60000518

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-412
AUTHOR	C. Ballew; R. Lisle, R. Vance; K. Allen; S. King; G. Langstaff; 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 Hecla Mining Co.; Newmont Exploration Ltd.
COMMODITY If not obvious	gold; silver
NOTES	drill logs; geology; assay; geochemistry photographs; total depth 750'; invoices 107p.

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-412

60000518
4010

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NEWMONT EXPLORATION LIMITED — DRILL HOLE SUMMARY

Project: Rosebud Location: Hecla's East Zone Drill Hole No.: RS-412

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

Purpose: Mine Geology Infill Results:

Date Started: Date Finished: 10/14/97 - 10/14/97 rc; 10/28/97 - 11/1/97 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	500	rc /			Eklund
500	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	25' @ 347°	-87.2

Water Table Depth:

Water Flow Rate:

COMMENTS

See Welnar survey

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 1 of 10
Log'd by: G. Langstaff Date: 10/22/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-500'	

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
																				colluvium?		calcareous dirt to 15'		
5																								
10																								
15			10YR7/6	Volc	vf	massive	<1	1.5mm	long	white	fold→clay	w	dissem	avg	whiteclay						TCFG	mostly coarse chips		
			yellowish orange +			granular	<1	1.1mm	irregy long	green	hbl→chl?										vf feldspar?	still some dark red chips from above?		
			10YR5/6				<1	<1mm	square	vit grey	qtz/fold?											gradations from greenish to orange		
			orange brown +					on whiter chip														on same chip indicates color change		
20			5GY6/1																			may be due to weathering		
			greenish gray				<1	<.5mm	specks	green	hbl→chl?					hair-line	rare	none	qtz					
																<.1mm	rare	none	qtz+clay					
25																								
							<1	<1mm	prism. specks	green	hbl→chl?					<2mm	rare	Fox	qtz			1 chip of vuggy, silicified material		
																<.1mm	rare	none	qtz+clay					
30			10YR7/6,																			mostly fine chips (<3mm)		
			10YR5/6,				<1	<.5mm	specks	green	hbl→chl?											rare brown in greenish grey chips may		
			5GY6/1																			be breccia matrix or Fe stain (weathering)		
			as above																					
35			and																					
			also				<1	<1mm	rounded	pale grey	feldspar?					hair-line	rare	none	qtz			brown on some chips may be breccia		
			5GY8/1-				<1	<.5mm	specks	green	hbl→chl?											matrix		
			5GY7/1																					
40			pale																					
			grey				<1	1.5mm	chunky	white	fold→clay?											brown breccia veinlets on green chips?		
							<1	<.5mm	specks	green	hbl→chl?													
45																								
							<1	<1mm	oblong	pale grey	fold?					<.1mm	rare	none	clay+qtz			possible brown breccia matrix		
								<.5mm	specks	green	hbl→chl?								qtz					
								<1.5mm	chunky	white	fold→clay?													
50																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 2 of 10
Log'd by: G. Langstaff Date: 10/22/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-500'	

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			5GY7/1-	Volc	vf	massive,	<1	1mm	rand	white	fold→clay?	U	dissem	arg	white clay	<2mm	pres	none	qtz		Tc FG	minor brown Fe stain or breccia matrix		
			5GY6/1			granular										<1mm	rare	none	qtz+clay		w/ feldspar			
			greenish																					
			grey																					
			lesser																					
60			5YR5/4				<1	1mm	round	white	fold→clay?					hair-line	rare	none	qtz					
			brown				<1	2mm	prism	grey w/ white core	fold→clay?													
			rare, paler				<1	<1mm	chunky round	green	hbl→chl?													
			yellow																					
65			brown				<1	<1.5mm	irreg. chunky	green	hbl→chl?											white, clay (?) chips possibly some brown breccia matrix		
70																<.5mm	pres	none	black Mnox?			some brown breccia matrix on some chips more yellowish clay is sample		
75							<1	<.5mm	specks	pale green	fold→chl?											minor brown breccia matrix		
80							<1	<1mm	round	green	hbl→chl?					<2mm	pres	Feox	qtz+Feox			minor brown breccia matrix		
85							<1	<1mm	chunky	green	hbl→chl?					<.5mm	pres	Feox	black Mnox?			minor brown breccia matrix		
90			5RP3/2	Volc	aph	massive,	2%	<.3mm	specks needles	black	hbl					<1mm	pres	orange	Feox		unaltered	red mottling on mostly grey chips		
			greyish			micro-	<1	<.2mm	rect.	white	feldspar?										Tc FG			
			purple			porphyritic	<1	2mm	chunky	white	amygdale?										w/ feldspar			
95			5GY6/1-	Volc	aph	massive	<1	<.5mm	specks	green	hbl	W	dissem	pyrite	pyrite						Tc FG			
100			5G5/1									W	dissem	arg	green clay?							orange brown stain along fractures?		
			greenish																					
			grey																					

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 3 of 10
Log'd by: G. Langstaff Date: 10/22/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-500'	

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			5GY7/1 greenish grey (slightly yellower at 100-105)	Volc	aph	massive	<1	<1mm	specks	green	hbl→chl?	W W	dissem dissem	arg py	white clay pyrite	<3mm	rare	?	py ± qtz		TcFG	very little dissem pyrite		
110							<1	1mm	long	pale green	hbl→chl?											rare pale brown related to fractures?		44 44
115							<1	<1mm	specks	green	hbl→chl?											chip of white clay		127
120							<1 <1	<1mm 2mm	specks irreg	green white	hbl→chl? amygdale?											some orange clay slightly calcareous to 125'		25
125							<1 <1	1.5mm <.5mm	prism specks	white green	fsld→clay? hbl→chl?											no more vein pyrite but some dissem		
130			10R3/2 dusky red	Volc	aph	massive, micro-porphyritic	1	<1mm	rounded needles specks	black	hbl										unaltered TcFG (hbl only)	big chips in samples near contact calcareous red clay		
135			mottled red & grey				<1	<2mm	chunky	white	amyg?											weakly calcareous to 150'		
140			mostly N5 grey													<1mm	rare	± Fox	calcite			possibly qtz vein or amygdale		
145																						mafics appear foliated on some chips		
150			(somewhat more red mottling)																					

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 4 of 10
Log'd by: G. Langstaff Date: 10/22/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-500'	

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
			5R5/2	Volc	aph	massive,	1	<1mm	irreg needles	black	hbl										unaltered	gmass is weakly calcareous to 200'		
	/		10R3/2			micro-	<1	<2mm	irreg	white	amygdale?										TcFG?	brownish red staining in fractures		
			mottled			porphyritic	<1	1-4mm	round	dk grey	volc. dest?										(hbl only)			
155			grey to																					
			greyish																					
	1		red																					
160																								
165																								
	1						1	<1mm	chunky needles	black	hbl													
170																								
175																								
180	1																							
																						chip of red clay		
185																								
	1							fewer	phenos															
	Δ																							
190																								
																<2mm	rare	none	calcite			small chip of calcite		
	Δ																					minor brecciation		
195	1																							
200																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 5 of 10
Log'd by: G. Lanastaff Date: 10/22/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-500'	

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 (weakly calcareous to 235')	Recovery	Assay
			see previous page for description																		unaltered TcPh? (hbl only)	chip of vein calcite grey locally mottled to very palegrey like rock below		
205			mostly	Volc	vf/aph	massive	<1	<.5mm	chunky	green	hbl→chl?	v	dissem	arg	whiteclay						TcFG	some red staining, from above?		
210			5G 6/1 greenish grey																					
215							<1	<1mm	round chunky	green	hbl→chl?					<2mm	rare	?	py±gtz					
220							<1	<1mm	irreg	green	hbl→chl?					[<1mm	rare	?	calcite]			chip of vein calcite?		
225			paler 5GY 7/1				<1 <1	1mm <.5mm	round specks	grey-white green	feld? hbl→chl?					[<1mm	rare	±FeOx	calcite]			brown staining on some chips may indicate breccia matrix		
230			greenish grey									v m?	dissem dissem	py arg	pyrite whiteclay	[<2mm	pres	±FeOx	calcite]					
235							<1	1mm	prism	palegreen	feld→chl?													
240							<1 <1	<.5mm 1mm	square prism	palegrey palegreen	feld? hbl/chl?											slightly calcareous		
245							<1	2mm	prism	green	hbl→chl?											negligible calcite in groundmass		
250																						truly greenish chips rare		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 6 of 10
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255			5G8/1- 5G7/1 pale grey	Volc	ufgph	massive	<1	1mm	chunky	green	hbl→chl?	mi w	dissem dissem	arg py	white clay pyrite	<3mm 	pres 	?	py±qtz		TcFG	no apparent calcite in gmass some chips greener than others		20
260																								383
265																						sample has up to 3% pyrite, mostly vein minor white clay in sample		118
270							<1	<1mm	chunky	green	hbl→chl?											slightly calcareous		32
275			5G6/1 darker greenish grey				<1	1mm	chunky	green	hbl→chl?											many chips with dark pinpricks of pyrite (?) weakly calcareous to 300'		
280																						chip of pink/pale brown carbonate? + clay		
285			5GY7/1- 5GY6/1 greenish grey				<1	<.5mm	long specks	green	hbl→chl?	w	dissem	arg	white clay	<2mm <2mm	rare rare	? ?	pink calcite? py±qtz					
290							<1	<.5mm	specks	green	hbl→chl?											only rare pyrite		
295							<1	<.5mm	specks	green	hbl→chl?	w w	dissem dissem	py arg	pyrite white clay									
300			back to mostly 5G7/1													<2mm <3mm	rare pres	? ?	py+ca ±qtz py±qtz			more vein pyrite chips of white clay		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 7 of 10
Log'd by: G. Langstaff Date: 10/22/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): Chips 0-500'	

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			5G 7/1 greenish grey	Volc	vf/fgph	massive locally granular						w w	dissem dissem	py arg	py cubes whiteclay	<5mm <2mm <3mm	pres pres rare	? ? ?	py+qtz calcite py+ca		Tc Fla	gmass is weakly calcareous to 320'		
310																						bladed py/marc in calcite vein		
315							<1 <1	<1mm <.5mm	round specks	pale green green	feld→chl? ?													
320																								
325							<1	4mm	round?	white	?											slightly calcareous to 330'		
330												m w	dissem? dissem	arg py	whiteclay py cubes							most pyrite in veins		
335																								60
340						massive granular						w w w	dissem dissem patchy	arg py sil	whiteclay py specks? quartz	<5mm	pres	?	qtz+py			bladed py/marc in qtz no calcite veins? no more calcite in gmass? up to 5% of sample may be pyrite		92
345							<1	1mm	long	green	hbl→chl?											dark specks may still be dissem pyrite but cubes are rare		100
350							<1	2mm	oblong	pale green	hbl→chl?											slightly calcareous		84

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 8 of 10
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			5GY8/1-	Volc	vf	massive						m?	dissem	arg	white clay	<5mm	pres.	none	py+qtz		TcFG	quartz veins with pyrite cores		
			5G8/1			granular						w	dissem	py	py cubes							not calcareous		
			paler																			some loose white clay in sample		
355			gray than																			vein pyrite >> dissem pyrite		34
			above																					
360																								
																[<3mm	rare	?	py+qtz+					
365																			clay?]					
																						some brown-stained chips		
370																								
																						rare green chips		
																						rare brown-stained chips		
375																								38
380																								64
																						metallic, arborescent mineral in qtz		
																						not as yellow as pyrite		110
385																								98
												[w	patchy	gil?	quartz]							some qtz veins have fine drusy qtz		
																						some loose white clay		62
390																								66
							<1	1mm	oblong	green	hbl-chl?											rare brown staining on a few chips		
395																								60
																[<1mm	rare	?	calcite]		brecciated	bladed py/marc in qtz		
																					TcFG	some chips with brown breccia matrix?		
400																						slightly calcareous		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 9 of 10
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405			5YR8/1 pinkish grey + 5YR4/4	Volc	vfloph	massive, locally granular						m?	dissem	arg	white clay	<4mm	pres	none	py tr qtz		brecciated TcFG	brown fractures and breccia matrix?		
												w	dissem	py	pyrite	<3mm	rare	?	calcite			weakly calcareous		
																						only rare disseminated pyrite		
410			brown			[local breccia texture]	?	1.5-3mm	rounded subang	pale	local rock frags					<4mm	rare	?	py ± qtz			slightly calcareous		
																						chip with rounded clasts up to 3mm in siliceous matrix		
																						brown breccia matrix		
415							?	<.5-2mm	round subang	pale	local rock frags											slightly calcareous		
420			mottled				<1	1mm	oblong prism	green	hbl→chl?	w?	dissem	arg	white clay							slightly calcareous		
425			5G 7/1 greenish grey			pervasive breccia texture	<1	1.5mm	prism	green	hbl→chl?										altered LLT	slightly calcareous		
							?	<3mm	round subang	pale	local rock frag					[<2mm	rare	?	calcite]					
430							?	<2mm	round subang	white	local rock frag											slightly calcareous		
																						breccia matrix is grey not brown		
435							<1	1.5mm	prism	green	hbl→chl?	w	dissem	arg	white clay							slightly calcareous		
							?	<2mm	round subang	white	local rock frag	w	dissem	py	pyrite cubes]	<2mm	rare	?	calcite]			rare dissem pyrite		
440			[paler mottling than above]				?	<2mm	round subang	white	local rock frag					<3mm	rare	?	calcite			very slightly calcareous gmass		
445			5YR3/2 brown				<1	1.5mm	prism	pale green	hbl→chl?											slightly calcareous gmass		
							?	<2mm	round subang	white	local rock frag													
							<1	2mm	long	green	hbl→chl?											some pyrite in brown matrix		
450			see description on next page																			weakly calcareous gmass		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-412	Page 10 of 10
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455	Δ Δ		N5-N4 grey mottled with	Volc	aph	locally brecciated rarely matrix-sup	? <1	? <.5mm	subrnd ang sparse needle	grey black	local rock frag hbl?										TcLLT	weakly calcareous gmass to bottom of hole dark red mottling in grey rock partly related to breccia matrix and fractures		
460	Δ Δ Δ		5RP2/2 dark red purple				<1 <1 ?	3mm <.5mm .1mm?	irreg sparse needles subrnd ang	grey-white black grey	calcite (amygdale?) hbl? local rock frag											3% white chips may be from above		
465	Δ Δ Δ																							
470	Δ Δ Δ						[<1	3mm	irreg	pale green	amygdale?]											rare white chips		
475	Δ Δ Δ																							
480	Δ Δ Δ						[<1	2mm	irreg	pale green	amygdale?]					<2mm	rare	?	calcite			some coarse calcite chips from veins or amygdales		
485	Δ Δ		5G 6/1 greenish	Volc	vf/aph	massive with local(?)	?	.2-.3mm	subrnd angular	white in red matrix	volc. clast	W	pervasive	arg	green clay?							zone of breccia with white lithics or brecciated white volcanic rock		
490	Δ Δ		grey N2	Volc	aph	breccia massive	<1	1.5mm	prism	pale green	hbl→chl?											very rare pyrite cubes in white rock still white chips (from above?)		
495	Δ Δ		dark grey average but mottled			with local(?) breccia																hard to see textures in dark chips black specks as in rock above rare or not apparent		
500	Δ		and with local brown tint																					

too dark to see texture in core photo - looks more massive than breccia where it becomes altered at 501' but obvious breccia below 506' like LLT

