6000 0525

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-419
AUTHOR	G. Langstaff, S. King, K. Allen; R Vance; C. Ballew; V. Reid; D. Keyser; B. Kurpis J. Welch
DATE OF DOC(S)	1997-1998
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Newmont Gold Co.; Newmont Exploration Ltd; Rosebud Mining Co.; Hecla Mining Co.
COMMODITY If not obvious	gold; silver
NOTES	drill logs; assay; geology; photographs; geochemistry; total depth 750'; invoices 84 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 3/18/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

RS-419

60000525
4010

60000525

NEWMONT EXPLORATION LIMITED — DRILL HOLE SUMMARY

Project: Rosebud Location: Hecla's East Zone Drill Hole No.: RS-419

State: NV Co.: Pershing T.: R.: S.:

Purpose: Mine Geology Infill Results:

Date Started: Date Finished: 10/22/97 - 10/23/97 rc; 11/2/97 - 11/4/97 core

Grid System: Northing: Easting: Elevation:

Collar Az/Inc.: / -90 Drill Site: Total Depth: 750

Geologist(s): Log Date(s): Laboratory:

HOLE CONSTRUCTION AND HISTORY

CASING (INTERVAL):

From	To	Hole Type/Size	Started	Completed	Contractor
0	550	rc /			Ekland
550	750	core / HQ			Boart-Longyear
		/			
		/			

LITHOLOGIC SUMMARY				ALTERATION/ MINERALIZATION	SIGNIFICANT ASSAYS				
From	To	Formation	Rock Type		From	To	Width	Au oz/st	Cutoff

DOWNHOLE SURVEYS

Directional Date:

Other

Depth (ft)	Azimuth	Inclination
750	30'e 275°	-86.8°

Water Table Depth:

Water Flow Rate:

COMMENTS

see Welnar survey

6000 0525

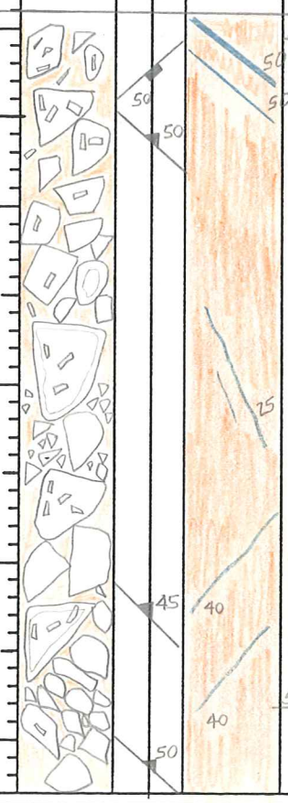
- quartz, chalcedony, silicification
- faults, fractures
- FeOx
- sulfide
- calcite, carbonate
- argillization, white clays
- propylitization
- potassic alteration
- chlorite, chloritic clays

Hecla
MINING COMPANY

ROSEBUD PROJECT
DIAMOND DRILL LOG

HOLE NUMBER	RS-419	LOCATION	EAST, SURFACE
PAGE 1 OF 4		NORTHING	
DATE	01/30/98	EASTING	
LOGGED BY	748m	ELEVATION	
SCALE	1"=10'	AZIMUTH	—
TOTAL DEPTH	750(?)	INCLINATION	-90°

REMARKS

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
		CORE POINT: 549.0'	540			
549.0-610.9 CHOCOLATE LLT	549.0-603.4' OXIDE	549.0'-600.8': CHOCOLATE VOLCANIC BRECCIA: PORPHYRITIC PLAG-BEARING, APHANITIC, ANGULAR, VOLCANIC FRAGMTS FLOAT IN A DARK MARDON-PURPLE MATRIX OF ROCK FLOUR P/O ASH. THE FRAGMENTS ARE LIGHTER PURPLE/LAVENDER & SOME HAVE A FOLIATED PUMICEOUS FABRIC. LOCAL WKLY DEVELOPED SHEAR FABRIC TO 593. THE GLOMEROPORPHYRITIC, SLIGHTLY FEATHERY, WHT, CLAY ALTERD PHENOCRYSTS THAT CHARACTERIZE THIS UNIT SOMETIMES APPEAR SCATTERED UNIFORMLY ACROSS BOTH THE MATRIX AND FRAGMTS AS THO THEY FORMED AFTER EMPLACEMT OR AS THO THIS WERE A COMPOSITIONALLY HOMOGENEOUS ALTD BRECCIA. COBBLE-SIZED, SUB-ROUNDED, SLIGHTLY DARKER, RED-PURPLE FRAGMTS CONTAIN A GREATER DENSITY OF PLAG CLUSTERS AND ARE MORE XENOLITHIC IN APPEARANCE THAN THE DOMINATE SUB-ANGULAR, APHANITIC, DUSTY LAVENDER FRAGMT TYPE. 593.0: STRONG TO MODERATE FOLIATION OR SHEAR FABRIC.	550 560 570 580 590		549.0'- : TRUE JOINTING SPARSE TO ABSENT 593.0': MOD. SHEAR FABRIC	549.0'-609': SPARRY WHT CALCITE VNS, WK TO MOD. 549.0'-603.3': MARDON-PURPLE STRONG PRIMARY HMOx STAINING THRU OUT. WK CLAY IN MATRIX, INCREASED SLIGHTLY BELOW 593.0'.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag
549.0	554.6		<	<		
554.6	560.7		<	<		
560.7	566.0		<	<		
566.0	570.7		<	<		
570.7	575.4		<	<		
575.4	580.8		<	<		
580.8	585.8		<	<		
585.8	591.2		<	<		

HOLE NUMBER RS-419 PAGE 2 OF 4

DEPTH	OX/RED	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
549.0'-610.9' CHOCOLATE	549.0-611.4 OXIDE	594.7': LITHIC VOLCANIC BRECCIA CONTINUES BUT INTENSITY OF MARDON'-PURPLE HMOX STAINING INCREASES AND THE SHEAR FABRIC IS STRLY DEVELOPED IN MATRIX-RICH ROCK TO 603.4'.	590			CONTINUED WK TO MOD. LOCAL CALCITE VNING & MOD. PERVASIVE CALCITE; TO 610.9'.
		603.4-603.7': BLCHED, CLAY ALTERED, TRANSITION	600			
		603.7-610.9': BLCHED AND SPOTTILY ARGILLIZED CHOCOLATE LIT BRECCIA AS DESCRIBED FOR THE INTERVAL FROM 549-594.7'. TEXTURALLY IDENTICAL. HMOX STAINING DECREASES DOWNHOLE THRU THIS INTERVAL				603.4-603.7': PALE SAGE GRN STRONGLY CLAY ALTERED WAXY SHEARED ZONE AT BASE OF MATRIX-RICH UNIT. 603.7'-607.3': MODERATELY BLCHED AND ARGILLIZED W/ CERTAIN FRAGMTS MORE STRONGLY ARGILLIZED TO LT. GRN CLAY. BRICK RED MATRIX.
		610.9-611.4': REDOX BOUNDARY	610			
610.9'-637.6 S. RIDGE FAULT	611.4'-750 REDUCED	610.9': PYRITIC VN AT TOP OF FAULT GOUGE ZONE. MILLED PALE TAN FAULT BXA PACKED IN GOUGE TO 616.4'. GRN CLAY ALT'N COLORS GOUGE & MILLED BRECCIA BELOW 611.4', WHERE HMOX DISAPPEARS.			610.9': MILLED, UNHEALED FAULT BXA BEGINS. UNINTERUPTED FINELY MILLED FAULT BXA TO 616.	607.3-610.9': STR/MOD BLCHING & CLAY ALT'N. 610.9': 1/2" WIDE DULL BRASSY PY VN IN FIRST FAULT GOUGE
		611.4'-616.0': LT SEA GRN CRUSHED & MILLED WALLROCK & FAULT GOUGE. MAY BE DERIVED FROM OVERLYING CHOCOLATE, BUT THE COLOR SUGGESTS SOME BUD.			611.6-611.7': STR. MILLED STRAND AT 45° TO C/A.	
		616.0-616.6: BUD.	620		616.0'-619.0': INTERSPERSED UNHEALED MILLED FAULT BRECCIA & BLOCKS OF UNBHEARED BRECCIA(?)	610.9'-616': STR TO MOD. GRN CLAY ALT'N. NO VNING. 616'-619': CONT'D MOD. GRN CLAY ALTERATION W/ MOD. SILICIFICATION AND GRY SILICA-SULFIDE AS LOCAL OVERPRINT & REPLACEMT.
624.9-628.9 DOZER?		616.0'-619.0': SOLID WAXY GREEN CLAY ALTERD BLOCKS OF WALLROCK IN BTWN MILLED FAULT BRECCIA STRANDS. DULL SEA GRN MILLED ROCK GRADES DOWN INTO, OR IS OVERPRINTED BY SILICIFICATION AROUND 619.				
		619.0'-622': DIFFUSE ILL-DEFINED HETEROLITHIC BRECCIA.	630			619-622': SPOTTY MODERATE PERVASIVE SILICIFICATION OVERPRINTS WAXY GREEN CLAY ALT'N. STR. GRY SILICA FLOODS BXA MATRIX COMPLETELY BY ~622. + MOD. MARC. MINOR QZ+/- STIBNITE OR WHT CLAY VNLTS PRESENT
		622-624.9': MATRIX-SUPPORTED, SILICA-FLOODED, HETEROLITHIC STRONGLY MILLED FAULT BRECCIA. SUB-ROUNDED PEBBLE-SIZED FRAGMTS OF VARIOUS LITHOLOGIES, (MOSTLY BUD) FLOAT IN SILICIFIED MILLED ROCK FLOUR.				
637.6'-750.0 DOZER		624.9-628.9: SEA GRN, TIGHTLY-PACKED, MONOLITHIC DOZER CRACKLE BRECCIA.	640			619-625'. 625.0-628.9': STR. QZ+ WHT CLAY +/- SULFIDE VNING. 628.9-629.8': LT. GRY TOTAL REPLACEMT SILICA. 629.8'-631.4': MOD. GRN CLAY ALT'N AND PERVASIVE SiO_2 631.4'-637.6': TR. TO WK GRN CLAY IN MATRIX; MOD. TO WK SILICA THRU OUT. STR. SILICA+WHT CLAY VNS. CONT'D MOD. MARC. FROM ~622.
		628.9-629.8': TOTAL SILICA REPLACEMT				
		629.8'-631.3': SEA GRN SUB-ROUNDED UBUD FRAGMTS IN A WKLY SILICIFIED RK FLOUR MATRIX OF THE SAME(?)				
		631.3'-637.6': BXA ABOVE CONTINUES. FRAGMENT POPULATION CHANGES TO SUB-ANGULAR, PALE GRNISH-CRM DOZER. THE DOZER BRECCIA HAS A WELL-DEFINED MOSAIC TEXTURE. LARGER FRAGMTS SHOW PREVIOUS (AUTOBXA?) MOSAIC BXA TEXTURE W/IN DOZER. MATRIX = SEA GRN (BUD) RK FLOUR.	650			
		637.6'-750': PALE BUFF-GRY-GRN, FAINTLY AUTOBRECCIATED SOLID DOZER.	660			637.6'-~680': MOD TO STR. SILICA + MARC +/- CALCITE VNS & VNLTS. LOCALLY W/ RUDDY HMOX HALOS (FAINT) TRACE SiO_2 NEAR VNS.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
585.8	591.2				
591.2	594.7		<	<	
594.7	599.0		<	<	
599.0	603.4		<	<	
603.4	607.3		<	.02	<
607.3	610.8		<	<	
610.8	611.4		.001	<	
611.4	616.0		<	<	
616.0	619.2		<	.05	
619.2	622.1		.024	1.22	
622.1	624.9		.029	.98	
624.9	628.7		.103	.24	.135
628.7	629.8		.117	.14	.137
629.8	631.4		.028	.34	
631.4	634.8		.015	.03	
634.8	637.6		.009	.03	
637.6	642.2		.023	.05	.033
642.2	647.4		.128	.15	.121
647.4	652.2		.01	.06	
652.2	657.1		.012	.03	

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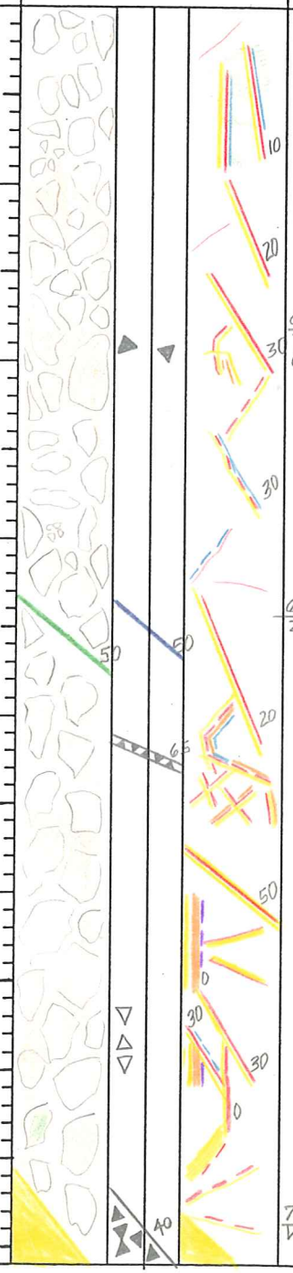
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
637.6'-750' DOZER	549.0-750.0' REDUCED	637.6'-750 : CONT'D PALE BUFF-GRAY FAINTLY AUTOBRECCIATED DOZER.	660 670 680 690 700 710 720 730		678'-680': WKLY DEVELOPED TIGHTLY PACKED VN CRACKLE BRECCIA. 695.4': 1" PALE GRNISH GOUGE ZONE. WK SHEAR IN DOZER 729.7-731.8': SILICA CEMENTED VN CRACKLE BRECCIA.	WK GRN CLAY SELVAGES ON SILICA-MARCASITE VNS 637.6'-680': MOD'LY STRONG SiO2 + MARC +/- CALCITE VNS. PYRITIC BLEBS COMMON IN WALLROCK ALTHO OFTEN PROXIMAL TO VEINS. PYRITE AFTER MARCASITE COMMON. CALCITE GONE BY 685'; TRACE BTWN 690-701'. 680-701': ~~XXXX~~ MODERATE QUARTZ+MARCASITE +/- CALCITE VNING ~~##~~ LESS LARGE MILKY SILICA VNING. 701.0': CALCITE PICKS UP PRESENT AS LATE VEIN FILL. 701.2-703.0': SILICA + MARCASITE CEMENTED VN BRECCIA. MOD. TO STRONG SILICA-MARCASITE TO 705.0'. MOD., WK FROM 705-713. STR. AGAIN FROM 713-720'. 709.5': 3-4" WIDE MILKY SILICA + MARCASITE VN. 712.7-713.7': VN CRACKLE BXA ANGULAR FRAGMTS OF DOZER IN A SILICA+MARCASITE+/- WHT CLAY CEMENT. 717.0-719.0': WHT CLAY SEAM SUB-// CTA. +/- MARCASITE, FINE DRUSY QZ. AND BARITE. ~725': SLIGHTLY ENHANCED LT. GRN CLAY IN AUTO.BXA "FRAGMTS" TO MOD. PERVASIVE. 729.7-731.8': STRONG SILICA +/- MARCASITE BXA, CORED WITH WHT CLAY + PYRARGERITE

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
657.1	662.2		.006	.04	
662.2	667.0		.002	.03	
667.0	672.3		.032	.36	.022
672.3	676.0		.013	.07	
676.0	680.5		.006	.08	
680.5	685.5		.049	.06	.063
685.5	690.8		.020	.11	
690.8	695.4		.043	.23	
695.4	701.2		.063	.42	.058
701.2	702.9		.144	1.84	.136
702.9	708.1		.013	.08	
708.1	713.2		.025	.19	.022
713.2	717.2		.067	.82	.074
717.2	719.1		.104	25.87	.118
719.1	724.6		.018	.21	
724.6	729.8		.014	.60	

HOLE NUMBER RS-419 PAGE 4 OF 4

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
637.6-750 DOZER	549-750 REDUCED	CONT'D BUFF-GRN-GRY AUTOBRECCIATED DOZER TO TD.	730 740 750		729.7-731.8: MULTI-EPISODE VN BRECCIA.	729.7-731.8: STR. SILICA, MOD. ~~PYR~~ MARC. CEMENTS DOZER CRACKLE BRECCIA. 2ND BRECCIA EPISODE IS PARTIALLY CEMENTED WITH BLOCKY BARITE. THIS BRECCIA VN IS CORED WITH SOFT WHT CLAY & SUBHEDRAL PYRARGERITE, ~2-3" WIDE. 731.8'-740: E. Si-MARC VNLTS CONTAIN WHT CLAY + PYRARGERITE CTRS TO 740! ~743: CALCITE FOUND AGAIN IN Si+MARC VNS. LOSE WHT CLAY.
		T.D. 750'				

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
729.8	732.3		.027	20.81	
732.3	736.8		.083	2.60	.066
736.8	740.2		.032	5.62	
740.2	745.1		.014	1.66	
745.1	750.0		.014	1.54	

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-419 DATE 01/30/98 LOGGED BY: HSM PAGE 1 OF 2

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)
549.0	552.3	93.0	97.0	78.8										
552.3	560.7	100.0	100.0	94.0										
560.7	570.7	100.0	100.0	83.0										
570.7	574.3	102.8	102.8	83.3										
574.3	582.0	100.0	100.0	100.0										
582.0	592.1	101.0	101.0	87.1										
592.1	602.1	97.0	97.0	87.0										
602.1	612.1	100.0	100.0	71.0										
612.1	622.1	102.0	102.0	25.0										
622.1	632.1	101.0	101.0	87.0										
632.1	642.2	101.0	101.0	88.1										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-419 DATE 01/31/98 LOGGED BY: HBM PAGE 2 OF 2

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)
642.2	652.2	99.0	99.0	98.0										
652.2	662.2	101.0	101.0	93.0										
662.2	671.2	100.0	100.0	94.4										
671.2	681.3	100.0	100.0	91.1										
681.3	691.3	99.0	99.0	93.0										
691.3	701.2	102.0	102.0	83.8										
701.2	711.2	100.0	100.0	84.0										
711.2	721.3	96.0	96.0	72.3										
721.3	731.5	99.0	99.0	92.2										
731.5	740.8	95.7	95.7	86.0										
740.8	750.0	105.4	105.4	94.6										

