOUNT:	367.50
FREIGHT:	.00
INVOICE TOTAL:	857.50

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048338

American Assay Laboratories

PO BOX 11530
RENO NV,USA
Ph.(702) 356-0606, Fax.(702) 356-1413

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

CLIENT REFERENCE No: RS-434

No. SAMPLES : 70

MAIN SAMPLE TYPE : DRILL CUTTINGS

RECEIVED : 20 MAR 1998

REPORTED : 30 MAR 1998

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

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048338

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 30 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-434 000-010	<0.001		<0.02
RS-434 010-020	<0.001		<0.02
RS-434 020-030	<0.001		<0.02
RS-434 030-040	<0.001		<0.02
RS-434 040-050	0.001		0.15
RS-434 050-060	<0.001		<0.02
RS-434 060-070	<0.001		<0.02
RS-434 070-080	<0.001		<0.02
RS-434 080-090	<0.001		0.02
RS-434 090-100	0.002		0.16
RS-434 100-110	0.003		0.06
RS-434 110-120	0.001		<0.02
RS-434 120-130	<0.001		<0.02
RS-434 130-140	<0.001		<0.02
RS-434 140-150	<0.001		<0.02
RS-434 150-160	0.003	0.002	0.06
RS-434 160-170	<0.001		<0.02
RS-434 170-180	<0.001		<0.02
RS-434 180-190	<0.001		<0.02
RS-434 190-200	<0.001		<0.02
RS-434 200-210	<0.001		<0.02
RS-434 210-220	<0.001		0.02
RS-434 220-230	0.003	0.003	0.09
RS-434 230-240	0.002		0.06
RS-434 240-250	0.004		0.09

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048338

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 30 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-434 250-260	0.001		0.04
RS-434 260-270	<0.001		0.04
RS-434 270-280	0.007	0.010	0.13
RS-434 280-290	<0.001		<0.02
RS-434 290-300	<0.001		<0.02
RS-434 300-310	<0.001		<0.02
RS-434 310-320	<0.001		<0.02
RS-434 320-330	<0.001		<0.02
RS-434 330-340	<0.001		<0.02
RS-434 340-350	<0.001		<0.02
RS-434 350-360	<0.001	<0.001	<0.02
RS-434 360-370	0.001		0.04
RS-434 370-380	0.002		0.03
RS-434 380-390	<0.001		0.04
RS-434 390-400	0.001		0.03
RS-434 400-410	0.007		0.03
RS-434 410-420	0.001		0.08
RS-434 420-430	0.001		0.02
RS-434 430-440	0.001		0.06
RS-434 440-450	0.001		0.04
RS-434 450-460	0.005		0.06
RS-434 460-470	0.004		0.03
RS-434 470-480	0.003		0.04
RS-434 480-490	0.009		0.05
RS-434 490-500	0.002		0.03

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048338

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 30 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-434 500-510	0.002		0.04
RS-434 510-520	0.018	0.017	0.08
RS-434 520-530	0.002		0.08
RS-434 530-540	<0.001		0.02
RS-434 540-550	0.001		0.06
RS-434 550-560	0.003		0.07
RS-434 560-570	0.002		0.11
RS-434 570-580	0.001		0.04
RS-434 580-590	0.002		0.07
RS-434 590-600	0.003		0.06
RS-434 600-610	0.009		0.08
RS-434 610-620	0.007	0.009	0.11
RS-434 620-630	0.004		0.23
RS-434 630-640	0.004		0.67
RS-434 640-650	0.009		0.19
RS-434 650-660	0.007		0.18
RS-434 660-670	0.007		0.26
RS-434 670-680	0.009		0.11
RS-434 680-690	0.021	0.020	0.93
RS-434 690-700	0.008		0.61

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048338

American Assay Laboratories

PO BOX 11530
RENO NV,USA
Ph.(702) 356-0606, Fax.(702) 356-1413

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

CLIENT REFERENCE No: RS-434 RECEIVED : 20 MAR 1998

No. SAMPLES : 70 REPORTED : 30 MAR 1998

MAIN SAMPLE TYPE : DRILL CUTTINGS

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

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048338

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 30 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-434 000-010	<0.001		<0.02
RS-434 010-020	<0.001		<0.02
RS-434 020-030	<0.001		<0.02
RS-434 030-040	<0.001		<0.02
RS-434 040-050	0.001		0.15
RS-434 050-060	<0.001		<0.02
RS-434 060-070	<0.001		<0.02
RS-434 070-080	<0.001		<0.02
RS-434 080-090	<0.001		0.02
RS-434 090-100	0.002		0.16
RS-434 100-110	0.003		0.06
RS-434 110-120	0.001		<0.02
RS-434 120-130	<0.001		<0.02
RS-434 130-140	<0.001		<0.02
RS-434 140-150	<0.001		<0.02
RS-434 150-160	0.003	0.002	0.06
RS-434 160-170	<0.001		<0.02
RS-434 170-180	<0.001		<0.02
RS-434 180-190	<0.001		<0.02
RS-434 190-200	<0.001		<0.02
RS-434 200-210	<0.001		<0.02
RS-434 210-220	<0.001		0.02
RS-434 220-230	0.003	0.003	0.09
RS-434 230-240	0.002		0.06
RS-434 240-250	0.004		0.09

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048338

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 30 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-434 250-260	0.001		0.04
RS-434 260-270	<0.001		0.04
RS-434 270-280	0.007	0.010	0.13
RS-434 280-290	<0.001		<0.02
RS-434 290-300	<0.001		<0.02
RS-434 300-310	<0.001		<0.02
RS-434 310-320	<0.001		<0.02
RS-434 320-330	<0.001		<0.02
RS-434 330-340	<0.001		<0.02
RS-434 340-350	<0.001		<0.02
RS-434 350-360	<0.001	<0.001	<0.02
RS-434 360-370	0.001		0.04
RS-434 370-380	0.002		0.03
RS-434 380-390	<0.001		0.04
RS-434 390-400	0.001		0.03
RS-434 400-410	0.007		0.03
RS-434 410-420	0.001		0.08
RS-434 420-430	0.001		0.02
RS-434 430-440	0.001		0.06
RS-434 440-450	0.001		0.04
RS-434 450-460	0.005		0.06
RS-434 460-470	0.004		0.03
RS-434 470-480	0.003		0.04
RS-434 480-490	0.009		0.05
RS-434 490-500	0.002		0.03

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048338

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 30 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-434 500-510	0.002		0.04
RS-434 510-520	0.018	0.017	0.08
RS-434 520-530	0.002		0.08
RS-434 530-540	<0.001		0.02
RS-434 540-550	0.001		0.06
RS-434 550-560	0.003		0.07
RS-434 560-570	0.002		0.11
RS-434 570-580	0.001		0.04
RS-434 580-590	0.002		0.07
RS-434 590-600	0.003		0.06
RS-434 600-610	0.009		0.08
RS-434 610-620	0.007	0.009	0.11
RS-434 620-630	0.004		0.23
RS-434 630-640	0.004		0.67
RS-434 640-650	0.009		0.19
RS-434 650-660	0.007		0.18
RS-434 660-670	0.007		0.26
RS-434 670-680	0.009		0.11
RS-434 680-690	0.021	0.020	0.93
RS-434 690-700	0.008		0.61

