60000536

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-429
AUTHOR	K. Allen; S. King; S. Viegut; 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; [redacted]; Hecla Mining Co.; Rosebud Mining Co., LLC Rosebud Project
COMMODITY If not obvious	gold; silver
NOTES	drill logs; assay; geology; photographs; geochemistry; total depth 800'; invoices 65 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 2/18/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

RS-429

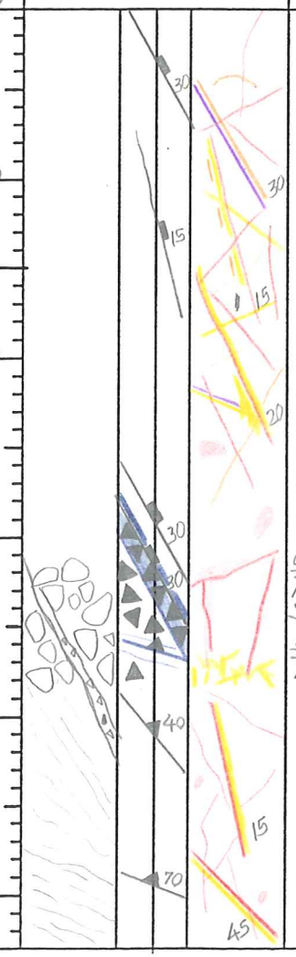
60000536

Hecla MINING COMPANY

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

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	RS-429	LOCATION	EAST, SURFACE	REMARKS	
PAGE	1 OF 4	NORTHING			
DATE	03/24/98	EASTING			
LOGGED BY	TSM	ELEVATION			
SCALE	1"=10'	AZIMUTH	—		
TOTAL DEPTH	800'	INCLINATION	-90°		

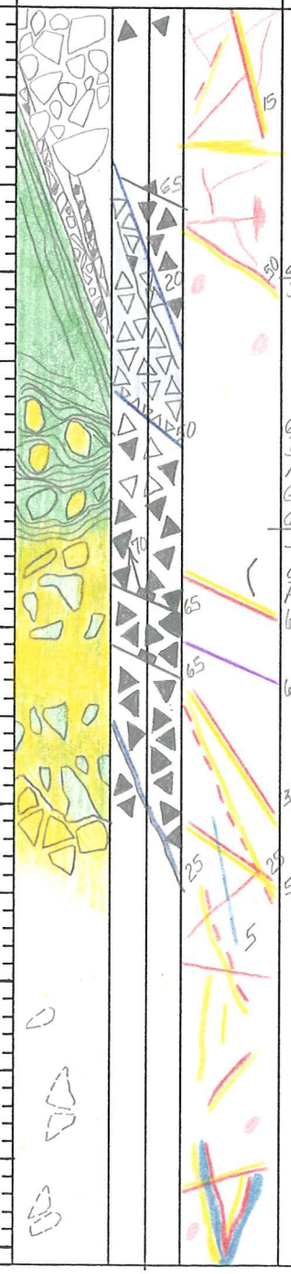
ITH.	OX/RED.	LITHOLOGY (CORE POINT: 550)	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
550.0-614.2 LBT		550.0'-582.0': WKLY, INTERMITTENTLY FLOW BANDED, LT. FLESH PINK MASSIVE LBT.	550, 560, 570, 580, 590, 600			550.0-582': MODERATE FINE SILICA + PYITMARC VNLTS. WK LATER X-CUTTING GRY TO WHT SILICA VEINING, +/- BLOCKY BARITE. WK BARITE + WHT CLAY ON UNHEALED FRACTURES. MOD./WK PYRITIC BLEBBING & TRULY DISSEMINATED PY.
		~582': MEDIUM-GRAINED, MASSIVE TO WKLY FLOW-BANDED LBT GIVES WAY TO FULLY HEALED MOSAIC AUTOBRECCIA, WITH A SLIGHTLY FLESH COLORED MATRIX. BY 582.5' BRECCIATION INTENSIFIES TO MYLONITIC/CATACLASTIC BAND(S) SUB // TO VNTS AT 30° TO C/A. INTERVALS OF WKLY MYLONITIC TEXTURE ~~AT~~ TO ~586'. BXA ZONE ENDS AT 588-588.6' IN SILICA CEMENTED CRACKLE BXA THAT DOESNT VIS/BLY OVERPRINT THE PRESUMABLY EARLIER AUTOBXA & MYLONITE ABOVE.			582.0-588.6': FULLY HEALED OLD BRECCIA/SHEAR ZONE. 582.6-584.2': BROKEN ZONE	582.6-584.2': MODERATE PYRITE VNING. 588.6-601.7': MOD/WK PYRITE +/- SILICA VNLTS, WK PYRITIC BLEBS, WK SILICA VNING.
		588.6'-602': MODERATELY FLOW BANDED, MASSIVE, LT. FLESH PINK LBT.				

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag
550	555.0					
555.0	560.0					
560.0	565.0					
565.0	570.0					
570	575.2					
575.2	580.0					
580.0	582.6					
582.6	584.2					
584.2	588.6					
588.6	593.6					
593.6	598.4					
598.4	601.7					

HOLE NUMBER RS-429 PAGE 2 OF 4

ITH.	OX/RED.	LITHOLOGY
550.0-614.2 LBT = SUBUNIT 2 OR 4?		601.7-610.6': INTERMITTENT AUTOBRECCIA RUBBLY TO MOSAIC TEXTURE PRIMARILY SELF-MATRIXED, LOCALLY SILICA + MARCASITE MATRIX. 610.6-614.2': FULLY HEALED, RUBBLY, FAULT MARGINAL BRECCIA W/IN LBT.
614.2'-642.5 FAULT POSSIBLE VITROPHYRE		614.2': SHARP 20° CONTACT WITH STRONGLY SHEARED HOMOGENEOUSLY BLUE-GREEN, CLAY ALTERED UNIT BELOW. 614.2'-623.3': SHEAR MASSIVE BLUE-GREEN CLAY ZONE AT TOP OF SOUTH RIDGE FAULT ZONE. MOD. DISS'D & WISPY VNLT PY. 623.3'-626.6': STRONGLY BROKEN ZONE BELOW THIN MILLED ROCK & SHEAR ZONE. LT. BLUE-GRN SHEARED CLAY LIKE ABOVE ENCASES FRAGMENTS OF SUB-ROUNDED GRAY TO GRN-GRY MOTTLED SILICIFIED ROCK AS FOUND BELOW. 3-4 ZONES OF UNHEALED BLUE-GREEN GOUGE + SILICEOUS ROCK GRIT WITHIN THIS ZONE. MATRIX-SUPPORTED. 626.6-629.5': SEMI-HEALED MIXED LITHOLOGY FAULT "MYLONITE" BRECCIA. SUB-ROUNDED FRAGMENTS OF DK GRN & FLESH COLORED ROCK FLOAT LIKE BOUDINS IN SPECKLED GRN PROBABLY BUD-DERIVED MATRIX. LARGELY MATRIX-SUPPORTED. 629.5-631.9': MOD'LY SILICIFIED LT. GRN CLAY ALTERED RK FLOUR(?) SOME BUD-DERIVED FRAGMTS.
642.5'- DOZER	774.6	631.9-633.4': STR'LY SILICIFIED TEXTURE-DESTROYED FAULT BXA IN DK FLESH BRN ROCK. SULFIDIC GRAY SULFIDE OVER-PRINTS. 633.4-637.9': MIXED LITH. COMMONLY MATRIX-SUPPORTED FAULT BRECCIA. 634-634.8': MULTI-EPISODE HYDROTHERMAL SILICA BXA. SUB-ANGULAR FRAGMTS OF GRY SILICA-FLOODED WALLROCK ~~AND~~ IN WHT SILICA MATRIX. 635.1-637.9': TOTAL SILICA REPLACEMT. 637.9-642.5': MOD'LY/STR'LY SILICIFIED STR'LY GRN CLAY ALTERED DISRUPTED BUD. STR. DIFFUSE GRY SILICA + BLOCKY BARITE VNLTS. ~~##~~ 642.5'-645.0': CRACKLE BRECCIATED, SHATTERED TAN-GRN DOZER ~~FULL~~ FULLY HEALED WITH GRY SILICA, & MOD'LY SILICIFIED WALLROCK. 645.0'-668.0': LT. GRN-GRY AUTOBRECCIATED DOZER. MOD/WK CALCITE + SILICA + MARCASITE VNLTS. 668-671.0': STR. SILICA + MARCASITE + LATE OPEN SPACE FILLING CALCITE XTLS.

FT



GRAPHIC LOG

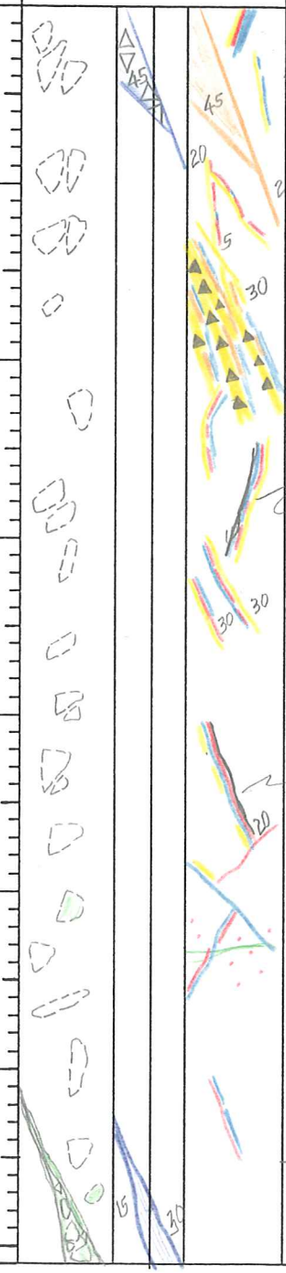
STRUCTURE	ALTERATION AND MINERALIZATION
614.2'-623.3': STR'LY SHEARED STR'LY CLAYSHOT	614.2'-623.3': MODERATE PERVASIVE DISS'D PYRITE & MOD. PYRITIC BLEBS; STR'LY BLUE-GRN CLAY ALTERED. 623.3-626.6': SPOTTY STR. GRY SILICA; STR. GRN CLAY ALT'N. WK/MOD DISS'D MARC
623.3': MILLED ZONE AT 50° TO C/A. ~1" WIDE. RK GRIT & LT. BLUE-GRN GOUGE. 623.3-626.6': CONT'D SHEARED UNHEALED.	626.6-629.5': STR. BLUE-GRN CLAY ALT'N. MOD. MARC STRINGERS. 629.5'-631.9': STR/MOD SiO_2 STR., GRN CLY. 632: FIRST STIBNITE IN VUGS.
626.6-629.5': SEMI-HEALED PROBABLY OLDER SHEARING	631.9'-633.4': STRONGLY SILICIFIED VUGGY TEXTURE
	633.4-635.1': >80% REPLACEMT SILICA + LATER BARITE LOCALLY. 635.1-637.9': >90% SiO_2
	637.9-642.5': STR. SILICIFICATION, STR. GRN CLY ALT'N. 645': FAINT, RUDDY-BRN FeOx STAINING IN WALLRKS. 642.5-645': STR. GRY VN SILICA, WK/MOD. SILICIFICATION.
	645'-668': MOD/WK SILICA + MARC + CALCITE VNLTS.
	668-671': STR. SILICA + MARC + OPEN SPACE XTLLINE CALCITE.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
598.4	601.7				
601.7	606.3				
606.3	610.6				
610.6	614.2				
614.2	619.0				
619.0	623.3				
623.3	626.6				
626.6	629.5				
629.5	631.9				
631.9	633.4				
633.4	635.1				
635.1	637.9				
637.9	642.5				
642.5	645.0				
645.0	650.0				
650.0	655.0				
665.0	660.0				
660.0	664.5				
664.5	668.0				