- 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-412	LOCATION	
PAGE 1 OF 4		NORTHING	
DATE	12/2/97	EASTING	
LOGGED BY	H McLACHLAN	ELEVATION	
SCALE	1" = 10'	AZIMUTH	–
TOTAL DEPTH	750.0	INCLINATION	-90°

REMARKS

499.0 = CORE POINT

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
499.0 - 501.7' ?LLT	501.7' Tc	499.0-501.7': DARK PURPLE AG HARD PORPHYRITIC CHOCOLATE. TYPE PLAG PHENOCRYSTS SCATTERED THRU GROUNDMASS.	500	55	501.7-507.0': PROBABLE VOLCANIC CHILLED CONTACT OF OVERLYING UNIT. WKLY BRECCIATED IN BLUE-GRN CLAY ZONE; STRONGER BXA BELOW LOOKS TO BE A DISTINCT LITH. UNIT	501.7-507.0': MOD. TO STR. PERVASIVE CLAY ALTERATION, BLUE-GRN.
501.7 - 507' CLAY VITROPHYRIC		501.7'-507.0': PALE GREEN-BLUE SLIGHTLY WAXY CLAYSHOT VITROPHYRIC BASAL SUBUNIT OF THE OVERLYING FLOW. BOTH CONTACTS ARE GRADATIONAL. BLEACHED CLAY OVERPRINT PICKS UP AROUND 501.7'. PURE VITROPHYRE GIVES WAY TO PERVASIVE MODERATELY CLAY ALTERED HETEROLITHIC BRECCIA AT 507.0. WHILE THERE IS SOME AUTOBRECCIATION OF THE VITROPHYRE IT IS NOT AS COMMINUTED W/ LITTLE MATRIX	510	35 25		507.0': CONTINUED MOD. CLAY ... 499.0-521': WK/TR PERVASIVE & WK STRINGER CALCITE.
507.0 - CLAYSHOT LITHIC BRECCIA	HETERO	507.0'- : PEA TO PEBBLE-SIZED FRAGMENTS OF BUFF TO ~~OFF~~ CREAM. SOME ≈ FLOW BANDED & IRREGULAR IN SHAPE. MANY DIFFUSE HARD TO SEE CLASTS FORM A PSEUDO-MATRIX. SOME OF THE FRAGMENT POPULATION CONSISTS OF BLUE-GREEN WAXY CLAYSHOT MATERIAL SAME AS FOUND ABOVE. THESE HAVE VERY SHARP IRREGULAR OUTLINES & MAY HAVE BEEN JUVENILE WHEN EMPLACED.	520	50 40 10		521.0': BELOW WEAK SHEAR, DRUSY SILICA LINES VUGS & FORMS IRREGULAR VEINS W/ BLADED MARCASITE. TO ~533.0'. NOTE: PERVASIVE & VNLT CALCITE GONE.
			530		533.9-537.0': BROKEN ZONE WITH INTERMITTENT LT. GRN GOUGE.	533.9-537.0': LOSS OF DRUSY QUARTZ & GENERAL LACK OF VEINING IN THIS ZONE.
			540			

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
499.0	501.7		<	<		
501.7	506.7		<	<		
506.7	511.7		.002	<		
511.7	516.3		.001	.06		
516.3	520.9		<	<		
520.9	525.1		.003	.09		
525.1	529.3		.003	.08		
529.3	533.9		.004	.09		
533.9	537.0		.002	.05		
537.0	541.8		<	.04	<	

FEC	RQD	LITHOLOGY	FT (540)	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
507.0-571.9 CLAYSHOT HETEROLITHIC BRECCIA						541.0-550.0': CALLITE: VNLT & TRIWK DISS'D. CONTINUED WK/MOD STRINGER VNLTS Py	537.0	541.8					
							541.8	546.0		<	<		
		546.0-554.6': INCREASE IN BLUE-GREEN WAXY JUVENILE/ VITROPHYRE MATERIAL. HAD BEEN <10% VOLUME OF BXA. MORE LIKE 25% IN THIS INTERVAL.	550			FROM 546.0': INCREASED CLAY ALTERATION ATTENDANT WITH STRUCTURAL DISRUPTION.	546.0	549.8		<	.04	<	
		559.7'-571.9: BUFF-GRY HETEROLITHIC BRECCIA CONTINUED AS DESCRIBED ABOVE BUT WITH A SLIGHTLY ELEVATED AM'T OF ARGILLIZATION AND A WK TECTONIC OVERPRINT, SHOWING UP IN A PREFERED PARTING DIRECTION AT ~55° TO C/A.			558.0-559.3': FAULT-RELATED PERVASIVE & VNLT CLAY ALTERATION.	PYRITIC STRINGER VNLTS WERE SPARSE ABOVE BUT PICK UP BELOW ~558'.D. (MOD.) ALSO DISSEMINATED WEAKLY	549.8	554.2		.003	.08		
					559.3-559.7': MILLED, FINELY COMMINUTED WALLROCK IN A FAINT BUT FAIRLY WELL DEFINE FAULT GOUGE ZONE, AT 30° TO C/A.	558.0-560.0': WHT CLAY STRINGER VNLT SWARM	554.2	557.8		.002	.03		
			560		559.7-571.9': WEAKLY DISRUPTED.	FROM 558'-571.9': CONTINUED INCREASE IN CLAY CONTENT FROM WEAK TO MODERATE.				.008	.08		
		571.9-610.2': SOUTH RIDGE FAULT ZONE: 2 MAJOR STRANDS WITH A DISRUPTED SLIVER OF Tos BETWEEN THEM; AT 571.9-592.5' & 606.2-610.2'. LITH. ON ITS BECOME GRADUALLY REDUCED ACROSS FAULT ZONE.			~565': FAULT- SUB // BREAKS IN THE VOLCANIC BXA. WK SHEARING, + SHEAR // PY VNLTS.	562': BLOCKY BARITE IN VUG + SiO_2	557.8	563.2					
						571.9-572.9': INTENSELY CLAYSHOT, STRONGLY SILICIFIED FRAGMENTS NO VNING. TO 572.9' WHERE VFG DULL SULFIDE PICKS OUT CONTACT.	563.2	567.6		.004	.08		
			570							.006	.12		
						572.9-573.7': INTENSE SILICIFICATION.	567.6	572.0		.005	.15		
571.9-592.5' FAULT		571.9'-572.9': PALE GREEN GOUGEY MILLED, STRONGLY ARGILLIZED FAULT ZONE. MILLED GRIT- TO COBBLE-SIZED FRAGMENTS OF SILICIFIED WALLROCK FLOAT IN A GREASY PALE GREEN GOUGE MATRIX. SILICIFIED FRAGMENTS PROBABLY DERIVED FROM UNDERLYING MATERIAL.			571.9-572.9': PALE GRN GOUGEY MILLED FAULT ZONE 572.9'-573.7': MYLONITE,	573.7'-576.9: STR. SILICA + STR. MILKY SILICA (DIFFUSE) VNS OVERPRINTING GRN CLAY.	572.0	572.9		.006	.48		
							572.9	573.7		.006	.80		
							573.7	576.9					
						LOSS							
			580		GRADING DOWNWARDS INTO MILLED HETEROLITHIC FLT BRECCIA.	578.3-580.1': BLOCKY BARITE + BEDDED MARCASITE IN VUGS; PERVASIVE STR. SILICA & SILICA VNING OVERPRINTING ORIGINAL GREEN CLAY.	578.3	580.1		.006	.12		
							580.1	583.7		.006	.33		
		572.9'-592.5': INTENSE TO STRONG, TEXTURE-DESTRUCTIVE SILICIFICATION OVERPRINTS FAULT BRECCIA. FIRST 1" OF SILICIFIED BXA IS FINELY COMMINUTED & MYLONITIZED. THIS INTENSE MILLING TO MYLONITIZATION DECREASES DOWNWARDS. AT 573.7' THE GRY, INTENSE SILICIFIED FAULT MYLONITE GIVES WAY TO STRLY SILICIFIED & SILICA VEINED Tos BRECCIA. AT 580.1' INTENSE TEXTURE-DESTRUCTIVE SILICIFICATN IS SEEN AGAIN, OVERPRINTING MORE HETEROLITHIC BXA.			580.1-592.5': THIS PORTION OF THE FAULT BRECCIA IS CLEARLY MULTI-EPISODIC; CLAST OF TAN-BRN SANDY ROCK FLOUR + BUFF FRAGMENTS IN THE SILICA-CEMENTED BXA DOCUMENT A VERY DIFFERENT PRIOR BXAT'N EPISODE. (POSSIBLY VOLCANIC BXA)	580.1-592.5': INTENSELY SILICIFIED W/ LOCAL TEXTURE DESTRUCTION.	583.7	587.4		.020	.65		
			590			IN VNLT AT 583.5' & IN SILICA FLOODED BRECCIA MATRIX AT 587.5' BLOCKY BARITE IS GROWN INTO SILICA. ALSO FOUND ON FRAX OPEN SPACE.	587.4	592.5		.014	.20		
592.5-~~610.2~~ Tos	608.4	592.5'-606.0': STRONGLY DISRUPTED, SHEARED A/O BEDDED, SPECKLED VCG SAND TO PEBBLE-SIZED SURGE TUFF, PROBABLY Tos. IN THIS INTERVAL SOME ORIGINAL ROCK TEXTURES ARE PRESERVED.				592.5'-606.0: SILICIFICATION OVERPRINT ON GRN-WHT CLAY IS SPOTTY & GRADES DOWNWARDS TO DIFFUSE SILICA VEINING & IN WKLY SILICIFIED Tos.	592.5	596.5		.099	3.76	.098	
			600				596.5	601.6		.062	.29	.060	
		606.0'-610.2': 2ND STRONG TO INTENSE SILICIFIED ZONE IN TECTONIZED Tos. A FAULTED VEINED CONTACT WITH DOZER TUFF.			608.4-610.2: VEIN BRECCIA CONTAINING ANGULAR FRAGMENTS OF BUFF DOZER. A FLT CONTACT ZONE.	606.0-610.2': INTENSELY SILICIFIED & SILICA VEINED Tos AT DOZER CONTACT.	601.6	606.0		.042	.24		
608.4-610.2'					610.2: FAULTED CONTACT WITH DOZER AT 45° TO C/A.	608.4-609.0': DARK VFG PYRITE ATTENDANT WITH SILICA FLOODING. 30-60° TO C/A	606.0	608.4		.195	.12	.184	
							608.4	610.2		.753	9.52	.691	
610.2-750 DOZER			610										

HOLE NUMBER RS-412 PAGE 3 OF

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
610.2 - TD	750	FROM 610.2: BUFF-PALE GRY, FAINTLY AUTOBRECCIATED DOZER. FAINT GREENISH TINGE.	610			610.2-629.4': STRONG ~~DOM~~ SILICA-MARCASITE VEINING DOMINANTLY AT HIGH ANGLES TO C/A. VEINS ARE IRREGULAR IN WIDTH & ANASTOMOSING. WK DISS'D BRASSY PYRITE.	610.2	613.9		.061	.53	.053	
							613.9	617.2		.082	.16	.091	
			620			619-620.8': >90% QUARTZ-MARCASITE REPLACEMENT.	617.2	620.8		.226	.78	.218	
					623.4-626.6: HYDROTHERMAL CRACKLE BRECCIA.	FROM 620': SOME LATER WHT OPAQUE QUARTZ. QZ ASSOC'D WITH MARCASITE BLADES TENDS TO BE TRANSLUSCENT GRY.	620.8	624.2		.073	.18		
			630			623.4-626.6': QZ-MARCASITE CEMENTED BRECCIA. CRACKLE. BLOCKY BARITE IN VUGS.	624.2	629.5		.073	.96	.068	
						FROM ~630': LATE WHITE CLAY IN FRACTURES IN VEINS, INCREASES TO MODERATE, & SILICA-PYRITE VEINING DECREASES TO WK/MOD. CONTINUES TO TAIL OFF DOWNHOLE.	629.5	634.4		.018	2.18		
			640				634.4	639.2		.027	1.16		
		MONOTONOUS, INCREASINGLY MASSIVE DOZER.			644.1'-645.1' & 647.6-648.4': UNHEALED GOUGEY FAULT ZONE WITHIN DOZER. SAME PALE GREEN-GRAY AS ABOVE, NOT HETEROLITHIC. FAULTS W/IN DOZER AT ~30° TO C/A.	644.1-645.1 & 647.6-648.4': STRONG CLAY ALTERATION IN BROKEN ZONES.	639.2	644.1		.019	.11	...	
			650		646~ NARROW HEALED FAULT MYLONITE AT 40 TO C/A		644.1	649.1		.018	.59		
					652.2'-654.0: HEALED BRECCIA FINELY COMMINUTED, CATA-CLASTIZED DOZER IN MOD'LY TO WKLY SILICIFIED MATRIX.	652.2-654.0': WK TO MOD. SILICIFICATION.	649.1	654.0		.028	.29		
							654.0	657.5		.035	.30		
			660		657.0-657.4': BRECCIA VN, AS ABOVE ONLY PARTIALLY HEALED W/ SILICA.	657-657.4': SILICIFIED FLT MYLONITE WITH 2.5' OF WKLY FRIABLE CLAY ALTERATION BELOW IT.	657.5	659.8		.027	.11		
					657.4-671.5': GENERAL INCREASE IN AUTOBRECCIA, POSSIBLY SIMPLY MORE VISIBLE THRU THIS INTERVAL. THIS BXA TEXTURE IS PICKED OUT BY RUDDY DISCOLORATN OF SPECIFIC FRAGMTS, (POSSIBLY RELICT HMOX STAINING)		659.8	664.8		.134	1.04	.133	
			670				664.8	669.9		.044	.11		
							669.9	675.1		.029	.12		
			680				675.1	679.8		.015	.06		