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* ROSEBUD MINING COMPANY, LLC *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-434

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/22/98

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

WELNAV

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

COMMENTS: ** BOART LONGYEAR **
** RICHARD SCHMIDT **

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0588-311 WELL NAME: RS-434

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R CLOS.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION
50.0	50.00	0.35	-0.254	-89.00	162.86	0.42 S	0.13 E	2.00	1.00	0.44	AT 162.86
100.0	99.99	1.14	-0.746	-88.88	169.44	1.31 S	0.35 E	0.34	0.17	1.36	AT 165.22
150.0	149.98	1.85	-1.232	-89.13	157.72	2.15 S	0.58 E	0.64	0.32	2.22	AT 164.87
200.0	199.97	2.61	-1.757	-88.74	168.27	3.04 S	0.84 E	0.87	0.43	3.15	AT 164.60
250.0	249.96	3.46	-2.209	-89.06	173.29	3.98 S	1.00 E	0.67	0.33	4.10	AT 165.96
300.0	299.96	4.34	-2.403	-88.83	196.45	4.88 S	0.90 E	0.96	0.48	4.96	AT 169.56
350.0	349.95	5.14	-2.572	-89.24	171.43	5.70 S	0.80 E	1.16	0.58	5.75	AT 171.97
400.0	399.94	5.82	-2.675	-89.13	205.83	6.36 S	0.69 E	0.99	0.49	6.40	AT 173.83
450.0	449.94	6.55	-2.428	-89.06	227.45	6.98 S	0.22 E	0.69	0.35	6.99	AT 178.19
500.0	499.93	7.23	-2.116	-89.22	218.14	7.53 S	0.29 W	0.42	0.21	7.53	AT 182.22
550.0	549.93	7.94	-1.981	-89.12	201.58	8.15 S	0.64 W	0.52	0.26	8.18	AT 184.51
600.0	599.92	8.78	-1.870	-88.93	209.77	8.92 S	1.02 W	0.47	0.24	8.97	AT 186.50
650.0	649.91	9.53	-1.544	-89.13	236.65	9.53 S	1.57 W	0.98	0.49	9.66	AT 189.33
700.0	699.90	10.30	-1.132	-88.86	219.53	10.12 S	2.20 W	0.80	0.40	10.36	AT 192.26
750.0	749.90	11.02	-0.671	-89.12	245.85	10.66 S	2.87 W	1.05	0.52	11.04	AT 195.04
800.0	799.89	11.50	-0.251	-89.40	230.24	10.99 S	3.42 W	0.69	0.34	11.51	AT 197.28
850.0	849.89	12.05	-0.155	-89.26	191.24	11.47 S	3.68 W	0.93	0.47	12.05	AT 197.79
900.0	899.89	12.66	-0.001	-89.20	232.48	12.00 S	4.02 W	1.09	0.55	12.66	AT 198.53

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   900.0 FEET EQUALS     12.66    FEET AT   198.53         *
*                          ********                         *
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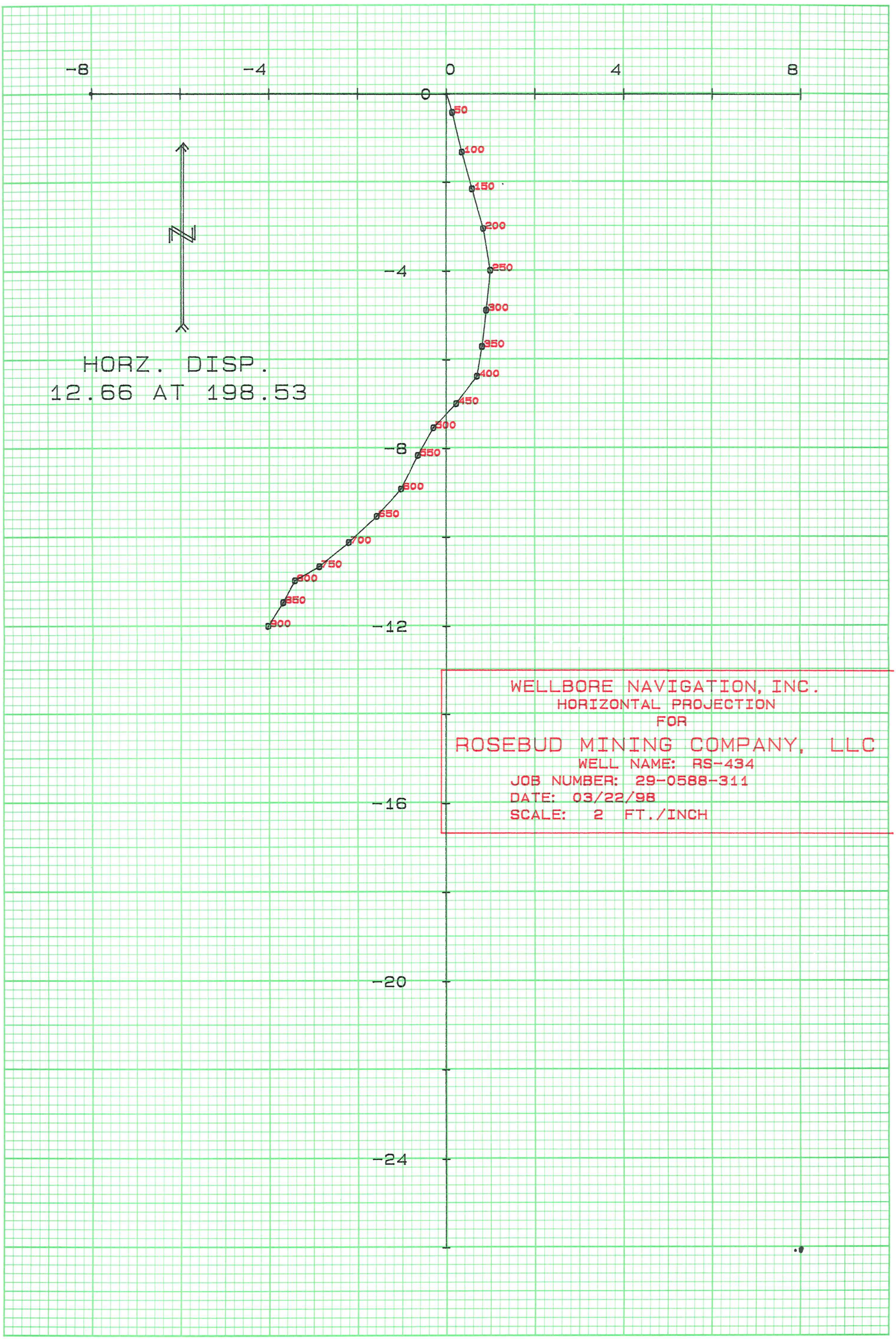

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* ROSEBUD MINING COMPANY, LLC *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-434 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/22/98