HOLE NUMBER RS-429 PAGE 3 OF 4

ITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
642.5 - DOZER	774.6	671.0' - 737.2' : LT. GRN - GRY, FINELY AUTOBRECCIATED DOZER. WKLY VNED.	670			671.0-686.0': WK SILICA + MARCASITE + CALCITE VNLTS.	668.0	671.0				
					675.4-676.0': FRIABLE WKLY GOUGEY WK SHEAR		671.0	676.3				
			680				676.3	681.0				
					LITTLE STRUCTURE W/IN DOZER	686.0'-694.2' SILICA-CEMENTED RUBBLY BRECCIA VNS & VNLTS. STR'LY DEVELOPED. +/- FINE BRASSY PY, & LATE WHT CALCITE. TRACE WALLROCK ARGILLIZATION.	681.0	686.1				
			690		686.0-694.2': VN BXA ZONE		686.1	690.0				
						694.2'-~740': MODERATE TO WK CALCITE + MARCASITE +/- SILICA VNLTS. TRACE WALLROCK ARGILLIZATION.	690.0	694.2				
			700		PYRARGERITE	~699.0': MINOR PYRARGERITE IN CALCITE + MARCASITE +/- SILICA VNS. NOTE: APPEARS TO BE SOMEWHAT MORE WHT CLAY IN VNLTS IN PYRARGERITE-BEARING ZONE. STILL CALCIC.	694.2	699.5				
							699.5	704.5				
			710		PYRARGERITE		704.5	710.0				
						716.0': PYRARGERITE + WHT CLAY, VN. + CALCITE + MARC.	710.0	715.1				
			720			720'-725': DARK FG PY INTERSTITIAL TO DOZER AUTOBXA FRAGMTS.	715.1	720.0				
						FROM 725'-~755': WAXY GRN CLAY VNLTS OR SELVAGES ON QZ + CALCITE + MARC VNLTS. WKLY TO ~755'	720.0	725.0				
		737.2-738.2': OLD SHEAR W/IN AUTOBXA.	730			~730'-~743': MOD. ARGILLIZATION OF SOME INDIVIDUAL FRAGMTS. CONT'D TRACE WALLRK ARGILLIZATION OVERALL.	725.0	730.0				
		738.2-743.0': INCREASED AUTOBXA TEXTURE BELOW SHEAR.			737.2-738.2': WKLY DEVELOPED ANASTOMOSING SHEAR ZONE. 30-15° TO C/A.		730.0	735.4				
			740				735.4	740.0				



HOLE NUMBER RS-429 PAGE 4 OF 4

LITH.	OX/RED	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
642.5'–774.6' DOZER		743.0'–750.0': RUDDY HEMATITIC STAINING. STR'LY SEGREGATED INTO AUTOBXA MATRIX.	740			~740'–752.5': MOD. MARCASITE + ~~GALENA~~ + SILICA VNING COMMONLY SUB-// TO C/A. CALCITE ABSENT.
		FROM ~750': TIGHTLY PACKED AUTOBXA LARGELY OVERPRINTED BY HYDROTHERMAL VEIN BRECCIA.	750			752.5'–761': STRONG SILICA-CEMENTED VEIN BRECCIA ZONE. CLEARLY OVERPRINTS & X-CUTS HMDX-STAINED AUTOBXA. MARCASITE + LATE WHT CLAY IN VUGS. CALCITE PICKS UP AT 754'.
		FROM 761': MOD./STR. HMDX STAINED TIGHTLY PACKED DOZER AUTOBRECCIA. INTERMITTENT ZONES OF FULLY HEALED BXA. GIVES WAY TO CONTINUOUS MYLONITIC BRECCIA AT 770'.	760	70 50		759.0'–761.0': COARSE CALCITE RHOMBS IN OPEN SPACE FILL W/ BLADED MARCASITE & WHT CLAY. STR'LY VNED ZONE.
		770.0'–774.8': FULLY HEALED DIKE MARGINAL ~~AU+~~ DOZER AUTOBRECCIA. RUDDY BRN HMDX STAINING IN MATRIX. LOCALLY MYLONITIC FABRIC.	770	IR CONTACT 60	770–774.8': MYLONITIC FABRIC IN DOZER ABOVE TO DIKE CHILL MARGIN.	761.0–774.8': WK SILICA + PY/MARC + WHT CLAY A/O CALCITE AS LATE INFILL. VNLTS W/O PREFERRED ORIENTATION. DISS'D SULFIDE: TRACE TO ABSENT.
774.6'–790.7' PORPHYRY DIKE		774.8–775.8': LT. GRN CLAY ALTERED PUNKY ~~AR~~ DIKE MARGIN. WHT CLAY +/- PY FILLS GLOMERO PORPHYRITIC RELICT PLAGIOCLASE SITES.				774.8–775.8': INCREASED MARC/PY DISS'D & AS VNLTS. STR./MOD. PUNKY GRN CLAY ALTERATION.
		775.8–787.7': HARD, GRAY TAN APHANITIC DIKE GROUNDMASS WITH HARD TO SEE SHAGGY WHT PLAG RELICTS THRU OUT. DIKE IS INTERNALLY BRECCIATED WITH HYDROTHERMAL SILICA + WHT CLAY +/- MARCASITE VN CRACKLE BXA X-CUTTING FAINT, FULLY HEALED AUTOBXA. IDENTICAL TO WHAT IS SEEN ABOVE IN DOZER.	780	20		775.8'–790': WK SILICA + WHT CLAY + MARC VNS. ~~#~~ MOD. DISS'D MARC.
		787.8'–790.7': SILICA +/- WHT CLAY & MARCASITE CEMENTS TAN, APHANITIC, APHYRIC (DOZER?) FRAGMTS. POSSIBLY STILL SOME DIKE MATERIAL IN THIS ZONE. NO CLEAN DIKE MARGIN CHILL ZONE ALTHO THERE IS GREEN CLY STRANDS/VNLTS IN THE COMMINUTED MATRIX MAT'L. POSSIBLE STRUCTURAL MARGIN.		35	787.7–790.7': HYDROTHERMAL(?) CRACKLE BRECCIA AT DIKE-DOZER CONTACT. POSS. OLD FAULT. WK/TR SHEAR FABRIC IN GRN CLY MATRIX AT HI ∠ TO C/A.	787.8–790.7': MOD. GRN CLY VNLTS.
790.7'–800' DOZER		790.7–800': INTERMITTENTLY CRACKLE BXA'D FLOW-BANDED DOZER(?). LOOKS MORE LIKE WILDROSE.	790		PYRARGERITE	~790'–800.0': MOD./STR. SILICA +/- MARC & WHT CLAY VEINS. 796.5': PYRAGERITE IN WHT CLY W/IN SILICA VEIN BXA.
		T.D. 800' FINE RELICT DARK MICROLITES.	800			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
740.0	744.5				
744.5	748.2				
748.2	752.5				
752.5	756.6				
756.6	761.0				
761.0	765.3				
765.3	770.0				
770.0	774.8				
774.8	775.8				
775.8	779.2				
779.2	783.3				
783.3	787.7				
787.8	790.7				
790.7	795.6				
795.6	800.0				

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-429 DATE: 03/24/98 LOGGED BY: ZAM PAGE 1 OF ____

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)
551.0	560.0	104.4	104.4	91.0										
560.0	570.0	104.0	104.0	87.0										
570.0	580.0	94.0	94.0	87.0										
580.0	590.0	104.0	104.0	85.0										
590.0	600.0	101.0	101.0	100.0										
600.0	610.0	97.0	97.0	97.0										
610.0	620.0	101.0	101.0	23.0										
620.0	630.0	102.0	102.0	20.0										
630.0	640.0	101.0	101.0	92.0										
640.0	650.0	98.0	98.0	83.0										
650.0	660.0	100.0	100.0	95.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-429 DATE 03/25/98 LOGGED BY: ZAM 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)
660.0	670.0	100.0	100.0	97.0										
670.0	680.0	102.0	102.0	93.0										
680.0	690.0	100.0	100.0	85.0										
690.0	700.0	101.0	101.0	93.0										
700.0	710.0	102.0	102.0	100.0										
710.0	720.0	100.0	100.0	96.0										
720.0	730.0	63.0	63.0	56.0										
730.0	735.8	163.8	163.8	137.9										
735.8	740.0	95.8	95.8	59.5										
740.0	750.0	102.0	102.0	84.0										
750.0	760.0	102.0	102.0	84.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-429 DATE: 03/26/98 LOGGED BY: RJM 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)
760.0	770.0	100.0	100.0	100.0										
770.0	780.0	101.0	101.0	99.0										
780.0	790.0	99.0	99.0	99.0										
790.0	800.0	99.0	99.0	99.0										
	TD													

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

Quick Log

HOLE NUMBER: RS-429
PAGE: 1 OF 3
DATE: 6/24/98
LOGGED BY: KDA
TOTAL DEPTH: RUC=550' CORE=800'

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

AREA: EAST ZONE
DRILLING CO.: EKLUND
RIG TYPE: RUC
HOLE SIZE: 6 1/2
DOWN HOLE SURVEY BY: WELMAN

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 %	AC-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MIXTURE	ANALYTICAL DA: FROM	TO	W	Au
10		Col	Colluvium																		X																			
20		TCF6	Fine-grained latitic to andesitic flow - propylitized as shown																		X																			
30																					X																			
40																				X																				
50																			X																					
60																			X																					
70																			X																					
80																				X																				
90																			X																					
100																																								
110																																								
120																																								
130																																								
140																																								
150																																								
160																																								
170																																								
180																																								
190																																								
200																																								

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-429
PAGE 2 OF 3
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-SULF	STIBNITE	BARITE	OXIDE	SULF	CARBON	MIXCURE	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%	%	%	%	%	%	%								
210		TCFG	FINE-GRAINED LATITIC TO ANDESITIC FLOW																																					
220																																								
230																																								
240																																								
250																																								
260																																								
270																																								
280																																								
290																																								
300																																								
310		TCLT	FINE-GRAINED LATITIC TO ANDESITIC AUTO BRECCIA OR VOLCANIC BRECCIA. CLASTS APPEAR TO BE OF SAME COMPOSITION AS MATRIX, AND WHEN ALTERED ARE SUBTLE																																					
320																																								
330																																								
340																																								
350																																								
360																																								
370																																								
380																																								
390																																								
400																																								