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 1 of 11
Log'd by: G. Langstaff Date: 1/6/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
5																				colluvium?		white, brown, and yellow chips with some brown clay		
10																								
15			mostly 10YR4/4 yellow brn	Vdc	aph	massive	<1	.2-.5mm	prism speck chunk	black	hbl	W	patchy	bleaching	—						TcFG (hbl only)	bleaching and yellow brown color accompanied by only minor destruction of hbl		
							<1	.2-.5mm	speck chunk	white	?													
								mostly	in bleached patches															
20			5YR3/4 mod brn																					
25			mottled 10YR5/4 10YR3/2																					
30			mostly N4 grey w/stains of brn			minor, local brecciation to 50'	~1	.2-1mm	prism chunk	black	hbl											slightly calcareous to 35' red brown "staining" may be related to brecciation		
							<1	1mm	chunk	white	amygd?													
35			5YR4/1 5YR3/2				<1	1.5mm	irreg	white	amygd?													
40																								
45																								
50																						chips are knobby		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 2 of 11
Log'd by: G. Langstaff Date: 1/6/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
55	Δ?		mostly N4-5YR4/1 grey-bn grey mottled	Volc	aph	massive w/minor local brec.	<1	.2-.5 mm	prism chunk	black	hbl										TcFG (hbl only)	small magnetic chips many chips to 62' have knobby texture most hbl preserved but there may be local bleaching		
60			with 10R3/4 red brn																					
65			mixture of 10YR6/6	Volc	aph-vf	massive						w m	pervasive patchy, veins?	arg Fe	white clay limonite						altered TcFG	trace platy sulfide?		
70			dk yel orange 10YR7/4-5GY7/1 grey-org													<1mm	rare	limonite	black FeMnox?			minor pale grey-orange clay in samples		
75			to gingrey																					
80							<1	.5-1mm	long chunk	pale green	chl?											trace sulfide		
85			mostly	Volc	aph	massive	<1	.2-1mm	prism chunk	black	hbl										TcFG (hbl only)	slightly colorless to 100'		
90			N4 with shades brn and red brn			possibly minor brecciation	<1	2.5mm	irreg	white	amygd?											most chips have knobby texture irregular mottling with red-brown may be slightly bleached		
95			staining																					
100																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 3 of 11
Log'd by: G. Langstaff Date: 1/6/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
105			mottly 10R6/2 to N5-N6 pale red	Volc	aph	massive, local minor brecciation	~1	.2-1mm	chunk prism	black	hbl	possibly slight bleaching									TcFG (hbl only)	weakly calcareous lacks knobby texture for most part and not as much mottling		
110			dark gray with some 5YR3/4 brown																			slightly calcareous to 135'		
115																								
120							<1	1mm	chunk	green	chl?					<1mm	rare	?	calcite			more brecciation 115-135		
125																								
130																								
135																						local bleaching adjacent to red "breccia vein"		
140			less brn N4-N5 w/10R2/2 red brn																			weakly calcareous to 150'		
145																								
150			10YR6/1-N5 w/ red brn													<2mm	pres	none	calcite			magnetic chip local bleaching		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 4 of 11
Log'd by: G. Langstaff Date: 1/6/58	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips	

Depth (ft.)	GRAPHIC: Rock	GRAPHIC: Alt/Vn	ROCK: Color	ROCK: Rock Type	ROCK: Grain Size	ROCK: Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS: %	Size	Shape	Color	Mineral/ Type	ALTERATION: Int.	Distrib.	Type	Minerals	VEINS: Thick.	Abund.	Selvedge	Minerals	INTERPRETATION: Rock Name/ Composition	Formation	Comments	Recovery	Assay
155			10R4/4 red brn w/some dk red	Volc	aph	massive, local minor brecciation	~1	.2-.8mm	prism chunk	black	hbl					<3mm	rare	none	calcite		TcFG (hbl only)	slightly calcareous to 180' dk red-brown "veins" probably breccia matrix		
																<2mm	rare	none	pale green clay					
160			mostly N4-N5 grey with				<1	.5mm	angular	clear	feld?										TcFG w/feld	magnetic chip		
165			10R2/2 dk red																					
170																								
175							<1	1mm	chunk	vitr. grey	amygd?													
180																					TcPG (hbl only)			
185																						weakly calcareous to 200'		
190																								
195							<1	.5mm	angular	clear	feld?										TcPG w/feld		
200							<1	1mm	prism	vitr grey	feld					<2mm	rare	?	calcite					

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 5 of 11
Log'd by: G. Langstaff Date: 1/6/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
205			10R6/2 - 5YR6/1 - N5 pale greyred	Vole	aph	massive, minor local breccia	~1	.2-.5mm	prism chunk	black	hbl										TcFG (hbl only)	weakly calcareous to 230'		
210			brown w/some 5R4/2 - 10R4/2				4	1mm	chunk	pale green	chl?					<2mm	rare	?	calcite					
215	*?		greyred				<1	2mm	irreg	grey-white	amygd?													
220			mostly 5GY6/1 pale grn grey w/ some paler	Vole	aph-vf	massive	<1	.2-.5mm	irreg	clear	?	w	pervasive	org	whitecloudy	<3mm	pres	?	calcite		altered TcFG	trace dissem pyrite		
							<1	1.5mm	prism	vitr.grey	feld?					<1m	rare	?	pale grn grey clay					
							<1	.5mm	chunk	green	chl?													
225																								
230							<1	1mm	chunk	vitr.grey	feld?											pale grn grey clay chip from vein?		
							<1	.2-.5mm	irreg	clear	?					<3mm	rare	?	py ± qtz		...			
																<2mm	rare	?	py/marc? + cal					
235							<1	1mm	long	pale grn	chl?											slightly calcareous to 246		
240							<1	1mm	irreg	green	chl?					<3mm	pres	?	py ± qtz ± cal			less vein sulfide, minor dissem sulfide		
245							<1	1mm	long irreg	green	chl?								calcite			minor dissem sulfide		
	*?						<1	.5-1mm	irreg	pale grn	chl?											trace dissem sulfide		
							<1	1-2mm	irreg	white	amygd?													
250			see	description	on next	page																		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 6 of 11
Log'd by: G. Langstaff Date: 1/6/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-555 chips	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
255	*?		N5-N6 grey w/ local 10R2/2	Volc	aph	massive, rare local breccia	~1	.2-1mm	prism chunk	black	hbl										TcFG (hbl only)	magnetic chip paler grey matrix suggests minor bleaching but much hbl preserved slightly calcareous to 260'		
							<1	1-2mm	irreg chunk	white	amygd?													
								some is calcite																
260			stain mottles, fractures				<1	.5mm	irreg	clear	?													
265	Δ															<2mm	rare	none	cal±clay?			weakly calcareous to 290'		
270	*?						<1	1mm	irreg	pale green	clay?											magnetic chip to 275		
275	*?																					green thing in white amygdale?		
280	Δ																							
285	*?																							
290	*?															<2mm	rare	?	calcite					
295	Δ																					slightly calcareous to 200'		
300	*?																							

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 7 of 11
Log'd by: G. Langstaff Date: 1/6/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	Size	Shape	Color	Mineral/ Type	ALTERATION Int.	Distrib.	Type	Minerals	VEINS Thick.	Abund.	Selvedge	Minerals	INTERPRETATION Rock Name/ Composition	Formation	Comments	Recovery	Assay
305			mostly NS (N4-N6)	Volc	aph	massive, local	~1	.2-1mm	prism chunk	black	hbl										TcFG (hbl only)	slightly calcareous to 315'		
			grey of 10YR 2/2			breccia	<1	.5mm±	irreg	clear	?													
310			stain mottle fractures				<1	1-2mm	irreg	white	amygd?					<2mm	rare	?	calcite					
315																						more brecciation 310-330'		
320																						weakly calcareous to 350		
325																								
330							<1	2mm	prism	gray-white	feld?										TcFG w/ feld			
							<1	.5mm	irreg	pale grey green	clay?													
335							<1	.5mm	irreg	clear	?													
340							<1	5mm	long	white	feld?													
							<1	.5mm	chunk	pale grn grey	clay?													
							<1	1mm	irreg	vitr grey	calcite amygd?													
345							<1	2mm	long	white	feld?											not the first xenolith but the most obvious, pale green margins, lack hbl microphenos		
							<1	5mm	round	dk grey	xenolith													
350							<1	2mm	long	white	feld?													
							<1	2mm	long	pale grey green	feld → clay?													

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419 Page 8 of 11
Log'd by: G. Langstaff Date: 1/6/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/Composition	INTERPRETATION Formation	Comments	Recovery	Assay
			for description			see previous	page														altered	some chips show transition from med gray,		
			5G 6/1	Volc	aph	massive	<1	.5-1.5mm	irreg	vitr. grey	?	W	pervasive	arg	grn-white clay						TeFG	hbl-phyric to pale grn grey aphyric		
			grn grey				<1	.5mm	round	green	chl?											weakly calcareous to 360'		
355	*?						<1	2-3mm	irreg	grn grey	amygd?											trace dissem pyrite		
							<1	.5mm	round	green	chl?													
				Sed?	aph-vf	massive,	<1	.5-1mm	prism round	green	chl?	W	pervasive	arg	white clay						altered	trace dissem pyrite		
360						locally															TcLLT			
						faintly	<1	1-3mm	prism round	pale grn green	chl?	W	patchy	py	py±qtz	<3mm	rare	?	py±qtz					
						clastic																		
			5Y 8/1																					
365			pale yel grey																					
			streaked,				<1	.5mm	irreg	green	chl?													
			mottled																					
			with																					
370			5YR 6/4																					
			brown		<vf-75mm	matrix-and clast-sup breccia	40-60	<.2->5mm	ang subroun	white	volc clast	W	in clasts	arg	white clay									
							<1	1mm	prism	green	chl?													
375																								
			N6-N8									W	in matrix	sil	qtz							magnetic sulfide mineral		
			pale grey				<1	.5-2mm	round prism	green	chl?										...	bladed mare? in rock		
			to almost																					
380			white,																					
			locally																calcite			wad of bladed yellow mare? and in qtz		
			5YR 4/4																			chip of hard red-brn chalcedony (?)		
			brown,																					
385			patchably																					
			below																					
			350'				<1	.5-1mm	irreg	green	chl?													
390																								
																						magnetic chip with sulfide		
							<1	.5mm	irreg	green	chl?											chips of hard red brn chalcedony (?) are		
																						cut by pyrite		
395																								
																						magnetic chips with sulfide		
							<1	1-1.5mm	prism	green	chl?											bladed mare? in rock		
																						chips of hard red-brown chalcedony (?)		
400																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 9 of 11
Log'd by: G. Langstaff Date: 1/7/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	Size	Shape	Color	Mineral/ Type	ALTERATION Int.	Distrib.	Type	Minerals	VEINS Thick.	Abund.	Selvedge	Minerals	INTERPRETATION Rock Name/ Composition	Formation	Comments	Recovery	Assay
405			N7-N8	Sed?	<vf-	clast ?:	40-	.2-.5mm	arg-subrnd	white	vol clast	W	pervasive	arg	whiteclay	hair thin	pres	none	qtz		altered	hard chip of red-brn chalcedony (?) w/py		
			pale grey		25mm	matrix-sup	70?						m-strong	m clasts		1mm	rare	?	qtz		TcLLT			
			w/some			breccia	<1	.5-1mm	chunk prism	green	chl?	W	patchy	py	py±qtz	<3mm	rare	?	py+qtz					
			5YR5/2			(but many													±wh.clay					
410			pale brn			chipslack																magnetic sulfide mineral		
			more in			clastic	<1	1mm	prism	green	chl?					<3mm	pres	?	py+qtz			bladed mare? in qtz & white clay		
			matrix			texture)													±wh.clay			chips of hard red-brn chalcedony (?)		
			than clasts																			more pyrite and mostly from veins		
415		X					<1	.5-1mm	chunk prism	green	chl?	W	patchy, matrix	sil	qtz							pyritic silicified chip w/slickensides		
		X																				bladed mare? in qtz		
420		X	more																			magnetic sulfide mineral		
			uniform				<1	4mm	irreg	pale green	amygd?→ clay?											bladed mare? in qtz		
		X	5YR8/1				<1	1-2mm	chunk prism	green	chl?													
			pink grey																					16
425							<1	1-2mm	prism round	green	chl?					<1mm	rare	?	pale green grey clay			very slightly calcareous to 430'		
																						bladed mare? in qtz		
																						no more chips of qtz w/dissem py cubes		215
430			generally													<1mm	rare	?	pale green grey clay			rare pyrite possibly from above, or		
			5Y6/1-7/1	Volc?	vf	granular	<1	.5-1mm	prism round	green	chl?	W	pervasive	arg	whiteclay							just vein chips		
			olive grey			w/o apparent										<3mm	rare	?	py±qtz					
						clastic																		0
435						texture	<1	1-2mm	prism round	green	chl?	W	patchy	py	py often in siliceous patches	<2mm	rare	?	calcite		?	slightly calcareous to 450'		
																						chip w/clastic texture		
																						few med grey aphanitic chips		
																						some brown staining		
440							<1	.5-2mm	round prism irreg	green	chl?											magnetic sulfide minerals to 450'		
																						chips of greenish-white clay		
																						chip of py+white clay from above (?)		
																						some brown staining		
445			paler				<1	1mm	irreg prism	green	chl?													
			5Y7/1-8/1																					
			yellow grey	Sed?	<vf-	some clastic															altered			
					25mm	textures															TcLLT			
450							<1	1-2mm	irreg prism	green	chl?					<1mm	rare	?	py+pale grn grey clay					
																<2mm	rare	?	py+qtz+	white clay				
																hair thin	rare	none	qtz					

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 10 of 11
Log'd by: G. Langstaff Date: 1/8/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
455			5Y7/1± pale olive grey	?	vf w/ clasts .2 to 25mm	granular w/uncommon clastic textures	? <1	<.2 to >5mm? 1mm	ang sub prism irreg	white green	vole clast chl?	w	in clasts	arg	white clay	<3mm	pres	none	py±qtz ±calcite ±white clay		altered TcLLT	magnetic sulfide mineral very slightly calcareous to 480' hard red-brn chalcedony(?) chip w/py		
460			more 5YR3/4 brown			(clast & matrix-sup)	<1	1-1.5mm	prism irreg	green	chl?					<2mm <3mm	rare rare	? ?	white clay py±qtz			hard red-brn chalcedony(?) rare dissem pyrite		
465			brown & some N5 grey				<1	1-2mm	irreg prism	green	chl?											magnetic sulfide mineral to 475' hard red-brn chalcedony(?) most breccia with brown matrix		
470							<1	1mm	irreg	green	chl?													
475			5Y7/1- 5YR7/1 pale olive grey				<1	1-1.5mm	prism irreg	green	chl?											bladed(?) marc(?) in qtz		10
480					aph-vf	less granular w/more aph chips	<1	1-2mm	prism irreg	green	chl?					<1mm hair thin	rare rare	? none	pale green grey clay qtz			bladed(?) marc(?) in qtz minor calcite associated with qtz + trace pyrite in vein(?)		308 278
485							<1 <1	.5-1mm .5-1mm	prism irreg round	green vitr. grey	chl? feld?					<1mm <2mm	rare rare	? ?	pale green grey clay calt qtz?			slightly calcareous		9
490			some 10YR5/4 yel brown		aph-vf clasts but	more common clastic tex to 500'	<1	1-2mm	irreg prism	green	chl?	w	patchy dissem	py	pyrite							weakly calcareous to 500' very little pyrite to 500'		
495			5YR5/1- 5Y6/1 greyolive brown		clasts .2-25mm		<1	1mm	prism	green	chl?					<2mm	rare	?	calt qtz?					
500							<1 <1	3mm 1-2mm	irreg irreg prism	white green	amygd? chl?													

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-419	Page 11 of 11
Log'd by: G. Langstaff Date: 1/8/98	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): 0-550' chips	

Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	Size	Shape	Color	Mineral/ Type	ALTERATION Int.	Distrib.	Type	Minerals	VEINS Thick.	Abund.	Selvedge	Minerals	INTERPRETATION Rock Name/ Composition	Formation	Comments	Recovery	Assay
505			5YR6/1-7/1 pale brn	Sed?	<vf-?5mm	local clast ?? matrix-sup breccia; clasts aph to granular		.2-4mm .5-2mm	ang round irreg prism	white green	volc clast chl?	W	in clast	crg	white clay	<2mm	rare	?	py+qtz		altered TcLLT?	weakly calcareous trace dissem pyrite		
510																<3mm	rare	?	py±qtz ±calcite			slightly calcareous to 515'		
515			5YR7/1-5GY7/1 brn grey-grn grey																			magnetic sulfide minerals to 530' bladed mare? in qtz+cal vein		
520																						bladed mare? in qtz and green wall rock rare dissem pyrite		
525							<1	1mm	chunk	vitr. grey	folds?											rare dissem pyrite rare grass-green chips w/pyrite (veins?)		
530																						weakly calcareous to 550'		
535																								
540			N4-N5 med grey w/ lots of 10R2/2-	Sed?	<vf-?4mm	matrix? clast-sup breccia	30-60 <1	3-5mm aphanitic volc. hbl 3mm	ang subround irreg	black-pale grey w/v. sparse tiny white	volc clast calcite envgd?					<2mm	rare	none	calcite		TcLLT	small magnetic chips to 550' lots of small, soft red-brn chips (clayey matrix?) bleaching around big green prism		
545			5YR2/1 brn-black				<1	1-2mm	prism	green	chl?											pyrite+green thing w/pale .2mm halo		
550																								

generally clast-supported LLT breccia w/clasts up to 4cm and generally red matrix in core

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 0048107-IN
INVOICE DATE: 03/03/98

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-419	DEVELOPMENT	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
49	SAMPLES RECEIVED	.00	.00
48	DRYING	2.00	96.00
48	JAW CRUSHING CHARGE	2.60	124.80
48	COARSE MILLING CHARGE	9.00	432.00
48	SPLITTING CHARGE	2.40	115.20
48	RING MILLING CHARGE	2.00	96.00
49	Au (1 A.T. FIRE ASSAY)	8.00	392.00
9	Au ANALYSES/GRAVIMETRIC	8.75	78.75
49	HYDROCHLORIC/NITRIC DIGESTION	2.00	98.00
49	Ag ANALYSES	1.00	49.00
7	Ag (ore grade) ANALYSES	5.00	35.00

86-5210-477
EAA

NET INVOICE:	1,516.75
LESS DISCOUNT:	303.35
FREIGHT:	.00
INVOICE TOTAL:	1,213.40

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048107

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-419

No. SAMPLES : 49

MAIN SAMPLE TYPE : DRILL CORE

RECEIVED : 12 FEB 1998

REPORTED : 2 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
AuGRAV	GRAV	15%	OPT	0.001
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048107