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00

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

COMMENTS: ** BOART LONGYEAR **
** RICHARD SCHMIDT **

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0588-311 WELL NAME: RS-434 / VS 305.00

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R PROP.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION
50.0	50.00	-0.27	0.344	-89.00	162.86	0.42 S	0.13 E	2.00	1.00	0.44	AT 162.86
100.0	99.99	-0.88	1.038	-88.88	169.44	1.31 S	0.35 E	0.34	0.17	1.36	AT 165.22
150.0	149.98	-1.43	1.706	-89.13	157.72	2.15 S	0.58 E	0.64	0.32	2.22	AT 164.87
200.0	199.97	-2.01	2.426	-88.74	168.27	3.04 S	0.84 E	0.87	0.43	3.15	AT 164.60
250.0	249.96	-2.69	3.099	-89.06	173.29	3.98 S	1.00 E	0.67	0.33	4.10	AT 165.96
300.0	299.96	-3.48	3.534	-88.83	196.45	4.88 S	0.90 E	0.96	0.48	4.96	AT 169.56
350.0	349.95	-4.20	3.925	-89.24	171.43	5.70 S	0.80 E	1.16	0.58	5.75	AT 171.97
400.0	399.94	-4.82	4.214	-89.13	205.83	6.36 S	0.69 E	0.99	0.49	6.40	AT 173.83
450.0	449.94	-5.59	4.186	-89.06	227.45	6.98 S	0.22 E	0.69	0.35	6.99	AT 178.19
500.0	499.93	-6.33	4.079	-89.22	218.14	7.53 S	0.29 W	0.42	0.21	7.53	AT 182.22
550.0	549.93	-7.05	4.150	-89.12	201.58	8.15 S	0.64 W	0.52	0.26	8.18	AT 184.51
600.0	599.92	-7.89	4.281	-88.93	209.77	8.92 S	1.02 W	0.47	0.24	8.97	AT 186.50
650.0	649.91	-8.70	4.184	-89.13	236.65	9.53 S	1.57 W	0.98	0.49	9.66	AT 189.33
700.0	699.90	-9.55	4.005	-88.86	219.53	10.12 S	2.20 W	0.80	0.40	10.36	AT 192.26
750.0	749.90	-10.38	3.768	-89.12	245.85	10.66 S	2.87 W	1.05	0.52	11.04	AT 195.04
800.0	799.89	-10.96	3.503	-89.40	230.24	10.99 S	3.42 W	0.69	0.34	11.51	AT 197.28
850.0	849.89	-11.51	3.564	-89.26	191.24	11.47 S	3.68 W	0.93	0.47	12.05	AT 197.79
900.0	899.89	-12.14	3.589	-89.20	232.48	12.00 S	4.02 W	1.09	0.55	12.66	AT 198.53

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   900.0 FEET EQUALS    12.66   FEET AT  198.53             *
*                          ********                         *
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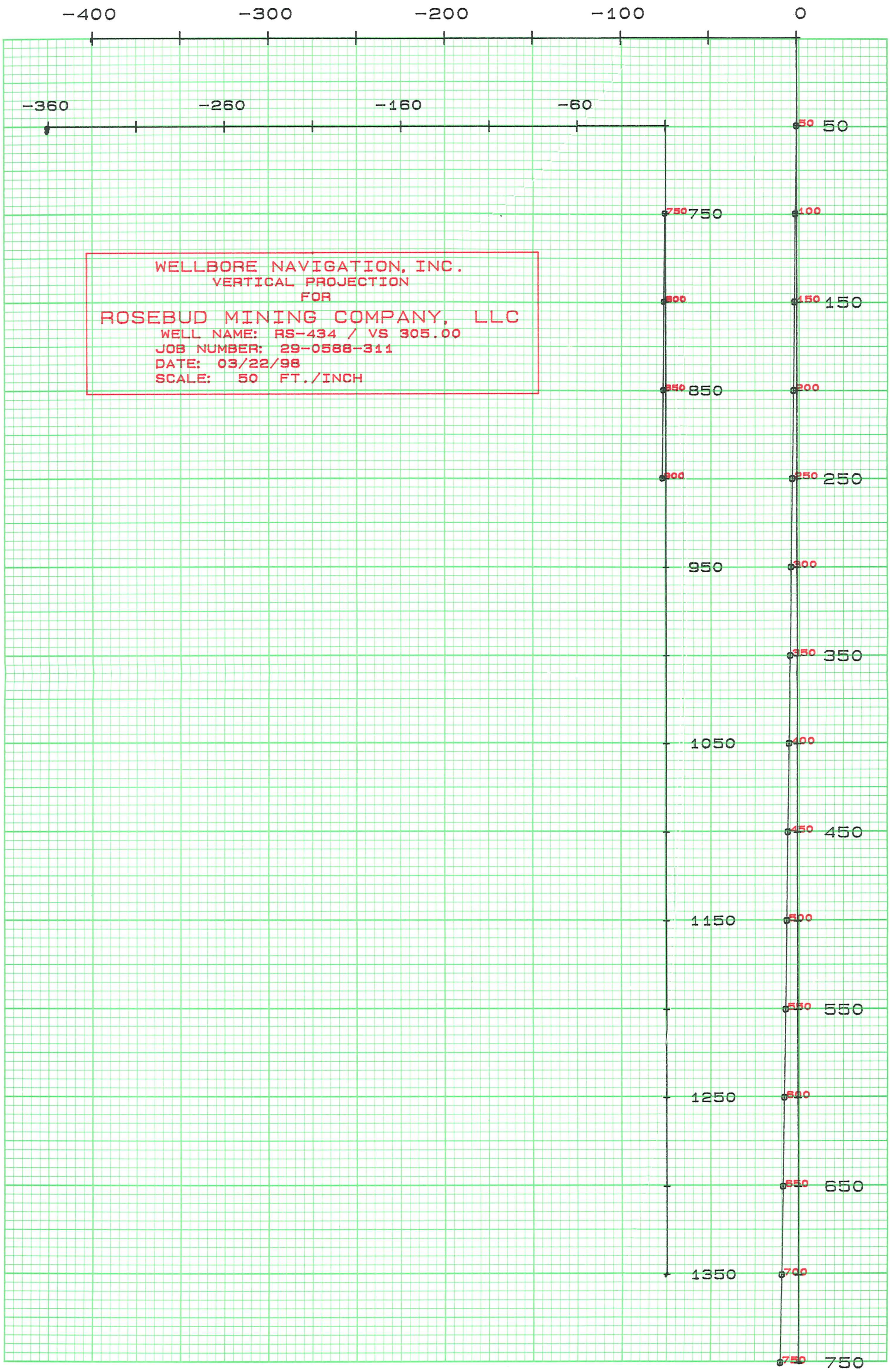

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* ROSEBUD MINING COMPANY, LLC *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-434 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/22/98

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

WELNAV

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00

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

COMMENTS: ** BOART LONGYEAR **
** RICHARD SCHMIDT **

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0588-311 WELL NAME: RS-434 / VS 035.00