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-429
PAGE 3 OF 3
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%	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	MIXTURE	ANALYTICAL DA: FROM	TO	W	Au
410		TCLLT																																						
420																																								
430																																								
440																																								
450																																								
460																																								
470																																								
480																																								
490																																								
500																																								
510																																								
520																																								
530																																								
540																																								
550		FGPP	FINE-GRAINED, PINK, SLIGHTLY PORPHYRITIC RHYOLITIC?																																					
			RUC PRE-COLLAR TD=550'																																					

FROM	TO	W	Au

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 0048402-IN
INVOICE DATE: 04/16/98

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-429	DEVELOPMENT	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
60	SAMPLES RECEIVED	.00	.00
60	DRYING	2.00	120.00
60	JAW CRUSHING CHARGE	2.60	156.00
60	COARSE MILLING CHARGE	9.00	540.00
60	SPLITTING CHARGE	2.40	144.00
60	RING MILLING CHARGE	2.00	120.00
60	Au (1 A.T. FIRE ASSAY)	8.00	480.00
4	Au ANALYSES/GRAVIMETRIC	8.75	35.00
60	HYDROCHLORIC/NITRIC DIGESTION	2.00	120.00
60	Ag ANALYSES	1.00	60.00
2	Ag (ore grade) ANALYSES	5.00	10.00

86-5210-477
KDA

NET INVOICE:	1,785.00
LESS DISCOUNT:	357.00
FREIGHT:	.00
INVOICE TOTAL:	1,428.00

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048402

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-429 RECEIVED : 31 MAR 1998

No. SAMPLES : 60 REPORTED : 10 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 SP048402

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 10 APR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-429 550-555	0.002			0.06
RS-429 555-560	0.003			0.08
RS-429 560-565	0.003	0.003		0.07
RS-429 565-570	0.005			0.08
RS-429 570.0-575.2	0.006			0.08
RS-429 575.2-580.0	0.004			0.07
RS-429 580.0-582.6	0.002			0.06
RS-429 582.6-584.2	0.003			0.08
RS-429 584.2-588.6	0.002			0.07
RS-429 588.6-593.6	0.003			0.08
RS-429 593.6-598.4	0.003			0.07
RS-429 598.4-601.7	0.004			0.07
RS-429 601.7-606.3	0.003			0.07
RS-429 606.3-610.6	0.004			0.06
RS-429 610.6-614.2	0.002			0.05
RS-429 614.2-619.0	0.003			0.09
RS-429 619.0-623.3	0.004			0.55
RS-429 623.3-626.6	0.008	0.011		1.43
RS-429 626.6-629.5	0.008			0.28
RS-429 629.5-631.9	0.008			0.08
RS-429 631.9-633.4	0.034			0.40
RS-429 633.4-635.1	0.010			0.08
RS-429 635.1-637.9	0.035	0.029		0.09
RS-429 637.9-642.5	0.005			0.62
RS-429 642.5-645.0	0.012			0.06

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048402

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 10 APR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-429 645-650	0.011			0.07
RS-429 650-655	0.102		0.091	0.05
RS-429 655-660	0.061			0.04
RS-429 660.0-664.5	0.010			0.03
RS-429 664.5-668.0	0.011			0.21
RS-429 668-671	0.069		0.054	0.82
RS-429 671.0-676.3	0.005			0.05
RS-429 676.3-681.0	0.006			0.04
RS-429 681.0-686.1	0.005			0.03
RS-429 686.1-690.0	0.012			0.06
RS-429 690.0-694.2	0.007			0.04
RS-429 694.2-699.5	0.008	0.008		0.09
RS-429 699.5-704.5	0.013			0.11
RS-429 704.5-710.0	0.015			0.05
RS-429 710.0-715.1	0.017			0.07
RS-429 715.1-720.0	0.012			5.25
RS-429 720-725	0.017			0.09
RS-429 725-730	0.013			0.07
RS-429 730.0-735.4	0.031	0.032		0.18
RS-429 735.4-740.0	0.010			0.08
RS-429 740.0-744.5	0.008			0.06
RS-429 744.5-748.2	0.047			0.11
RS-429 748.2-752.5	0.048	0.048		3.86
RS-429 752.5-756.6	0.025			0.30
RS-429 756.6-761.0	0.134		0.173	0.87

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048402

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 10 APR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-429 761.0-765.3	0.013			0.07
RS-429 765.3-770.0	0.003			0.19
RS-429 770.0-774.8	0.020			0.05
RS-429 774.8-775.8	0.009			0.09
RS-429 775.8-779.2	0.092		0.097	0.28
RS-429 779.2-783.3	0.021			0.18
RS-429 783.3-787.7	0.029			0.09
RS-429 787.7-790.7	0.025			0.07
RS-429 790.7-795.6	0.042			0.19
RS-429 795.6-800.0	0.014			7.53

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048402

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

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

Core

CLIENT REFERENCE No: RS-429 RECEIVED : 31 MAR 1998

No. SAMPLES : 60 REPORTED : 10 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 SP048402

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 10 APR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-429 550-555	0.002			0.06
RS-429 555-560	0.003			0.08
RS-429 560-565	0.003	0.003		0.07
RS-429 565-570	0.005			0.08
RS-429 570.0-575.2	0.006			0.08
RS-429 575.2-580.0	0.004			0.07
RS-429 580.0-582.6	0.002			0.06
RS-429 582.6-584.2	0.003			0.08
RS-429 584.2-588.6	0.002			0.07
RS-429 588.6-593.6	0.003			0.08
RS-429 593.6-598.4	0.003			0.07
RS-429 598.4-601.7	0.004			0.07
RS-429 601.7-606.3	0.003			0.07
RS-429 606.3-610.6	0.004			0.06
RS-429 610.6-614.2	0.002			0.05
RS-429 614.2-619.0	0.003			0.09
RS-429 619.0-623.3	0.004			0.55
RS-429 623.3-626.6	0.008	0.011		1.43
RS-429 626.6-629.5	0.008			0.28
RS-429 629.5-631.9	0.008			0.08
RS-429 631.9-633.4	0.034			0.40
RS-429 633.4-635.1	0.010			0.08
RS-429 635.1-637.9	0.035	0.029		0.09
RS-429 637.9-642.5	0.005			0.62
RS-429 642.5-645.0	0.012			0.06

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048402

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 10 APR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-429 645-650	0.011			0.07
RS-429 650-655	0.102		0.091	0.05
RS-429 655-660	0.061			0.04
RS-429 660.0-664.5	0.010			0.03
RS-429 664.5-668.0	0.011			0.21
RS-429 668-671	0.069		0.054	0.82
RS-429 671.0-676.3	0.005			0.05
RS-429 676.3-681.0	0.006			0.04
RS-429 681.0-686.1	0.005			0.03
RS-429 686.1-690.0	0.012			0.06
RS-429 690.0-694.2	0.007			0.04
RS-429 694.2-699.5	0.008	0.008		0.09
RS-429 699.5-704.5	0.013			0.11
RS-429 704.5-710.0	0.015			0.05
RS-429 710.0-715.1	0.017			0.07
RS-429 715.1-720.0	0.012			5.25
RS-429 720-725	0.017			0.09
RS-429 725-730	0.013			0.07
RS-429 730.0-735.4	0.031	0.032		0.18
RS-429 735.4-740.0	0.010			0.08
RS-429 740.0-744.5	0.008			0.06
RS-429 744.5-748.2	0.047			0.11
RS-429 748.2-752.5	0.048	0.048		3.86
RS-429 752.5-756.6	0.025			0.30
RS-429 756.6-761.0	0.134		0.173	0.87

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048402

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 10 APR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-429 761.0-765.3	0.013			0.07
RS-429 765.3-770.0	0.003			0.19
RS-429 770.0-774.8	0.020			0.05
RS-429 774.8-775.8	0.009			0.09
RS-429 775.8-779.2	0.092		0.097	0.28
RS-429 779.2-783.3	0.021			0.18
RS-429 783.3-787.7	0.029			0.09
RS-429 787.7-790.7	0.025			0.07
RS-429 790.7-795.6	0.042			0.19
RS-429 795.6-800.0	0.014			7.53

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048402

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-429 CORE RECEIVED : 31 MAR 1998

No. SAMPLES : 60 REPORTED : 10 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 SP048402

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 10 APR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-429 550-555	0.002			
RS-429 555-560	0.003			
RS-429 560-565	0.003	0.003		
RS-429 565-570	0.005			
RS-429 570.0-575.2	0.006			
RS-429 575.2-580.0	0.004			
RS-429 580.0-582.6	0.002			
RS-429 582.6-584.2	0.003			
RS-429 584.2-588.6	0.002			
RS-429 588.6-593.6	0.003			
RS-429 593.6-598.4	0.003			
RS-429 598.4-601.7	0.004			
RS-429 601.7-606.3	0.003			
RS-429 606.3-610.6	0.004			
RS-429 610.6-614.2	0.002			
RS-429 614.2-619.0	0.002			
RS-429 619.0-623.3	0.004			
RS-429 623.3-626.6	0.008	0.011		
RS-429 626.6-629.5	0.008			
RS-429 629.5-631.9	0.008			
RS-429 631.9-633.4	0.034			
RS-429 633.4-635.1	0.010			
RS-429 635.1-637.9	0.035	0.029		
RS-429 637.9-642.5	0.005			
RS-429 642.5-645.0	0.012			

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048402

CLIENT : BECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 10 APR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-429 645-650	0.011			
RS-429 650-655	0.102		0.091	
RS-429 655-660	0.061			
RS-429 660.0-664.5	0.010			
RS-429 664.5-668.0	0.011			
RS-429 668-671	0.069		0.054	
RS-429 671.0-676.3	0.005			
RS-429 676.3-681.0	0.006			
RS-429 681.0-686.3	0.005			
RS-429 686.1-690.0	0.012			
RS-429 690.0-694.2	0.007			
RS-429 694.2-699.5	0.008	0.008		
RS-429 699.5-704.5	0.013			
RS-429 704.5-710.0	0.015			
RS-429 710.0-715.1	0.017			
RS-429 715.1-720.0	0.012			
RS-429 720-725	0.017			
RS-429 725-730	0.013			
RS-429 730.0-735.4	0.031	0.032		
RS-429 735.4-740.0	0.010			
RS-429 740.0-744.5	0.008			
RS-429 744.5-748.2	0.047			
RS-429 748.2-752.5	0.048	0.048		
RS-429 752.5-756.6	0.025			
RS-429 756.6-761.0	0.134		0.173	