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-419

REPORTED : 2 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-419 549.0-554.6	<0.001			<0.02
RS-419 554.6-560.7	<0.001			<0.02
RS-419 560.7-566.0	<0.001			<0.02
RS-419 566.0-570.7	<0.001			<0.02
RS-419 570.7-575.4	<0.001			<0.02
RS-419 575.4-580.8	<0.001	<0.001		<0.02
RS-419 580.8-585.8	<0.001			<0.02
RS-419 585.8-591.2	<0.001			<0.02
RS-419 591.2-594.7	<0.001			<0.02
RS-419 594.7-599.0	<0.001			<0.02
RS-419 599.0-603.4	<0.001			<0.02
RS-419 603.4-607.3	<0.001	<0.001		0.02
RS-419 607.3-610.8	<0.001			<0.02
RS-419 610.8-611.4	0.001			<0.02
RS-419 611.4-616.0	<0.001			<0.02
RS-419 616.0-619.2	<0.001			0.05
RS-419 619.2-622.1	0.024			1.22
RS-419 622.1-624.9	0.029			0.98
RS-419 624.9-628.7	0.103		0.135	0.24
RS-419 628.7-629.8	0.117		0.137	0.14
RS-419 629.8-631.4	0.028			0.34
RS-419 631.4-634.8	0.015			0.03
RS-419 634.8-637.6	0.009			0.03
RS-419 637.6-642.2	0.023	0.033		0.05
RS-419 642.2-647.4	0.128		0.121	0.15

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048107

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-419

REPORTED : 2 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-419 647.4-652.2	0.010			0.06
RS-419 652.2-657.1	0.012			0.03
RS-419 657.1-662.2	0.006			0.04
RS-419 662.2-667.0	0.002			0.03
RS-419 667.0-672.3	0.032	0.022		0.36
RS-419 672.3-676.0	0.013			0.07
RS-419 676.0-680.5	0.006			0.08
RS-419 680.5-685.5	0.049		0.063	0.06
RS-419 685.5-690.8	0.020			0.11
RS-419 690.8-695.4	0.043			0.23
RS-419 695.4-701.2	0.063		0.058	0.42
RS-419 701.2-702.9	0.144		0.136	1.84
RS-419 702.9-708.1	0.013			0.08
RS-419 708.1-713.2	0.025	0.022		0.19
RS-419 713.2-717.2	0.067		0.074	0.82
RS-419 717.2-719.1	0.104		0.118	29.87
RS-419 719.1-724.6	0.018			0.21
RS-419 724.6-729.8	0.014			0.60
RS-419 729.8-732.3	0.027			20.81
RS-419 732.3-736.8	0.083		0.066	2.60
RS-419 736.8-740.2	0.032			5.62
RS-419 740.2-745.1	0.014			1.66
RS-419 745.1-750.0	0.014			1.54
26742	0.121			2.62

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048107

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-419 RECEIVED : 12 FEB 1998

No. SAMPLES : 49 REPORTED : 2 MAR 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 SP048107

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-419

REPORTED : 2 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-419 549.0-554.6	<0.001			<0.02
RS-419 554.6-560.7	<0.001			<0.02
RS-419 560.7-566.0	<0.001			<0.02
RS-419 566.0-570.7	<0.001			<0.02
RS-419 570.7-575.4	<0.001			<0.02
RS-419 575.4-580.8	<0.001	<0.001		<0.02
RS-419 580.8-585.8	<0.001			<0.02
RS-419 585.8-591.2	<0.001			<0.02
RS-419 591.2-594.7	<0.001			<0.02
RS-419 594.7-599.0	<0.001			<0.02
RS-419 599.0-603.4	<0.001			<0.02
RS-419 603.4-607.3	<0.001	<0.001		0.02
RS-419 607.3-610.8	<0.001			<0.02
RS-419 610.8-611.4	0.001			<0.02
RS-419 611.4-616.0	<0.001			<0.02
RS-419 616.0-619.2	<0.001			0.05
RS-419 619.2-622.1	0.024			1.22
RS-419 622.1-624.9	0.029			0.98
RS-419 624.9-628.7	0.103		0.135	0.24
RS-419 628.7-629.8	0.117		0.137	0.14
RS-419 629.8-631.4	0.028			0.34
RS-419 631.4-634.8	0.015			0.03
RS-419 634.8-637.6	0.009			0.03
RS-419 637.6-642.2	0.023	0.033		0.05
RS-419 642.2-647.4	0.128		0.121	0.15

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP048107

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-419

REPORTED : 2 MAR 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
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RS-419 652.2-657.1	0.012			0.03
RS-419 657.1-662.2	0.006			0.04
RS-419 662.2-667.0	0.002			0.03
RS-419 667.0-672.3	0.032	0.022		0.36
RS-419 672.3-676.0	0.013			0.07
RS-419 676.0-680.5	0.006			0.08
RS-419 680.5-685.5	0.049		0.063	0.06
RS-419 685.5-690.8	0.020			0.11
RS-419 690.8-695.4	0.043			0.23
RS-419 695.4-701.2	0.063		0.058	0.42
RS-419 701.2-702.9	0.144		0.136	1.84
RS-419 702.9-708.1	0.013			0.08
RS-419 708.1-713.2	0.025	0.022		0.19
RS-419 713.2-717.2	0.067		0.074	0.82
RS-419 717.2-719.1	0.104		0.118	29.87
RS-419 719.1-724.6	0.018			0.21
RS-419 724.6-729.8	0.014			0.60
RS-419 729.8-732.3	0.027			20.81
RS-419 732.3-736.8	0.083		0.066	2.60
RS-419 736.8-740.2	0.032			5.62
RS-419 740.2-745.1	0.014			1.66
RS-419 745.1-750.0	0.014			1.54
26742	0.121			2.62

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047023

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

NEWMONT GOLD COMPANY

COPIES TO : RANDY VANCE
: KURT ALLEN
:
:

CLIENT REFERENCE No: RS-419 RECEIVED : 30 OCT 1997

No. SAMPLES : 113 REPORTED : 11 NOV 1997

MAIN SAMPLE TYPE : DRILL CUTTINGS

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

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au	FA30	15%	ppb	5
Au(R)	FA30	15%	ppb	5
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
Ag	D210	10%	ppm	0.5
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047023

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-419

REPORTED : 11 NOV 1997

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-419 00-05	<5		<0.001		<0.5	<0.02
RS-419 05-10	<5		<0.001		<0.5	<0.02
RS-419 10-15	<5		<0.001		<0.5	<0.02
RS-419 15-20	<5		<0.001		<0.5	<0.02
RS-419 20-25	<5		<0.001		<0.5	<0.02
RS-419 25-30	<5		<0.001		<0.5	<0.02
RS-419 30-35	<5		<0.001		<0.5	<0.02
RS-419 35-40	<5		<0.001		<0.5	<0.02
RS-419 40-45	<5		<0.001		<0.5	<0.02
RS-419 45-50	84	90	0.002	0.003	<0.5	<0.02
RS-419 50-55	<5		<0.001		<0.5	<0.02
RS-419 55-60	<5		<0.001		<0.5	<0.02
RS-419 60-65	<5		<0.001		<0.5	<0.02
RS-419 65-70	<5		<0.001		<0.5	<0.02
RS-419 70-75A	<5		<0.001		<0.5	<0.02
RS-419 70-75B	137		0.004		<0.5	<0.02
RS-419 75-80	<5		<0.001		<0.5	<0.02
RS-419 80-85	<5		<0.001		<0.5	<0.02
RS-419 85-90	7		<0.001		<0.5	<0.02
RS-419 90-95	<5		<0.001		<0.5	<0.02
RS-419 95-100	<5		<0.001		<0.5	<0.02
RS-419 100-105	<5		<0.001		<0.5	<0.02
RS-419 105-110	<5		<0.001		<0.5	<0.02
RS-419 110-115	<5		<0.001		<0.5	<0.02
RS-419 115-120	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047023

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-419

REPORTED : 11 NOV 1997

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-419 120-125	<5		<0.001		<0.5	<0.02
RS-419 125-130	<5		<0.001		<0.5	<0.02
RS-419 130-135	<5		<0.001		<0.5	<0.02
RS-419 135-140	<5		<0.001		<0.5	<0.02
RS-419 140-145	<5		<0.001		<0.5	<0.02
RS-419 145-150	6		<0.001		<0.5	<0.02
RS-419 150-155	20		<0.001		<0.5	<0.02
RS-419 155-160A	<5		<0.001		<0.5	<0.02
RS-419 155-160B	961		0.028		<0.5	<0.02
RS-419 160-165	<5		<0.001		<0.5	<0.02
RS-419 165-170	<5		<0.001		<0.5	<0.02
RS-419 170-175	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-419 175-180	<5		<0.001		<0.5	<0.02
RS-419 180-185	<5		<0.001		<0.5	<0.02
RS-419 185-190	<5		<0.001		<0.5	<0.02
RS-419 190-195	<5		<0.001		<0.5	<0.02
RS-419 195-200	<5		<0.001		<0.5	<0.02
RS-419 200-205	<5		<0.001		<0.5	<0.02
RS-419 205-210	<5		<0.001		<0.5	<0.02
RS-419 210-215	<5		<0.001		<0.5	<0.02
RS-419 215-220	<5		<0.001		<0.5	<0.02
RS-419 220-225	<5		<0.001		<0.5	<0.02
RS-419 225-230	<5		<0.001		<0.5	<0.02
RS-419 230-235	<5		<0.001		<0.5	<0.02
RS-419 235-240	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047023

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-419

REPORTED : 11 NOV 1997

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-419 240-245	<5		<0.001		<0.5	<0.02
RS-419 245-250	<5		<0.001		<0.5	<0.02
RS-419 250-255	<5		<0.001		<0.5	<0.02
RS-419 255-260	<5		<0.001		<0.5	<0.02
RS-419 260-265	<5		<0.001		<0.5	<0.02
RS-419 265-270	<5		<0.001		<0.5	<0.02
RS-419 270-275	<5		<0.001		<0.5	<0.02
RS-419 275-280	<5		<0.001		<0.5	<0.02
RS-419 280-285	<5		<0.001		<0.5	<0.02
RS-419 285-290	<5		<0.001		<0.5	<0.02
RS-419 290-295	<5		<0.001		<0.5	<0.02
RS-419 295-300	<5		<0.001		<0.5	<0.02
RS-419 300-305	<5		<0.001		<0.5	<0.02
RS-419 305-310	<5		<0.001		<0.5	<0.02
RS-419 310-315	<5		<0.001		<0.5	<0.02
RS-419 315-320	<5		<0.001		<0.5	<0.02
RS-419 320-325	<5		<0.001		<0.5	<0.02
RS-419 325-330	<5		<0.001		<0.5	<0.02
RS-419 330-335	<5		<0.001		<0.5	<0.02
RS-419 335-340	<5		<0.001		<0.5	<0.02
RS-419 340-345	<5		<0.001		<0.5	<0.02
RS-419 345-350	<5		<0.001		<0.5	<0.02
RS-419 350-355	<5		<0.001		<0.5	<0.02
RS-419 355-360	<5		<0.001		<0.5	<0.02
RS-419 360-365	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047023

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-419

REPORTED : 11 NOV 1997

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-419 365-370	<5		<0.001		<0.5	<0.02
RS-419 370-375	<5		<0.001		<0.5	<0.02
RS-419 375-380	6		<0.001		<0.5	<0.02
RS-419 380-385	70		0.002		2.8	0.08
RS-419 385-390	26		<0.001		1.2	0.04
RS-419 390-395	<5		<0.001		<0.5	<0.02
RS-419 395-400	<5		<0.001		<0.5	<0.02
RS-419 400-405	14		<0.001		0.8	0.02
RS-419 405-410	25		<0.001		0.9	0.03
RS-419 410-415	48		0.001		1.7	0.05
RS-419 415-420	16		<0.001		1.1	0.03
RS-419 420-425A	215		0.006		0.7	0.02
RS-419 420-425B	144		0.004		<0.5	<0.02
RS-419 425-430	<5		<0.001		<0.5	<0.02
RS-419 430-435	<5		<0.001		<0.5	<0.02
RS-419 435-440	<5		<0.001		<0.5	<0.02
RS-419 440-445	<5		<0.001		<0.5	<0.02
RS-419 445-450	6		<0.001		1.4	0.04
RS-419 450-455	<5		<0.001		2.2	0.06
RS-419 455-460	9		<0.001		2.6	0.08
RS-419 460-465	<5		<0.001		1.7	0.05
RS-419 465-470	11		<0.001		1.3	0.04
RS-419 470-475	10		<0.001		1.0	0.03
RS-419 475-480	278	308	0.008	0.009	2.8	0.08
RS-419 480-485	9		<0.001		0.8	0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047023

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-419

REPORTED : 11 NOV 1997

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-419 485-490	5		<0.001		<0.5	<0.02
RS-419 490-495	<5		<0.001		<0.5	<0.02
RS-419 495-500	<5		<0.001		<0.5	<0.02
RS-419 500-505	<5		<0.001		<0.5	<0.02
RS-419 505-510	<5		<0.001		<0.5	<0.02
RS-419 510-515	<5		<0.001		<0.5	<0.02
RS-419 515-520	<5		<0.001		0.7	0.02
RS-419 520-525	5		<0.001		0.9	0.03
RS-419 525-530	<5		<0.001		3.1	0.09
RS-419 530-535	<5		<0.001		<0.5	<0.02
RS-419 535-540	6		<0.001		<0.5	<0.02
RS-419 540-545	<5		<0.001		<0.5	<0.02
RS-419 545-550	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048107

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

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

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CLIENT REFERENCE No: RS-419 RECEIVED : 12 FEB 1998

No. SAMPLES : 49 REPORTED : 2 MAR 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 SP048107

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-419

REPORTED : 2 MAR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)	
RS-419 549.0-554.6	<0.001			<0.02	
RS-419 554.6-560.7	<0.001			<0.02	
RS-419 560.7-566.0	<0.001			<0.02	
RS-419 566.0-570.7	<0.001			<0.02	
RS-419 570.7-575.4	<0.001			<0.02	
RS-419 575.4-580.8	<0.001	<0.001		<0.02	
RS-419 580.8-585.8	<0.001			<0.02	
RS-419 585.8-591.2	<0.001			<0.02	
RS-419 591.2-594.7	<0.001			<0.02	
RS-419 594.7-599.0	<0.001			<0.02	
RS-419 599.0-603.4	<0.001			<0.02	
RS-419 603.4-607.3	<0.001	<0.001		0.02	
RS-419 607.3-610.8	<0.001			<0.02	
RS-419 610.8-611.4	0.001			<0.02	
RS-419 611.4-616.0	<0.001			<0.02	
RS-419 616.0-619.2	<0.001			0.05	
RS-419 619.2-622.1	0.024			1.22	
RS-419 622.1-624.9	0.029			0.98	
RS-419 624.9-628.7 3.8	0.103		0.135	0.24	0.106 Ag
RS-419 628.7-629.8 1.1	0.117		0.137	0.14	0.22 Ag
RS-419 629.8-631.4	0.028			0.34	
RS-419 631.4-634.8	0.015			0.03	
RS-419 634.8-637.6	0.009			0.03	
RS-419 637.6-642.2	0.023	0.033		0.05	
RS-419 642.2-647.4	0.128		0.121	0.15	

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP048107

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-419

REPORTED : 2 MAR 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
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RS-419 652.2-657.1	0.012			0.03
RS-419 657.1-662.2	0.006			0.04
RS-419 662.2-667.0	0.002			0.03
RS-419 667.0-672.3	0.032	0.022		0.36
RS-419 672.3-676.0	0.013			0.07
RS-419 676.0-680.5	0.006			0.08
RS-419 680.5-685.5	0.049		0.063	0.06
RS-419 685.5-690.8	0.020			0.11
RS-419 690.8-695.4	0.043			0.23
RS-419 695.4-701.2	0.063		0.058	0.42
RS-419 701.2-702.9	0.144		0.136	1.84
RS-419 702.9-708.1	0.013			0.08
RS-419 708.1-713.2	0.025	0.022		0.19
RS-419 713.2-717.2	0.067		0.074	0.82
RS-419 717.2-719.1 1.9	0.104		0.118	29.87
RS-419 719.1-724.6 5.5	0.018			0.21
RS-419 724.6-729.8 5.2	0.014			0.60
RS-419 729.8-732.3 2.5	0.027			20.81
RS-419 732.3-736.8 4.5	0.083		0.066	2.60
RS-419 736.8-740.2 3.4	0.032			5.62
RS-419 740.2-745.1	0.014			1.66
RS-419 745.1-750.0	0.014			1.54
26742	0.121			2.62

717.2 - 740.2 = 23' @
0.040 Au
6.26 Ag

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ANALYSIS REPORT SP047023

American Assay Laboratories

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

NEWMONT GOLD COMPANY

COPIES TO : RANDY VANCE
: KURT ALLEN
:
:

CLIENT REFERENCE No: RS-419 RECEIVED : 30 OCT 1997

No. SAMPLES : 113 REPORTED : 11 NOV 1997

MAIN SAMPLE TYPE : DRILL CUTTINGS

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

ANALYSIS	ANALYTICAL METHOD	QUALITY PARAMETER	UNIT	DETECTION
Au	FA30	15%	ppb	5
Au(R)	FA30	15%	ppb	5
Au(OZ)	FA30	15%	OPT	0.001
Au(RZ)	FA30	15%	OPT	0.001
Ag	D210	10%	ppm	0.5
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047023

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-419

REPORTED : 11 NOV 1997

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-419 00-05	<5		<0.001		<0.5	<0.02
RS-419 05-10	<5		<0.001		<0.5	<0.02
RS-419 10-15	<5		<0.001		<0.5	<0.02
RS-419 15-20	<5		<0.001		<0.5	<0.02
RS-419 20-25	<5		<0.001		<0.5	<0.02
RS-419 25-30	<5		<0.001		<0.5	<0.02
RS-419 30-35	<5		<0.001		<0.5	<0.02
RS-419 35-40	<5		<0.001		<0.5	<0.02
RS-419 40-45	<5		<0.001		<0.5	<0.02
RS-419 45-50	84	90	0.002	0.003	<0.5	<0.02
RS-419 50-55	<5		<0.001		<0.5	<0.02
RS-419 55-60	<5		<0.001		<0.5	<0.02
RS-419 60-65	<5		<0.001		<0.5	<0.02
RS-419 65-70	<5		<0.001		<0.5	<0.02
RS-419 70-75A	<5		<0.001		<0.5	<0.02
RS-419 70-75B	137		0.004		<0.5	<0.02
RS-419 75-80	<5		<0.001		<0.5	<0.02
RS-419 80-85	<5		<0.001		<0.5	<0.02
RS-419 85-90	7		<0.001		<0.5	<0.02
RS-419 90-95	<5		<0.001		<0.5	<0.02
RS-419 95-100	<5		<0.001		<0.5	<0.02
RS-419 100-105	<5		<0.001		<0.5	<0.02
RS-419 105-110	<5		<0.001		<0.5	<0.02
RS-419 110-115	<5		<0.001		<0.5	<0.02
RS-419 115-120	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-419 120-125	<5		<0.001		<0.5	<0.02
RS-419 125-130	<5		<0.001		<0.5	<0.02
RS-419 130-135	<5		<0.001		<0.5	<0.02
RS-419 135-140	<5		<0.001		<0.5	<0.02
RS-419 140-145	<5		<0.001		<0.5	<0.02
RS-419 145-150	6		<0.001		<0.5	<0.02
RS-419 150-155	20		<0.001		<0.5	<0.02
RS-419 155-160A	<5		<0.001		<0.5	<0.02
RS-419 155-160B	961		0.028		<0.5	<0.02
RS-419 160-165	<5		<0.001		<0.5	<0.02
RS-419 165-170	<5		<0.001		<0.5	<0.02
RS-419 170-175	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-419 175-180	<5		<0.001		<0.5	<0.02
RS-419 180-185	<5		<0.001		<0.5	<0.02
RS-419 185-190	<5		<0.001		<0.5	<0.02
RS-419 190-195	<5		<0.001		<0.5	<0.02
RS-419 195-200	<5		<0.001		<0.5	<0.02
RS-419 200-205	<5		<0.001		<0.5	<0.02
RS-419 205-210	<5		<0.001		<0.5	<0.02
RS-419 210-215	<5		<0.001		<0.5	<0.02
RS-419 215-220	<5		<0.001		<0.5	<0.02
RS-419 220-225	<5		<0.001		<0.5	<0.02
RS-419 225-230	<5		<0.001		<0.5	<0.02
RS-419 230-235	<5		<0.001		<0.5	<0.02
RS-419 235-240	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