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R PROP.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION
50.0	50.00	0.34	0.268	-89.00	162.86	0.42 S	0.13 E	2.00	1.00	0.44	AT 162.86
100.0	99.99	1.04	0.878	-88.88	169.44	1.31 S	0.35 E	0.34	0.17	1.36	AT 165.22
150.0	149.98	1.71	1.425	-89.13	157.72	2.15 S	0.58 E	0.64	0.32	2.22	AT 164.87
200.0	199.97	2.43	2.007	-88.74	168.27	3.04 S	0.84 E	0.87	0.43	3.15	AT 164.60
250.0	249.96	3.10	2.690	-89.06	173.29	3.98 S	1.00 E	0.67	0.33	4.10	AT 165.96
300.0	299.96	3.53	3.480	-88.83	196.45	4.88 S	0.90 E	0.96	0.48	4.96	AT 169.56
350.0	349.95	3.93	4.204	-89.24	171.43	5.70 S	0.80 E	1.16	0.58	5.75	AT 171.97
400.0	399.94	4.21	4.819	-89.13	205.83	6.36 S	0.69 E	0.99	0.49	6.40	AT 173.83
450.0	449.94	4.19	5.595	-89.06	227.45	6.98 S	0.22 E	0.69	0.35	6.99	AT 178.19
500.0	499.93	4.08	6.335	-89.22	218.14	7.53 S	0.29 W	0.42	0.21	7.53	AT 182.22
550.0	549.93	4.15	7.048	-89.12	201.58	8.15 S	0.64 W	0.52	0.26	8.18	AT 184.51
600.0	599.92	4.28	7.887	-88.93	209.77	8.92 S	1.02 W	0.47	0.24	8.97	AT 186.50
650.0	649.91	4.18	8.704	-89.13	236.65	9.53 S	1.57 W	0.98	0.49	9.66	AT 189.33
700.0	699.90	4.00	9.553	-88.86	219.53	10.12 S	2.20 W	0.80	0.40	10.36	AT 192.26
750.0	749.90	3.77	10.378	-89.12	245.85	10.66 S	2.87 W	1.05	0.52	11.04	AT 195.04
800.0	799.89	3.50	10.961	-89.40	230.24	10.99 S	3.42 W	0.69	0.34	11.51	AT 197.28
850.0	849.89	3.56	11.509	-89.26	191.24	11.47 S	3.68 W	0.93	0.47	12.05	AT 197.79
900.0	899.89	3.59	12.137	-89.20	232.48	12.00 S	4.02 W	1.09	0.55	12.66	AT 198.53

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   900.0 FEET EQUALS     12.66    FEET AT   198.53         *
*                          ********                         *
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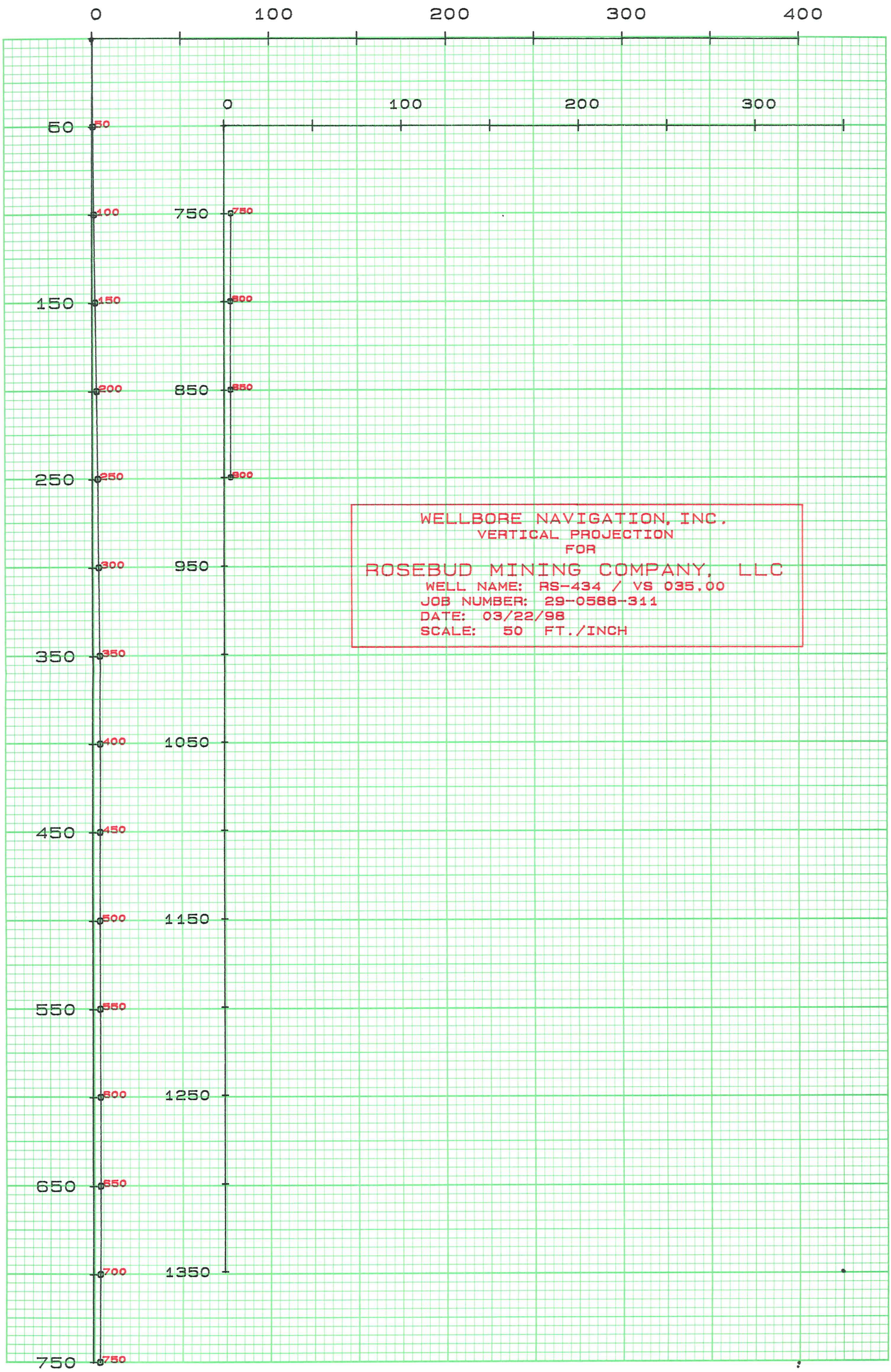

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* ROSEBUD MINING COMPANY *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-434

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/17/98

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

WATER CONTACT= 649'