EC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
610.2 TD	- 750.0	FROM 657.4': CONTINUED PALE SAGE GREEN AUTOBRECCIATED DOZER. LARGER SUB-ROUNDED FRAGMENTS RETAIN A FAINT RELICT HmDx (?) RED STAIN THAT PICKS OUT FLOW BANDING & HIGHLIGHTS THE BRECCIATION, BY RIMMING FRAGMENTS.	680			CONTINUED FROM ~630': MOD. QUARTZ + BLADED MARCASITE VNING +/- SOFT FRIABLE WHT CLAY.	679.8	685.1		.014	.12	.015	
			690	45, 0, 40		QUARTZ + MARCASITE VNING IS COMMONLY SUB-// TO CORE, CLEARLY LATE WRT THE AUTOBXA & NOT NOTICEABLY LATER OR EARLIER THAN THE SPOTTY PYRITE BLEBS THAT ARE DISS'D THRU THE WALL-ROCK.	685.1	690.0		.018	.05		
							690.0	695.4		.024	.42		
			700	40, 6			695.4	699.9		.020	4.95		
							699.9	704.9		.047	.14		
			710	30, 0, 30		TRACE PERVASIVE ARGILLIZATION BELOW 710'.	704.9	710.1		.088	.29	.081	
						714.0'-715.5': QZ+MARC + LATE BLOCKY BARITE	710.1	715.3		.020	.09		
			720	45, 30, 70		~716.0': MARCASITE VN EXPLDNS AUTOBXA MATRIX — BLADES FORMED PREFERENTIAL IN MATRIX.	715.3	719.9		.011	.07		
						FROM 719.0': AUTOBRECCIA MATRIX IS HIGHLIGHTED BY DULL RUDDY BRN COLOR.	719.9	724.9		.008	2.17		
			730	30, BARITE, 20	732.6-733.4 & 733.6-737.2': HYDROTHERMAL BXA. FAULT RELATED: MYLONITIZE, FINELY COMMINUTED, SILICA FLOODED DOZER @ 737.2' SLICKS ON THIS LOWER INT SURFACE AT 15°.		724.9	729.0		.007	.15		
732.6'-750.0': TECTONIC/HYDROTHERMAL OVERPRINT OBSCURES ORIGINAL TEXTURE. WHERE VISIBLE AUTOBRECCIA APPEARS TO CONTINUE TO TD. DOZER IS LIGHT SAGE TO GRY-GRN.						732.6-733.4 & 733.6-737.2': GREY QUARTZ CEMENTED VEIN BRECCIA(S). OVERPRINTING LITHOLOGIC AUTOBXA. DRUSY QZ & BLOCKY BARITE IN VUGS, OPEN SPACE W/IN THIS VEIN BXA.	729.0	732.6		.008	.06		
							732.6	737.2		.012	.06		
			740	30, 15						.009	.08		
						743.9-744.6': WKER SILICA FLOODING.	737.2	742.9					
				? & LOST AT RUN BREAK.	743.9-745.8': GOUGY FAULT ZONE WITH SILICIFIED BXA TEXTURALLY THE SAME AS THAT DESCRIBED ABOVE FROM 743.9-744.6.					.008	.05		
					744.6-745.2': STR. LT. GRY GOUGE, TOTALLY UNHEALED.	744.6-745.2': STR. CLAY ALT'N, DECREASING TO MOD. IN SOLID DOZER BTWN FAULT ZONES.	743.9	747.0		748.8	750.0		
							747.0	748.8		.006	.04		
		TD. 750'	750		748.8'-?: SILICIFIED BRECCIA AS DESCRIBED FROM 732.6-737.2'. T.D. IN THIS MAT'L					.012	.13		

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-412 DATE: 12/2/97 LOGGED BY: HLM PAGE 1 OF 3

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY/FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
499.0	500.0	101.0	101.0	101.0										
500.0	509.8	97.0	100.0	81.6										
509.8	520.0	96.2	102.0	88.2										
520.0	530.3	93.2	100.0	71.8										
530.3	540.4	79.2	100.0	52.5										
540.4	550.6	97.1	97.1	80.4										
550.6	560.8	96.0	98.0	29.4										
560.8	570.9	97.0	98.0	47.5										
570.9	578.3	67.6	70.3	40.5										
578.3	579.1	87.5	87.5	87.5										
579.1	581.1	85.2	85.2	63.0										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-412 DATE: 12/3/97 LOGGED BY: KJM PAGE 2 OF 3

DRILL RUN FROM	DRILL RUN TO	SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH DOWNHOLE DEPTH	ROCK STRENGTH POINT LOAD INDEX (psi)	FRACTURE DATA FRACTURE DENSITY /FT.	FRACTURE DATA AVG. ANGLE TO C.A.	FRACTURE DATA ROUGHNESS	FRACTURE DATA INFILL	DENSITY DATA DOWNHOLE DEPTH	DENSITY DATA SAMPLE WEIGHT (g)	DENSITY DATA DISPLACEMENT (cc)	DENSITY DATA DENSITY (g/cc)
581.8	592.1	97.1	97.1	89.3										
592.1	599.8	96.1	96.1	80.5										
599.8	606.2	95.3	98.4	64.9										
606.2	610.8	108.7	108.7	80.4										
610.8	620.8	97.0	97.0	85.0										
620.8	630.8	92.0	95.0	82.0										
630.8	636.8	83.3	86.7	76.7										
636.8	641.9	115.7	115.7	107.8										
641.9	652.0	92.0	94.1	41.6										
652.0	661.4	97.9	97.9	78.7										
661.4	671.5	100.0	100.0	89.1										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-412 DATE: 12/5/97 LOGGED BY: [illegible] PAGE 3 OF 3

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
671.5	681.5	98.0	98.0	83.0										
681.5	691.4	100.0	100.0	72.0										
691.4	701.6	98.0	98.0	77.0										
701.6	708.2	95.0	95.0	52.0										
708.2	712.1	105.0	105.0	52.0										
712.1	722.2	100.0	100.0	95.0										
722.2	732.2	96.0	96.0	72.0										
732.2	741.7	95.0	95.0	68.0										
741.7	743.9	45.0	45.0	23.0										
743.9	749	55.0	92.0	20.0										
749	750	30.0	90.0	0										

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047620

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HECLA MINING COMPANY

COPIES TO : KURT ALLEN
:
:
:

CLIENT REFERENCE No: RS-412 RECEIVED : 11 DEC 1997

No. SAMPLES : 61 REPORTED : 7 JAN 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 SP047620

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-412

REPORTED : 7 JAN 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-412 499.0-501.7	<0.001			<0.02
RS-412 501.7-506.7	<0.001			<0.02
RS-412 506.7-511.7	0.002			<0.02
RS-412 511.7-516.3	0.001			0.06
RS-412 516.3-520.9	<0.001			<0.02
RS-412 520.9-525.1	0.003			0.09
RS-412 525.1-529.3	0.003			0.08
RS-412 529.3-533.9	0.004			0.09
RS-412 533.9-537.0	0.002			0.05
RS-412 537.0-541.8	<0.001	<0.001		0.04
RS-412 541.8-546.0	<0.001			<0.02
RS-412 546.0-549.8	<0.001	<0.001		0.04
RS-412 549.8-554.2	0.003			0.08
RS-412 554.2-557.8	0.002			0.03
RS-412 557.8-563.2	0.008			0.08
RS-412 563.2-567.6	0.004			0.08
RS-412 567.6-572.0	0.006			0.13
RS-412 572.0-572.9	0.005			0.15
RS-412 572.9-573.7	0.006			0.48
RS-412 573.7-576.9	0.006			0.80
RS-412 578.3-580.1	0.006			0.12
RS-412 580.1-583.7	0.006			0.33
RS-412 583.7-587.4	0.020			0.65
RS-412 587.4-592.5	0.014			0.20
RS-412 592.5-596.5	0.099		0.098	3.75

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047620

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-412

REPORTED : 7 JAN 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)	
RS-412 596.5-601.6	0.062		0.060	0.29	
RS-412 601.6-606.0	0.042			0.24	
RS-412 606.0-608.4	0.195		0.184	0.12	4.2' @ 0.434 Au 4.15 Ag
RS-412 608.4-610.2	0.753		0.691	9.52	
RS-412 610.2-613.9	0.061		0.053	0.53	
RS-412 613.9-617.2	0.082		0.091	0.16	
RS-412 617.2-620.8	0.226		0.218	0.78	3.6' 0.226 Au 0.78 Ag
RS-412 620.8-624.2	0.073			0.18	
RS-412 624.2-629.5	0.073		0.068	0.96	
RS-412 629.5-634.4	0.018			2.18	
RS-412 634.4-639.2	0.027			1.16	
RS-412 639.2-644.1	0.019			0.11	
RS-412 644.1-649.1	0.018			0.59	
RS-412 649.1-654.0	0.028			0.29	
RS-412 654.0-657.5	0.035			0.30	
RS-412 657.5-659.8	0.027			0.11	
RS-412 659.8-664.8	0.134		0.133	1.03	
RS-412 664.8-669.9	0.044			0.11	
RS-412 669.9-675.1	0.029			0.12	
RS-412 675.1-679.8	0.015			0.06	
RS-412 679.8-685.1	0.014	0.015		0.12	
RS-412 685.1-690.0	0.018			0.05	
RS-412 690.0-695.4	0.024			0.42	
RS-412 695.4-699.9	0.020			4.95	
RS-412 699.9-704.9	0.047			0.14	

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047620

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-412

REPORTED : 7 JAN 1998

SAMPLES	Au(OZ)	Au(RZ)	AuGRAV	Ag(OZ)
RS-412 704.9-710.1	0.088		0.081	0.29
RS-412 710.1-715.3	0.020			0.09
RS-412 715.3-719.9	0.011			0.07
RS-412 719.9-724.9	0.008			2.17
RS-412 724.9-729.0	0.007			0.15
RS-412 729.0-732.6	0.008			0.06
RS-412 732.6-737.2	0.012			0.06
RS-412 737.2-742.9	0.009			0.08
RS-412 743.9-747.0	0.008			0.05
RS-412 747.0-748.8	0.006			0.04
RS-412 748.8-750.0	0.012			0.13

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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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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****

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

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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 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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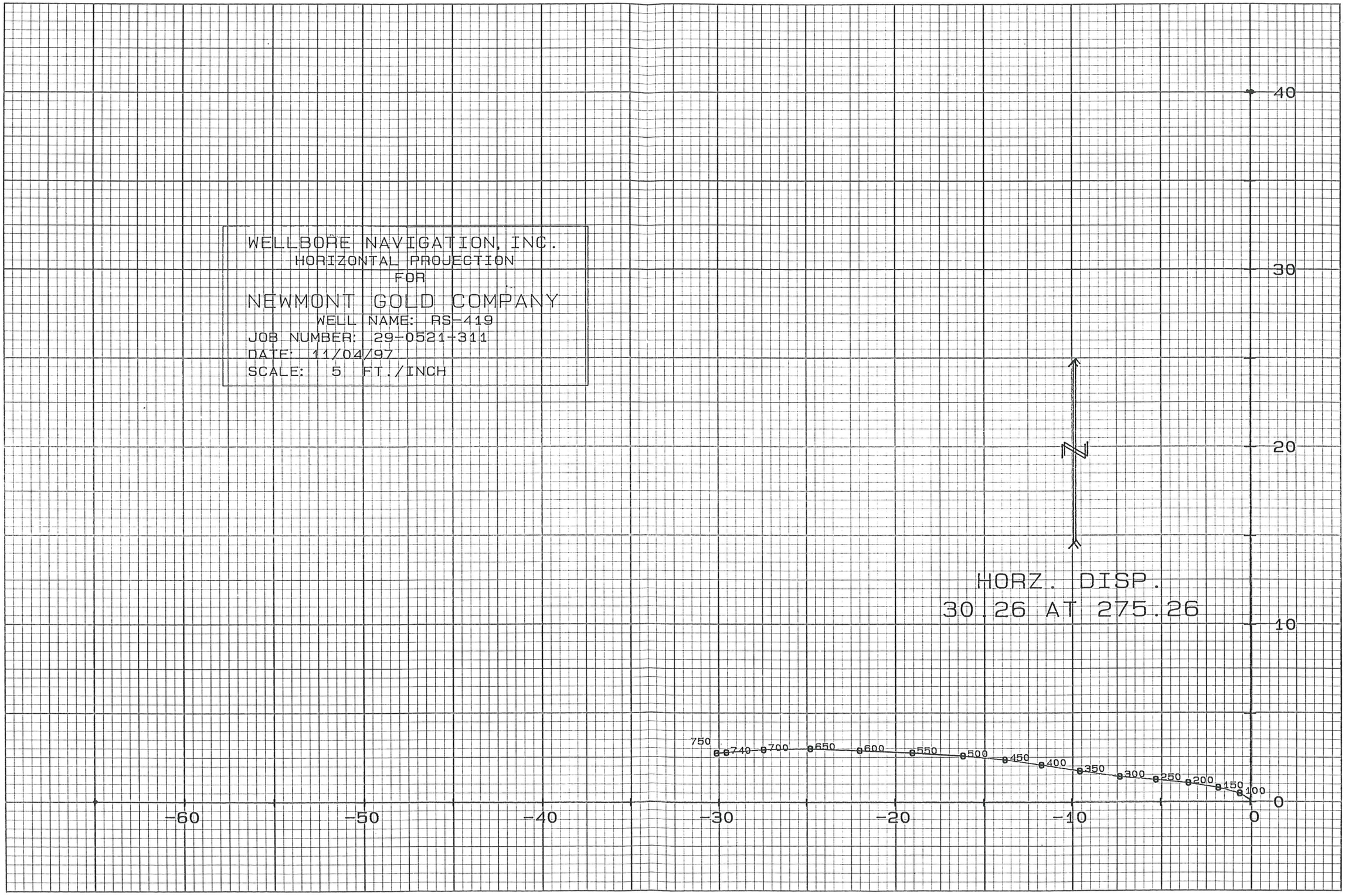
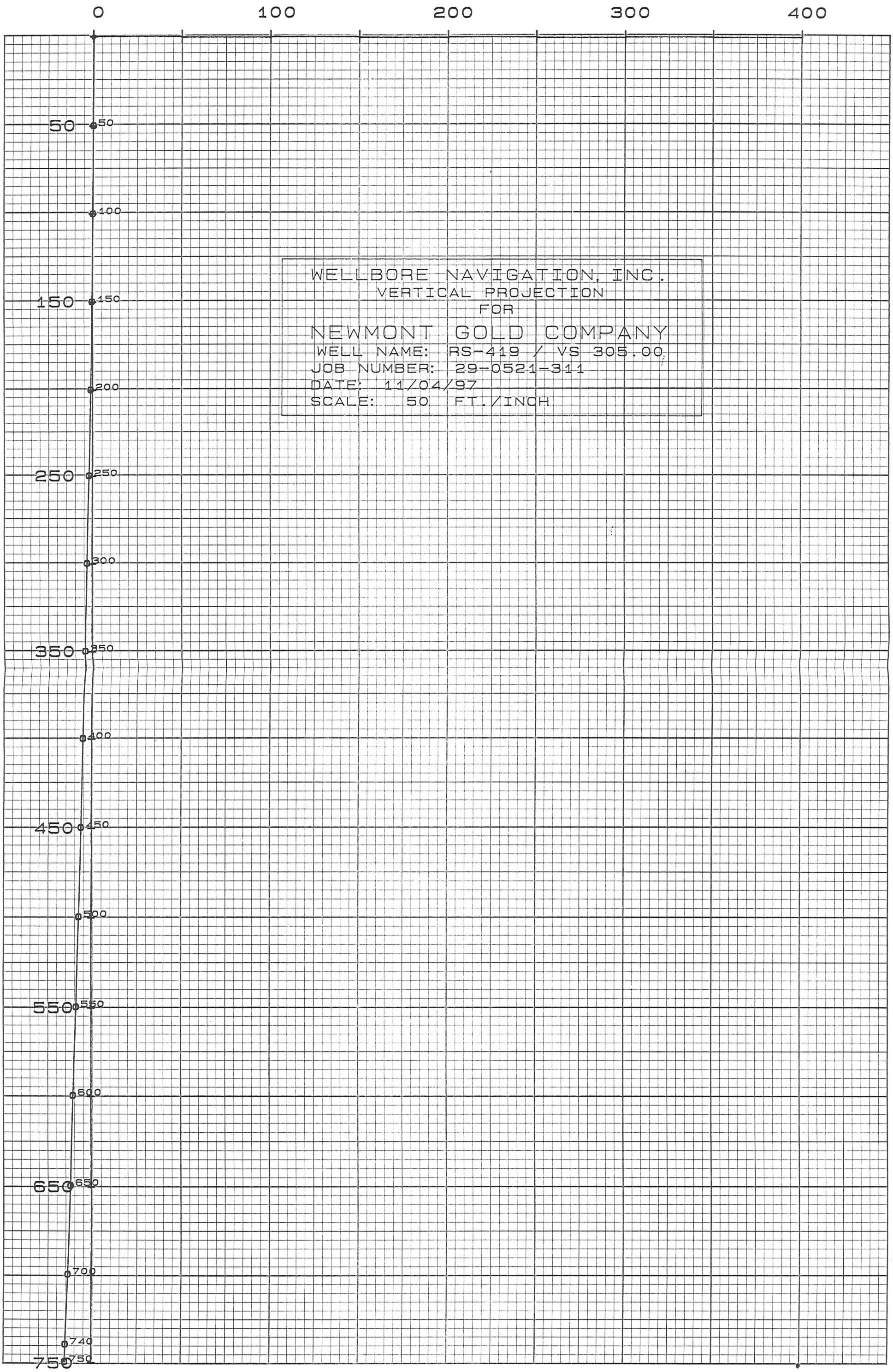
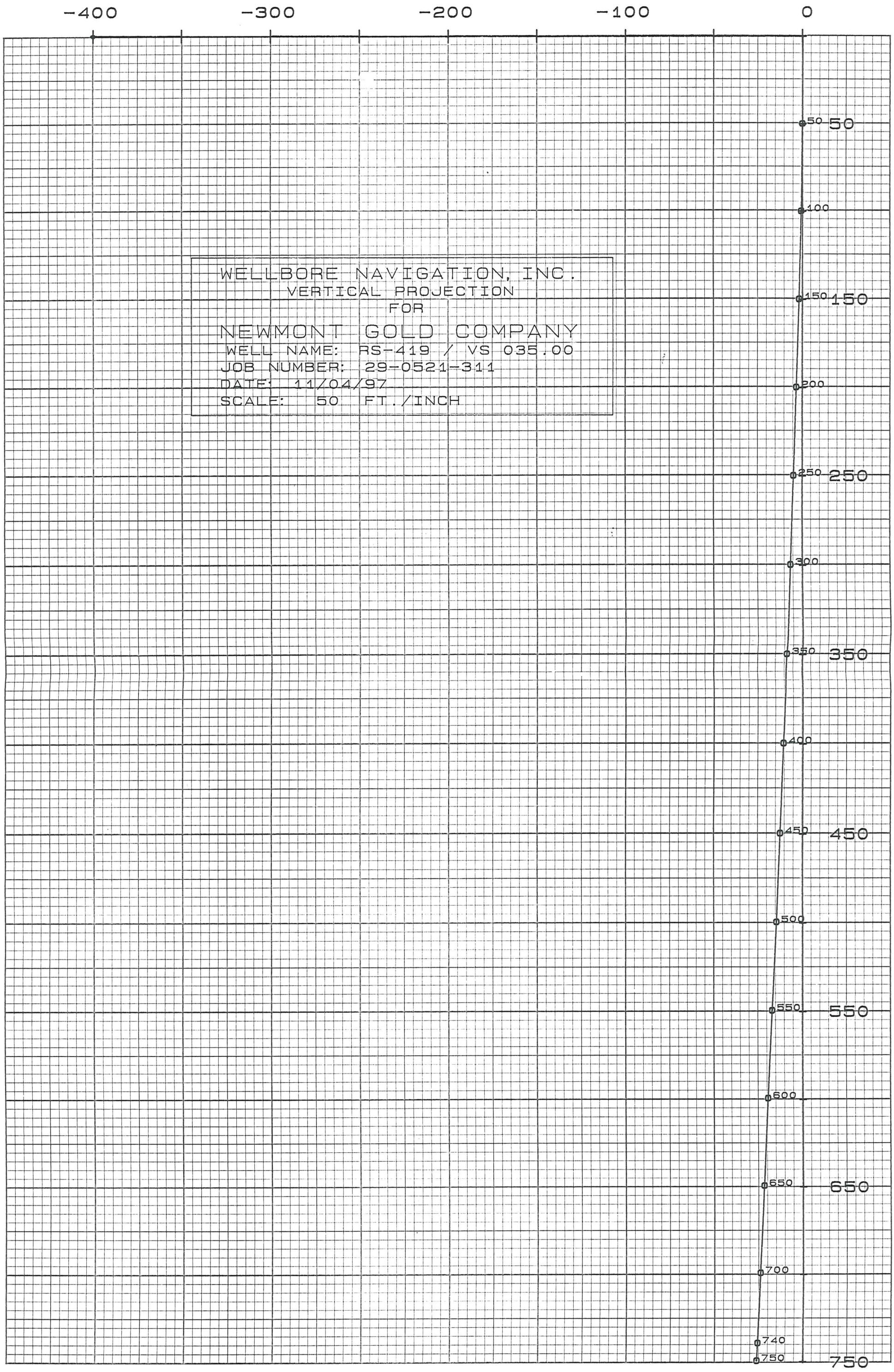
STARLIGHT PRINTING (801) 467-2841