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REPORTED : 11 NOV 1997

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-419 240-245	<5		<0.001		<0.5	<0.02
RS-419 245-250	<5		<0.001		<0.5	<0.02
RS-419 250-255	<5		<0.001		<0.5	<0.02
RS-419 255-260	<5		<0.001		<0.5	<0.02
RS-419 260-265	<5		<0.001		<0.5	<0.02
RS-419 265-270	<5		<0.001		<0.5	<0.02
RS-419 270-275	<5		<0.001		<0.5	<0.02
RS-419 275-280	<5		<0.001		<0.5	<0.02
RS-419 280-285	<5		<0.001		<0.5	<0.02
RS-419 285-290	<5		<0.001		<0.5	<0.02
RS-419 290-295	<5		<0.001		<0.5	<0.02
RS-419 295-300	<5		<0.001		<0.5	<0.02
RS-419 300-305	<5		<0.001		<0.5	<0.02
RS-419 305-310	<5		<0.001		<0.5	<0.02
RS-419 310-315	<5		<0.001		<0.5	<0.02
RS-419 315-320	<5		<0.001		<0.5	<0.02
RS-419 320-325	<5		<0.001		<0.5	<0.02
RS-419 325-330	<5		<0.001		<0.5	<0.02
RS-419 330-335	<5		<0.001		<0.5	<0.02
RS-419 335-340	<5		<0.001		<0.5	<0.02
RS-419 340-345	<5		<0.001		<0.5	<0.02
RS-419 345-350	<5		<0.001		<0.5	<0.02
RS-419 350-355	<5		<0.001		<0.5	<0.02
RS-419 355-360	<5		<0.001		<0.5	<0.02
RS-419 360-365	<5		<0.001		<0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-419 365-370	<5		<0.001		<0.5	<0.02
RS-419 370-375	<5		<0.001		<0.5	<0.02
RS-419 375-380	6		<0.001		<0.5	<0.02
RS-419 380-385	70		0.002		2.8	0.08
RS-419 385-390	26		<0.001		1.2	0.04
RS-419 390-395	<5		<0.001		<0.5	<0.02
RS-419 395-400	<5		<0.001		<0.5	<0.02
RS-419 400-405	14		<0.001		0.8	0.02
RS-419 405-410	25		<0.001		0.9	0.03
RS-419 410-415	48		0.001		1.7	0.05
RS-419 415-420	16		<0.001		1.1	0.03
RS-419 420-425A	215		0.006		0.7	0.02
RS-419 420-425B	144		0.004		<0.5	<0.02
RS-419 425-430	<5		<0.001		<0.5	<0.02
RS-419 430-435	<5		<0.001		<0.5	<0.02
RS-419 435-440	<5		<0.001		<0.5	<0.02
RS-419 440-445	<5		<0.001		<0.5	<0.02
RS-419 445-450	6		<0.001		1.4	0.04
RS-419 450-455	<5		<0.001		2.2	0.06
RS-419 455-460	9		<0.001		2.6	0.08
RS-419 460-465	<5		<0.001		1.7	0.05
RS-419 465-470	11		<0.001		1.3	0.04
RS-419 470-475	10		<0.001		1.0	0.03
RS-419 475-480	278	308	0.008	0.009	2.8	0.08
RS-419 480-485	9		<0.001		0.8	0.02

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REFERENCE : RS-419

REPORTED : 11 NOV 1997

SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-419 485-490	5		<0.001		<0.5	<0.02
RS-419 490-495	<5		<0.001		<0.5	<0.02
RS-419 495-500	<5		<0.001		<0.5	<0.02
RS-419 500-505	<5		<0.001		<0.5	<0.02
RS-419 505-510	<5		<0.001		<0.5	<0.02
RS-419 510-515	<5		<0.001		<0.5	<0.02
RS-419 515-520	<5		<0.001		0.7	0.02
RS-419 520-525	5		<0.001		0.9	0.03
RS-419 525-530	<5		<0.001		3.1	0.09
RS-419 530-535	<5		<0.001		<0.5	<0.02
RS-419 535-540	6		<0.001		<0.5	<0.02
RS-419 540-545	<5		<0.001		<0.5	<0.02
RS-419 545-550	<5		<0.001		<0.5	<0.02

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 0047023-IN
INVOICE DATE: 11/12/97

INVOICE TO:
NEWMONT EXPLORATION LTD.

861 W. 6TH STREET
WINNEMUCCA NV 89445

NEWMONT EXPLORATION LTD.

861 W. 6TH STREET
WINNEMUCCA NV 89445

CUSTOMER P.O.	PROJECT	TERMS
RS-419	ROSEBUD EXPLOR.	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
113	SAMPLES RECEIVED	.00	.00
113	DRYING	1.00	113.00
113	EXCESSIVE WETNESS	1.00	113.00
113	JAW CRUSHING CHARGE	1.30	146.90
113	SPLITTING CHARGE	1.20	135.60
113	FINE MILLING CHARGE	2.00	226.00
113	Au (1 A.T. FIRE ASSAY)	8.00	904.00
113	HYDROCHLORIC/NITRIC DIGESTION	2.00	226.00
113	Ag ANALYSES	1.00	113.00

NET INVOICE:	1,977.50
LESS DISCOUNT:	395.50
FREIGHT:	.00
INVOICE TOTAL:	1,582.00

SP

SUBMITTAL FORM

NEW ADDRESSES/PHONE NUMBERS

American Assay Laboratories

Geochemical • Environmental • Metallurgical

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 11530
Reno, NV 89510
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Tucson, AZ 85706
Telephone
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(520) 294-6352

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

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

Other Offices
Lima, Peru
Santiago, Chile
Mendoza, Argentina

Company: Newmont Exploration

Address: 861 W. 6th Street

City Winnemucca State NV Zip 89445

Telephone Number: (702) 623-3493 Fax Number: (702) 623-1052

Project Name: Rosebud Exploration Purchase Order Number:

Date Submitted: 10/29/97 Number of Samples: 113

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

SAMPLE IDENTIFICATION	TYPE	ELEMENTS REQUIRED
RS-419	RC	Au/Ag by FA/AA each sample (5')
0-550' T.D.		
+75B, 160B, 425B		

PEEL HERE

75B
MS-2
MS-2

MS-3
MS-3
160B

425B
MS-2
MS-2

COARSE REJECTS (Normally Discarded After 60

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:

Charlotte Ballew
Newmont Exploration
Winnemucca

Results to:

Randy Vance
Newmont Exploration
861 W. 6th Street
Winnemucca, NV 89445

Comments:

CLIENT FILE COPY

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-419

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/04/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 001.50

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/740' T/750'.

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

****
COMPANY REPRESENTATIVE

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-419

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	0.09	0.140	-89.62	332.85	0.15 N	0.08 W	0.76	0.38	0.17	AT 332.85	064.20
100.0	100.00	0.62	0.431	-88.93	294.15	0.49 N	0.58 W	1.62	0.81	0.75	AT 310.10	063.12
150.0	149.98	1.85	0.637	-88.18	279.20	0.80 N	1.79 W	1.67	0.83	1.96	AT 294.22	063.55
200.0	199.95	3.54	0.765	-87.95	279.97	1.09 N	3.45 W	0.46	0.23	3.62	AT 287.46	064.70
250.0	249.92	5.36	0.776	-87.87	271.45	1.26 N	5.26 W	0.64	0.32	5.41	AT 283.51	065.35
300.0	299.88	7.40	0.765	-87.44	277.83	1.44 N	7.30 W	1.00	0.50	7.44	AT 281.16	066.21
350.0	349.82	9.66	0.874	-87.36	278.22	1.76 N	9.54 W	0.16	0.08	9.70	AT 280.43	066.79
400.0	399.78	11.86	1.024	-87.59	280.17	2.11 N	11.72 W	0.49	0.25	11.90	AT 280.19	067.51
450.0	449.73	13.97	1.129	-87.57	276.10	2.40 N	13.81 W	0.35	0.17	14.01	AT 279.88	068.23
500.0	499.67	16.35	1.129	-86.96	274.60	2.62 N	16.18 W	1.23	0.61	16.39	AT 279.21	068.88
550.0	549.59	19.22	1.040	-86.46	272.52	2.80 N	19.04 W	1.03	0.51	19.25	AT 278.36	069.67
600.0	599.50	22.19	0.896	-86.73	272.43	2.93 N	22.01 W	0.54	0.27	22.21	AT 277.57	070.03
650.0	649.43	24.97	0.748	-86.89	271.97	3.03 N	24.79 W	0.32	0.16	24.98	AT 276.98	070.53
700.0	699.36	27.60	0.439	-87.02	265.03	2.97 N	27.44 W	0.78	0.39	27.60	AT 276.17	070.89
740.0	739.30	29.70	0.085	-86.86	266.35	2.81 N	29.57 W	0.44	0.17	29.70	AT 275.42	071.32
750.0	749.28	30.26	-0.000	-86.75	266.65	2.77 N	30.13 W	1.11	0.11	30.26	AT 275.26	071.32

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*************************************************************
*                        ********                           *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                        ********                           *
*  750.0 FEET EQUALS     30.26    FEET AT   275.26          *
*                        ********                           *
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-419 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/04/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 001.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/740' T/750'.