W-LNAV

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

COMMENTS: ***** EKLUND *****
** DENNIS WHITE **

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0588-311

WELL NAME: RS-434

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R CLOS.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION	TEMP. DEG F
50.0	50.00	0.38	-0.214	-89.00	162.86	0.42 S	0.13 E	2.00	1.00	0.44	AT 162.86	062.30
100.0	99.99	1.21	-0.618	-88.88	169.44	1.31 S	0.35 E	0.34	0.17	1.36	AT 165.22	062.67
150.0	149.98	1.97	-1.023	-89.13	157.72	2.15 S	0.58 E	0.64	0.32	2.22	AT 164.87	062.77
200.0	199.97	2.79	-1.461	-88.74	168.27	3.04 S	0.84 E	0.87	0.43	3.15	AT 164.60	062.88
250.0	249.96	3.68	-1.818	-89.06	173.29	3.98 S	1.00 E	0.67	0.33	4.10	AT 165.96	062.90
300.0	299.96	4.58	-1.914	-88.83	196.45	4.88 S	0.90 E	0.96	0.48	4.96	AT 169.56	062.89
350.0	349.95	5.39	-1.995	-89.24	171.43	5.70 S	0.80 E	1.16	0.58	5.75	AT 171.97	062.93
400.0	399.94	6.07	-2.024	-89.13	205.83	6.36 S	0.69 E	0.99	0.49	6.40	AT 173.83	063.03
450.0	449.94	6.78	-1.698	-89.06	227.45	6.98 S	0.22 E	0.69	0.35	6.99	AT 178.19	063.13
500.0	499.93	7.42	-1.313	-89.22	218.14	7.53 S	0.29 W	0.42	0.21	7.53	AT 182.22	063.34
550.0	549.93	8.10	-1.102	-89.12	201.58	8.15 S	0.64 W	0.52	0.26	8.18	AT 184.51	063.51
600.0	599.92	8.93	-0.900	-88.93	209.77	8.92 S	1.02 W	0.47	0.24	8.97	AT 186.51	063.78
650.0	649.91	9.65	-0.494	-89.13	236.65	9.53 S	1.57 W	0.98	0.49	9.66	AT 189.33	064.73
700.0	699.90	10.36	-0.000	-88.86	219.53	10.12 S	2.20 W	0.80	0.40	10.36	AT 192.26	065.67

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   700.0 FEET EQUALS    10.36    FEET AT   192.26          *
*                          ********                         *
*************************************************************
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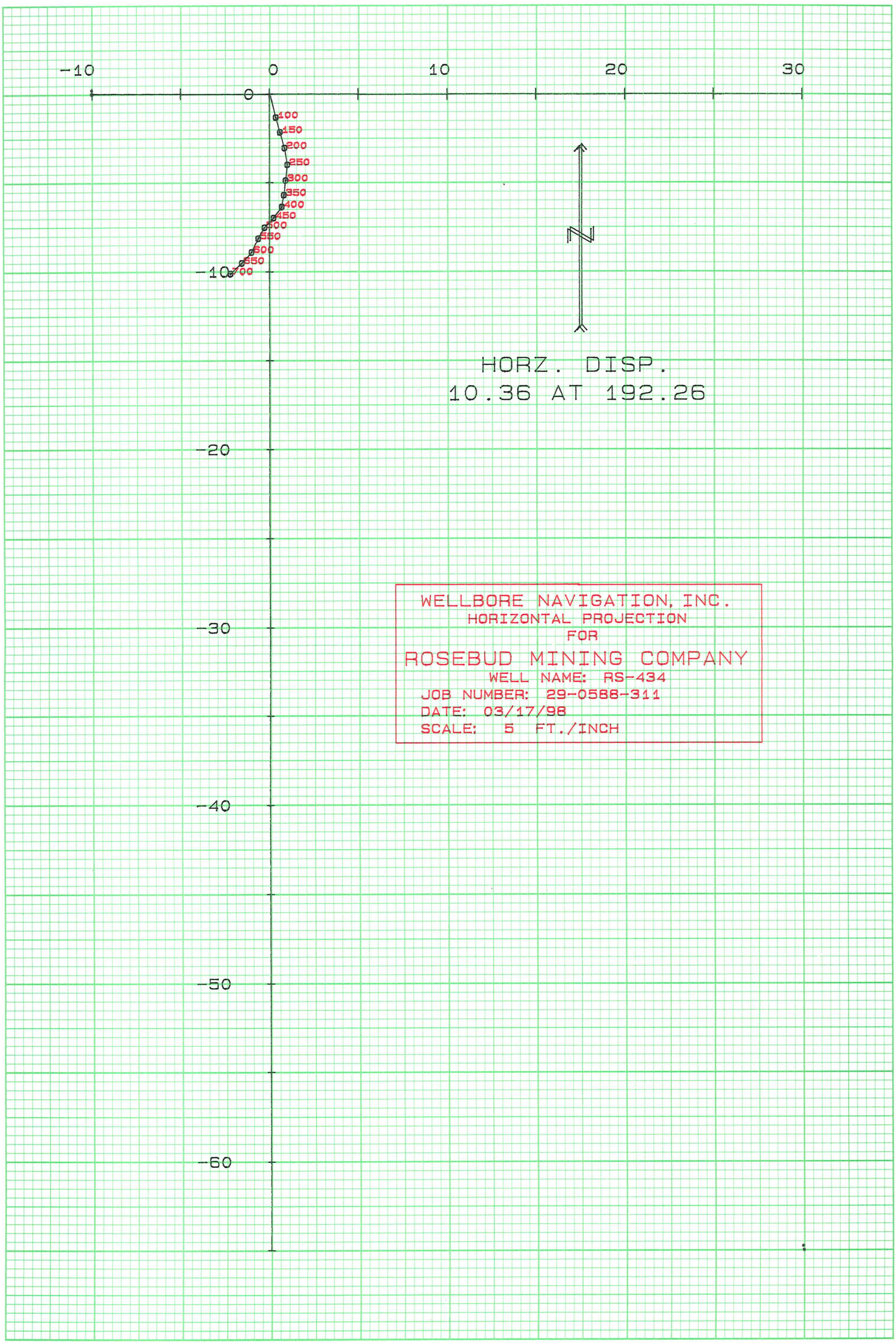
STARLIGHT PRINTING (801) 467-2841



WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* ROSEBUD MINING COMPANY *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-434 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/17/98

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00
WATER CONTACT= 649'

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

COMMENTS: ***** EKLUND *****
** DENNIS WHITE **

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0588-311 WELL NAME: RS-434 / VS 305.00