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048402

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 10 APR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-429 761.0-765.3	0.013			
RS-429 765.3-770.0	0.003			
RS-429 770.0-774.8	0.020			
RS-429 774.8-775.8	0.009			
RS-429 775.8-779.2	0.092		0.097	
RS-429 779.2-783.3	0.021			
RS-429 783.3-787.7	0.029			
RS-429 787.7-790.7	0.025			
RS-429 790.7-795.6	0.042			
RS-429 795.6-800.0	0.014			

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048281

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-429 RVC

RECEIVED : 12 MAR 1998

No. SAMPLES : 56

REPORTED : 18 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 SP048281

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 18 MAR 1998

SAMPLES	Au(OZ)	Au(RZ)	Ag(OZ)
RS-429 000-010	<0.001		<0.02
RS-429 010-020	<0.001		<0.02
RS-429 020-030	<0.001		<0.02
RS-429 030-040	<0.001		<0.02
RS-429 040-050	0.001		<0.02
RS-429 050-060	<0.001		<0.02
RS-429 060-070	0.001		0.02
RS-429 070-080	0.002	0.003	0.10
RS-429 080-090	0.001		0.07
RS-429 090-100	0.004		0.06
RS-429 100-110	0.001		0.06
RS-429 110-120	<0.001		<0.02
RS-429 120-130	<0.001	<0.001	0.02
RS-429 130-140	<0.001		<0.02
RS-429 140-150	<0.001		<0.02
RS-429 150-160	<0.001		<0.02
RS-429 160-170	<0.001		<0.02
RS-429 170-180	<0.001		0.02
RS-429 180-190	<0.001		0.03
RS-429 190-200	<0.001		<0.02
RS-429 200-210	<0.001		<0.02
RS-429 210-220	<0.001		<0.02
RS-429 220-230	<0.001		<0.02
RS-429 230-240	<0.001		0.03
RS-429 240-250	<0.001		0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048281

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 18 MAR 1998

SAMPLES	Au(OZ)	Au(RZ)	Ag(OZ)
RS-429 250-260	0.001		0.06
RS-429 260-270	<0.001		0.02
RS-429 270-280	<0.001		0.03
RS-429 280-290	<0.001		<0.02
RS-429 290-300	<0.001		<0.02
RS-429 300-310	<0.001	<0.001	<0.02
RS-429 310-320	<0.001		0.04
RS-429 320-330	<0.001		0.02
RS-429 330-340	<0.001		<0.02
RS-429 340-350	<0.001		<0.02
RS-429 350-360	<0.001		0.02
RS-429 360-370	<0.001		<0.02
RS-429 370-380	<0.001		<0.02
RS-429 380-390	<0.001	<0.001	<0.02
RS-429 390-400	<0.001		<0.02
RS-429 400-410	<0.001		<0.02
RS-429 410-420	<0.001		0.02
RS-429 420-430	0.001		0.06
RS-429 430-440	0.002		0.08
RS-429 440-450	<0.001		0.02
RS-429 450-460	<0.001		<0.02
RS-429 460-470	<0.001		<0.02
RS-429 470-480	<0.001		<0.02
RS-429 480-490	<0.001		<0.02
RS-429 490-500	<0.001		<0.02

AMERICAN ASSAY LABORATORIES

PROVISTIONAL REPORT SP048281

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 18 MAR 1998

SAMPLES	Au(OZ)	Au(RZ)	Ag(OZ)
RS-429 500-510	0.006		0.04
RS-429 510-520	0.001		0.05
RS-429 520-530	<0.001		0.06
RS-429 530-540	0.005		0.08
RS-429 540-550	0.004	0.004	0.07
27771	0.521		2.76

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 0048281-IN
INVOICE DATE: 03/17/98

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-429	DEVELOPMENT	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
56	SAMPLES RECEIVED	.00	.00
55	DRYING	2.00	110.00
55	EXCESSIVE WETNESS	2.00	110.00
55	JAW CRUSHING CHARGE	2.60	143.00
55	SPLITTING CHARGE	1.80	99.00
55	FINE MILLING CHARGE	2.00	110.00
56	Au (1 A.T. FIRE ASSAY)	8.00	448.00
56	HYDROCHLORIC/NITRIC DIGESTION	2.00	112.00
56	Ag ANALYSES	1.00	56.00

86-5210-477
RAA

NET INVOICE:	1,188.00
LESS DISCOUNT:	356.40
FREIGHT:	.00
INVOICE TOTAL:	831.60

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048281

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-429 RECEIVED : 12 MAR 1998

No. SAMPLES : 56 REPORTED : 18 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 SP048281

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 18 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-429 000-010	<0.001		<0.02
RS-429 010-020	<0.001		<0.02
RS-429 020-030	<0.001		<0.02
RS-429 030-040	<0.001		<0.02
RS-429 040-050	0.001		<0.02
RS-429 050-060	<0.001		<0.02
RS-429 060-070	0.001		0.02
RS-429 070-080	0.002	0.003	0.10
RS-429 080-090	0.001		0.07
RS-429 090-100	0.004		0.06
RS-429 100-110	0.001		0.06
RS-429 110-120	<0.001		<0.02
RS-429 120-130	<0.001	<0.001	0.02
RS-429 130-140	<0.001		<0.02
RS-429 140-150	<0.001		<0.02
RS-429 150-160	<0.001		<0.02
RS-429 160-170	<0.001		<0.02
RS-429 170-180	<0.001		0.02
RS-429 180-190	<0.001		0.03
RS-429 190-200	<0.001		<0.02
RS-429 200-210	<0.001		<0.02
RS-429 210-220	<0.001		<0.02
RS-429 220-230	<0.001		<0.02
RS-429 230-240	<0.001		0.03
RS-429 240-250	<0.001		0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048281

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 18 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-429 250-260	0.001		0.06
RS-429 260-270	<0.001		0.02
RS-429 270-280	<0.001		0.03
RS-429 280-290	<0.001		<0.02
RS-429 290-300	<0.001		<0.02
RS-429 300-310	<0.001	<0.001	<0.02
RS-429 310-320	<0.001		0.04
RS-429 320-330	<0.001		0.02
RS-429 330-340	<0.001		<0.02
RS-429 340-350	<0.001		<0.02
RS-429 350-360	<0.001		0.02
RS-429 360-370	<0.001		<0.02
RS-429 370-380	<0.001		<0.02
RS-429 380-390	<0.001	<0.001	<0.02
RS-429 390-400	<0.001		<0.02
RS-429 400-410	<0.001		<0.02
RS-429 410-420	<0.001		0.02
RS-429 420-430	0.001		0.06
RS-429 430-440	0.002		0.08
RS-429 440-450	<0.001		0.02
RS-429 450-460	<0.001		<0.02
RS-429 460-470	<0.001		<0.02
RS-429 470-480	<0.001		<0.02
RS-429 480-490	<0.001		<0.02
RS-429 490-500	<0.001		<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048281

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 18 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-429 500-510	0.006		0.04
RS-429 510-520	0.001		0.05
RS-429 520-530	<0.001		0.06
RS-429 530-540	0.005		0.08
RS-429 540-550	0.004	0.004	0.07
27771	0.521		2.76

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048281

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-429 RECEIVED : 12 MAR 1998

No. SAMPLES : 56 REPORTED : 18 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 SP048281

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 18 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-429 000-010	<0.001		<0.02
RS-429 010-020	<0.001		<0.02
RS-429 020-030	<0.001		<0.02
RS-429 030-040	<0.001		<0.02
RS-429 040-050	0.001		<0.02
RS-429 050-060	<0.001		<0.02
RS-429 060-070	0.001		0.02
RS-429 070-080	0.002	0.003	0.10
RS-429 080-090	0.001		0.07
RS-429 090-100	0.004		0.06
RS-429 100-110	0.001		0.06
RS-429 110-120	<0.001		<0.02
RS-429 120-130	<0.001	<0.001	0.02
RS-429 130-140	<0.001		<0.02
RS-429 140-150	<0.001		<0.02
RS-429 150-160	<0.001		<0.02
RS-429 160-170	<0.001		<0.02
RS-429 170-180	<0.001		0.02
RS-429 180-190	<0.001		0.03
RS-429 190-200	<0.001		<0.02
RS-429 200-210	<0.001		<0.02
RS-429 210-220	<0.001		<0.02
RS-429 220-230	<0.001		<0.02
RS-429 230-240	<0.001		0.03
RS-429 240-250	<0.001		0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048281

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 18 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-429 250-260	0.001		0.06
RS-429 260-270	<0.001		0.02
RS-429 270-280	<0.001		0.03
RS-429 280-290	<0.001		<0.02
RS-429 290-300	<0.001		<0.02
RS-429 300-310	<0.001	<0.001	<0.02
RS-429 310-320	<0.001		0.04
RS-429 320-330	<0.001		0.02
RS-429 330-340	<0.001		<0.02
RS-429 340-350	<0.001		<0.02
RS-429 350-360	<0.001		0.02
RS-429 360-370	<0.001		<0.02
RS-429 370-380	<0.001		<0.02
RS-429 380-390	<0.001	<0.001	<0.02
RS-429 390-400	<0.001		<0.02
RS-429 400-410	<0.001		<0.02
RS-429 410-420	<0.001		0.02
RS-429 420-430	0.001		0.06
RS-429 430-440	0.002		0.08
RS-429 440-450	<0.001		0.02
RS-429 450-460	<0.001		<0.02
RS-429 460-470	<0.001		<0.02
RS-429 470-480	<0.001		<0.02
RS-429 480-490	<0.001		<0.02
RS-429 490-500	<0.001		<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048281

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-429

REPORTED : 18 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-429 500-510	0.006		0.04
RS-429 510-520	0.001		0.05
RS-429 520-530	<0.001		0.06
RS-429 530-540	0.005		0.08
RS-429 540-550	0.004	0.004	0.07
27771	0.521		2.76

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* ROSEBUD MINING *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-429