****
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*** THIS DIRECTIONAL SURVEY REPORT IS ****
** CORRECT TO THE BEST OF MY KNOWLEDGE ***
* AND IS SUPPORTED BY ACTUAL FIELD DATA! *
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COMPANY REPRESENTATIVE
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-419 / 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	0.08	-0.147	-89.62	332.85	0.15 N	0.08 W	0.76	0.38	0.17	AT 332.85	064.20
100.0	100.00	0.07	-0.752	-88.93	294.15	0.49 N	0.58 W	1.62	0.81	0.75	AT 310.10	063.12
150.0	149.98	-0.37	-1.925	-88.18	279.20	0.80 N	1.79 W	1.67	0.83	1.96	AT 294.22	063.55
200.0	199.95	-1.09	-3.450	-87.95	279.97	1.09 N	3.45 W	0.46	0.23	3.62	AT 287.46	064.70
250.0	249.92	-1.98	-5.035	-87.87	271.45	1.26 N	5.26 W	0.64	0.32	5.41	AT 283.51	065.35
300.0	299.88	-3.01	-6.803	-87.44	277.83	1.44 N	7.30 W	1.00	0.50	7.44	AT 281.16	066.21
350.0	349.82	-4.03	-8.824	-87.36	278.22	1.76 N	9.54 W	0.16	0.08	9.70	AT 280.43	066.79
400.0	399.78	-4.99	-10.806	-87.59	280.17	2.11 N	11.72 W	0.49	0.25	11.90	AT 280.19	067.51
450.0	449.73	-5.95	-12.688	-87.57	276.10	2.40 N	13.81 W	0.35	0.17	14.01	AT 279.88	068.23
500.0	499.67	-7.13	-14.760	-86.96	274.60	2.62 N	16.18 W	1.23	0.61	16.39	AT 279.21	068.88
550.0	549.59	-8.63	-17.205	-86.46	272.52	2.80 N	19.04 W	1.03	0.51	19.25	AT 278.36	069.67
600.0	599.50	-10.23	-19.709	-86.73	272.43	2.93 N	22.01 W	0.54	0.27	22.21	AT 277.57	070.03
650.0	649.43	-11.74	-22.048	-86.89	271.97	3.03 N	24.79 W	0.32	0.16	24.98	AT 276.98	070.53
700.0	699.36	-13.31	-24.181	-87.02	265.03	2.97 N	27.44 W	0.78	0.39	27.60	AT 276.17	070.89
740.0	739.30	-14.66	-25.834	-86.86	266.35	2.81 N	29.57 W	0.44	0.17	29.70	AT 275.42	071.32
750.0	749.28	-15.01	-26.270	-86.75	266.65	2.77 N	30.13 W	1.11	0.11	30.26	AT 275.26	071.32

```
*************************************************************
*                        ********                           *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                        ********                           *
*   750.0 FEET EQUALS     30.26   FEET AT   275.26          *
*                        ********                           *
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-419 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/04/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 001.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/740' T/750'.

****
****
*** THIS DIRECTIONAL SURVEY REPORT IS ****
** CORRECT TO THE BEST OF MY KNOWLEDGE ***
* AND IS SUPPORTED BY ACTUAL FIELD DATA! *
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**
****
COMPANY REPRESENTATIVE
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-419 / 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	-0.15	-0.077	-89.62	332.85	0.15 N	0.08 W	0.76	0.38	0.17	AT 332.85	064.20
100.0	100.00	-0.75	-0.067	-88.93	294.15	0.49 N	0.58 W	1.62	0.81	0.75	AT 310.10	063.12
150.0	149.98	-1.93	0.366	-88.18	279.20	0.80 N	1.79 W	1.67	0.83	1.96	AT 294.22	063.55
200.0	199.95	-3.45	1.090	-87.95	279.97	1.09 N	3.45 W	0.46	0.23	3.62	AT 287.46	064.70
250.0	249.92	-5.03	1.982	-87.87	271.45	1.26 N	5.26 W	0.64	0.32	5.41	AT 283.51	065.35
300.0	299.88	-6.80	3.006	-87.44	277.83	1.44 N	7.30 W	1.00	0.50	7.44	AT 281.16	066.21
350.0	349.82	-8.82	4.034	-87.36	278.22	1.76 N	9.54 W	0.16	0.08	9.70	AT 280.43	066.79
400.0	399.78	-10.81	4.995	-87.59	280.17	2.11 N	11.72 W	0.49	0.25	11.90	AT 280.19	067.51
450.0	449.73	-12.69	5.949	-87.57	276.10	2.40 N	13.81 W	0.35	0.17	14.01	AT 279.88	068.23
500.0	499.67	-14.76	7.132	-86.96	274.60	2.62 N	16.18 W	1.23	0.61	16.39	AT 279.21	068.88
550.0	549.59	-17.21	8.632	-86.46	272.52	2.80 N	19.04 W	1.03	0.51	19.25	AT 278.36	069.67
600.0	599.50	-19.71	10.228	-86.73	272.43	2.93 N	22.01 W	0.54	0.27	22.21	AT 277.57	070.03
650.0	649.43	-22.05	11.735	-86.89	271.97	3.03 N	24.79 W	0.32	0.16	24.98	AT 276.98	070.53
700.0	699.36	-24.18	13.310	-87.02	265.03	2.97 N	27.44 W	0.78	0.39	27.60	AT 276.17	070.89
740.0	739.30	-25.83	14.662	-86.86	266.35	2.81 N	29.57 W	0.44	0.17	29.70	AT 275.42	071.32
750.0	749.28	-26.27	15.009	-86.75	266.65	2.77 N	30.13 W	1.11	0.11	30.26	AT 275.26	071.32

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*************************************************************
*                         ********                          *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                         ********                          *
*   750.0 FEET EQUALS    30.26   FEET AT   275.26           *
*                         ********                          *
*************************************************************
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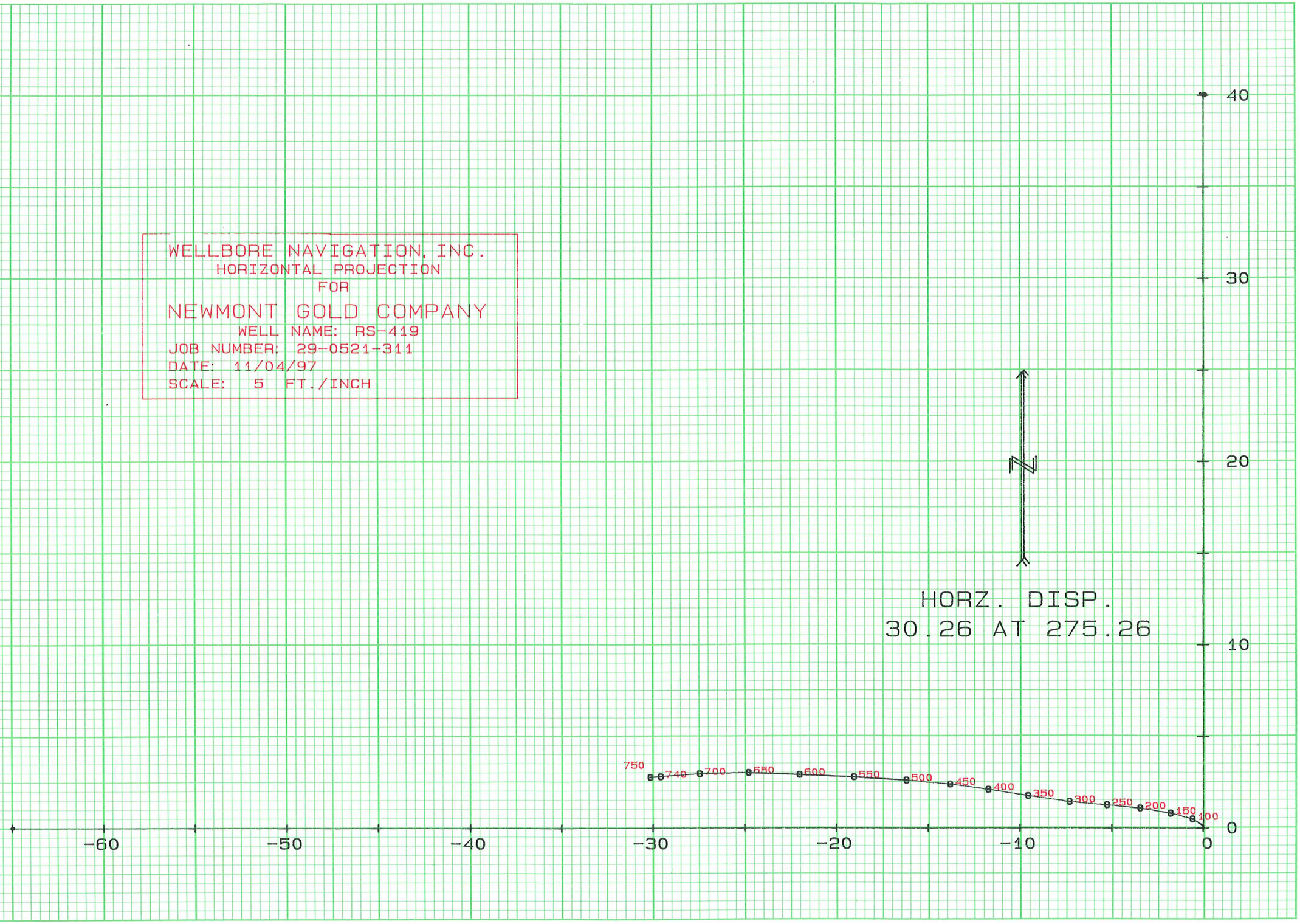
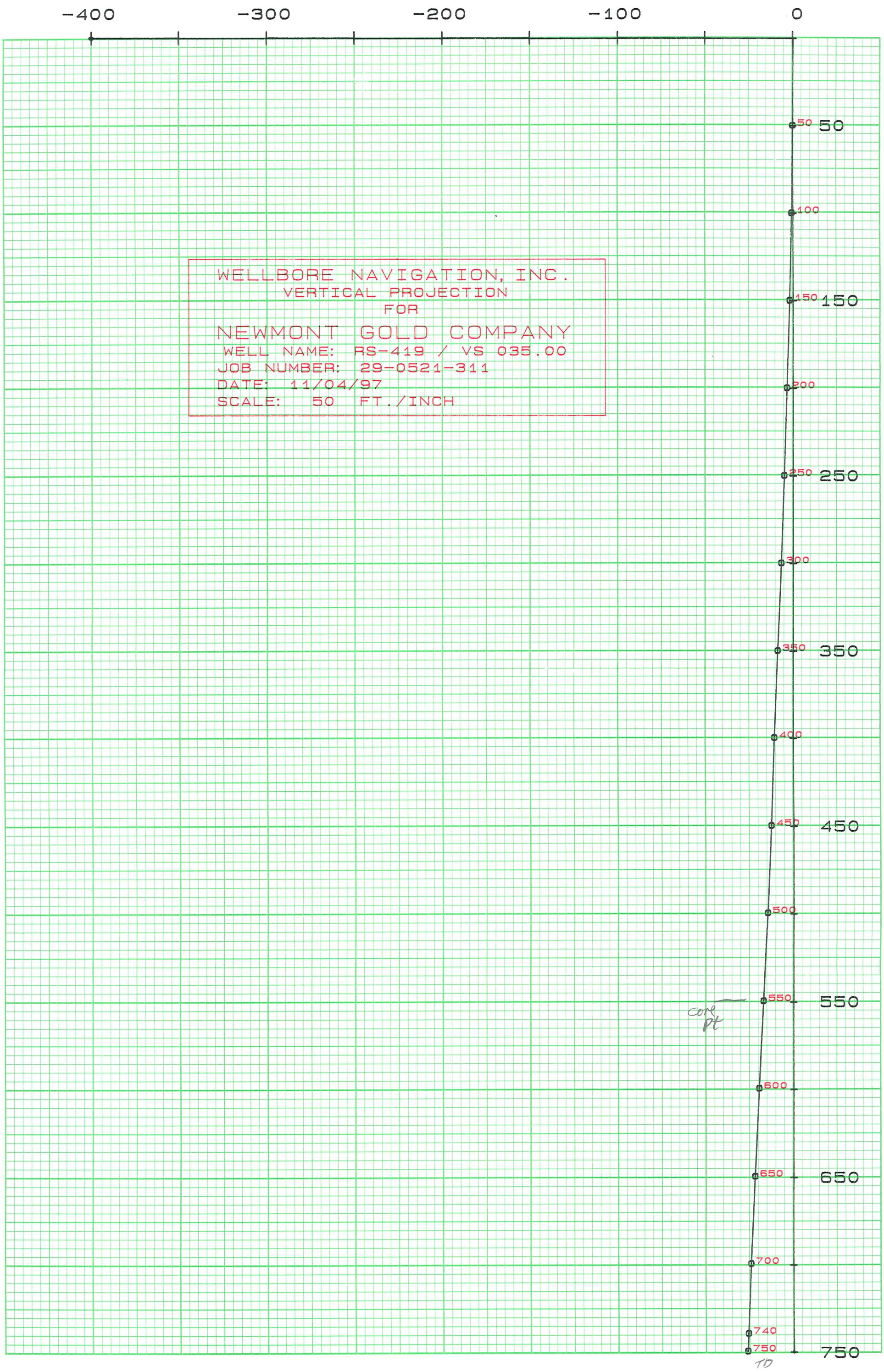
STARLIGHT PRINTING (801) 467-2841

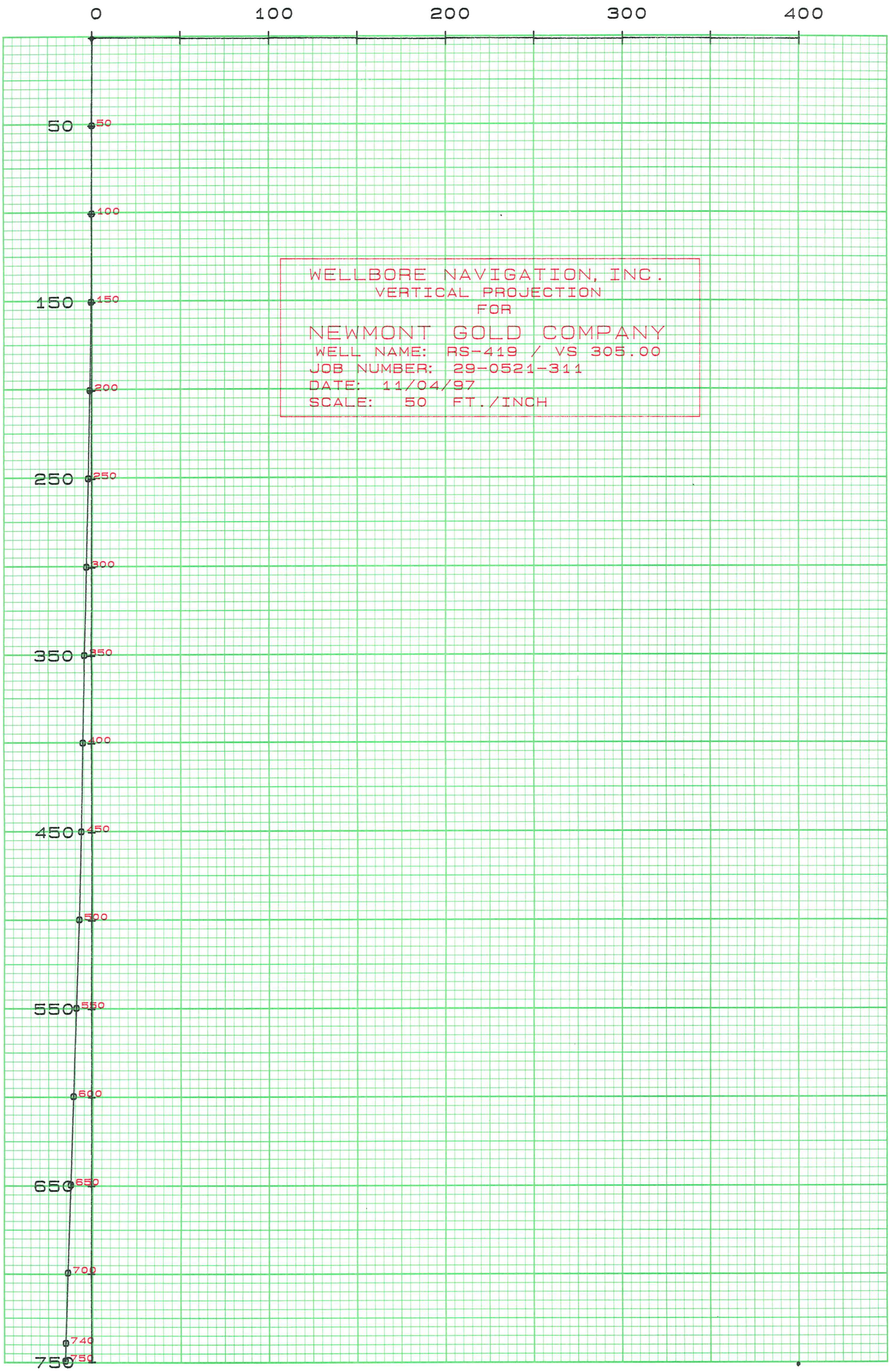
WELLBORE NAVIGATION, INC.
HORIZONTAL PROJECTION
FOR
NEWMONT GOLD COMPANY
WELL NAME: RS-419
JOB NUMBER: 29-0521-311
DATE: 11/04/97
SCALE: 5 FT./INCH



STARLIGHT PRINTING (801) 467-2841



STARLIGHT PRINTING (801) 467-2841



SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 11530
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Fax
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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: 02/10/98 Number of Samples: 47

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

RS-419 SAMPLE IDENTIFICATION			TYPE	ELEMENTS REQUIRED
549.0-554.6	616.0-619.2		CORE	Au-Ag ACCORDING TO ROSEBUD
554.6-560.7	619.2-622.1			MINE PROTOCOL
560.7-566.0	622.1-624.9	672.3-676.0		
566.0-570.7	624.9-628.7	676.0-680.5		729.8-732.3
570.7-575.4	628.7-629.8	680.5-685.5		732.3-736.8
575.4-580.8	629.8-631.4	685.5-690.8		736.8-740.2
580.8-585.8	631.4-634.8	690.8-695.4		740.2-745.1
585.8-591.2	634.8-637.6	695.4-701.2		745.1-750.0
591.2-594.7	637.6-642.2	701.2-702.9		
594.7-599.0	642.2-647.4	702.9-708.1		
599.0-603.4	647.4-652.2	708.1-713.2		
603.4-607.3	652.2-657.1	713.2-717.2		
607.3-610.8	657.1-662.2	717.2-719.1		
610.8-614.4	662.2-667.0	719.1-724.6		
614.4-616.0	667.0-672.3	724.6-729.8		

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
RANDY VANCE

Comments:

CLIENT FILE COPY

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-412 / VERTICAL

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/01/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 353.50

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/732' T/750'.

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-412 / VERTICAL

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	0.08	0.115	-89.68	042.22	0.10 N	0.09 E	0.64	0.32	0.14	AT 042.22	070.53
100.0	100.00	0.52	0.359	-89.12	006.88	0.59 N	0.23 E	1.29	0.65	0.63	AT 021.67	069.74
150.0	149.99	1.34	0.609	-88.91	001.67	1.44 N	0.29 E	0.46	0.23	1.47	AT 011.48	068.95
200.0	199.98	2.34	0.923	-88.69	006.95	2.49 N	0.38 E	0.49	0.25	2.52	AT 008.61	068.23
250.0	249.96	3.66	1.206	-88.20	353.58	3.84 N	0.36 E	1.21	0.61	3.85	AT 005.33	067.72
300.0	299.93	5.30	1.314	-88.02	348.42	5.46 N	0.10 E	0.50	0.25	5.46	AT 001.01	067.15
350.0	349.90	7.14	1.287	-87.77	344.27	7.24 N	0.34 W	0.59	0.29	7.25	AT 357.31	066.72
400.0	399.86	9.06	1.137	-87.80	341.03	9.09 N	0.92 W	0.26	0.13	9.13	AT 354.24	066.43
450.0	449.83	10.95	1.015	-87.86	345.77	10.90 N	1.46 W	0.38	0.19	11.00	AT 352.38	064.41
500.0	499.78	13.03	0.891	-87.36	342.02	12.90 N	2.04 W	1.05	0.52	13.06	AT 351.00	064.49
550.0	549.73	15.42	0.696	-87.15	342.78	15.18 N	2.77 W	0.43	0.21	15.43	AT 349.67	064.49
600.0	599.66	17.87	0.522	-87.22	343.27	17.53 N	3.48 W	0.15	0.07	17.87	AT 348.76	064.63
650.0	649.61	20.28	0.333	-87.22	341.97	19.85 N	4.21 W	0.13	0.06	20.29	AT 348.03	064.92
700.0	699.55	22.69	0.177	-87.24	344.85	22.16 N	4.90 W	0.28	0.14	22.70	AT 347.54	065.13
732.0	731.51	24.24	0.086	-87.22	342.53	23.64 N	5.33 W	0.36	0.11	24.24	AT 347.29	065.78
750.0	749.49	25.10	0.001	-87.24	340.53	24.47 N	5.61 W	0.55	0.10	25.10	AT 347.09	065.71

****
* ******** *
* THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF *
* ******** *
* 750.0 FEET EQUALS 25.10 FEET AT 347.09 *
* ******** *
****

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-412 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/01/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 353.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/732' T/750'.

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-412 / 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	0.14	0.018	-89.68	042.22	0.10 N	0.09 E	0.64	0.32	0.14	AT 042.22	070.53
100.0	100.00	0.62	-0.146	-89.12	006.88	0.59 N	0.23 E	1.29	0.65	0.63	AT 021.67	069.74
150.0	149.99	1.35	-0.588	-88.91	001.67	1.44 N	0.29 E	0.46	0.23	1.47	AT 011.48	068.95
200.0	199.98	2.25	-1.118	-88.69	006.95	2.49 N	0.38 E	0.49	0.25	2.52	AT 008.61	068.23
250.0	249.96	3.35	-1.906	-88.20	353.58	3.84 N	0.36 E	1.21	0.61	3.85	AT 005.33	067.72
300.0	299.93	4.53	-3.053	-88.02	348.42	5.46 N	0.10 E	0.50	0.25	5.46	AT 001.01	067.15
350.0	349.90	5.74	-4.434	-87.77	344.27	7.24 N	0.34 W	0.59	0.29	7.25	AT 357.31	066.72
400.0	399.86	6.92	-5.963	-87.80	341.03	9.09 N	0.92 W	0.26	0.13	9.13	AT 354.24	066.43
450.0	449.83	8.09	-7.446	-87.86	345.77	10.90 N	1.46 W	0.38	0.19	11.00	AT 352.38	064.41
500.0	499.78	9.40	-9.073	-87.36	342.02	12.90 N	2.04 W	1.05	0.52	13.06	AT 351.00	064.49
550.0	549.73	10.85	-10.975	-87.15	342.78	15.18 N	2.77 W	0.43	0.21	15.43	AT 349.67	064.49
600.0	599.66	12.36	-12.909	-87.22	343.27	17.53 N	3.48 W	0.15	0.07	17.87	AT 348.76	064.63
650.0	649.61	13.84	-14.830	-87.22	341.97	19.85 N	4.21 W	0.13	0.06	20.29	AT 348.03	064.92
700.0	699.55	15.34	-16.723	-87.24	344.85	22.16 N	4.90 W	0.28	0.14	22.70	AT 347.54	065.13
732.0	731.51	16.31	-17.930	-87.22	342.53	23.64 N	5.33 W	0.36	0.11	24.24	AT 347.29	065.78
750.0	749.49	16.83	-18.628	-87.24	340.53	24.47 N	5.61 W	0.55	0.10	25.10	AT 347.09	065.71

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*************************************************************
*                         ********                          *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                         ********                          *
*  750.0 FEET EQUALS    25.10   FEET AT  347.09             *
*                         ********                          *
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-412 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/01/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 353.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/732' T/750'.

****
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*** THIS DIRECTIONAL SURVEY REPORT IS ***
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-412 / 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	0.02	-0.139	-89.68	042.22	0.10 N	0.09 E	0.64	0.32	0.14	AT 042.22	070.53
100.0	100.00	-0.15	-0.616	-89.12	006.88	0.59 N	0.23 E	1.29	0.65	0.63	AT 021.67	069.74
150.0	149.99	-0.59	-1.352	-88.91	001.67	1.44 N	0.29 E	0.46	0.23	1.47	AT 011.48	068.95
200.0	199.98	-1.12	-2.253	-88.69	006.95	2.49 N	0.38 E	0.49	0.25	2.52	AT 008.61	068.23
250.0	249.96	-1.91	-3.347	-88.20	353.58	3.84 N	0.36 E	1.21	0.61	3.85	AT 005.33	067.72
300.0	299.93	-3.05	-4.529	-88.02	348.42	5.46 N	0.10 E	0.50	0.25	5.46	AT 001.01	067.15
350.0	349.90	-4.43	-5.739	-87.77	344.27	7.24 N	0.34 W	0.59	0.29	7.25	AT 357.31	066.72
400.0	399.86	-5.96	-6.919	-87.80	341.03	9.09 N	0.92 W	0.26	0.13	9.13	AT 354.24	066.43
450.0	449.83	-7.45	-8.093	-87.86	345.77	10.90 N	1.46 W	0.38	0.19	11.00	AT 352.38	064.41
500.0	499.78	-9.07	-9.396	-87.36	342.02	12.90 N	2.04 W	1.05	0.52	13.06	AT 351.00	064.49
550.0	549.73	-10.97	-10.851	-87.15	342.78	15.18 N	2.77 W	0.43	0.21	15.43	AT 349.67	064.49
600.0	599.66	-12.91	-12.363	-87.22	343.27	17.53 N	3.48 W	0.15	0.07	17.87	AT 348.76	064.63
650.0	649.61	-14.83	-13.843	-87.22	341.97	19.85 N	4.21 W	0.13	0.06	20.29	AT 348.03	064.92
700.0	699.55	-16.72	-15.344	-87.24	344.85	22.16 N	4.90 W	0.28	0.14	22.70	AT 347.54	065.13
732.0	731.51	-17.93	-16.310	-87.22	342.53	23.64 N	5.33 W	0.36	0.11	24.24	AT 347.29	065.78
750.0	749.49	-18.63	-16.828	-87.24	340.53	24.47 N	5.61 W	0.55	0.10	25.10	AT 347.09	065.71

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*************************************************************
*                        ********                           *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                        ********                           *
*  750.0 FEET EQUALS      25.10   FEET AT   347.09          *
*                        ********                           *
*************************************************************
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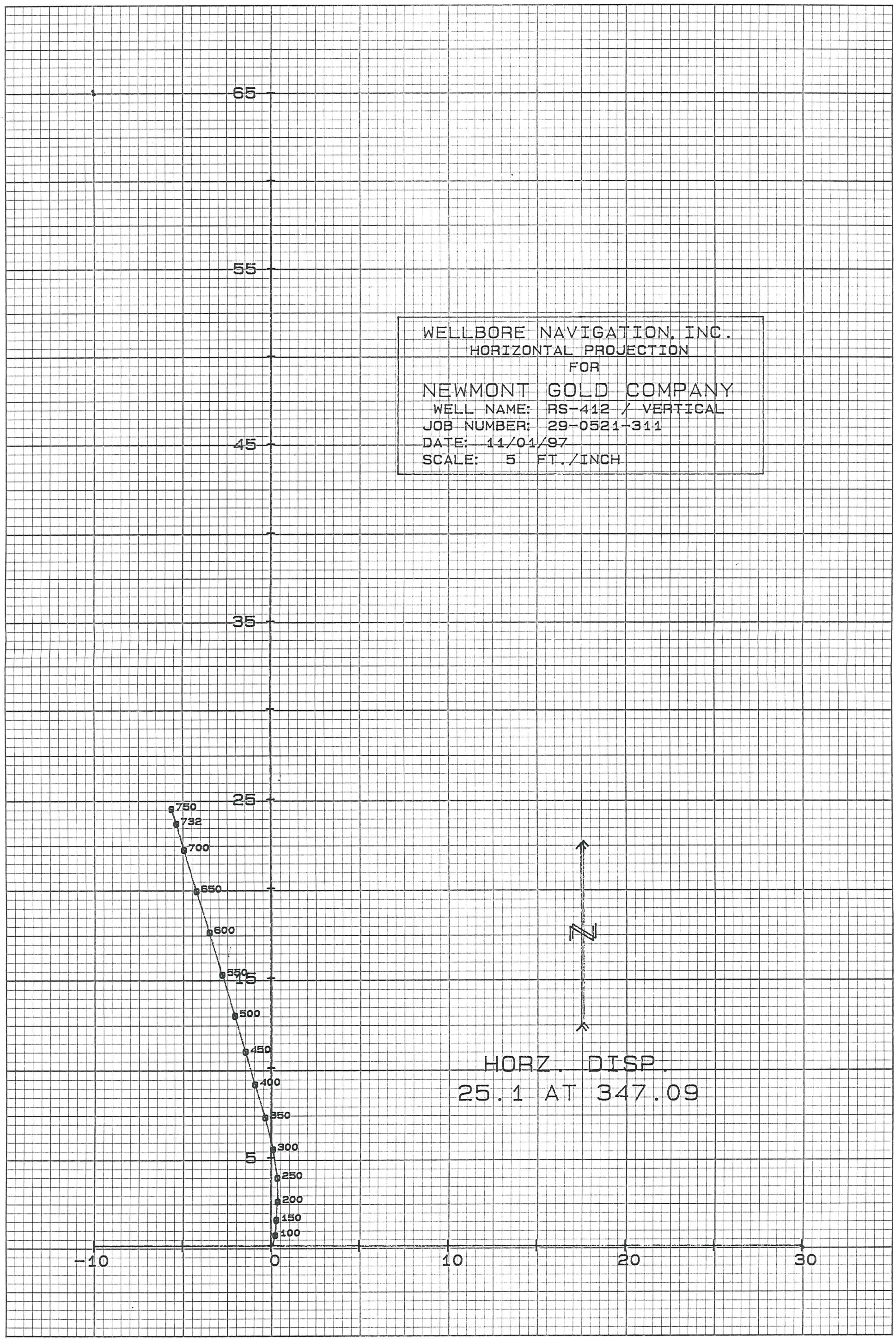
STARLIGHT PRINTING (801) 467-2841



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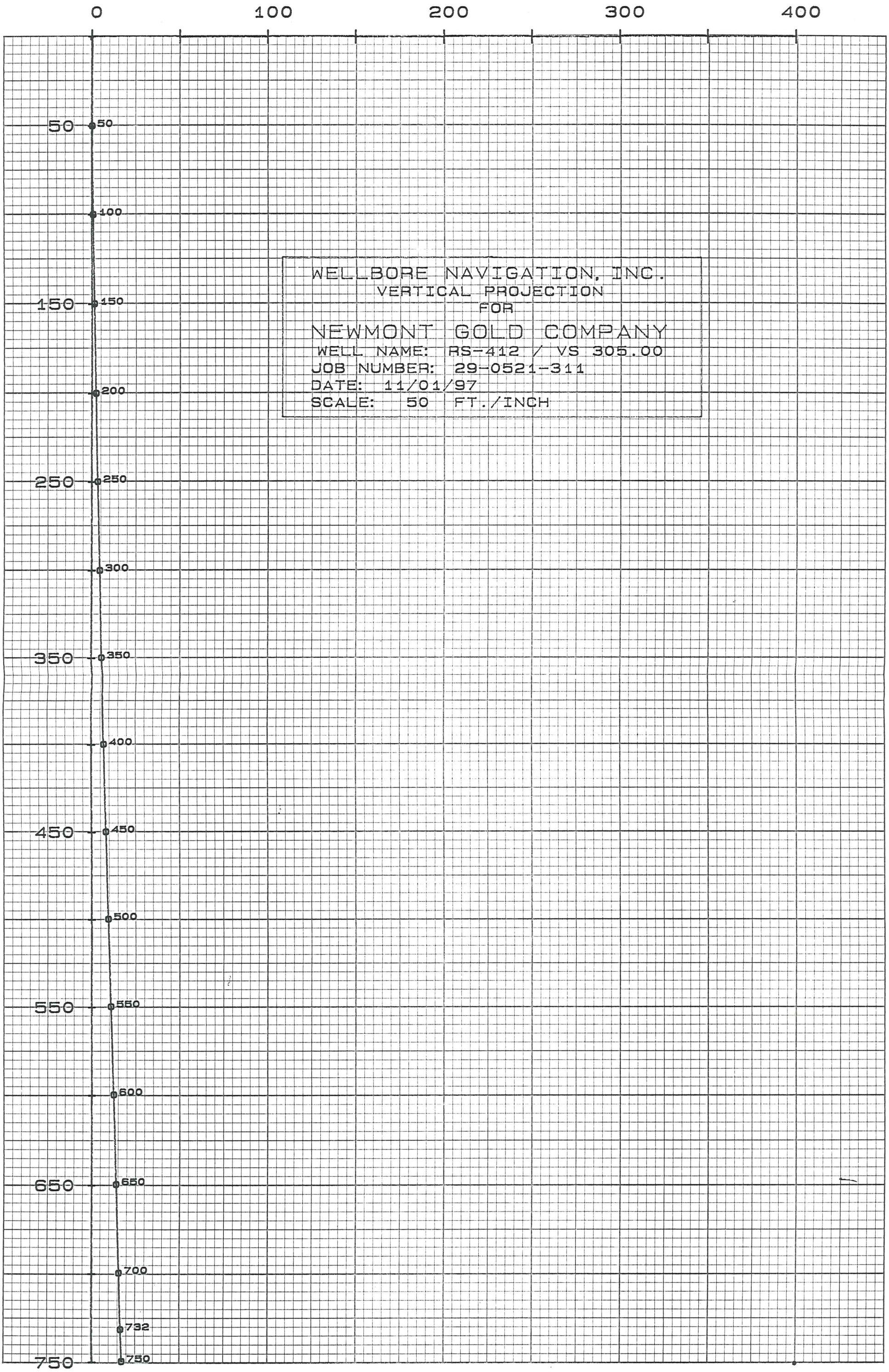

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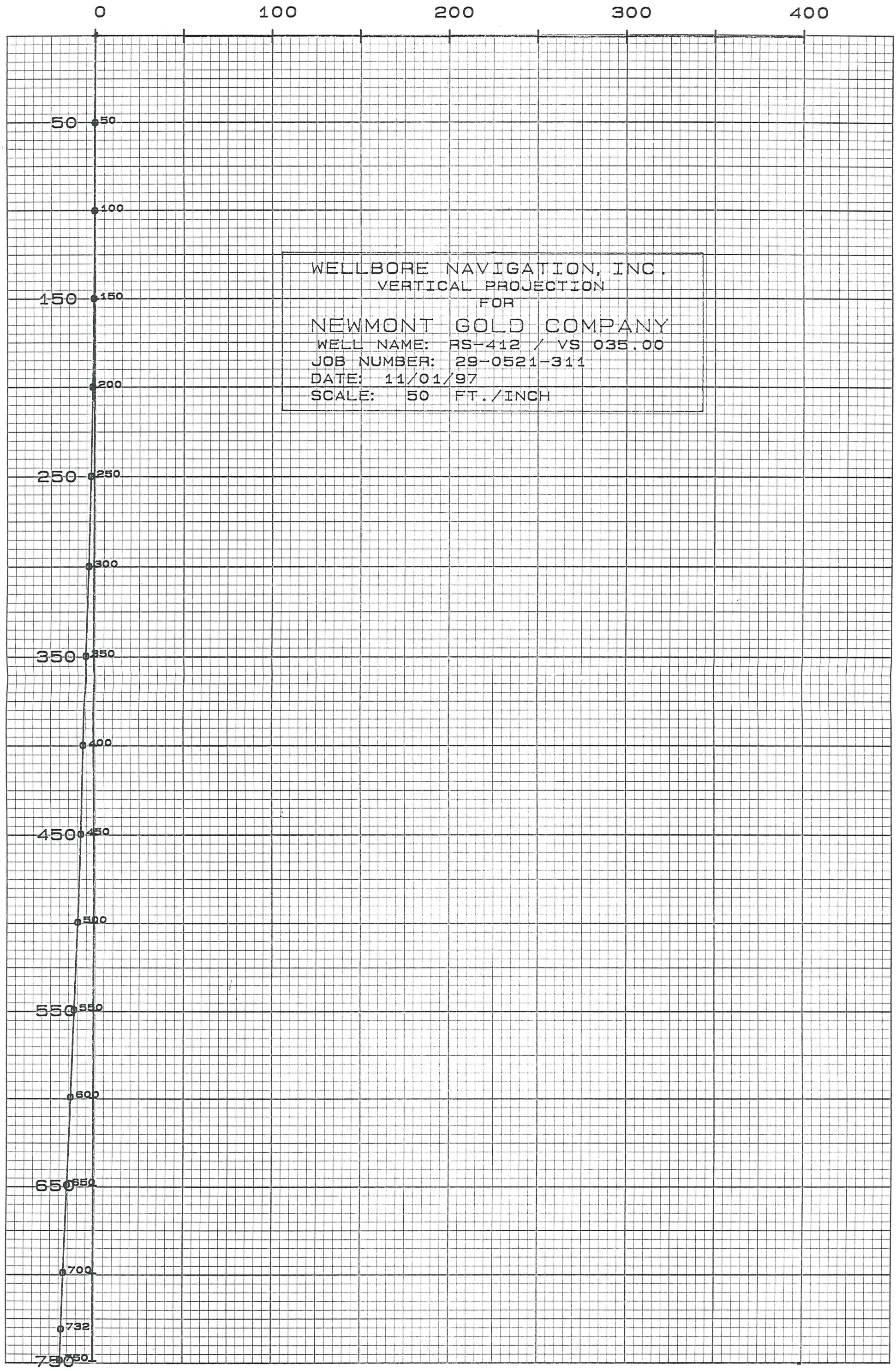

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-419 / VERTICAL

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/23/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 060.50

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

COMMENTS: **** EKLUND ****
** JOHN WELCH **

****
****
*** THIS DIRECTIONAL SURVEY REPORT IS ****
** CORRECT TO THE BEST OF MY KNOWLEDGE ***
* AND IS SUPPORTED BY ACTUAL FIELD DATA! *
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311

WELL NAME: RS-419 / VERTICAL

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	0.11	-0.009	-89.75	272.28	0.00 N	0.11 W	0.50	0.25	0.11	AT 272.28	064.77
100.0	100.00	0.54	0.068	-89.24	292.17	0.13 N	0.53 W	1.06	0.53	0.54	AT 284.30	064.77
150.0	149.99	1.57	0.220	-88.36	282.33	0.41 N	1.53 W	1.80	0.90	1.59	AT 285.05	066.07
200.0	199.96	3.22	0.171	-87.84	270.08	0.57 N	3.17 W	1.31	0.66	3.22	AT 280.12	064.63
250.0	249.92	5.23	0.049	-87.52	276.72	0.69 N	5.19 W	0.83	0.42	5.24	AT 277.62	063.84
300.0	299.87	7.38	-0.047	-87.55	272.30	0.86 N	7.33 W	0.38	0.19	7.38	AT 276.72	063.41
350.0	349.83	9.54	-0.057	-87.49	281.22	1.12 N	9.47 W	0.78	0.39	9.54	AT 276.74	062.83
400.0	399.77	11.77	0.125	-87.37	282.25	1.58 N	11.67 W	0.26	0.13	11.77	AT 277.69	062.40
450.0	449.72	14.01	0.254	-87.48	278.42	1.98 N	13.88 W	0.41	0.20	14.02	AT 278.12	062.40
500.0	499.67	16.26	0.203	-87.36	273.23	2.21 N	16.11 W	0.52	0.26	16.26	AT 277.79	062.11
550.0	549.61	18.73	-0.000	-86.97	271.62	2.31 N	18.58 W	0.80	0.40	18.73	AT 277.08	060.75

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   550.0 FEET EQUALS     18.73    FEET AT   277.08         *
*                          ********                         *
*************************************************************
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-419 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/23/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 060.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00

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

COMMENTS: **** EKLUND ****
** JOHN WELCH **

****
****
*** 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: 29-0521-311 WELL NAME: RS-419 / VS 305.0C

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	-0.06	-0.092	-89.75	272.28	0.00 N	0.11 W	0.50	0.25	0.11	AT 272.28	064.77
100.0	100.00	-0.19	-0.507	-89.24	292.17	0.13 N	0.53 W	1.06	0.53	0.54	AT 284.30	064.77
150.0	149.99	-0.54	-1.490	-88.36	282.33	0.41 N	1.53 W	1.80	0.90	1.59	AT 285.05	066.07
200.0	199.96	-1.36	-2.923	-87.84	270.08	0.57 N	3.17 W	1.31	0.66	3.22	AT 280.12	064.63
250.0	249.92	-2.41	-4.649	-87.52	276.72	0.69 N	5.19 W	0.83	0.42	5.24	AT 277.62	063.84
300.0	299.87	-3.50	-6.501	-87.55	272.30	0.86 N	7.33 W	0.38	0.19	7.38	AT 276.72	063.41
350.0	349.83	-4.52	-8.402	-87.49	281.22	1.12 N	9.47 W	0.78	0.39	9.54	AT 276.74	062.83
400.0	399.77	-5.40	-10.461	-87.37	282.25	1.58 N	11.67 W	0.26	0.13	11.77	AT 277.69	062.40
450.0	449.72	-6.34	-12.502	-87.48	278.42	1.98 N	13.88 W	0.41	0.20	14.02	AT 278.12	062.40
500.0	499.67	-7.44	-14.464	-87.36	273.23	2.21 N	16.11 W	0.52	0.26	16.26	AT 277.79	062.11
550.0	549.61	-8.77	-16.547	-86.97	271.62	2.31 N	18.58 W	0.80	0.40	18.73	AT 277.08	060.75

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   550.0 FEET EQUALS     18.73    FEET AT   277.08         *
*                          ********                         *
*************************************************************
```