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R PROP.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION	TEMP. DEG F
50.0	50.00	-0.27	0.344	-89.00	162.86	0.42 S	0.13 E	2.00	1.00	0.44	AT 162.86	062.30
100.0	99.99	-0.88	1.038	-88.88	169.44	1.31 S	0.35 E	0.34	0.17	1.36	AT 165.22	062.67
150.0	149.98	-1.43	1.706	-89.13	157.72	2.15 S	0.58 E	0.64	0.32	2.22	AT 164.87	062.77
200.0	199.97	-2.01	2.426	-88.74	168.27	3.04 S	0.84 E	0.87	0.43	3.15	AT 164.60	062.88
250.0	249.96	-2.69	3.099	-89.06	173.29	3.98 S	1.00 E	0.67	0.33	4.10	AT 165.96	062.90
300.0	299.96	-3.48	3.534	-88.83	196.45	4.88 S	0.90 E	0.96	0.48	4.96	AT 169.56	062.89
350.0	349.95	-4.20	3.925	-89.24	171.43	5.70 S	0.80 E	1.16	0.58	5.75	AT 171.97	062.93
400.0	399.94	-4.82	4.214	-89.13	205.83	6.36 S	0.69 E	0.99	0.49	6.40	AT 173.83	063.03
450.0	449.94	-5.59	4.186	-89.06	227.45	6.98 S	0.22 E	0.69	0.35	6.99	AT 178.19	063.13
500.0	499.93	-6.34	4.079	-89.22	218.14	7.53 S	0.29 W	0.42	0.21	7.53	AT 182.22	063.34
550.0	549.93	-7.05	4.150	-89.12	201.58	8.15 S	0.64 W	0.52	0.26	8.18	AT 184.51	063.51
600.0	599.92	-7.89	4.281	-88.93	209.77	8.92 S	1.02 W	0.47	0.24	8.97	AT 186.51	063.78
650.0	649.91	-8.70	4.184	-89.13	236.65	9.53 S	1.57 W	0.98	0.49	9.66	AT 189.33	064.73
700.0	699.90	-9.55	4.004	-88.86	219.53	10.12 S	2.20 W	0.80	0.40	10.36	AT 192.26	065.67

```
*************************************************************
*                         ********                          *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                         ********                          *
*   700.0 FEET EQUALS     10.36    FEET AT   192.26         *
*                         ********                          *
*************************************************************
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STARLIGHT PRINTING (801) 467-2841

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* ROSEBUD MINING COMPANY *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-434 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/17/98

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00
WATER CONTACT= 649'

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

COMMENTS: ***** EKLUND *****
** DENNIS WHITE **

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0588-311

WELL NAME: RS-434 / VS 035.00

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R PROP.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION	TEMP. DEG F
50.0	50.00	0.34	0.268	-89.00	162.86	0.42 S	0.13 E	2.00	1.00	0.44	AT 162.86	062.30
100.0	99.99	1.04	0.878	-88.88	169.44	1.31 S	0.35 E	0.34	0.17	1.36	AT 165.22	062.67
150.0	149.98	1.71	1.425	-89.13	157.72	2.15 S	0.58 E	0.64	0.32	2.22	AT 164.87	062.77
200.0	199.97	2.43	2.007	-88.74	168.27	3.04 S	0.84 E	0.87	0.43	3.15	AT 164.60	062.88
250.0	249.96	3.10	2.690	-89.06	173.29	3.98 S	1.00 E	0.67	0.33	4.10	AT 165.96	062.90
300.0	299.96	3.53	3.480	-88.83	196.45	4.88 S	0.90 E	0.96	0.48	4.96	AT 169.56	062.89
350.0	349.95	3.93	4.204	-89.24	171.43	5.70 S	0.80 E	1.16	0.58	5.75	AT 171.97	062.93
400.0	399.94	4.21	4.819	-89.13	205.83	6.36 S	0.69 E	0.99	0.49	6.40	AT 173.83	063.03