STARLIGHT PRINTING (801) 467-2841



STARLIGHT PRINTING (801) 467-2841



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: 10/14/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 049.50

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

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

PROJECTED F/485' T/500'.

*** 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: 729-0521-311 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	0.10	0.058	-89.74	020.07	0.11 N	0.04 E	0.52	0.26	0.11	AT 020.07	073.34
100.0	100.00	0.51	0.073	-89.28	341.18	0.51 N	0.02 W	1.09	0.54	0.51	AT 357.37	070.60
150.0	149.99	1.31	0.111	-88.85	358.57	1.31 N	0.14 W	1.02	0.51	1.32	AT 354.01	068.44
200.0	199.98	2.38	0.381	-88.61	007.20	2.41 N	0.07 W	0.61	0.31	2.41	AT 358.25	066.64
250.0	249.96	3.67	0.638	-88.36	354.67	3.73 N	0.06 W	0.83	0.41	3.73	AT 359.01	064.20
300.0	299.94	5.26	0.716	-87.99	349.78	5.30 N	0.29 W	0.80	0.40	5.31	AT 356.91	063.26
350.0	349.90	7.06	0.594	-87.87	341.03	7.04 N	0.74 W	0.68	0.34	7.08	AT 353.97	062.40
400.0	399.87	9.00	0.354	-87.65	343.10	8.90 N	1.34 W	0.47	0.23	9.00	AT 351.42	061.54
450.0	449.83	11.00	0.175	-87.75	345.00	10.83 N	1.90 W	0.25	0.13	11.00	AT 350.07	061.04
485.0	484.79	12.55	0.052	-87.13	344.40	12.34 N	2.31 W	1.77	0.62	12.55	AT 349.40	061.54
500.0	499.77	13.26	-0.001	-87.47	345.32	13.02 N	2.49 W	2.28	0.34	13.26	AT 349.16	061.54

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*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   500.0 FEET EQUALS    13.26    FEET AT  349.16           *
*                          ********                         *
*************************************************************
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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 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/14/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 049.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00

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

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

PROJECTED F/485' T/500'.

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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	0.11	-0.029	-89.74	020.07	0.11 N	0.04 E	0.52	0.26	0.11	AT 020.07	073.34
100.0	100.00	0.40	-0.312	-89.28	341.18	0.51 N	0.02 W	1.09	0.54	0.51	AT 357.37	070.60
150.0	149.99	0.99	-0.864	-88.85	358.57	1.31 N	0.14 W	1.02	0.51	1.32	AT 354.01	068.44
200.0	199.98	1.93	-1.444	-88.61	007.20	2.41 N	0.07 W	0.61	0.31	2.41	AT 358.25	066.64
250.0	249.96	3.02	-2.190	-88.36	354.67	3.73 N	0.06 W	0.83	0.41	3.73	AT 359.01	064.20
300.0	299.94	4.18	-3.276	-87.99	349.78	5.30 N	0.29 W	0.80	0.40	5.31	AT 356.91	063.26
350.0	349.90	5.34	-4.650	-87.87	341.03	7.04 N	0.74 W	0.68	0.34	7.08	AT 353.97	062.40
400.0	399.87	6.52	-6.208	-87.65	343.10	8.90 N	1.34 W	0.47	0.23	9.00	AT 351.42	061.54
450.0	449.83	7.79	-7.766	-87.75	345.00	10.83 N	1.90 W	0.25	0.13	11.00	AT 350.07	061.04
485.0	484.79	8.78	-8.970	-87.13	344.40	12.34 N	2.31 W	1.77	0.62	12.55	AT 349.40	061.54
500.0	499.77	9.24	-9.512	-87.47	345.32	13.02 N	2.49 W	2.28	0.34	13.26	AT 349.16	061.54

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   500.0 FEET EQUALS    13.26    FEET AT   349.16          *
*                          ********                         *
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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: 10/14/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 049.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00

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

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

PROJECTED F/485' T/500'.

****
*** 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-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	-0.03	-0.110	-89.74	020.07	0.11 N	0.04 E	0.52	0.26	0.11	AT 020.07	073.34
100.0	100.00	-0.31	-0.405	-89.28	341.18	0.51 N	0.02 W	1.09	0.54	0.51	AT 357.37	070.60
150.0	149.99	-0.86	-0.994	-88.85	358.57	1.31 N	0.14 W	1.02	0.51	1.32	AT 354.01	068.44
200.0	199.98	-1.44	-1.934	-88.61	007.20	2.41 N	0.07 W	0.61	0.31	2.41	AT 358.25	066.64
250.0	249.96	-2.19	-3.016	-88.36	354.67	3.73 N	0.06 W	0.83	0.41	3.73	AT 359.01	064.20
300.0	299.94	-3.28	-4.179	-87.99	349.78	5.30 N	0.29 W	0.80	0.40	5.31	AT 356.91	063.26
350.0	349.90	-4.65	-5.343	-87.87	341.03	7.04 N	0.74 W	0.68	0.34	7.08	AT 353.97	062.40
400.0	399.87	-6.21	-6.522	-87.65	343.10	8.90 N	1.34 W	0.47	0.23	9.00	AT 351.42	061.54
450.0	449.83	-7.77	-7.786	-87.75	345.00	10.83 N	1.90 W	0.25	0.13	11.00	AT 350.07	061.04
485.0	484.79	-8.97	-8.784	-87.13	344.40	12.34 N	2.31 W	1.77	0.62	12.55	AT 349.40	061.54
500.0	499.77	-9.51	-9.236	-87.47	345.32	13.02 N	2.49 W	2.28	0.34	13.26	AT 349.16	061.54