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT GOLD COMPANY *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-419 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/23/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 060.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00

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

COMMENTS: **** EKLUND ****
** JOHN WELCH **

****
****
*** 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: 29-0521-311 WELL NAME: RS-419 / 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	-0.09	0.059	-89.75	272.28	0.00 N	0.11 W	0.50	0.25	0.11	AT 272.28	064.77
100.0	100.00	-0.51	0.192	-89.24	292.17	0.13 N	0.53 W	1.06	0.53	0.54	AT 284.30	064.77
150.0	149.99	-1.49	0.541	-88.36	282.33	0.41 N	1.53 W	1.80	0.90	1.59	AT 285.05	066.07
200.0	199.96	-2.92	1.356	-87.84	270.08	0.57 N	3.17 W	1.31	0.66	3.22	AT 280.12	064.63
250.0	249.92	-4.65	2.408	-87.52	276.72	0.69 N	5.19 W	0.83	0.42	5.24	AT 277.62	063.84
300.0	299.87	-6.50	3.498	-87.55	272.30	0.86 N	7.33 W	0.38	0.19	7.38	AT 276.72	063.41
350.0	349.83	-8.40	4.517	-87.49	281.22	1.12 N	9.47 W	0.78	0.39	9.54	AT 276.74	062.83
400.0	399.77	-10.46	5.402	-87.37	282.25	1.58 N	11.67 W	0.26	0.13	11.77	AT 277.69	062.40
450.0	449.72	-12.50	6.337	-87.48	278.42	1.98 N	13.88 W	0.41	0.20	14.02	AT 278.12	062.40
500.0	499.67	-14.46	7.436	-87.36	273.23	2.21 N	16.11 W	0.52	0.26	16.26	AT 277.79	062.11
550.0	549.61	-16.55	8.769	-86.97	271.62	2.31 N	18.58 W	0.80	0.40	18.73	AT 277.08	060.75