450.0	449.94	4.19	5.595	-89.06	227.45	6.98 S	0.22 E	0.69	0.35	6.99	AT 178.19	063.13
500.0	499.93	4.08	6.335	-89.22	218.14	7.53 S	0.29 W	0.42	0.21	7.53	AT 182.22	063.34
550.0	549.93	4.15	7.048	-89.12	201.58	8.15 S	0.64 W	0.52	0.26	8.18	AT 184.51	063.51
600.0	599.92	4.28	7.887	-88.93	209.77	8.92 S	1.02 W	0.47	0.24	8.97	AT 186.51	063.78
650.0	649.91	4.18	8.704	-89.13	236.65	9.53 S	1.57 W	0.98	0.49	9.66	AT 189.33	064.73
700.0	699.90	4.00	9.553	-88.86	219.53	10.12 S	2.20 W	0.80	0.40	10.36	AT 192.26	065.67

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   700.0 FEET EQUALS    10.36    FEET AT   192.26          *
*                          ********                         *
*************************************************************
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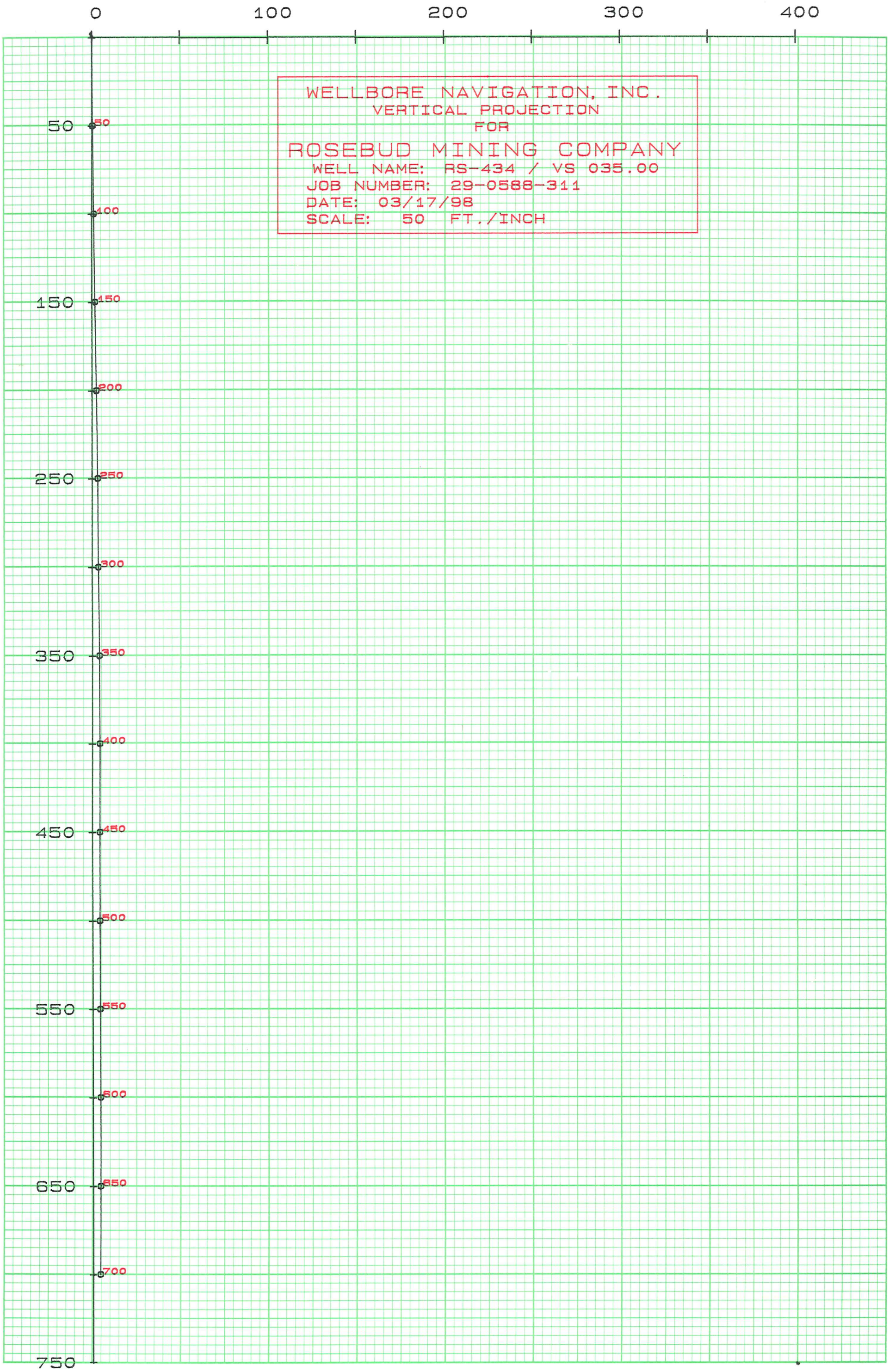

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048542

PO BOX 11530
RENO NV,USA
Ph.(702) 356-0606, Fax.(702) 356-1413

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

CLIENT REFERENCE No: RS-434 Core RECEIVED : 15 APR 1998

No. SAMPLES : 52 REPORTED : 28 APR 1998

MAIN SAMPLE TYPE : DRILL CORE

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

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048542

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 28 APR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-434 700.0-704.5	0.004			0.11
RS-434 704.5-707.4	0.012			0.42
RS-434 707.4-710.0	0.004			0.62
RS-434 710-713	0.002			0.09
RS-434 714.0-717.3	0.010			0.15
RS-434 717.3-720.4	0.006	0.006		0.32
RS-434 720.4-723.5	0.003			0.49
RS-434 723.5-725.2	0.008			0.63
RS-434 725.2-727.0	0.003			0.33
RS-434 727.0-727.9	0.008			0.49
RS-434 727.9-731.8	0.005			1.37
RS-434 731.8-735.2	0.010			0.10
RS-434 735.2-737.9	0.024			0.17
RS-434 737.9-741.0	0.010			0.27
RS-434 741.0-746.8	0.081		0.076	0.64
RS-434 746.8-747.8	0.015			0.19
RS-434 747.8-750.5	0.021			0.11
RS-434 750.5-754.2	0.017			0.09
RS-434 754.2-759.6	0.029			0.05
RS-434 759.6-764.5	0.043			0.09
RS-434 764.5-769.4	0.048	0.043		0.04
RS-434 769.4-774.6	0.096		0.149	0.27
RS-434 774.6-780.0	0.025			0.07
RS-434 780-784	0.012			0.06
RS-434 784.0-788.4	0.018			0.07

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048542

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 28 APR 1998

SAMPLES		Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)	
RS-434 788.4-792.8		0.031			0.06	
RS-434 792.8-796.7		0.010			0.08	
RS-434 796.7-801.9		0.013			0.10	801.9-811.3 = 9.4' @
RS-434 801.9-803.3	1.4'	0.226		0.207	0.62	
RS-434 803.3-807.3	4.0'	0.226		0.073	0.11	0.215 Au
RS-434 807.3-811.3	4.0'	0.200		0.195	0.23	0.24 Ag
RS-434 811.3-815.6		0.065		0.088	0.11	
RS-434 815.6-820.5		0.037			0.18	
RS-434 820.5-825.1		0.005			0.10	
RS-434 825.1-827.7		0.006			0.07	
RS-434 827.7-831.1		0.005			0.09	
RS-434 831.1-834.8		0.064		0.070	0.11	
RS-434 834.8-839.1		0.016			0.29	
RS-434 839.1-843.9		0.010			0.07	
RS-434 843.9-848.8		0.001			0.02	
RS-434 848.8-853.7		0.003			<0.02	
RS-434 853.7-859.0		0.001			0.07	
RS-434 859.0-863.7		0.001			0.02	
RS-434 863.7-868.6		0.001			0.03	
RS-434 868.6-873.6		0.003			0.08	