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*************************************************************
*                          ********                         *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                          ********                         *
*   500.0 FEET EQUALS    13.26   FEET AT  349.16             *
*                          ********                         *
*************************************************************
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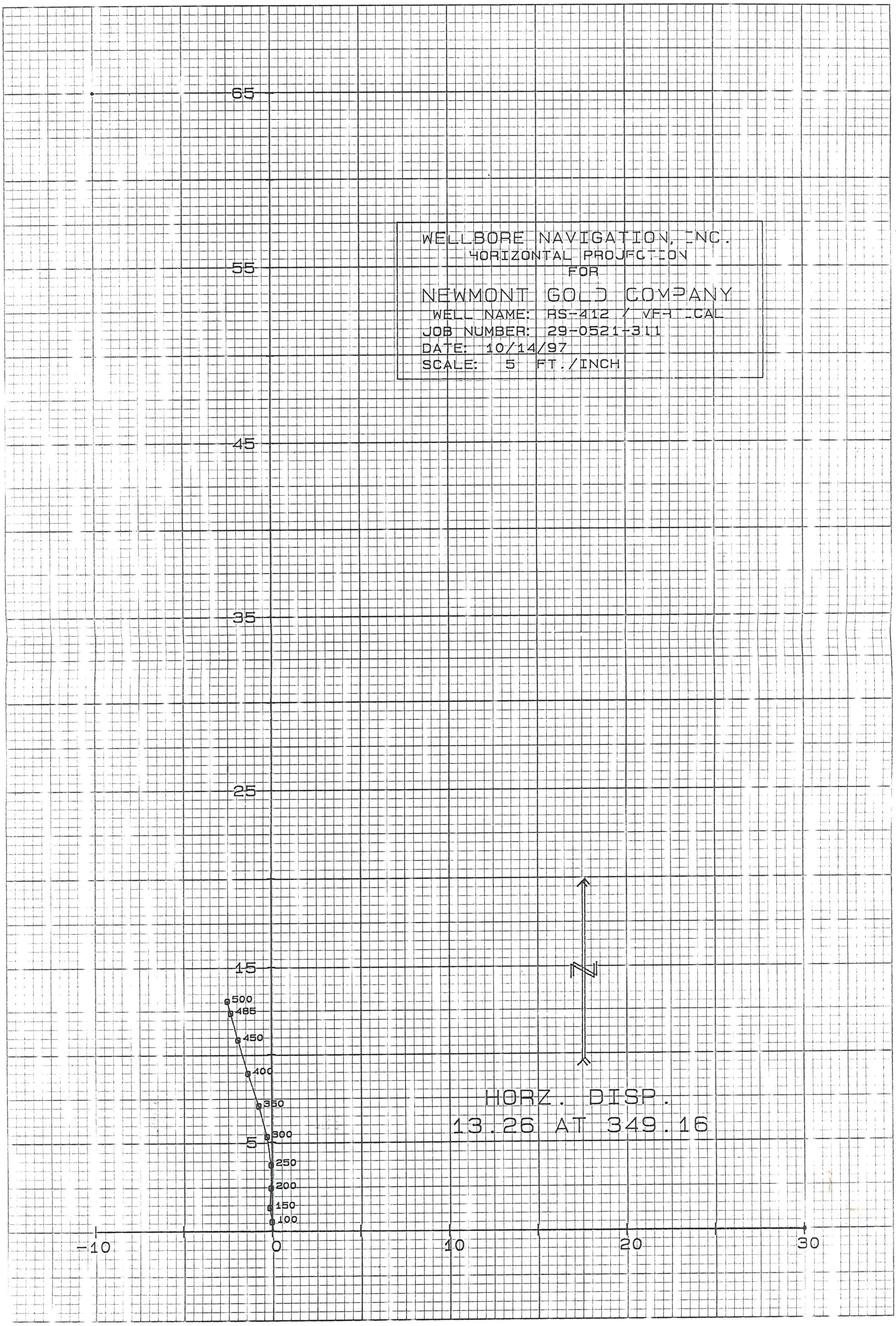
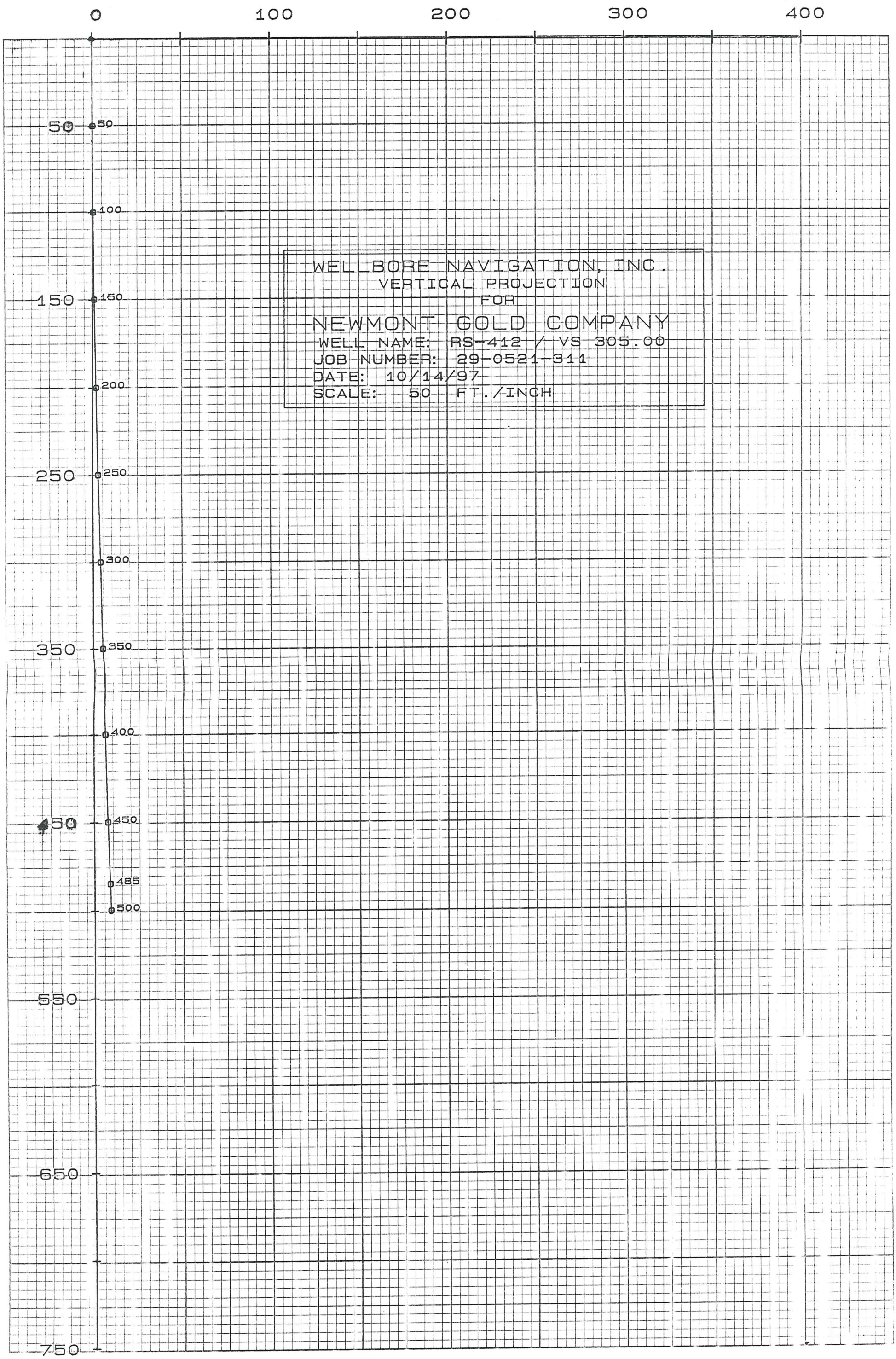
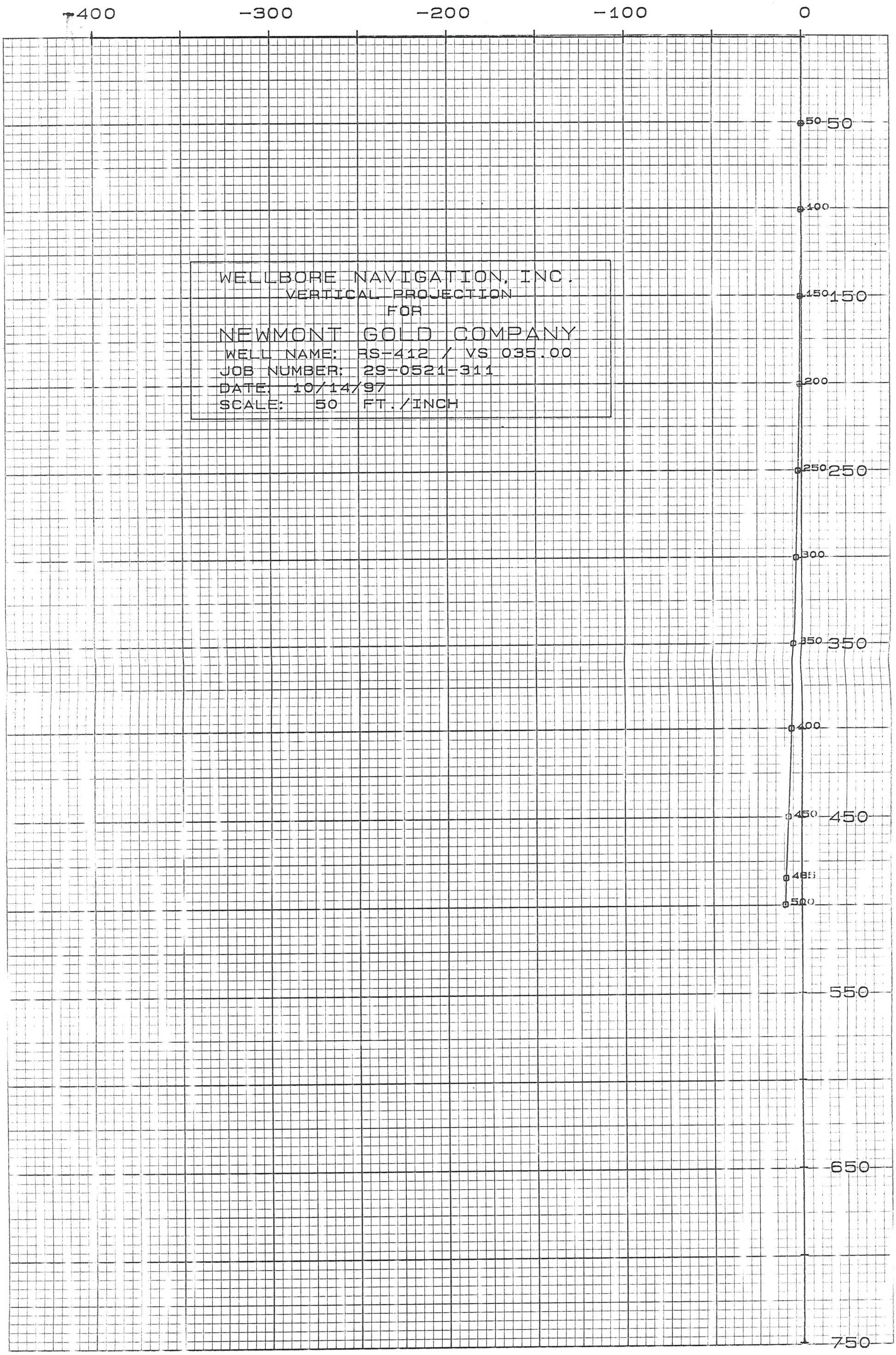
STARLIGHT PRINTING (801) 467-2841



STARLIGHT PRINTING (801) 467-2841



STARLIGHT PRINTING (801) 467-2841



American Assay Laboratories

INVOICE

Remit To: P.O. Box1153
Reno, Nevada 8951
Phone NO.: 702-356-060
Fax No.: 702-356-141

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431

(702) 356-0606

INVOICE NO: SP 0046827-IN
INVOICE DATE: 10/28/97

INVOICE TO:
NEWMONT EXPLORATION
ROSEBUD MINE
P.O. BOX 2610
WINNEMUCCA NV 89446

NEWMONT EXPLORATION
ROSEBUD MINE
P.O. BOX 2610
WINNEMUCCA NV 89446

CUSTOMER P.O.	PROJECT	TERMS
RS-412	ROSEBUD EXPLOR.	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
103	SAMPLES RECEIVED	.00	.00
103	DRYING	1.00	103.00
103	EXCESSIVE WETNESS	1.00	103.00
103	JAW CRUSHING CHARGE	1.30	133.90
103	SPLITTING CHARGE	1.20	123.60
103	FINE MILLING CHARGE	2.00	206.00
103	Au (1 A.T. FIRE ASSAY)	8.00	824.00
103	HYDROCHLORIC/NITRIC DIGESTION	2.00	206.00
103	Ag ANALYSES	1.00	103.00

PAID 11/4/97

NET INVOICE:	1,802.50
LESS DISCOUNT:	360.50
FREIGHT:	.00
INVOICE TOTAL:	1,442.00

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

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

NEWMONT GOLD COMPANY

COPIES TO : BOB KASTELIC
: RICK LISLE
: RANDY VANCE
: KURT ALLEN

CLIENT REFERENCE No: RS-412 RECEIVED : 20 OCT 1997

No. SAMPLES : 103 REPORTED : 27 OCT 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 SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 00-05	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 05-10	<5		<0.001		<0.5	<0.02
RS-412 10-15	<5		<0.001		<0.5	<0.02
RS-412 15-20	<5		<0.001		0.6	<0.02
RS-412 20-25	36	34	0.001	<0.001	0.9	0.03
RS-412 25-30	15		<0.001		1.0	0.03
RS-412 30-35	16		<0.001		1.1	0.03
RS-412 35-40	22		<0.001		1.0	0.03
RS-412 40-45	25		<0.001		2.1	0.06
RS-412 45-50	47	52	0.001	0.002	1.8	0.05
RS-412 50-55	60		0.002		2.8	0.08
RS-412 55-60	21		<0.001		1.2	0.04
RS-412 60-65	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 65-70	<5		<0.001		<0.5	<0.02
RS-412 70-75	<5		<0.001		<0.5	<0.02
RS-412 75-80	30		<0.001		1.6	0.05
RS-412 80-85A	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 80-85B	135		0.004		<0.5	<0.02
RS-412 85-90	<5		<0.001		<0.5	<0.02
RS-412 90-95	<5		<0.001		0.5	<0.02
RS-412 95-100	<5		<0.001		<0.5	<0.02
RS-412 100-105	<5		<0.001		1.0	0.03
RS-412 105-110	44	44	0.001	0.001	2.5	0.07
RS-412 110-115	127		0.004		3.2	0.09
RS-412 115-120	25		<0.001		1.6	0.05

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 120-125	<5		<0.001		0.6	<0.02
RS-412 125-130	<5		<0.001		0.5	<0.02
RS-412 130-135	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 135-140	<5		<0.001		<0.5	<0.02
RS-412 140-145	<5		<0.001		<0.5	<0.02
RS-412 145-150	<5		<0.001		<0.5	<0.02
RS-412 150-155	<5		<0.001		<0.5	<0.02
RS-412 155-160	<5		<0.001		<0.5	<0.02
RS-412 160-165	<5		<0.001		<0.5	<0.02
RS-412 165-170	<5		<0.001		<0.5	<0.02
RS-412 170-175	<5		<0.001		0.5	<0.02
RS-412 175-180	<5	<5	<0.001	<0.001	0.5	<0.02
RS-412 180-185	<5		<0.001		0.5	<0.02
RS-412 185-190	<5		<0.001		<0.5	<0.02
RS-412 190-195	<5		<0.001		0.5	<0.02
RS-412 195-200	<5		<0.001		0.5	<0.02
RS-412 200-205	<5		<0.001		0.6	<0.02
RS-412 205-210	<5		<0.001		0.6	<0.02
RS-412 210-215	<5		<0.001		0.5	<0.02
RS-412 215-220A	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 215-220B	102		0.003		<0.5	<0.02
RS-412 220-225	<5		<0.001		<0.5	<0.02
RS-412 225-230	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 230-235	<5		<0.001		<0.5	<0.02
RS-412 235-240	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

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CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 240-245	<5		<0.001		<0.5	<0.02
RS-412 245-250	24		<0.001		0.9	0.03
RS-412 250-255	20		<0.001		1.1	0.03
RS-412 255-260	383		0.011		4.1	0.12
RS-412 260-265	118		0.003		3.8	0.11
RS-412 265-270	32		<0.001		1.1	0.03
RS-412 270-275	24		<0.001		1.1	0.03
RS-412 275-280	6		<0.001		<0.5	<0.02
RS-412 280-285	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 285-290	<5		<0.001		<0.5	<0.02
RS-412 290-295	<5		<0.001		<0.5	<0.02
RS-412 295-300	26		<0.001		1.5	0.04
RS-412 300-305	74		0.002		3.3	0.10
RS-412 305-310	14		<0.001		1.1	0.03
RS-412 310-315	12		<0.001		<0.5	<0.02
RS-412 315-320	<5		<0.001		<0.5	<0.02
RS-412 320-325	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 325-330A	8	8	<0.001	<0.001	<0.5	<0.02
RS-412 325-330B	966	852	0.028	0.025	0.7	0.02
RS-412 330-335	60		0.002		2.1	0.06
RS-412 335-340	92		0.003		4.7	0.14
RS-412 340-345	100		0.003		4.3	0.13
RS-412 345-350	84		0.002		2.6	0.08
RS-412 350-355	34		<0.001		2.1	0.06
RS-412 355-360	28		<0.001		1.5	0.04

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 360-365	52		0.002		3.0	0.09
RS-412 365-370	54		0.002		2.5	0.07
RS-412 370-375	38		0.001		2.4	0.07
RS-412 375-380	64		0.002		3.1	0.09
RS-412 380-385	98	110	0.003	0.003	3.9	0.11
RS-412 385-390	66	62	0.002	0.002	3.1	0.09
RS-412 390-395	60		0.002		3.7	0.11
RS-412 395-400	38		0.001		2.4	0.07
RS-412 400-405	<5		<0.001		0.8	0.02
RS-412 405-410	<5		<0.001		1.2	0.04
RS-412 410-415	<5		<0.001		1.6	0.05
RS-412 415-420	<5		<0.001		0.9	0.03
RS-412 420-425	<5		<0.001		0.5	<0.02
RS-412 425-430	<5		<0.001		1.2	0.04
RS-412 430-435	<5		<0.001		1.9	0.06
RS-412 435-440	64		0.002		2.4	0.07
RS-412 440-445	15		<0.001		1.8	0.05
RS-412 445-450	<5		<0.001		1.3	0.04
RS-412 450-455	<5	<5	<0.001	<0.001	1.1	0.03
RS-412 455-460	<5	<5	<0.001	<0.001	0.5	<0.02
RS-412 460-465	<5	<5	<0.001	<0.001	0.5	<0.02
RS-412 465-470	<5		<0.001		<0.5	<0.02
RS-412 470-475	<5		<0.001		<0.5	<0.02
RS-412 475-480	<5		<0.001		0.5	<0.02
RS-412 480-485	<5		<0.001		0.7	0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 485-490	<5		<0.001		0.6	<0.02
RS-412 490-495	<5		<0.001		0.6	<0.02
RS-412 495-500	<5		<0.001		1.3	0.04