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   550.0 FEET EQUALS    18.73   FEET AT  277.08            *
*                          ********                         *
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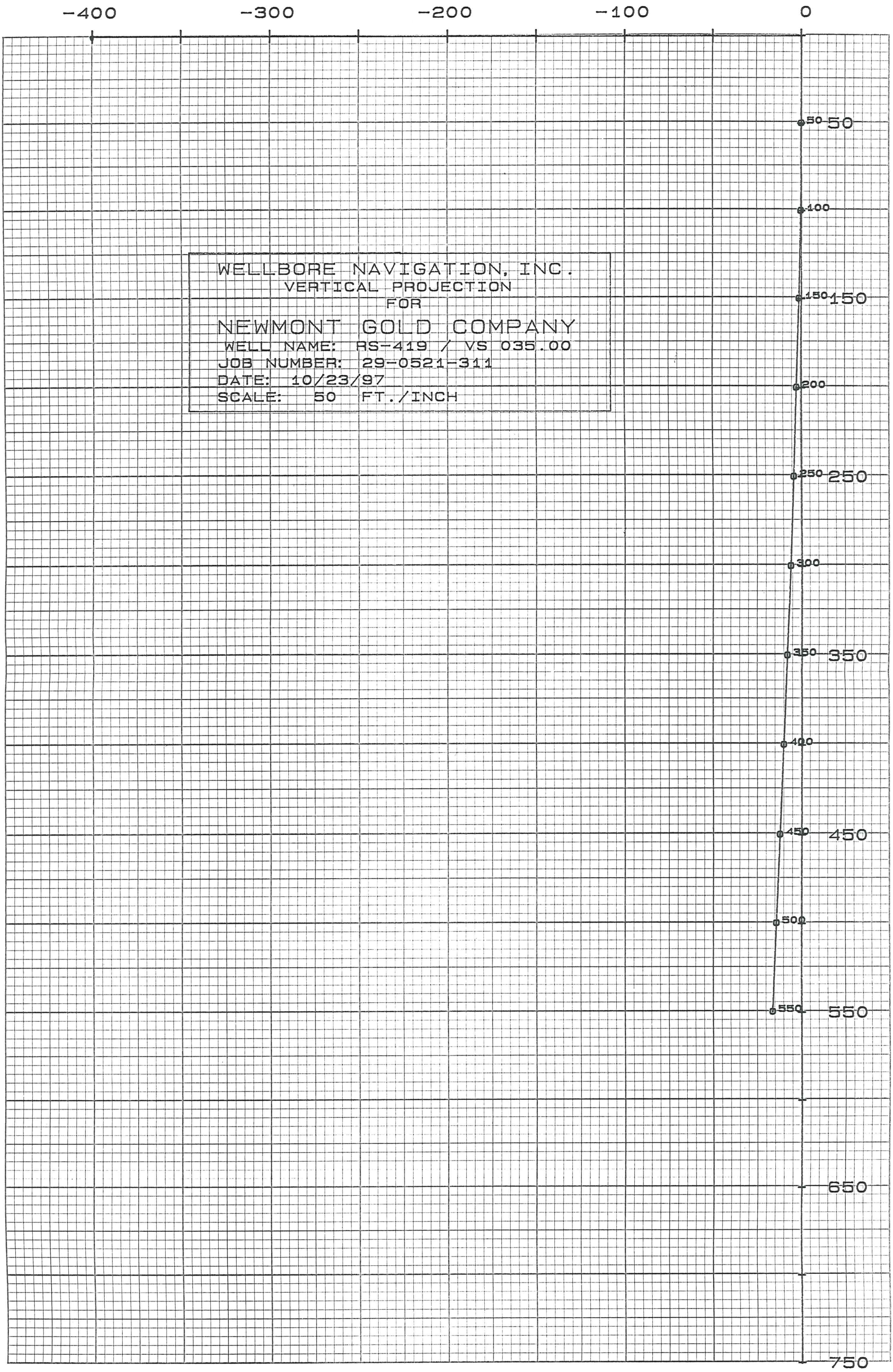

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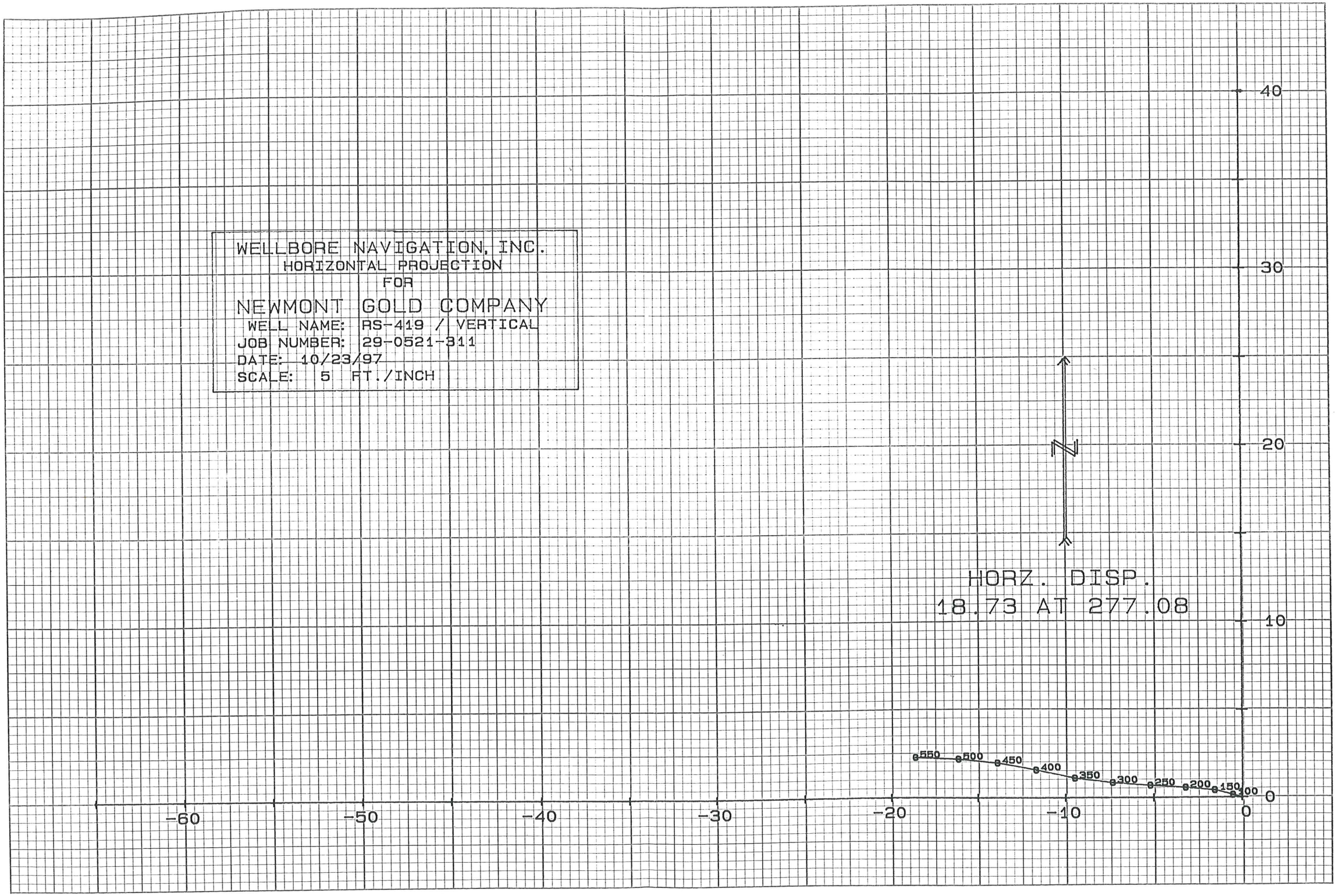

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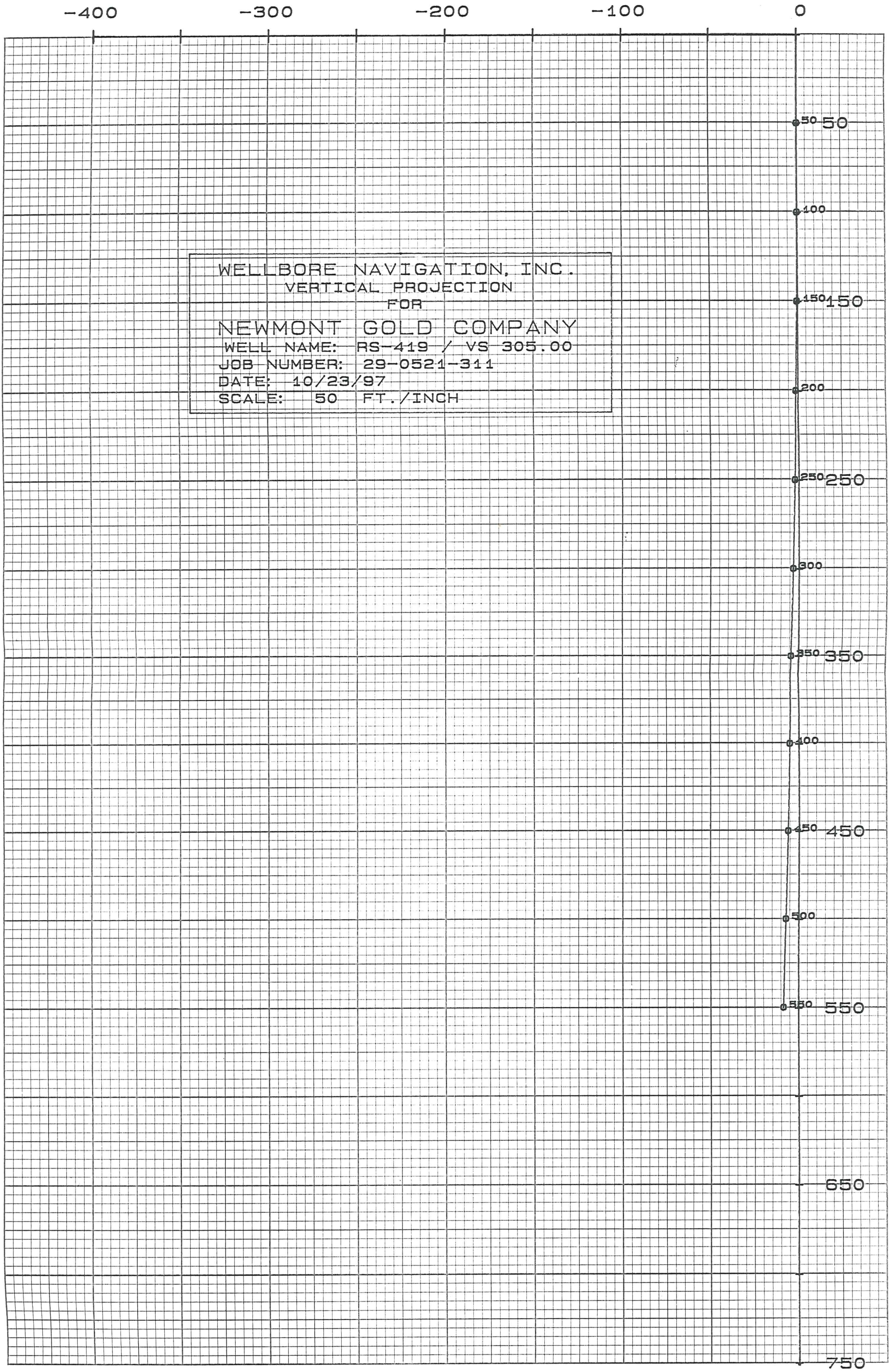


Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-419
PAGE 1 OF 3
DATE 6-29-98
LOGGED BY BLC
TOTAL DEPTH 550'

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX	SILICIFICATION QUARTZ	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VEINING %	VEINING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
		Coll	Colluvium			X																																			
		TcFG	Chocolate Fm. - fine grained			X																																			
20						X																																			
40						X																																			
60						X																																			
80						X																																			
100						X																																			
120						X																																			
140						X																																			
160						X																																			
180						X																																			

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-419
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: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION QZ STS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
		TcFG																			X																				
																				X																				
220																				X																				
																			X																					
240																																								
																				X																				
260																				X																				
																				X																				
280																				X																				
																				X																				
300																			X																					
																				X																				
320																				X																				
																				X																				
340																				X																				
																			X																					
360																																								
		TcLLT	Chocolate Fm Bxa																X																					
380																			X																					
																				X																				
																					X																				

Hecla MINING COMPANY

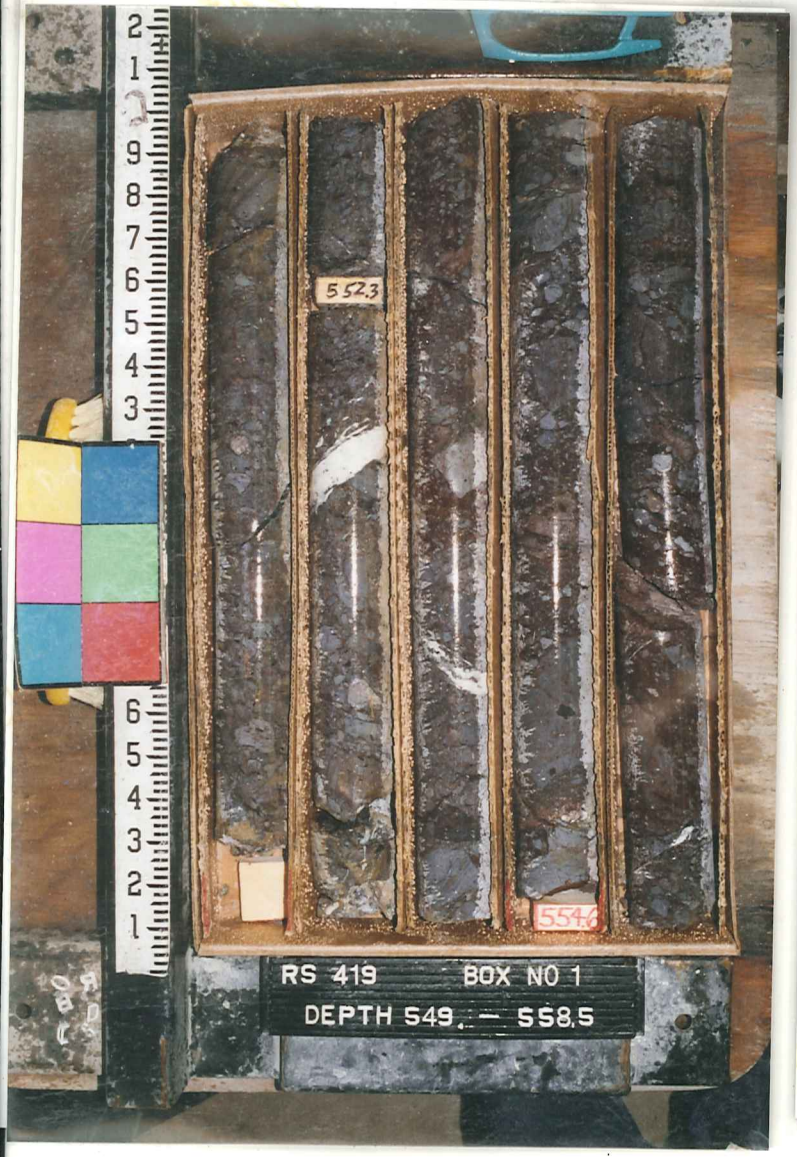
ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-419
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%	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 %	K-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
		TcLLT																		X																					
																				X																					
420																																									
																			X																						
440																			X																						
																			X																						
460																			X																						
																				X																					
480																			X																						
																			X																						
500																			X																						
																			X																						
520																			X																						
																			X																						
540																				X																					
																				X																					
560																																									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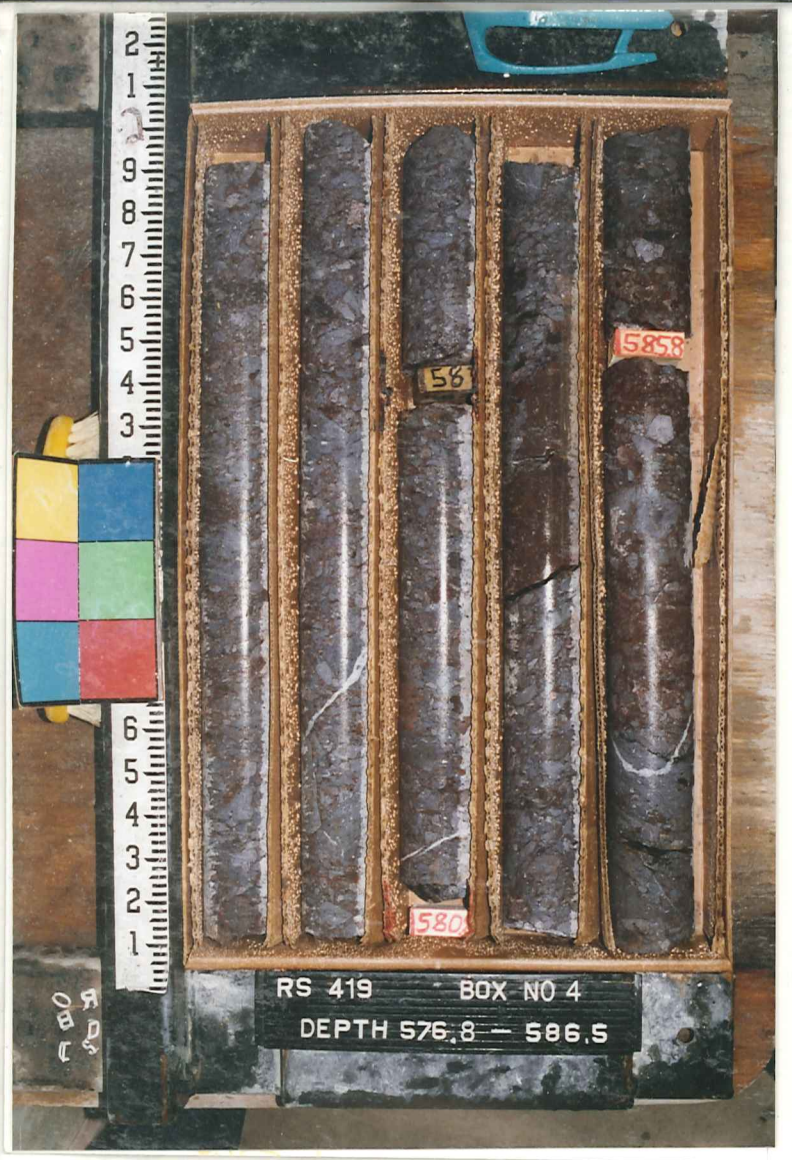
5546
RS 419 BOX NO 1
DEPTH 549. – 558.5

5660
5607
RS 419 BOX NO 2
DEPTH 558.5 – 568.

RS 419 BOX NO 3
DEPTH 568. – 576.2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DEPTH 576.8 — 586.5

RS 419 BOX NO 5
DEPTH 586.5 — 595.

RS 419 BOX NO 6
DEPTH 595. — 604.1

607.3
610.8
613.1
611.4
RS 419 BOX NO 7
DEPTH 604.1 — 613.

619.2
RS 419 BOX NO 8
DEPTH 613. 622.1

RS 419 BOX NO 9
DEPTH 622.1 — 631.
623.9
628.1
629.8

632.1
631.4
637.6
RS 419 BOX NO 10
DEPTH 631. — 639.8

642.2
647.4
RS 419 BOX NO 11
DEPTH 639.8 — 648.5

RS 419 BOX NO 12
DEPTH 648.5 — 658.
657.1

RS 419 BOX NO 13
DEPTH 658. — 667.

RS 419 BOX NO 14
DEPTH 667. — 676.

RS 419 BOX NO 15
DEPTH 676. — 685.

RS 419 BOX NO 16
DEPTH 685. — 695.

RS 419 BOX NO 17
DEPTH 695. — 704.

RS 419 BOX NO 18
DEPTH 704. — 713.2

719.1
713
717.2
721.3
RS 419 BOX NO 19
DEPTH 713.2 — 723.