RS-434 873.6-878.7		0.001			0.04	
RS-434 878.7-882.0		0.001			0.04	
RS-434 882.0-885.5		0.002			0.05	
RS-434 885.5-890.7		0.005			0.07	
RS-434 890.7-895.0		0.003			0.05	

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048542

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-434

REPORTED : 28 APR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-434 895-900	0.002			0.05
31007	0.538			2.69

SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 11530
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(702) 356-0606
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Elko Office
2320 Last Chance Rd.
Nevada 89801
Box 2908
Elko, NV 89801
Telephone
(702) 738-9100
Fax
(702) 738-2594

Mazatlan Office
Telephone/Fax
011-52-69-170035

Other Offices
Lima, Peru
Santiago, Chile
Mendoza, Argentina

Company: ROSEBUD MINING CO LLT

Address: P.O. BOX 2610

City WINNEMUCCA State NV Zip 89446

Telephone Number: (702) 623-6912 Fax Number: (702) 623-6967

Project Name: DEVELOPMENT Purchase Order Number:

Date Submitted: 04/14/98 Number of Samples: 51

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

RS-434	SAMPLE IDENTIFICATION			TYPE	ELEMENTS REQUIRED
700-704.5	746.8-747.8			CORE	AD-AU ROSEBUD MINE
704.5-707.4	747.8-750.5	807.3-811.3			PROTOCOLS
707.4-710.0	750.5-754.2	811.3-815.6			
710.0-713.0	754.2-759.6	815.6-820.5			868.6-873.6
714.0-717.3	759.6-764.5	820.5-825.1			873.6-878.7
717.3-720.4	764.5-769.4	825.1-827.7			878.7-882.0
720.4-723.5	769.4-774.6	827.7-831.1			882.0-885.5
723.5-725.2	774.6-780.0	831.1-834.8			885.5-890.7
725.2-727.0	780.0-784.0	834.8-839.1			890.7-895.0
727.0-727.9	784.0-788.4	839.1-843.9			895.0-900.0
727.9-731.8	788.4-792.8	843.9-848.8			
731.8-735.2	792.8-796.7	848.8-853.7			
735.2-737.9	796.7-801.9	853.7-859.0			
737.9-741.0	801.9-803.3	859.0-863.7			
741.0-746.8	803.3-807.3	863.7-~~[illegible]~~	868.6		

COARSE REJECTS (Normally Discarded After 60 Days)

[ ] Return COD after analysis complete

PULPS (Normally Stored Free For One Month)

[ ] Discard after one month
[ ] Return COD after one month

RESULTS AND INVOICES TO BE SENT TO:

Invoice to:

KURT ALLEN

Results to:

KURT ALLEN

Comments:

CLIENT FILE COPY

RS - 434 BOX 1
DEPTH - 700. - 709.

710.0
714
RS - 434 BOX 2
DEPTH - 709. - 718.

RS - 434 BOX 3
DEPTH - 718. - 726.5

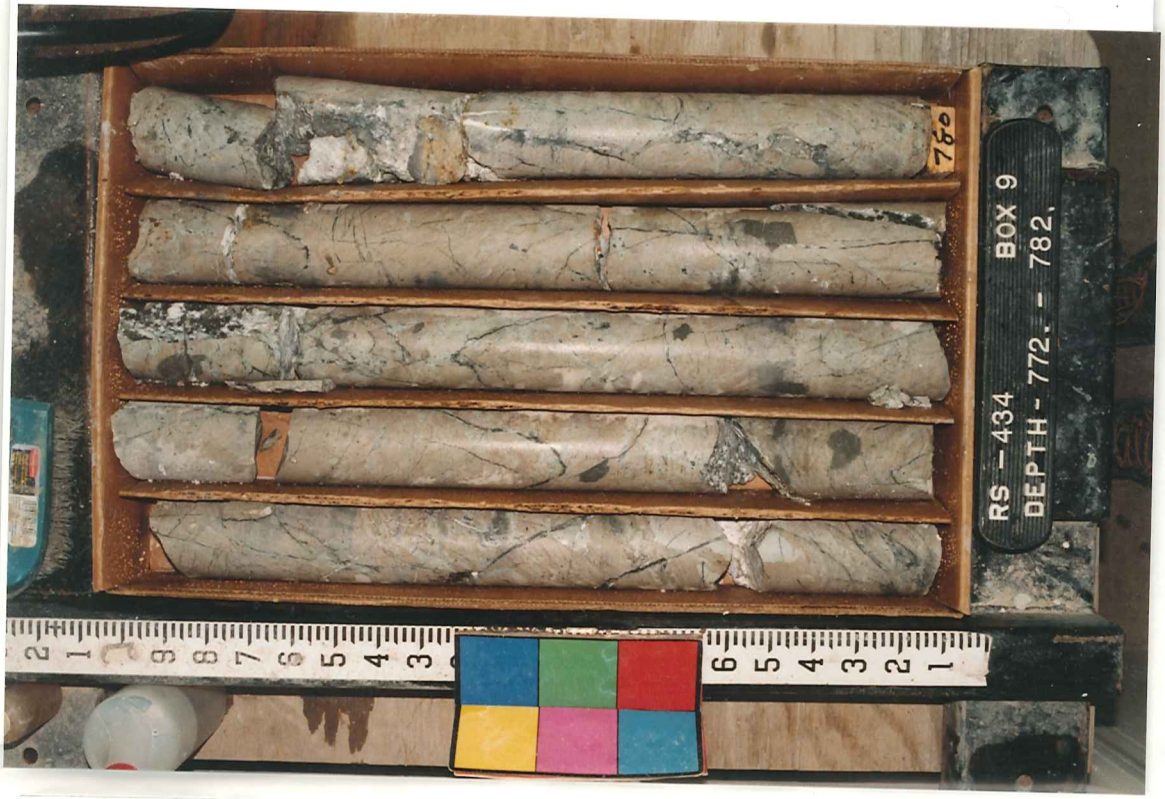
RS -434 BOX 4
DEPTH - 726.5 - 736.

RS -434 BOX 5
DEPTH - 736. - 746.

RS -434 BOX 6
DEPTH - 746. - 754.5

760
RS - 434 BOX 7
DEPTH - 754.5 - 764.

770
RS - 434 BOX 8
DEPTH - 764. - 772.


780
RS - 434 BOX 9
DEPTH - 772. - 782.

RS -434
BOX 10
DEPTH- 782. - 791.

RS -434
BOX 11
DEPTH- 791. - 800.

RS -434
BOX 12
DEPTH- 800. - 809.4

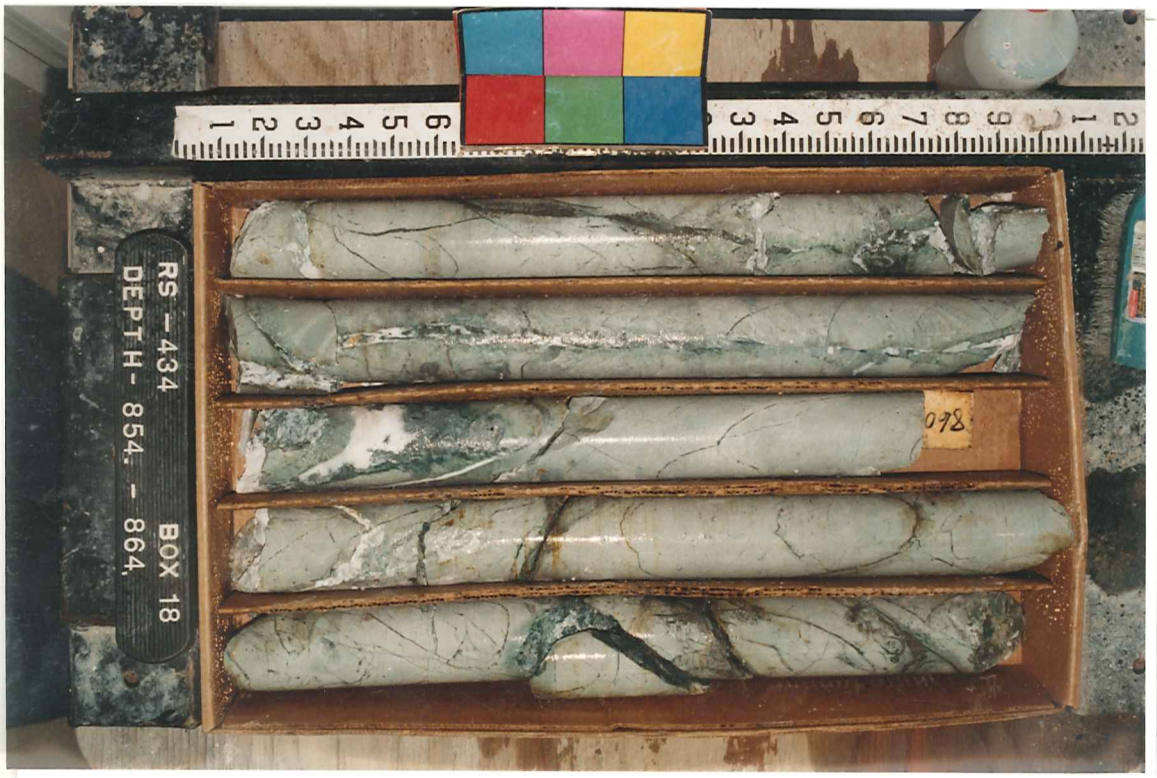
RS -434 BOX 13
DEPTH- 809.4 - 818.

RS -434 BOX 14
DEPTH- 818. - 827.

RS -434 BOX 15
DEPTH- 827. - 836.

RS -434 BOX 16
DEPTH- 836. - 845.

RS -434 BOX 17
DEPTH- 845. - 854.


RS -434 BOX 18
DEPTH- 854. - 864.

RS -434 BOX 19
DEPTH- 864. - 872.6

RS -434 BOX 20
DEPTH- 872.6 - 880.8

RS -434 BOX 21
DEPTH- 880.8 - 888.8

888.8
RS -434 BOX 22
DEPTH- 888.8- 897.

1900
899
RS -434 BOX 23
DEPTH- 898. - 900. TD