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ANALYSIS REPORT SP046827

American Assay Laboratories

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

NEWMONT GOLD COMPANY

COPIES TO : BOB KASTELIC
: RICK LISLE
: RANDY VANCE
: KURT ALLEN

CLIENT REFERENCE No: RS-412 RECEIVED : 20 OCT 1997

No. SAMPLES : 103 REPORTED : 27 OCT 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 SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 00-05	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 05-10	<5		<0.001		<0.5	<0.02
RS-412 10-15	<5		<0.001		<0.5	<0.02
RS-412 15-20	<5		<0.001		0.6	<0.02
RS-412 20-25	36	34	0.001	<0.001	0.9	0.03
RS-412 25-30	15		<0.001		1.0	0.03
RS-412 30-35	16		<0.001		1.1	0.03
RS-412 35-40	22		<0.001		1.0	0.03
RS-412 40-45	25		<0.001		2.1	0.06
RS-412 45-50	47	52	0.001	0.002	1.8	0.05
RS-412 50-55	60		0.002		2.8	0.08
RS-412 55-60	21		<0.001		1.2	0.04
RS-412 60-65	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 65-70	<5		<0.001		<0.5	<0.02
RS-412 70-75	<5		<0.001		<0.5	<0.02
RS-412 75-80	30		<0.001		1.6	0.05
RS-412 80-85A	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 80-85B	135		0.004		<0.5	<0.02
RS-412 85-90	<5		<0.001		<0.5	<0.02
RS-412 90-95	<5		<0.001		0.5	<0.02
RS-412 95-100	<5		<0.001		<0.5	<0.02
RS-412 100-105	<5		<0.001		1.0	0.03
RS-412 105-110	44	44	0.001	0.001	2.5	0.07
RS-412 110-115	127		0.004		3.2	0.09
RS-412 115-120	25		<0.001		1.6	0.05

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 120-125	<5		<0.001		0.6	<0.02
RS-412 125-130	<5		<0.001		0.5	<0.02
RS-412 130-135	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 135-140	<5		<0.001		<0.5	<0.02
RS-412 140-145	<5		<0.001		<0.5	<0.02
RS-412 145-150	<5		<0.001		<0.5	<0.02
RS-412 150-155	<5		<0.001		<0.5	<0.02
RS-412 155-160	<5		<0.001		<0.5	<0.02
RS-412 160-165	<5		<0.001		<0.5	<0.02
RS-412 165-170	<5		<0.001		<0.5	<0.02
RS-412 170-175	<5		<0.001		0.5	<0.02
RS-412 175-180	<5	<5	<0.001	<0.001	0.5	<0.02
RS-412 180-185	<5		<0.001		0.5	<0.02
RS-412 185-190	<5		<0.001		<0.5	<0.02
RS-412 190-195	<5		<0.001		0.5	<0.02
RS-412 195-200	<5		<0.001		0.5	<0.02
RS-412 200-205	<5		<0.001		0.6	<0.02
RS-412 205-210	<5		<0.001		0.6	<0.02
RS-412 210-215	<5		<0.001		0.5	<0.02
RS-412 215-220A	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 215-220B	102		0.003		<0.5	<0.02
RS-412 220-225	<5		<0.001		<0.5	<0.02
RS-412 225-230	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 230-235	<5		<0.001		<0.5	<0.02
RS-412 235-240	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 240-245	<5		<0.001		<0.5	<0.02
RS-412 245-250	24		<0.001		0.9	0.03
RS-412 250-255	20		<0.001		1.1	0.03
RS-412 255-260	383		0.011		4.1	0.12
RS-412 260-265	118		0.003		3.8	0.11
RS-412 265-270	32		<0.001		1.1	0.03
RS-412 270-275	24		<0.001		1.1	0.03
RS-412 275-280	6		<0.001		<0.5	<0.02
RS-412 280-285	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 285-290	<5		<0.001		<0.5	<0.02
RS-412 290-295	<5		<0.001		<0.5	<0.02
RS-412 295-300	26		<0.001		1.5	0.04
RS-412 300-305	74		0.002		3.3	0.10
RS-412 305-310	14		<0.001		1.1	0.03
RS-412 310-315	12		<0.001		<0.5	<0.02
RS-412 315-320	<5		<0.001		<0.5	<0.02
RS-412 320-325	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 325-330A	8	8	<0.001	<0.001	<0.5	<0.02
RS-412 325-330B	966	852	0.028	0.025	0.7	0.02
RS-412 330-335	60		0.002		2.1	0.06
RS-412 335-340	92		0.003		4.7	0.14
RS-412 340-345	100		0.003		4.3	0.13
RS-412 345-350	84		0.002		2.6	0.08
RS-412 350-355	34		<0.001		2.1	0.06
RS-412 355-360	28		<0.001		1.5	0.04

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 360-365	52		0.002		3.0	0.09
RS-412 365-370	54		0.002		2.5	0.07
RS-412 370-375	38		0.001		2.4	0.07
RS-412 375-380	64		0.002		3.1	0.09
RS-412 380-385	98	110	0.003	0.003	3.9	0.11
RS-412 385-390	66	62	0.002	0.002	3.1	0.09
RS-412 390-395	60		0.002		3.7	0.11
RS-412 395-400	38		0.001		2.4	0.07
RS-412 400-405	<5		<0.001		0.8	0.02
RS-412 405-410	<5		<0.001		1.2	0.04
RS-412 410-415	<5		<0.001		1.6	0.05
RS-412 415-420	<5		<0.001		0.9	0.03
RS-412 420-425	<5		<0.001		0.5	<0.02
RS-412 425-430	<5		<0.001		1.2	0.04
RS-412 430-435	<5		<0.001		1.9	0.06
RS-412 435-440	64		0.002		2.4	0.07
RS-412 440-445	15		<0.001		1.8	0.05
RS-412 445-450	<5		<0.001		1.3	0.04
RS-412 450-455	<5	<5	<0.001	<0.001	1.1	0.03
RS-412 455-460	<5	<5	<0.001	<0.001	0.5	<0.02
RS-412 460-465	<5	<5	<0.001	<0.001	0.5	<0.02
RS-412 465-470	<5		<0.001		<0.5	<0.02
RS-412 470-475	<5		<0.001		<0.5	<0.02
RS-412 475-480	<5		<0.001		0.5	<0.02
RS-412 480-485	<5		<0.001		0.7	0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 485-490	<5		<0.001		0.6	<0.02
RS-412 490-495	<5		<0.001		0.6	<0.02
RS-412 495-500	<5		<0.001		1.3	0.04

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 0047620-IN
INVOICE DATE: 01/09/98

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-412	DEVELOPMENT	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
61	SAMPLES RECEIVED	.00	.00
61	DRYING	1.00	61.00
61	JAW CRUSHING CHARGE	1.30	79.30
61	COARSE MILLING CHARGE	4.50	274.50
61	SPLITTING CHARGE	2.40	146.40
61	RING MILLING CHARGE	2.00	122.00
61	Au (1 A.T. FIRE ASSAY)	8.00	488.00
10	Au ANALYSES/GRAVIMETRIC	8.75	87.50
61	HYDROCHLORIC/NITRIC DIGESTION	2.00	122.00
61	Ag ANALYSES	1.00	61.00
5	Ag (ore grade) ANALYSES	5.00	25.00

86-5210-477
RJA

NET INVOICE:	1,466.70
LESS DISCOUNT:	293.34
FREIGHT:	.00
INVOICE TOTAL:	1,173.36

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047620

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-412 RECEIVED : 11 DEC 1997

No. SAMPLES : 61 REPORTED : 7 JAN 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 SP047620

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-412

REPORTED : 7 JAN 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-412 499.0-501.7	<0.001			<0.02
RS-412 501.7-506.7	<0.001			<0.02
RS-412 506.7-511.7	0.002			<0.02
RS-412 511.7-516.3	0.001			0.06
RS-412 516.3-520.9	<0.001			<0.02
RS-412 520.9-525.1	0.003			0.09
RS-412 525.1-529.3	0.003			0.08
RS-412 529.3-533.9	0.004			0.09
RS-412 533.9-537.0	0.002			0.05
RS-412 537.0-541.8	<0.001	<0.001		0.04
RS-412 541.8-546.0	<0.001			<0.02
RS-412 546.0-549.8	<0.001	<0.001		0.04
RS-412 549.8-554.2	0.003			0.08
RS-412 554.2-557.8	0.002			0.03
RS-412 557.8-563.2	0.008			0.08
RS-412 563.2-567.6	0.004			0.08
RS-412 567.6-572.0	0.006			0.13
RS-412 572.0-572.9	0.005			0.15
RS-412 572.9-573.7	0.006			0.48
RS-412 573.7-576.9	0.006			0.80
RS-412 578.3-580.1	0.006			0.12
RS-412 580.1-583.7	0.006			0.33
RS-412 583.7-587.4	0.020			0.65
RS-412 587.4-592.5	0.014			0.20
RS-412 592.5-596.5	0.099		0.098	3.76

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047620

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-412

REPORTED : 7 JAN 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-412 596.5-601.6	0.062		0.060	0.29
RS-412 601.6-606.0	0.042			0.24
RS-412 606.0-608.4	0.195		0.184	0.12
RS-412 608.4-610.2	0.753		0.691	9.52
RS-412 610.2-613.9	0.061		0.053	0.53
RS-412 613.9-617.2	0.082		0.091	0.16
RS-412 617.2-620.8	0.226		0.218	0.78
RS-412 620.8-624.2	0.073			0.18
RS-412 624.2-629.5	0.073		0.068	0.96
RS-412 629.5-634.4	0.018			2.18
RS-412 634.4-639.2	0.027			1.16
RS-412 639.2-644.1	0.019			0.11
RS-412 644.1-649.1	0.018			0.59
RS-412 649.1-654.0	0.028			0.29
RS-412 654.0-657.5	0.035			0.30
RS-412 657.5-659.8	0.027			0.11
RS-412 659.8-664.8	0.134		0.133	1.04
RS-412 664.8-669.9	0.044			0.11
RS-412 669.9-675.1	0.029			0.12
RS-412 675.1-679.8	0.015			0.06
RS-412 679.8-685.1	0.014	0.015		0.12
RS-412 685.1-690.0	0.018			0.05
RS-412 690.0-695.4	0.024			0.42
RS-412 695.4-699.9	0.020			4.95
RS-412 699.9-704.9	0.047			0.14

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047620

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-412

REPORTED : 7 JAN 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-412 704.9-710.1	0.088		0.081	0.29
RS-412 710.1-715.3	0.020			0.09
RS-412 715.3-719.9	0.011			0.07
RS-412 719.9-724.9	0.008			2.17
RS-412 724.9-729.0	0.007			0.15
RS-412 729.0-732.6	0.008			0.06
RS-412 732.6-737.2	0.012			0.06
RS-412 737.2-742.9	0.009			0.08
RS-412 743.9-747.0	0.008			0.05
RS-412 747.0-748.8	0.006			0.04
RS-412 748.8-750.0	0.012			0.13

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047620

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-412 RECEIVED : 11 DEC 1997

No. SAMPLES : 61 REPORTED : 7 JAN 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 SP047620

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-412

REPORTED : 7 JAN 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-412 499.0-501.7	<0.001			<0.02
RS-412 501.7-506.7	<0.001			<0.02
RS-412 506.7-511.7	0.002			<0.02
RS-412 511.7-516.3	0.001			0.06
RS-412 516.3-520.9	<0.001			<0.02
RS-412 520.9-525.1	0.003			0.09
RS-412 525.1-529.3	0.003			0.08
RS-412 529.3-533.9	0.004			0.09
RS-412 533.9-537.0	0.002			0.05
RS-412 537.0-541.8	<0.001	<0.001		0.04
RS-412 541.8-546.0	<0.001			<0.02
RS-412 546.0-549.8	<0.001	<0.001		0.04
RS-412 549.8-554.2	0.003			0.08
RS-412 554.2-557.8	0.002			0.03
RS-412 557.8-563.2	0.008			0.08
RS-412 563.2-567.6	0.004			0.08
RS-412 567.6-572.0	0.006			0.13
RS-412 572.0-572.9	0.005			0.15
RS-412 572.9-573.7	0.006			0.48
RS-412 573.7-576.9	0.006			0.80
RS-412 578.3-580.1	0.006			0.12
RS-412 580.1-583.7	0.006			0.33
RS-412 583.7-587.4	0.020			0.65
RS-412 587.4-592.5	0.014			0.20
RS-412 592.5-596.5	0.099		0.098	3.76

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047620

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-412

REPORTED : 7 JAN 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-412 596.5-601.6	0.062		0.060	0.29
RS-412 601.6-606.0	0.042			0.24
RS-412 606.0-608.4	0.195		0.184	0.12
RS-412 608.4-610.2	0.753		0.691	9.52
RS-412 610.2-613.9	0.061		0.053	0.53
RS-412 613.9-617.2	0.082		0.091	0.16
RS-412 617.2-620.8	0.226		0.218	0.78
RS-412 620.8-624.2	0.073			0.18
RS-412 624.2-629.5	0.073		0.068	0.96
RS-412 629.5-634.4	0.018			2.18
RS-412 634.4-639.2	0.027			1.16
RS-412 639.2-644.1	0.019			0.11
RS-412 644.1-649.1	0.018			0.59
RS-412 649.1-654.0	0.028			0.29
RS-412 654.0-657.5	0.035			0.30
RS-412 657.5-659.8	0.027			0.11
RS-412 659.8-664.8	0.134		0.133	1.04
RS-412 664.8-669.9	0.044			0.11
RS-412 669.9-675.1	0.029			0.12
RS-412 675.1-679.8	0.015			0.06
RS-412 679.8-685.1	0.014	0.015		0.12
RS-412 685.1-690.0	0.018			0.05
RS-412 690.0-695.4	0.024			0.42
RS-412 695.4-699.9	0.020			4.95
RS-412 699.9-704.9	0.047			0.14

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047620

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-412

REPORTED : 7 JAN 1998

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	AuGRAV GRAV OPT	Ag(OZ) D210 OPT
RS-412 704.9-710.1	0.088		0.081	0.29
RS-412 710.1-715.3	0.020			0.09
RS-412 715.3-719.9	0.011			0.07
RS-412 719.9-724.9	0.008			2.17
RS-412 724.9-729.0	0.007			0.15
RS-412 729.0-732.6	0.008			0.06
RS-412 732.6-737.2	0.012			0.06
RS-412 737.2-742.9	0.009			0.08
RS-412 743.9-747.0	0.008			0.05
RS-412 747.0-748.8	0.006			0.04
RS-412 748.8-750.0	0.012			0.13

SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

Sparks Office
1500 Glendale Ave.
Nevada 89431
Box 11530
Reno, NV 89510
Telephone
(702) 356-0606
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Tucson, AZ 85706
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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: HECLA - ROSEBUD MINING

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: 12/9/97 Number of Samples: 123