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/10/98

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

WELNAV

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

COMMENTS: ** BOART LONGYEAR **
*** SCOTT VIEGUT ***

****
****
*** 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

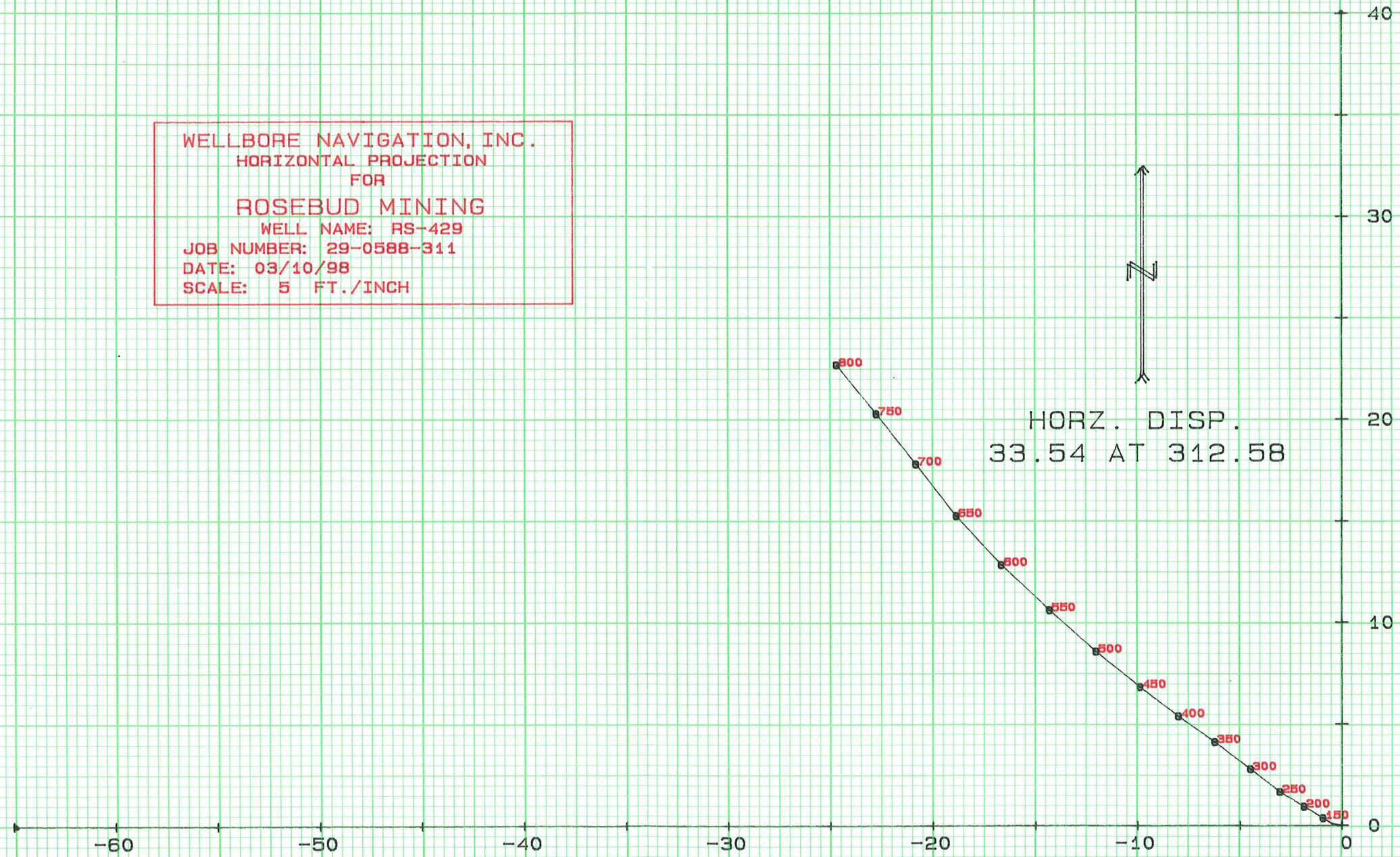
WELL NAME: RS-429

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	0.15	-0.111	-89.57	276.44	0.02 N	0.19 W	0.86	0.43	0.19	AT 276.44
100.0	100.00	0.41	-0.271	-89.72	288.68	0.08 N	0.49 W	0.33	0.17	0.50	AT 279.44
150.0	150.00	0.93	-0.368	-89.06	305.85	0.36 N	0.94 W	1.36	0.68	1.00	AT 291.05
200.0	199.98	2.00	-0.576	-88.44	299.06	0.93 N	1.86 W	1.27	0.64	2.08	AT 296.55
250.0	249.96	3.35	-0.846	-88.40	303.43	1.65 N	3.04 W	0.25	0.13	3.46	AT 298.43
300.0	299.93	5.17	-0.984	-87.41	311.18	2.77 N	4.47 W	2.06	1.03	5.27	AT 301.81
350.0	349.88	7.37	-1.176	-87.53	303.84	4.12 N	6.22 W	0.69	0.35	7.46	AT 303.51
400.0	399.83	9.53	-1.428	-87.48	307.93	5.39 N	7.98 W	0.37	0.18	9.63	AT 304.05
450.0	449.78	11.89	-1.642	-87.08	306.95	6.84 N	9.87 W	0.81	0.40	12.00	AT 304.72
500.0	499.70	14.65	-1.821	-86.57	310.54	8.57 N	12.02 W	1.09	0.55	14.76	AT 305.50
550.0	549.61	17.72	-1.862	-86.40	313.02	10.62 N	14.31 W	0.46	0.23	17.81	AT 306.58
600.0	599.50	20.96	-1.801	-86.15	314.26	12.86 N	16.66 W	0.53	0.26	21.04	AT 307.67
650.0	649.39	24.22	-1.527	-86.34	320.67	15.27 N	18.87 W	0.92	0.46	24.27	AT 308.97
700.0	699.29	27.39	-0.977	-86.29	324.18	17.81 N	20.83 W	0.46	0.23	27.40	AT 310.54
750.0	749.19	30.48	-0.457	-86.52	319.95	20.28 N	22.75 W	0.70	0.35	30.48	AT 311.72
800.0	799.10	33.54	-0.003	-86.38	322.04	22.69 N	24.70 W	0.38	0.19	33.54	AT 312.58

```
*************************************************************
*                         ********                          *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                         ********                          *
*   800.0 FEET EQUALS     33.54    FEET AT   312.58         *
*                         ********                          *
*************************************************************
```

WELLBORE NAVIGATION, INC.
HORIZONTAL PROJECTION
FOR
ROSEBUD MINING
WELL NAME: RS-429
JOB NUMBER: 29-0588-311
DATE: 03/10/98
SCALE: 5 FT./INCH



STARLIGHT PRINTING (801) 467-2841

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* **ROSEBUD MINING** *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-429 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/10/98

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 **
*** SCOTT VIEGUT ***

****
****
*** 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

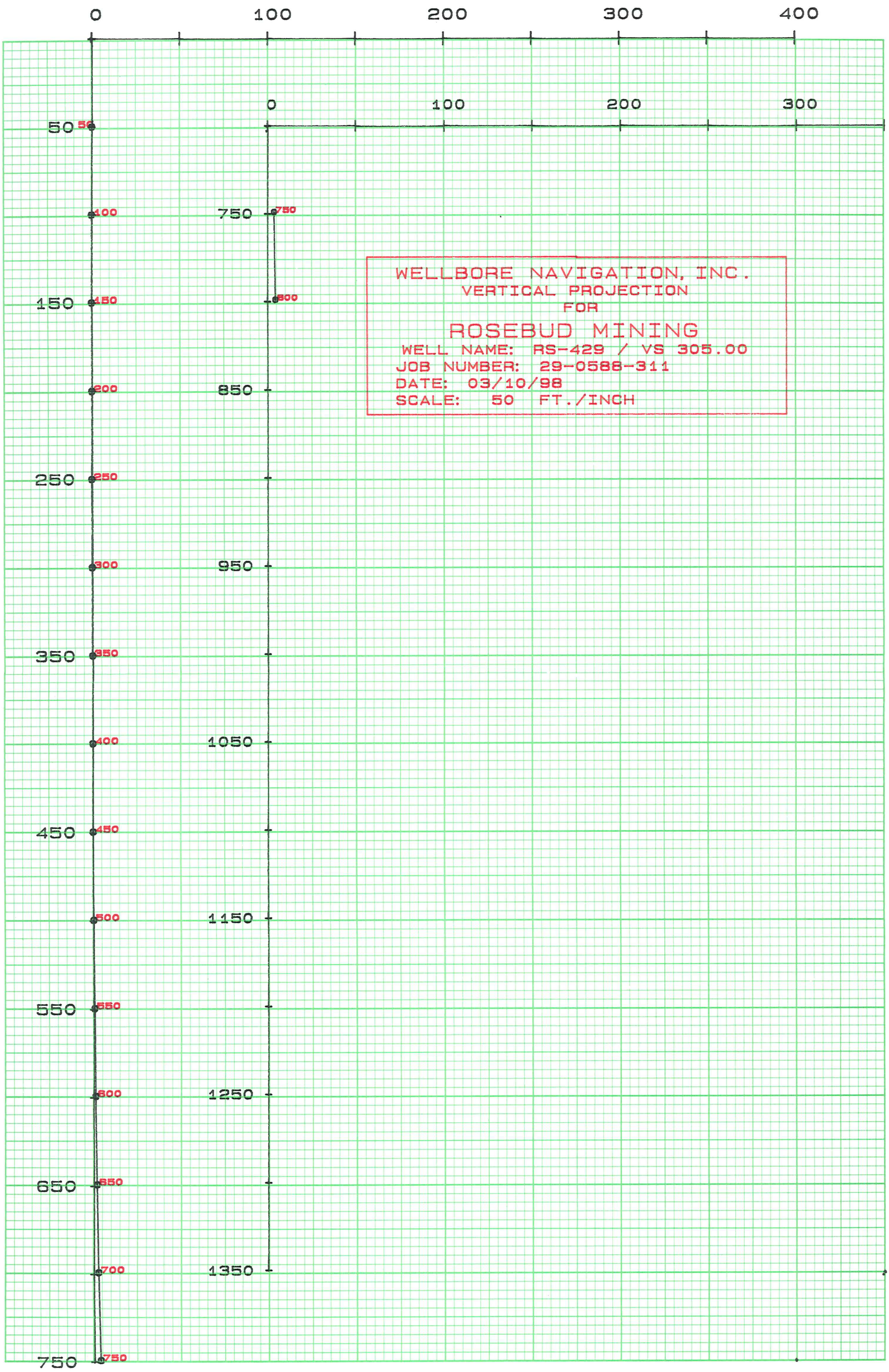
JOB NUMBER: 29-0588-311 WELL NAME: RS-429 / VS 305.00

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	-0.09	-0.165	-89.57	276.44	0.02 N	0.19 W	0.86	0.43	0.19	AT 276.44
100.0	100.00	-0.21	-0.447	-89.72	288.68	0.08 N	0.49 W	0.33	0.17	0.50	AT 279.44
150.0	150.00	-0.24	-0.974	-89.06	305.85	0.36 N	0.94 W	1.36	0.68	1.00	AT 291.05
200.0	199.98	-0.31	-2.061	-88.44	299.06	0.93 N	1.86 W	1.27	0.64	2.08	AT 296.55
250.0	249.96	-0.40	-3.436	-88.40	303.43	1.65 N	3.04 W	0.25	0.13	3.46	AT 298.43
300.0	299.93	-0.29	-5.257	-87.41	311.18	2.77 N	4.47 W	2.06	1.03	5.27	AT 301.81
350.0	349.88	-0.19	-7.457	-87.53	303.84	4.12 N	6.22 W	0.69	0.35	7.46	AT 303.51
400.0	399.83	-0.16	-9.632	-87.48	307.93	5.39 N	7.98 W	0.37	0.18	9.63	AT 304.05
450.0	449.78	-0.06	-12.003	-87.08	306.95	6.84 N	9.87 W	0.81	0.40	12.00	AT 304.72
500.0	499.70	0.13	-14.764	-86.57	310.54	8.57 N	12.02 W	1.09	0.55	14.76	AT 305.50
550.0	549.61	0.49	-17.808	-86.40	313.02	10.62 N	14.31 W	0.46	0.23	17.81	AT 306.58
600.0	599.50	0.98	-21.019	-86.15	314.26	12.86 N	16.66 W	0.53	0.26	21.04	AT 307.67
650.0	649.39	1.68	-24.212	-86.34	320.67	15.27 N	18.87 W	0.92	0.46	24.27	AT 308.97
700.0	699.29	2.64	-27.276	-86.29	324.18	17.81 N	20.83 W	0.46	0.23	27.40	AT 310.54
750.0	749.19	3.57	-30.270	-86.52	319.95	20.28 N	22.75 W	0.70	0.35	30.48	AT 311.72
800.0	799.10	4.42	-33.246	-86.38	322.04	22.69 N	24.70 W	0.38	0.19	33.54	AT 312.58