724.6
732.3
724.8
731.5
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736.8
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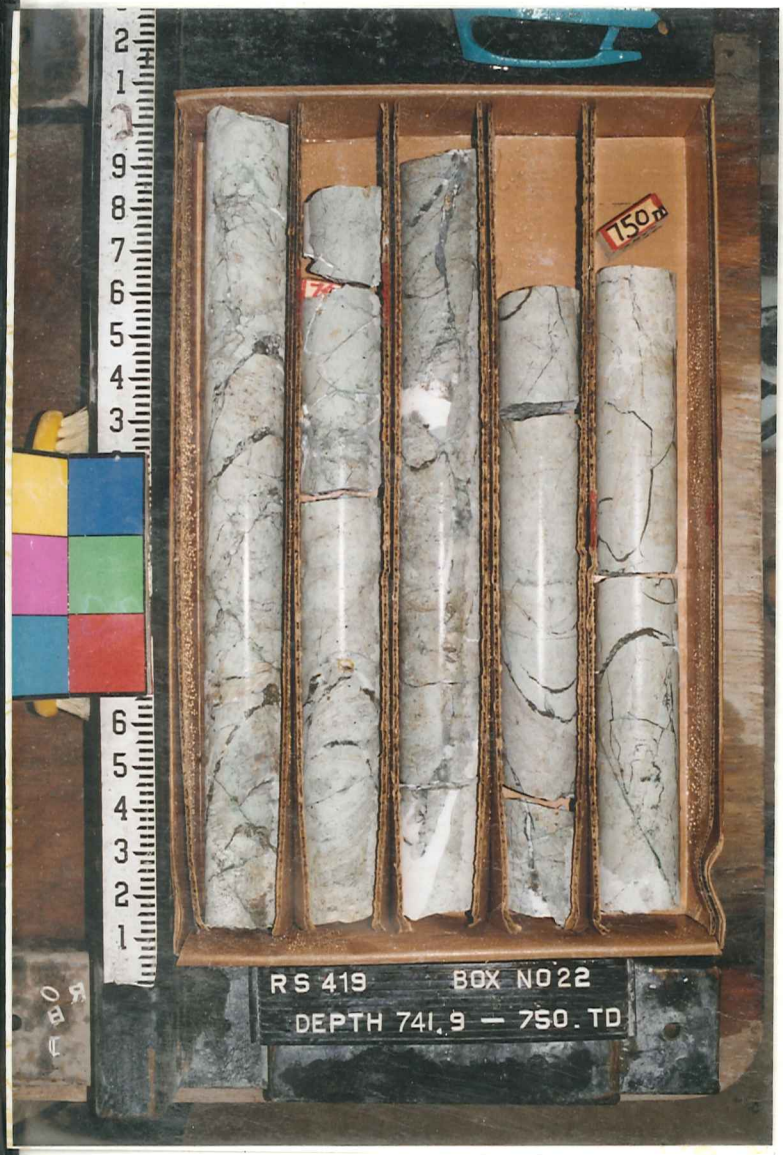
DEPTH 732.1 — 741.9



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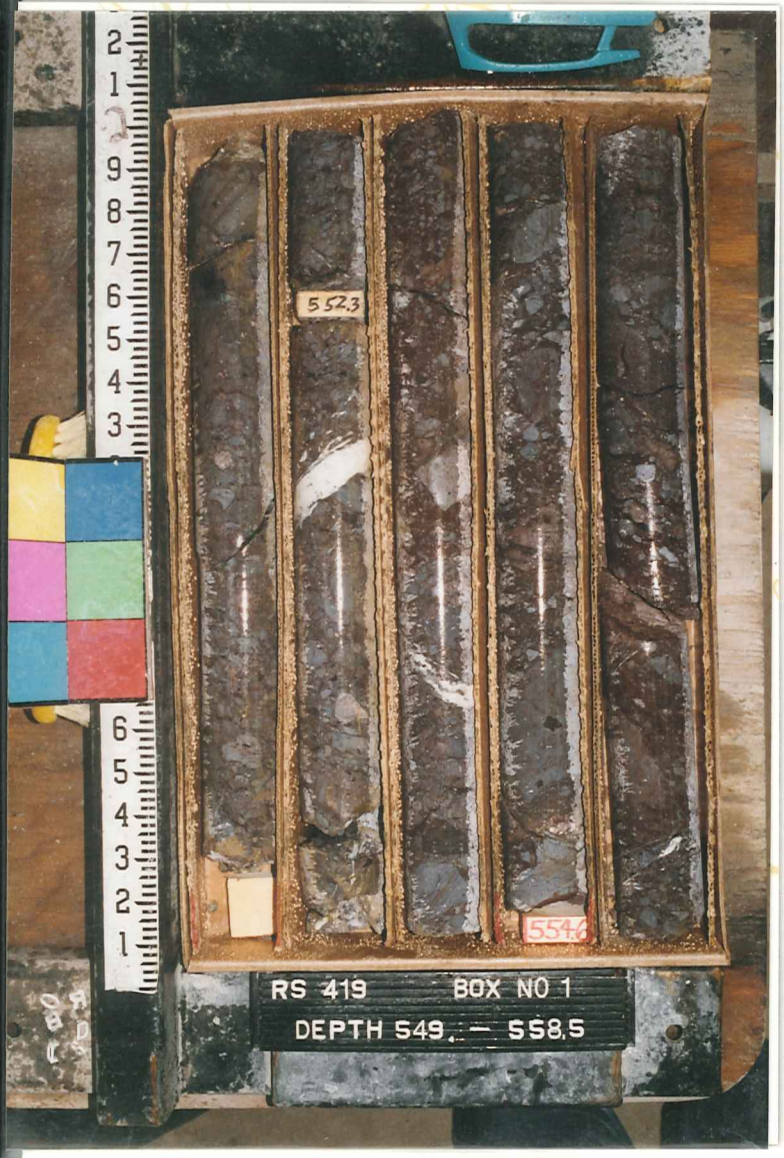
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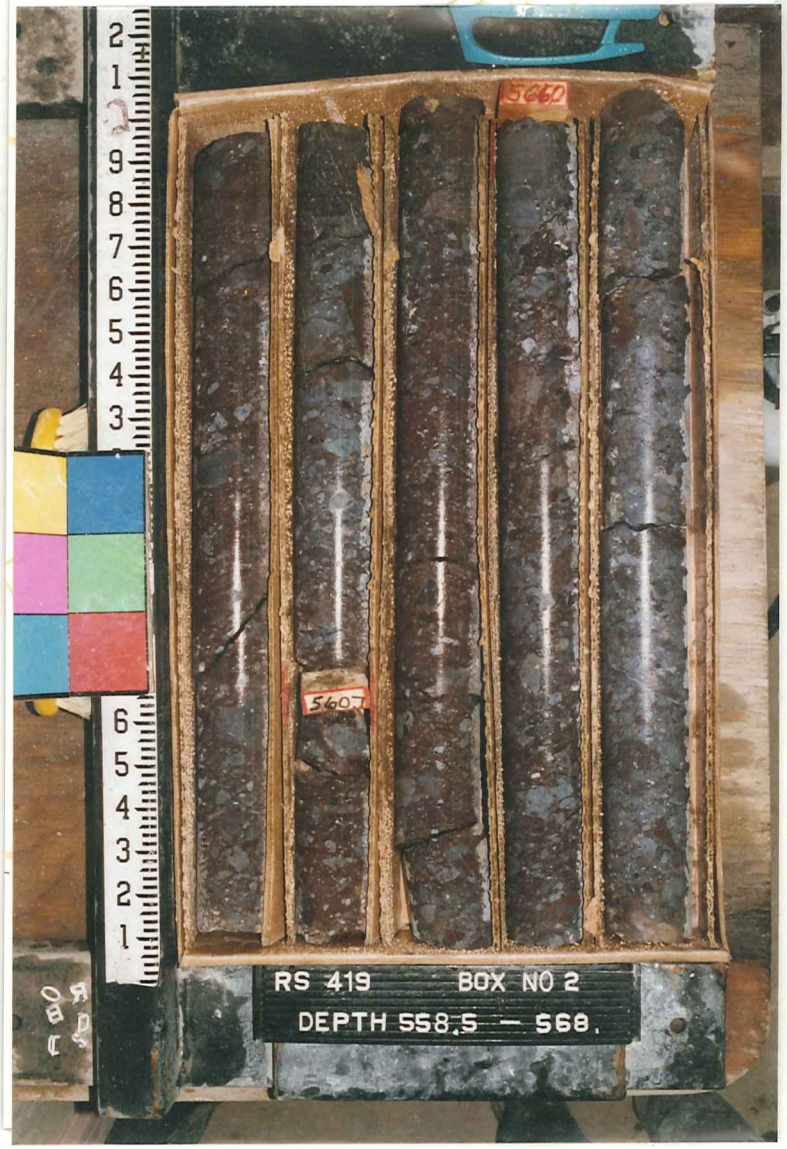
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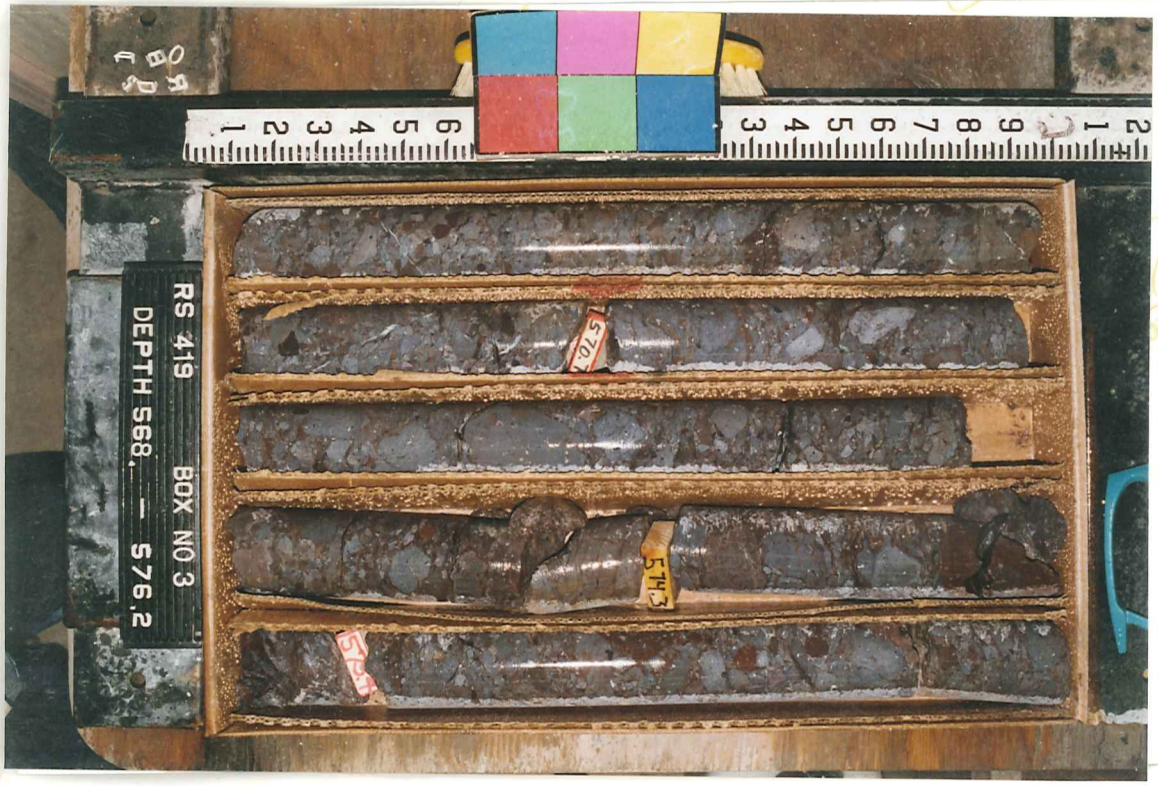
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DEPTH 568. — 576.2

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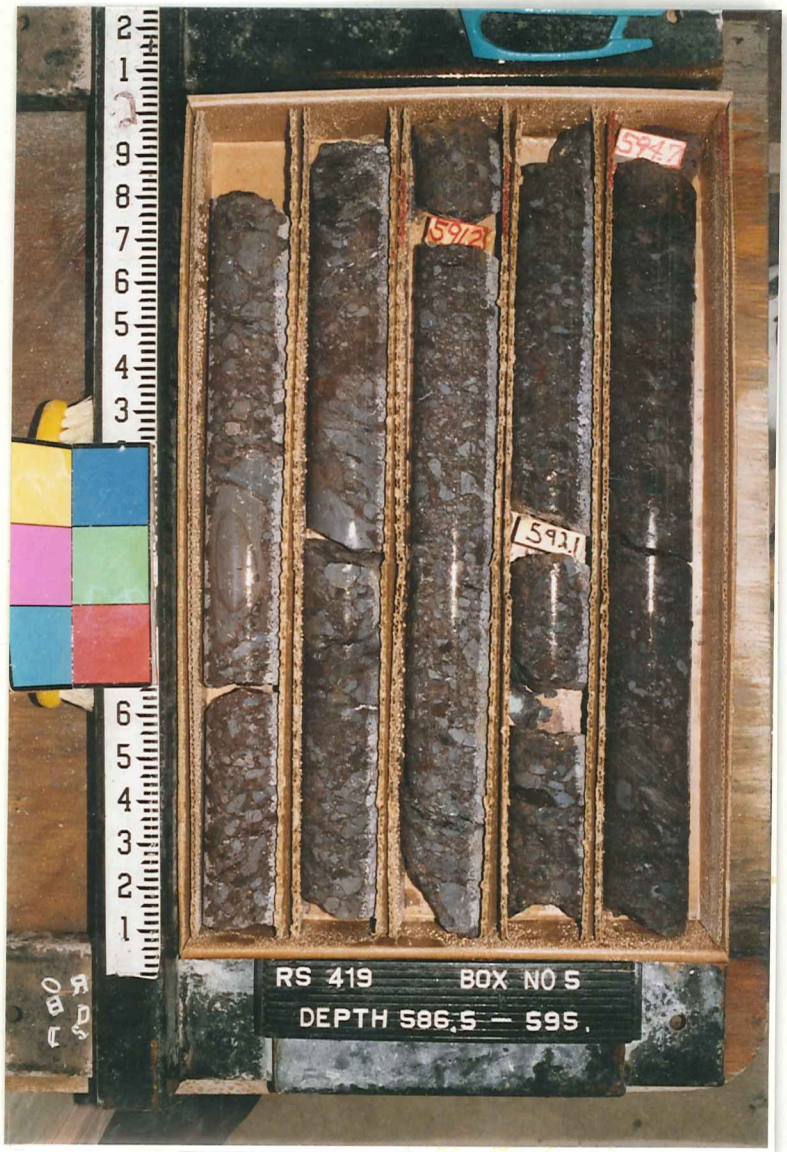
5858
58
580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DEPTH 586.5 – 595.
5947
5972
5921

RS 419 BOX NO 6
DEPTH 595. – 604.1
5980
6021
6034

607.3
610.8
613.1
611.4
RS 419 BOX NO 7
DEPTH 604.1 — 613.

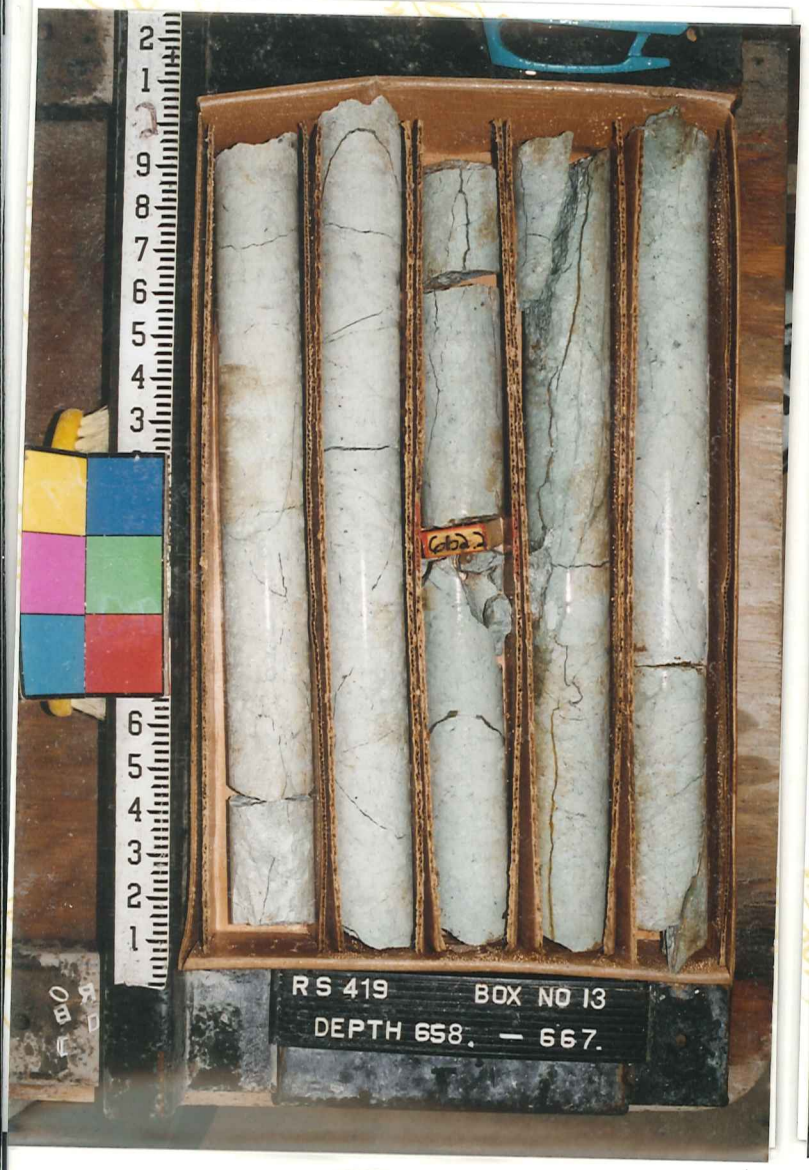
619.2
RS 419 BOX NO 8
DEPTH 613. 622.1

RS 419 BOX NO 9
DEPTH 622.1 — 631.
628.8
627.1
624.8

632.1
631.4
634.8
637.6
RS 419 BOX NO 10
DEPTH 631. — 639.8

648.2
647.4
RS 419 BOX NO 11
DEPTH 639.8 — 648.5

RS 419 BOX NO 12
DEPTH 648.5 — 658.
657.1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DEPTH 658. — 667.

RS 419 BOX NO 14
DEPTH 667. — 676.

RS 419 BOX NO 15
DEPTH 676. — 685.

RS 419 BOX NO 16
DEPTH 685. — 695.

RS 419 BOX NO 17
DEPTH 695. — 704.

RS 419 BOX NO 18
DEPTH 704. — 713.2

719.1
713
717.2
721.3
RS 419 BOX NO 19
DEPTH 713.2 — 723.

723.3
724.6
724.8
731.5
RS 419 BOX NO 20
DEPTH 723. — 732 1

RS 419 BOX NO 21
DEPTH 732.1 — 741.9
736.8
740.3
740.8

198K > 32 984 0912 N N N N 2

198K > 28 984 0912 N N N N 2