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

SAMPLE IDENTIFICATION			TYPE	ELEMENTS REQUIRED	
HOLE # RS-412		608.4-610.2	core	Au/Ag as per Rosebud	
499-501.7	557.8-563.2	610.2-613.9		Development protocal	
501.7-506.7	563.2-567.6	613.9-617.2			
506.7-511.7	567.6-572	617.2-620.8			
511.7-516.3	572-572.9	620.8-624.2			
516.3-520.9	572.9-573.7	624.2-629.5		669.9-675.1	719.9-724.9
520.9-525.1	573.7-576.9	629.5-634.4		675.1-679.8	724.9-729
525.1-529.3	578.3-580.1	634.4-639.2		679.8-685.1	729-732.6
529.3-533.9	580.1-583.7	639.2-644.1		685.1-690	732.6-737.2
533.9-537.0	583.7-587.4	644.1-649.1		690-695.4	737.2-742.9
537.0-541.8	587.4-592.5	649.1-654		695.4-699.9	~~743.9~~ -
541.8-546	592.5-596.5	654-657.5		699.9-704.9	743.9-747
546-549.8	596.5-601.6	657.5-659.8		704.9-710.1	747-748.8
549.8-554.2	601.6-606	659.8-664.8		710.1-715.5	748.8-750
554.2-557.8	606-608.4	664.8-669.9		715.3-719.9	

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

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

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

NEWMONT GOLD COMPANY

COPIES TO : BOB KASTELIC

: RICK LISLE

: RANDY VANCE

: KURT ALLEN

CLIENT REFERENCE No: RS-412 RECEIVED : 20 OCT 1997

No. SAMPLES : 103 REPORTED : 27 OCT 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 SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 00-05	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 05-10	<5		<0.001		<0.5	<0.02
RS-412 10-15	<5		<0.001		<0.5	<0.02
RS-412 15-20	<5		<0.001		0.6	<0.02
RS-412 20-25	36	34	0.001	<0.001	0.9	0.03
RS-412 25-30	15		<0.001		1.0	0.03
RS-412 30-35	16		<0.001		1.1	0.03
RS-412 35-40	22		<0.001		1.0	0.03
RS-412 40-45	25		<0.001		2.1	0.06
RS-412 45-50	47	52	0.001	0.002	1.8	0.05
RS-412 50-55	60		0.002		2.8	0.08
RS-412 55-60	21		<0.001		1.2	0.04
RS-412 60-65	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 65-70	<5		<0.001		<0.5	<0.02
RS-412 70-75	<5		<0.001		<0.5	<0.02
RS-412 75-80	30		<0.001		1.6	0.05
RS-412 80-85A	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 80-85B	135		0.004		<0.5	<0.02
RS-412 85-90	<5		<0.001		<0.5	<0.02
RS-412 90-95	<5		<0.001		0.5	<0.02
RS-412 95-100	<5		<0.001		<0.5	<0.02
RS-412 100-105	<5		<0.001		1.0	0.03
RS-412 105-110	44	44	0.001	0.001	2.5	0.07
RS-412 110-115	127		0.004		3.2	0.09
RS-412 115-120	25		<0.001		1.6	0.05

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 120-125	<5		<0.001		0.6	<0.02
RS-412 125-130	<5		<0.001		0.5	<0.02
RS-412 130-135	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 135-140	<5		<0.001		<0.5	<0.02
RS-412 140-145	<5		<0.001		<0.5	<0.02
RS-412 145-150	<5		<0.001		<0.5	<0.02
RS-412 150-155	<5		<0.001		<0.5	<0.02
RS-412 155-160	<5		<0.001		<0.5	<0.02
RS-412 160-165	<5		<0.001		<0.5	<0.02
RS-412 165-170	<5		<0.001		<0.5	<0.02
RS-412 170-175	<5		<0.001		0.5	<0.02
RS-412 175-180	<5	<5	<0.001	<0.001	0.5	<0.02
RS-412 180-185	<5		<0.001		0.5	<0.02
RS-412 185-190	<5		<0.001		<0.5	<0.02
RS-412 190-195	<5		<0.001		0.5	<0.02
RS-412 195-200	<5		<0.001		0.5	<0.02
RS-412 200-205	<5		<0.001		0.6	<0.02
RS-412 205-210	<5		<0.001		0.6	<0.02
RS-412 210-215	<5		<0.001		0.5	<0.02
RS-412 215-220A	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 215-220B	102		0.003		<0.5	<0.02
RS-412 220-225	<5		<0.001		<0.5	<0.02
RS-412 225-230	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 230-235	<5		<0.001		<0.5	<0.02
RS-412 235-240	<5		<0.001		<0.5	<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 240-245	<5		<0.001		<0.5	<0.02
RS-412 245-250	24		<0.001		0.9	0.03
RS-412 250-255	20		<0.001		1.1	0.03
RS-412 255-260	383		0.011		4.1	0.12
RS-412 260-265	118		0.003		3.8	0.11
RS-412 265-270	32		<0.001		1.1	0.03
RS-412 270-275	24		<0.001		1.1	0.03
RS-412 275-280	6		<0.001		<0.5	<0.02
RS-412 280-285	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 285-290	<5		<0.001		<0.5	<0.02
RS-412 290-295	<5		<0.001		<0.5	<0.02
RS-412 295-300	26		<0.001		1.5	0.04
RS-412 300-305	74		0.002		3.3	0.10
RS-412 305-310	14		<0.001		1.1	0.03
RS-412 310-315	12		<0.001		<0.5	<0.02
RS-412 315-320	<5		<0.001		<0.5	<0.02
RS-412 320-325	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-412 325-330A	8	8	<0.001	<0.001	<0.5	<0.02
RS-412 325-330B	966	852	0.028	0.025	0.7	0.02
RS-412 330-335	60		0.002		2.1	0.06
RS-412 335-340	92		0.003		4.7	0.14
RS-412 340-345	100		0.003		4.3	0.13
RS-412 345-350	84		0.002		2.6	0.08
RS-412 350-355	34		<0.001		2.1	0.06
RS-412 355-360	28		<0.001		1.5	0.04

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 360-365	52		0.002		3.0	0.09
RS-412 365-370	54		0.002		2.5	0.07
RS-412 370-375	38		0.001		2.4	0.07
RS-412 375-380	64		0.002		3.1	0.09
RS-412 380-385	98	110	0.003	0.003	3.9	0.11
RS-412 385-390	66	62	0.002	0.002	3.1	0.09
RS-412 390-395	60		0.002		3.7	0.11
RS-412 395-400	38		0.001		2.4	0.07
RS-412 400-405	<5		<0.001		0.8	0.02
RS-412 405-410	<5		<0.001		1.2	0.04
RS-412 410-415	<5		<0.001		1.6	0.05
RS-412 415-420	<5		<0.001		0.9	0.03
RS-412 420-425	<5		<0.001		0.5	<0.02
RS-412 425-430	<5		<0.001		1.2	0.04
RS-412 430-435	<5		<0.001		1.9	0.06
RS-412 435-440	64		0.002		2.4	0.07
RS-412 440-445	15		<0.001		1.8	0.05
RS-412 445-450	<5		<0.001		1.3	0.04
RS-412 450-455	<5	<5	<0.001	<0.001	1.1	0.03
RS-412 455-460	<5	<5	<0.001	<0.001	0.5	<0.02
RS-412 460-465	<5	<5	<0.001	<0.001	0.5	<0.02
RS-412 465-470	<5		<0.001		<0.5	<0.02
RS-412 470-475	<5		<0.001		<0.5	<0.02
RS-412 475-480	<5		<0.001		0.5	<0.02
RS-412 480-485	<5		<0.001		0.7	0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046827

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-412

REPORTED : 27 OCT 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-412 485-490	<5		<0.001		0.6	<0.02
RS-412 490-495	<5		<0.001		0.6	<0.02
RS-412 495-500	<5		<0.001		1.3	0.04

SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

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Fax
(702) 738-2594

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Other Offices
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Santiago, Chile
Mendoza, Argentina

Company: Newmont Exploration - Rosebud Mine

Address: P.O. Box 2610

City Winnemucca State NV Zip 89446

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

Project Name: Rosebud Exploration Purchase Order Number:

Date Submitted: 10/17/97 Number of Samples: 103

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

SAMPLE IDENTIFICATION	TYPE	ELEMENTS REQUIRED
RS-412	RC	Au/Ag FA/AA each sample (5')
0-500' T.D. (100 samples)		
+ 85B		
+ 220B		
+ 330B		
PEEL HERE MS-3 MS-3 330B		
220B MS-1 (RMG1)		85B MS-2 MS-2

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:

Bob Kastelic / Randy Vance
Rosebud Mine

Results to:

Rick Lisle - Newmont Exploration
Winnemucca
Randy Vance } Rosebud Mine
Kurt Allen }

Comments:

CLIENT FILE COPY

Core

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

WELLNAV

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/732' 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

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

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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 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'.

****
****
*** 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-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

****
* ******** *
* 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 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

WELNAV

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/732' 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