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   800.0 FEET EQUALS     33.54    FEET AT   312.58         *
*                          ********                         *
*************************************************************
```

STARLIGHT PRINTING (801) 467-2841



WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* ROSEBUD MINING *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-429 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/10/98

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00

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

COMMENTS: ** BOART LONGYEAR **
*** SCOTT VIEGUT ***

****
****
*** 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

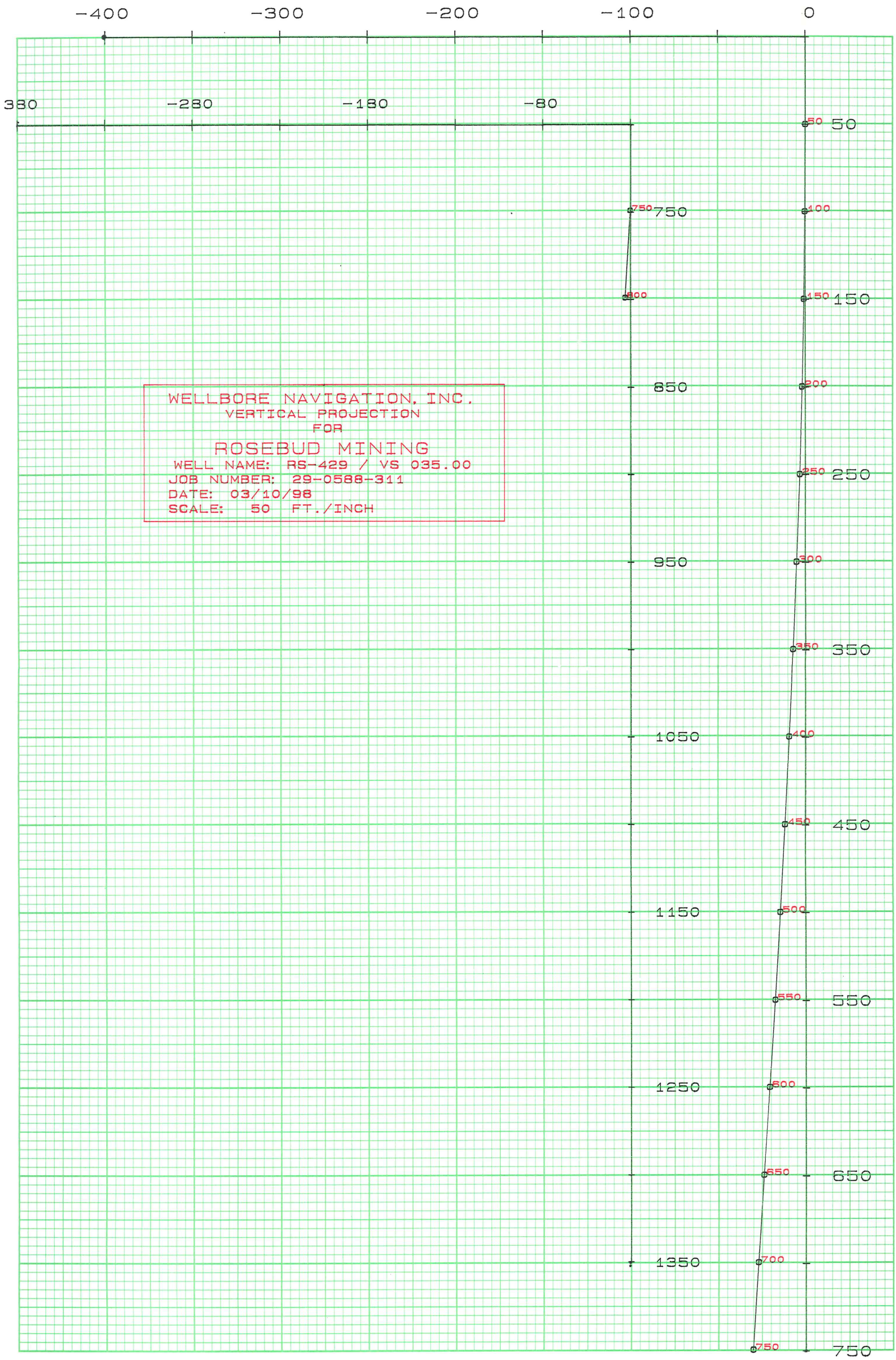
JOB NUMBER: 29-0588-311 WELL NAME: RS-429 / VS 035.00

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	-0.16	0.090	-89.57	276.44	0.02 N	0.19 W	0.86	0.43	0.19	AT 276.44
100.0	100.00	-0.45	0.214	-89.72	288.68	0.08 N	0.49 W	0.33	0.17	0.50	AT 279.44
150.0	150.00	-0.97	0.242	-89.06	305.85	0.36 N	0.94 W	1.36	0.68	1.00	AT 291.05
200.0	199.98	-2.06	0.306	-88.44	299.06	0.93 N	1.86 W	1.27	0.64	2.08	AT 296.55
250.0	249.96	-3.44	0.396	-88.40	303.43	1.65 N	3.04 W	0.25	0.13	3.46	AT 298.43
300.0	299.93	-5.26	0.293	-87.41	311.18	2.77 N	4.47 W	2.06	1.03	5.27	AT 301.81
350.0	349.88	-7.46	0.194	-87.53	303.84	4.12 N	6.22 W	0.69	0.35	7.46	AT 303.51
400.0	399.83	-9.63	0.159	-87.48	307.93	5.39 N	7.98 W	0.37	0.18	9.63	AT 304.05
450.0	449.78	-12.00	0.060	-87.08	306.95	6.84 N	9.87 W	0.81	0.40	12.00	AT 304.72
500.0	499.70	-14.76	-0.128	-86.57	310.54	8.57 N	12.02 W	1.09	0.55	14.76	AT 305.50
550.0	549.61	-17.81	-0.491	-86.40	313.02	10.62 N	14.31 W	0.46	0.23	17.81	AT 306.58
600.0	599.50	-21.02	-0.981	-86.15	314.26	12.86 N	16.66 W	0.53	0.26	21.04	AT 307.67
650.0	649.39	-24.21	-1.682	-86.34	320.67	15.27 N	18.87 W	0.92	0.46	24.27	AT 308.97
700.0	699.29	-27.28	-2.644	-86.29	324.18	17.81 N	20.83 W	0.46	0.23	27.40	AT 310.54
750.0	749.19	-30.27	-3.567	-86.52	319.95	20.28 N	22.75 W	0.70	0.35	30.48	AT 311.72
800.0	799.10	-33.25	-4.421	-86.38	322.04	22.69 N	24.70 W	0.38	0.19	33.54	AT 312.58

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   800.0 FEET EQUALS    33.54   FEET AT  312.58             *
*                          ********                         *
*************************************************************
```

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-429

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/08/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

WATER CONTACT= 505'

WELNAV

****
****** 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

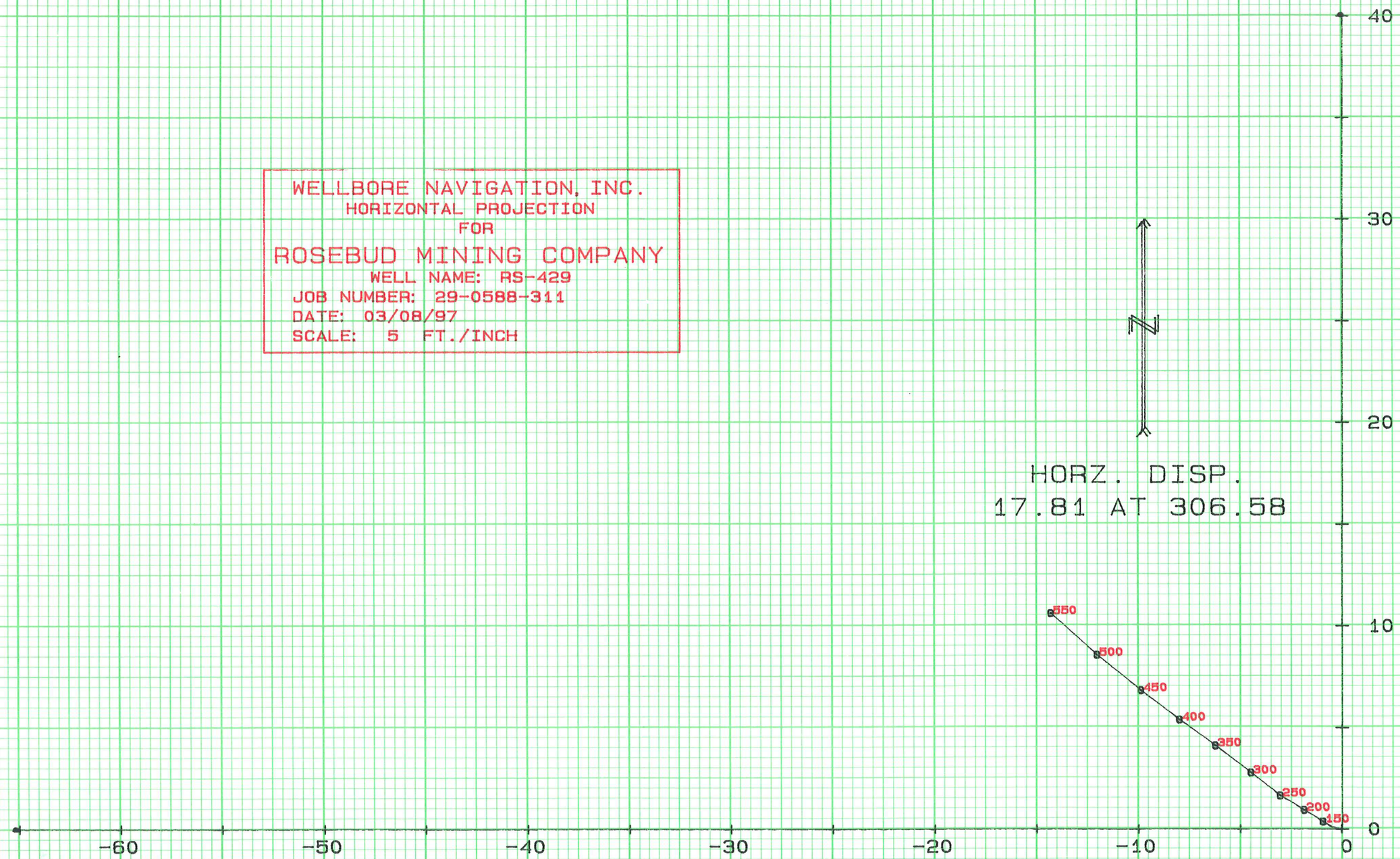
JOB NUMBER: 29-0588-311 WELL NAME: RS-429

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 DISPLACEMENT DISP.	STATION DISPLACEMENT DIRECTION	TEMP. DEG F
50.0	50.00	0.16	-0.094	-89.57	276.44	0.02 N	0.19 W	0.86	0.43	0.19	AT 276.44	049.16
100.0	100.00	0.44	-0.226	-89.72	288.68	0.08 N	0.49 W	0.33	0.17	0.50	AT 279.44	050.52
150.0	150.00	0.97	-0.269	-89.06	305.85	0.36 N	0.94 W	1.36	0.68	1.00	AT 291.05	051.53
200.0	199.98	2.05	-0.363	-88.44	299.06	0.93 N	1.86 W	1.27	0.64	2.08	AT 296.55	052.39
250.0	249.96	3.42	-0.491	-88.40	303.43	1.65 N	3.04 W	0.25	0.13	3.46	AT 298.43	053.05
300.0	299.93	5.25	-0.438	-87.41	311.18	2.77 N	4.47 W	2.05	1.03	5.27	AT 301.80	053.65
350.0	349.88	7.45	-0.399	-87.53	303.84	4.12 N	6.22 W	0.69	0.35	7.46	AT 303.51	054.18
400.0	399.83	9.62	-0.425	-87.48	307.93	5.39 N	7.98 W	0.37	0.18	9.63	AT 304.05	054.86
450.0	449.78	12.00	-0.391	-87.08	306.95	6.84 N	9.87 W	0.81	0.40	12.00	AT 304.71	055.45
500.0	499.70	14.76	-0.279	-86.57	310.54	8.57 N	12.02 W	1.09	0.55	14.76	AT 305.50	059.58
550.0	549.61	17.81	0.000	-86.40	313.02	10.62 N	14.31 W	0.46	0.23	17.81	AT 306.58	060.98

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   550.0 FEET EQUALS    17.81    FEET AT   306.58          *
*                          ********                         *
*************************************************************
```

WELLBORE NAVIGATION, INC.
HORIZONTAL PROJECTION
FOR
ROSEBUD MINING COMPANY
WELL NAME: RS-429
JOB NUMBER: 29-0588-311
DATE: 03/08/97
SCALE: 5 FT./INCH



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-429 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/08/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00
WATER CONTACT= 505'

****
****** 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! *
**
**
**
**
****
****

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

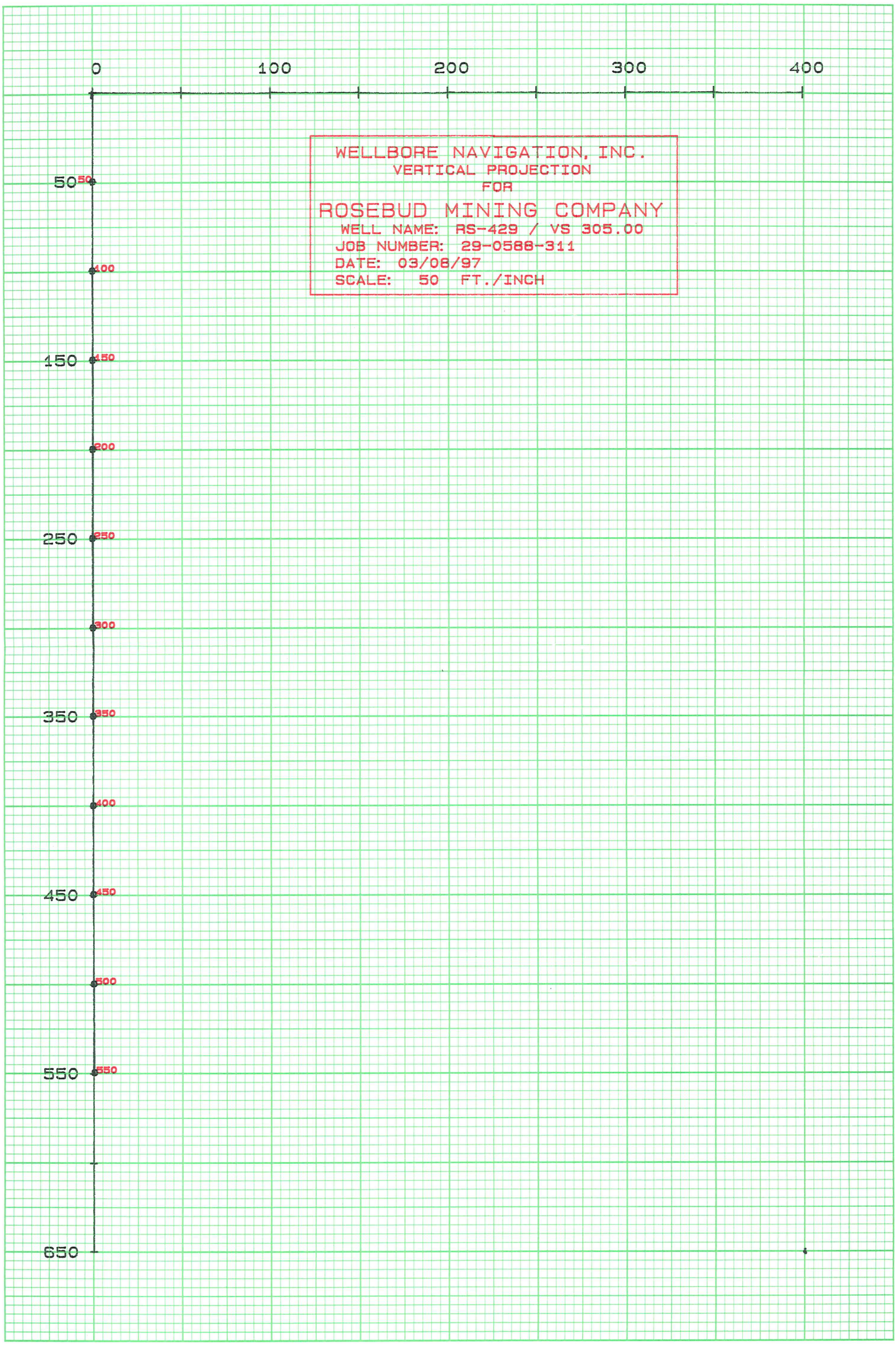
JOB NUMBER: 29-0588-311 WELL NAME: RS-429 / VS 305.00

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	-0.09	-0.165	-89.57	276.44	0.02 N	0.19 W	0.86	0.43	0.19	AT 276.44	049.16
100.0	100.00	-0.21	-0.447	-89.72	288.68	0.08 N	0.49 W	0.33	0.17	0.50	AT 279.44	050.52
150.0	150.00	-0.24	-0.974	-89.06	305.85	0.36 N	0.94 W	1.36	0.68	1.00	AT 291.05	051.53
200.0	199.98	-0.31	-2.061	-88.44	299.06	0.93 N	1.86 W	1.27	0.64	2.08	AT 296.55	052.39
250.0	249.96	-0.40	-3.436	-88.40	303.43	1.65 N	3.04 W	0.25	0.13	3.46	AT 298.43	053.05
300.0	299.93	-0.29	-5.257	-87.41	311.18	2.77 N	4.47 W	2.05	1.03	5.27	AT 301.80	053.65
350.0	349.88	-0.19	-7.457	-87.53	303.84	4.12 N	6.22 W	0.69	0.35	7.46	AT 303.51	054.18
400.0	399.83	-0.16	-9.632	-87.48	307.93	5.39 N	7.98 W	0.37	0.18	9.63	AT 304.05	054.86
450.0	449.78	-0.06	-12.003	-87.08	306.95	6.84 N	9.87 W	0.81	0.40	12.00	AT 304.71	055.45
500.0	499.70	0.13	-14.764	-86.57	310.54	8.57 N	12.02 W	1.09	0.55	14.76	AT 305.50	059.58
550.0	549.61	0.49	-17.808	-86.40	313.02	10.62 N	14.31 W	0.46	0.23	17.81	AT 306.58	060.98

```
*************************************************************
*                         ********                          *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                         ********                          *
*   550.0 FEET EQUALS     17.81    FEET AT   306.58         *
*                         ********                          *
*************************************************************
```

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-429 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 03/08/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00
WATER CONTACT= 505'

****
****** 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

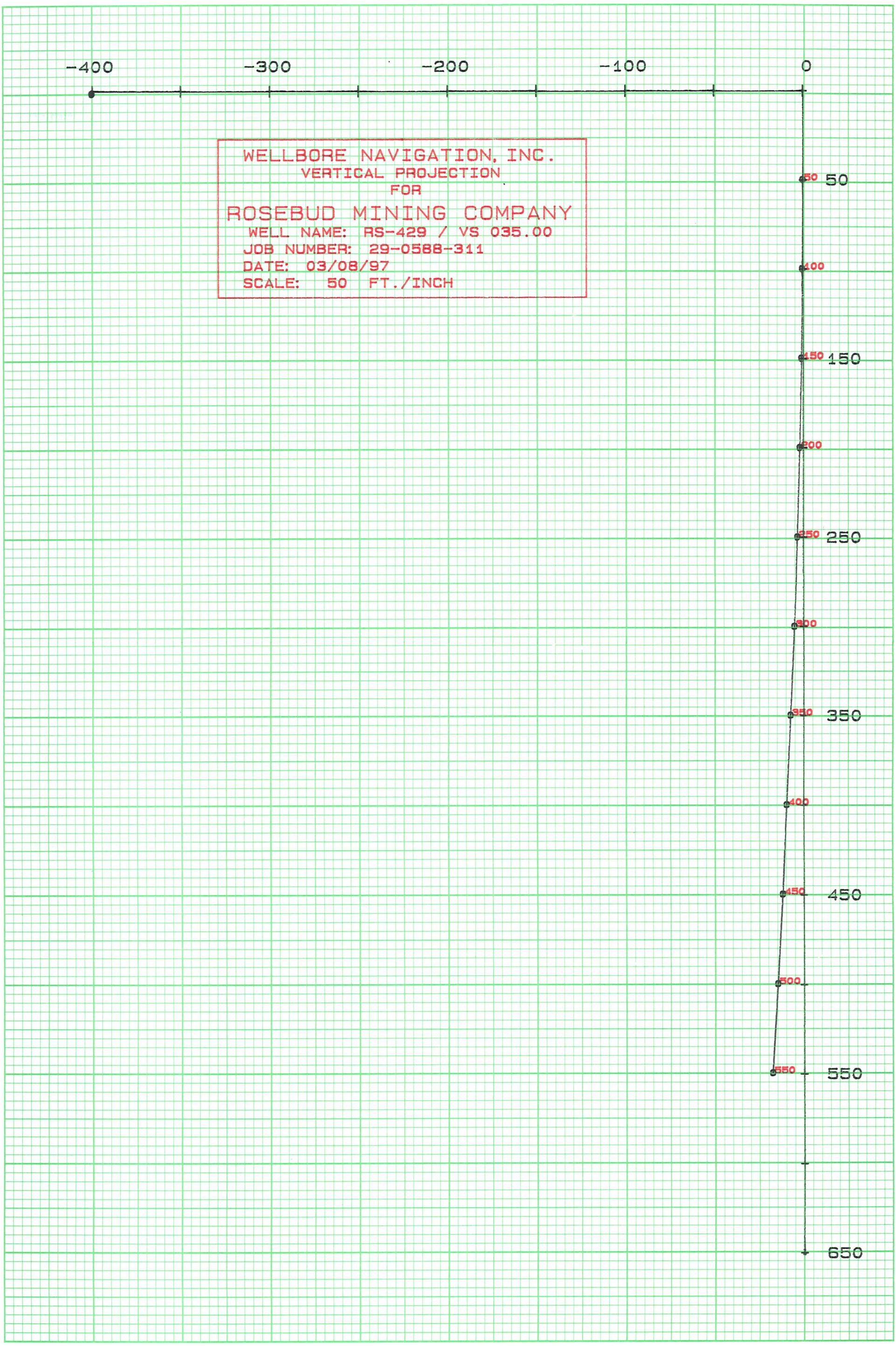
WELL NAME: RS-429 / VS 035.00

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	-0.16	0.090	-89.57	276.44	0.02 N	0.19 W	0.86	0.43	0.19	AT 276.44	049.16
100.0	100.00	-0.45	0.214	-89.72	288.68	0.08 N	0.49 W	0.33	0.17	0.50	AT 279.44	050.52
150.0	150.00	-0.97	0.242	-89.06	305.85	0.36 N	0.94 W	1.36	0.68	1.00	AT 291.05	051.53
200.0	199.98	-2.06	0.306	-88.44	299.06	0.93 N	1.86 W	1.27	0.64	2.08	AT 296.55	052.39
250.0	249.96	-3.44	0.396	-88.40	303.43	1.65 N	3.04 W	0.25	0.13	3.46	AT 298.43	053.05
300.0	299.93	-5.26	0.293	-87.41	311.18	2.77 N	4.47 W	2.05	1.03	5.27	AT 301.80	053.65
350.0	349.88	-7.46	0.194	-87.53	303.84	4.12 N	6.22 W	0.69	0.35	7.46	AT 303.51	054.18
400.0	399.83	-9.63	0.159	-87.48	307.93	5.39 N	7.98 W	0.37	0.18	9.63	AT 304.05	054.86
450.0	449.78	-12.00	0.060	-87.08	306.95	6.84 N	9.87 W	0.81	0.40	12.00	AT 304.71	055.45
500.0	499.70	-14.76	-0.128	-86.57	310.54	8.57 N	12.02 W	1.09	0.55	14.76	AT 305.50	059.58
550.0	549.61	-17.81	-0.491	-86.40	313.02	10.62 N	14.31 W	0.46	0.23	17.81	AT 306.58	060.98

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   550.0 FEET EQUALS     17.81    FEET AT  306.58          *
*                          ********                         *
*************************************************************
```

STARLIGHT PRINTING (801) 467-2841



SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 11530
Reno, NV 89510
Telephone
(702) 356-0606
Fax
(702) 356-1413

Tucson Office
2775 E. Ganley
Tucson, AZ 85706
Telephone
(520) 294-8078
Fax
(520) 294-6352

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: 03/29/98 Number of Samples: 45

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

RS-429 SAMPLE IDENTIFICATION			TYPE	ELEMENTS REQUIRED
550-555	614.2-619	668-671	CORE	AU-AG ACCORDING TO
555-560	619-623.3	671-676.3		ROSEBUD MINE PROTOCOLS
560-565	623.3-626.6	676.3-681		
565-570	626.6-629.5	681-686.1		
570-575.2	629.5-631.9	686.1-690		
575.2-580	631.9-633.4	690-694.2		
580-582.6	633.4-635.1	694.2-699.5		
582.6-584.2	635.1-637.9	699.5-704.5		
584.2-588.6	637.9-642.5	704.5-710		
588.6-593.6	642.5-645	710-715.1		
593.6-598.4	645-650	715.1-720		
598.4-601.7	650-655	720-725		
601.7-606.3	655-660	725-730		
606.3-610.6	660-664.5	730-735.4		
610.6-614.2	664.5-668	735.4-740		

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:

Pg 1 of 2
Total samples
60

CLIENT FILE COPY

SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 11530
Reno, NV 89510
Telephone
(702) 356-0606
Fax
(702) 356-1413

Tucson Office
2775 E. Ganley
Tucson, AZ 85706
Telephone
(520) 294-8078
Fax
(520) 294-6352

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: 03/ /98 Number of Samples: 15

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

RS-429 SAMPLE IDENTIFICATION	TYPE	ELEMENTS REQUIRED
740 - 744.5	CORE	Au-Ag ACCORDING TO ROSEBUD
744.5 - 748.2		& MINE PROTOCOLS
748.2 - 752.5		
752.5 - 756.6		
756.6 - 761		
761 - 765.3		
765.3 - 770		
770 - 774.8		
774.8 - 775.8		
775.8 - 779.2		
779.2 - 783.3		
783.3 - 787.7		
787.7 - 790.7		
790.7 - 795.6		
795.6 - 800		

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:

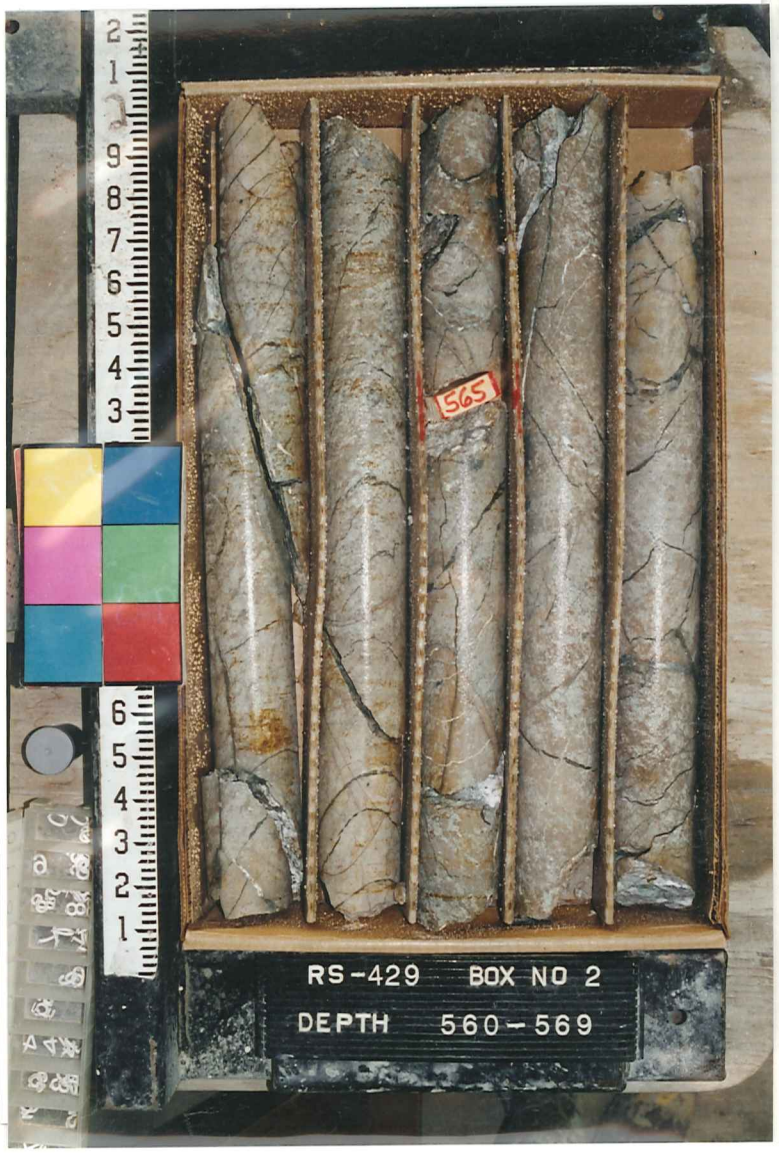
KURT ALLEN

Comments:

PAGE 2 OF 2

CLIENT FILE COPY

555
RS-429 BOX NO 1
DEPTH 551 - 560


565
RS-429 BOX NO 2
DEPTH 560 - 569

RS-429 BOX NO 3
DEPTH 569 - 578

5842
5826
RS-429 BOX NO 4
DEPTH 578 - 586.5

5936
RS-429 BOX NO 5
DEPTH 586.5-596

5984
RS-429 BOX NO 6
DEPTH 566 -604.5

610
606.3
RS-429 BOX NO 7
DEPTH 604.5-614

620
619.0
RS-429 BOX NO 8
DEPTH 614-623

630
629.5
626.6
622.9
RS-429 BOX NO 9
DEPTH 623-631.5

640
631.9
633.4
635.1
RS-429 BOX NO 10
DEPTH 631.5-640

645.0
642.5
RS-429 BOX NO 11
DEPTH 640-649

RS-429 BOX NO 12
DEPTH 649-658

660
666
RS-429 BOX NO 13
DEPTH 658-667.5

668.0
670
671.0
RS-429 BOX NO 14
DEPTH 667.5-676

680
681.0
679
RS-429 BOX NO 15
DEPTH 676-685.5

686
690
692
RS-429 BOX NO 16
DEPTH 685.5-695

700
699.5
RS-429 BOX NO 17
DEPTH 695-704

710
704.5
RS-429 BOX NO 18
DEPTH 704-713.5

715.1
730
RS-429 BOX NO 19
DEPTH 713.5-723

730
730.0
725.0
RS-429 BOX NO 20
DEPTH 723-736

740
735.8
RS-429 BOX NO 21
DEPTH 736-740.8

1445
150
1400
RS-429 BOX NO 22
DEPTH 740.8 - 750

1566
1525
RS-429 BOX NO 23
DEPTH 750 - 759

1670
1610
1653
RS-429 BOX NO 24
DEPTH 759 - 768.3

770
774.8
775.8
RS-429 BOX NO 25
DEPTH 768.3 – 777.4

780
777.2
783.3
RS-429 BOX NO 26
DEPTH 777.4 – 786.5

795.6
RS-429 BOX NO 27
DEPTH 786.5 – 795.5

NO. 79738 HQ DIV.
800
RS-429 BOX NO 28
DEPTH 795.5-806.TD