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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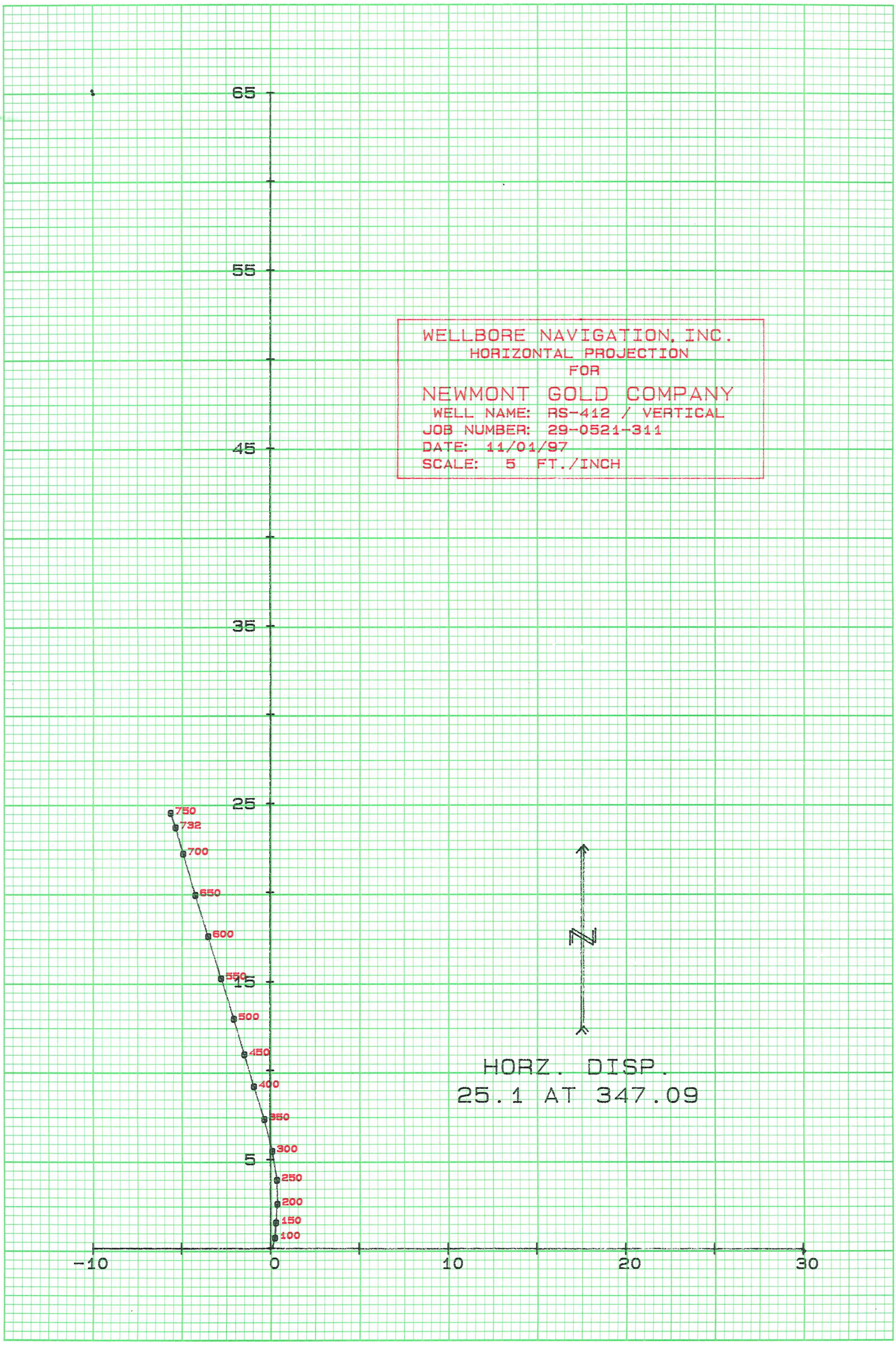
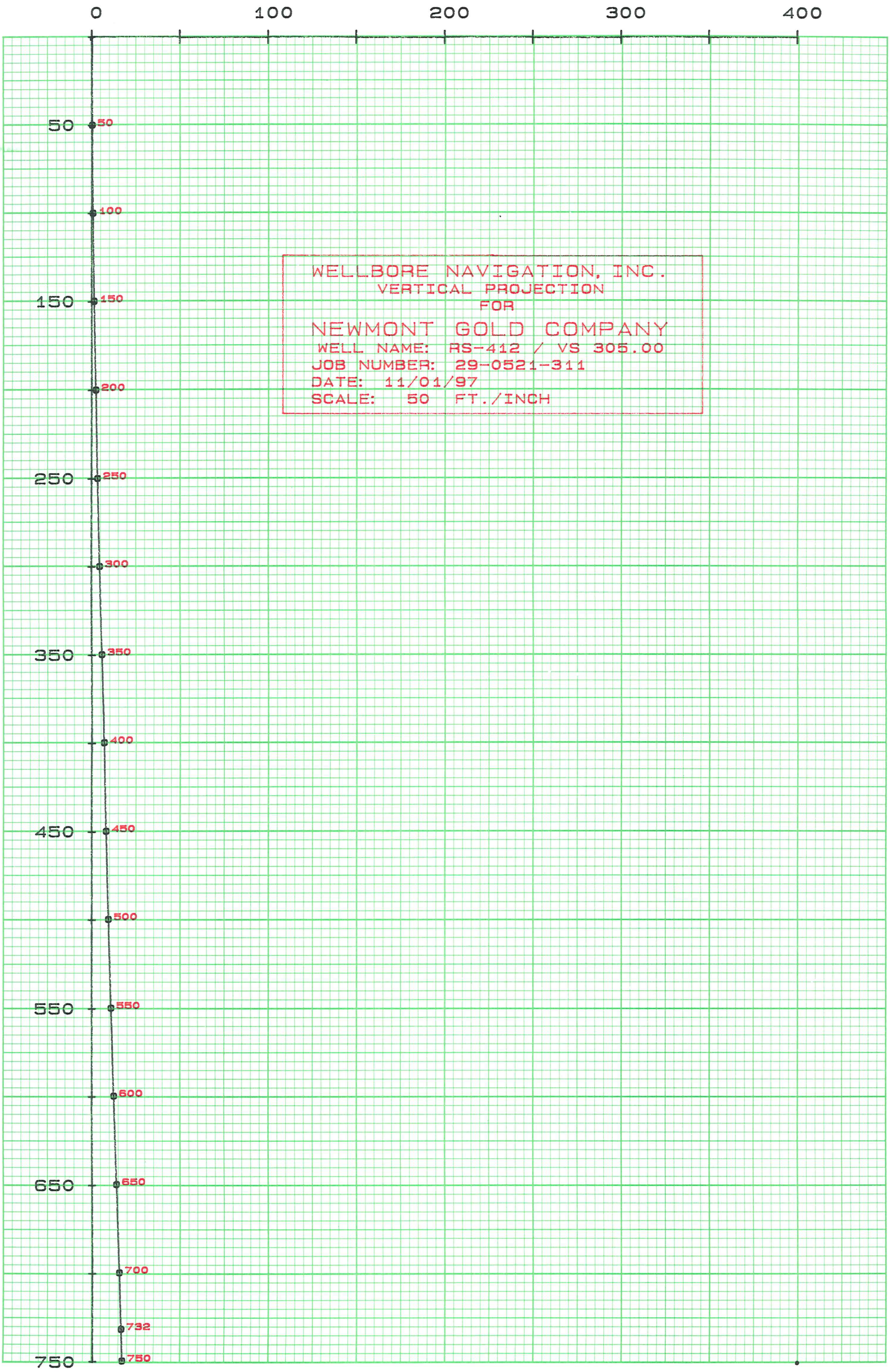
```

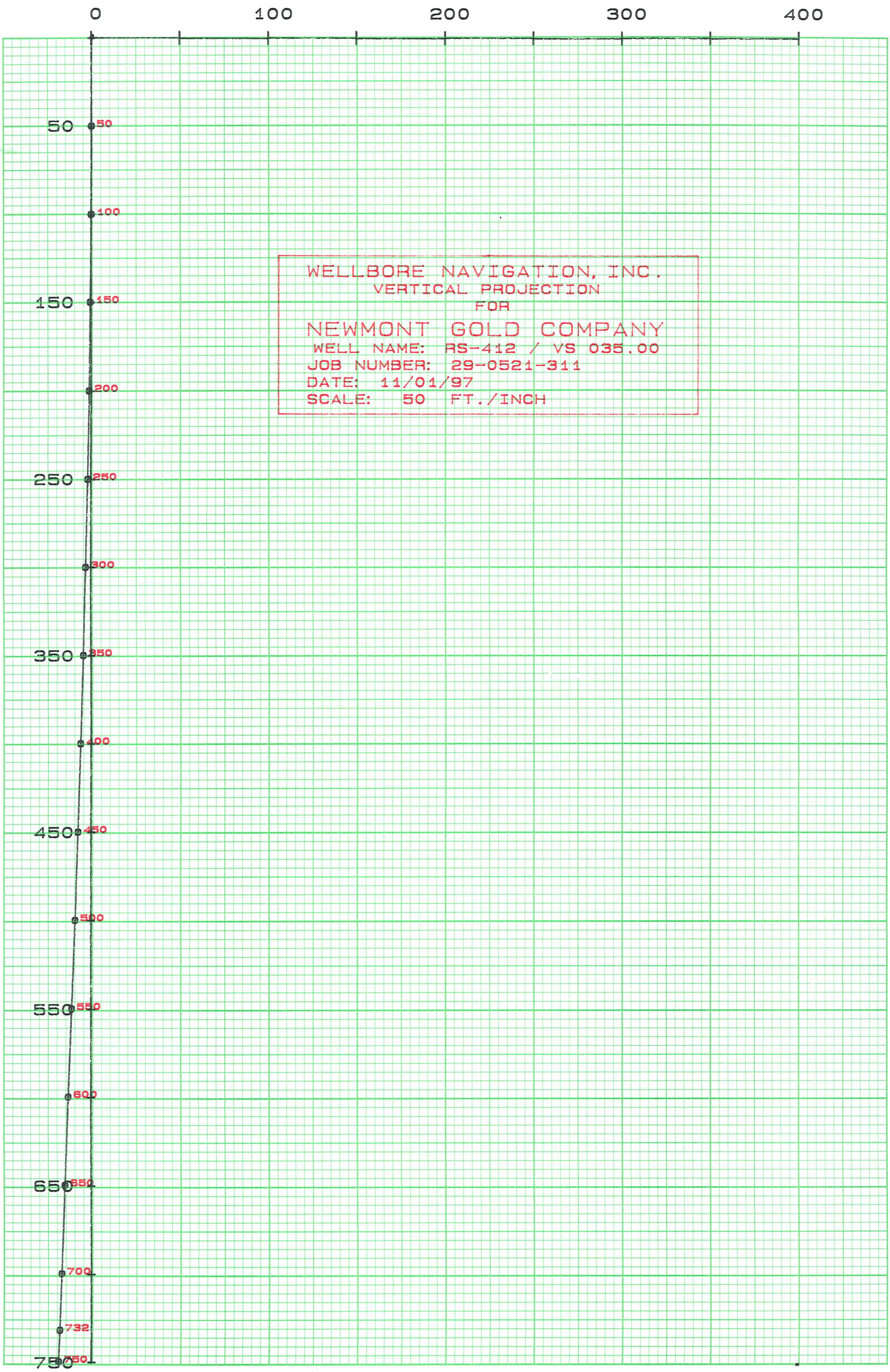
STARLIGHT PRINTING (801) 467-2841



STARLIGHT PRINTING (801) 467-2841



STARLIGHT PRINTING (801) 467-2841



Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-412
PAGE 1 OF 5
DATE 6-28-98
LOGGED BY BLC
TOTAL DEPTH 500'

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 QUARTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
5		Coll	Colluvium																		X																				
																					X																				
																					X																				
15		TcFG	Chocolate Fm-fine-grnd																	X																					
																				X																					
25																				X																					
																				X																					
35																				X																					
																				X																					
45																				X																					
																				X																					
55																				X																					
																				X																					
65																				X																					
																				X																					
75																				X																					
																				X																					
85																				X																					
																					X																				
95																			X																						

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-412
PAGE 2 OF 5
DATE
LOGGED BY
TOTAL DEPTH

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION																	MINERALIZATION									METALLURGY				ANALYTICAL DATA				
						SILICIFICATION					ARGILLIC							PROPYLITIC %	POTASSIC %		OXIDATION			VIENING		SULFIDES			PY	CPY	MAR	AS-SLF	STIBNITE	BARITE	OXIDE	SULF	CARBON	MOISTURE	FROM	TO	W	Au	Ag
						5%	15%	+25%	MATRIX %	CLASTS %	5%	15%	+25%	TYPE	CALCITE	DOLOMITE	K-SPAR	ALUNITE	5%	15%	+25%	%	TYPE	5%	15%	+25%	%	%	%	%	%	%										
105		TCFG																																							
																					X																				
115																						X																			
																						X																			
125																																									
																							X																		
135																							X																		
																							X																		
145																							X																		
																							X																		
155																							X																		
																							X																		
165																							X																		
																							X																		
175																							X																		
																							X																		
185																							X																		
																							X																		
195																							X																		

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS - 412
PAGE 3 OF 5
DATE
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DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION																			MINERALIZATION									METALLURGY				ANALYTICAL DATA				
						SILICIFICATION					ARGILLIC				PROPYLITIC %		POTASSIC %		OXIDATION			VIENING			SULFIDES			PY	CPY	MAR	AS-SLF	STIBNITE	BARITE	OXIDE	SULF	CARBON	MOLDURE	FROM	TO	W	Au	Ag
						5%	15%	+25%	MATRIX	QUARTS	5%	15%	+25%	TYPE	CHLORITE	CALCITE	K-SPAR	ALUNITE	5%	15%	+25%	%	TYPE	5%	15%	+25%	%	%	%	%	%	%										
205		TC FG																			X																					
																				X																						
215																			X																							
																			X																							
225																			X																							
																			X																							
235																			X																							
																			X																							
245																			X																							
																			X																							
255																			X																							
																			X																							
265																			X																							
																			X																							
275																			X																							
																			X																							
285																																										
295																																										

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-412
PAGE 4 OF 5
DATE
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TOTAL DEPTH

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AS-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
305		TCFG																																							
315																																									
325																			X																						
																			X																						
335																			X																						
345																																									
355																																									
365																			X																						
																			X																						
375																			X																						
																			X																						
385																			X																						
		TCLLT	Chocolate Fm Bxa																X																						
																			X																						
395																			X																						

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-412
PAGE 5 OF 5
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RIG TYPE
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FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION																			MINERALIZATION									METALLURGY				ANALYTICAL DATA				
						SILICIFICATION					ARGILLIC				PROPYLITIC %		POTASSIC %		OXIDATION			VIENING			SULFIDES			PY	CPY	MAR	K-SUL	STIBNITE	BARITE	OXIDE	SULF	CARBON	MOISTURE	FROM	TO	W	AU	AG
						5%	15%	+25%	MATRIX %	CLASTS %	5%	15%	+25%	TYPE	GLUCITE	CALCITE	K-SPAR	ALUNITE	5%	15%	+25%	%	TYPE		5%	15%	+25%	%	%	%	%	%	%										
405		TCLLT																		X																						
																				X																						
																				X																						
415																				X																						
																				X																						
425																				X																						
																				X																						
435																				X																						
																				X																						
445																				X																						
																					X																					
455																					X																					
																					X																					
465																					X																					
																					X																					
475																					X																					
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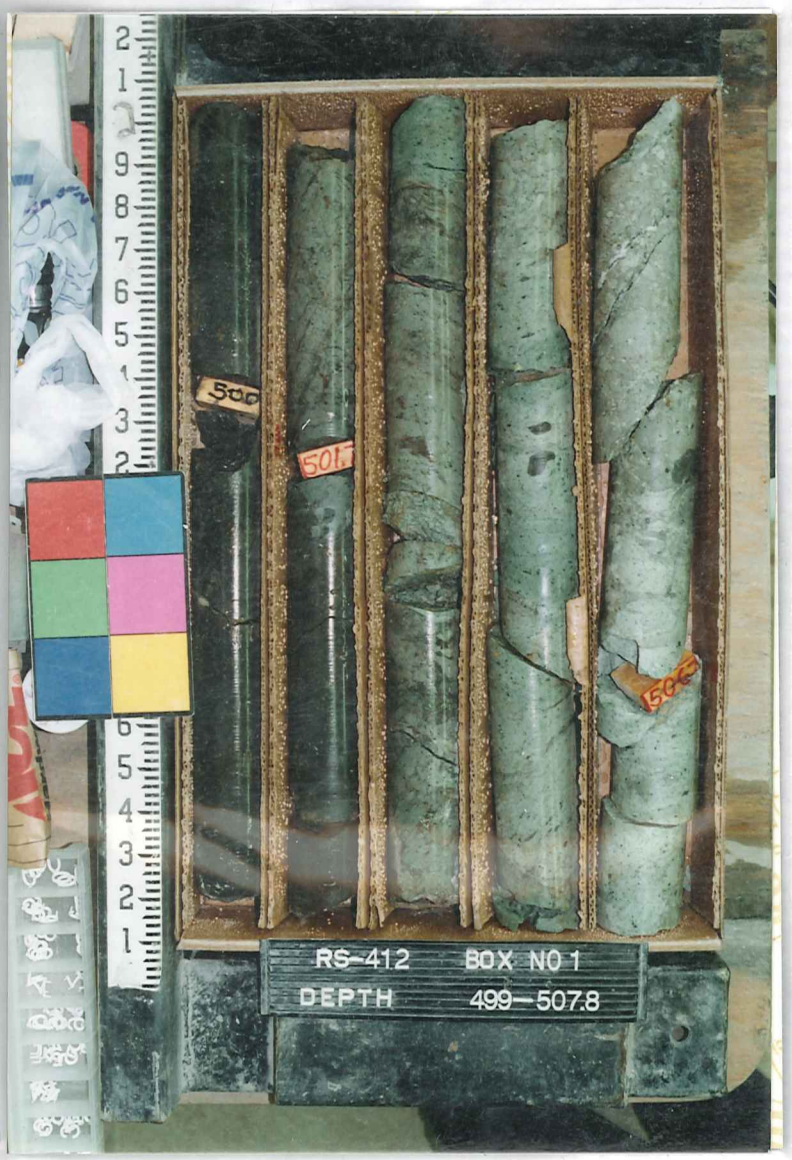
485																					X																					
																					X																					
495																					X																					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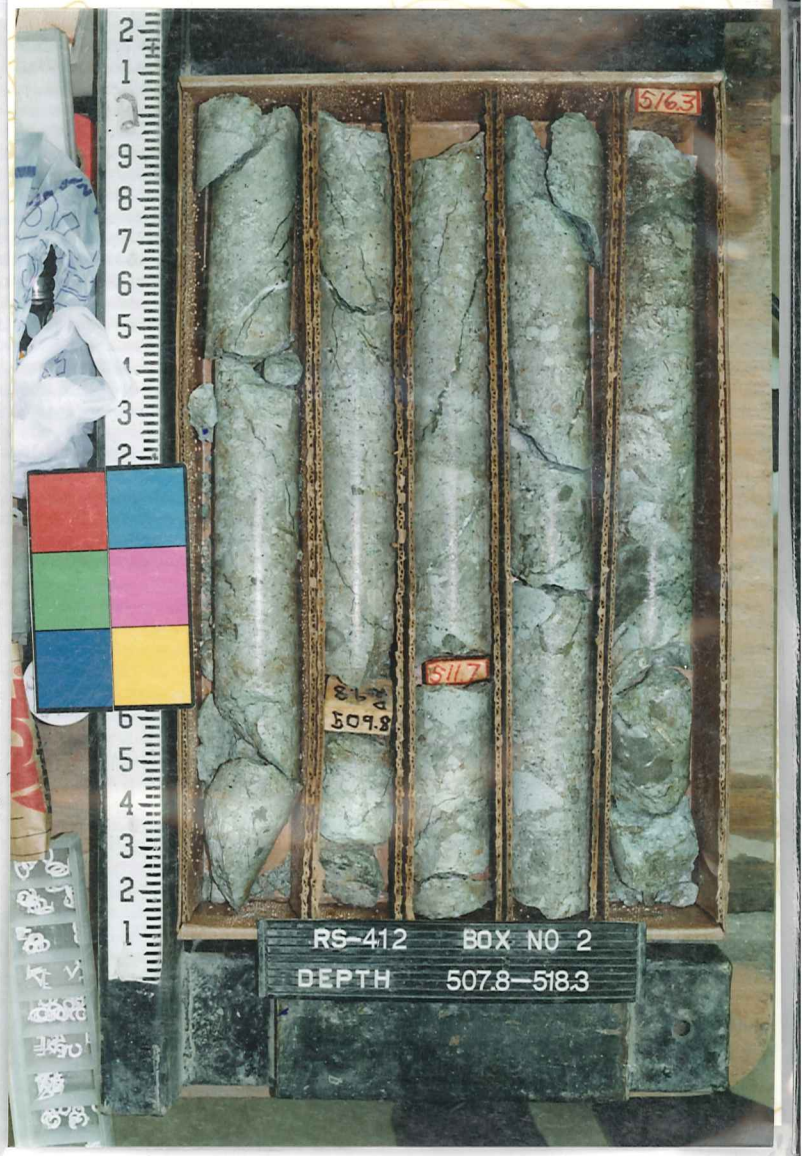
DEPTH 499—507.8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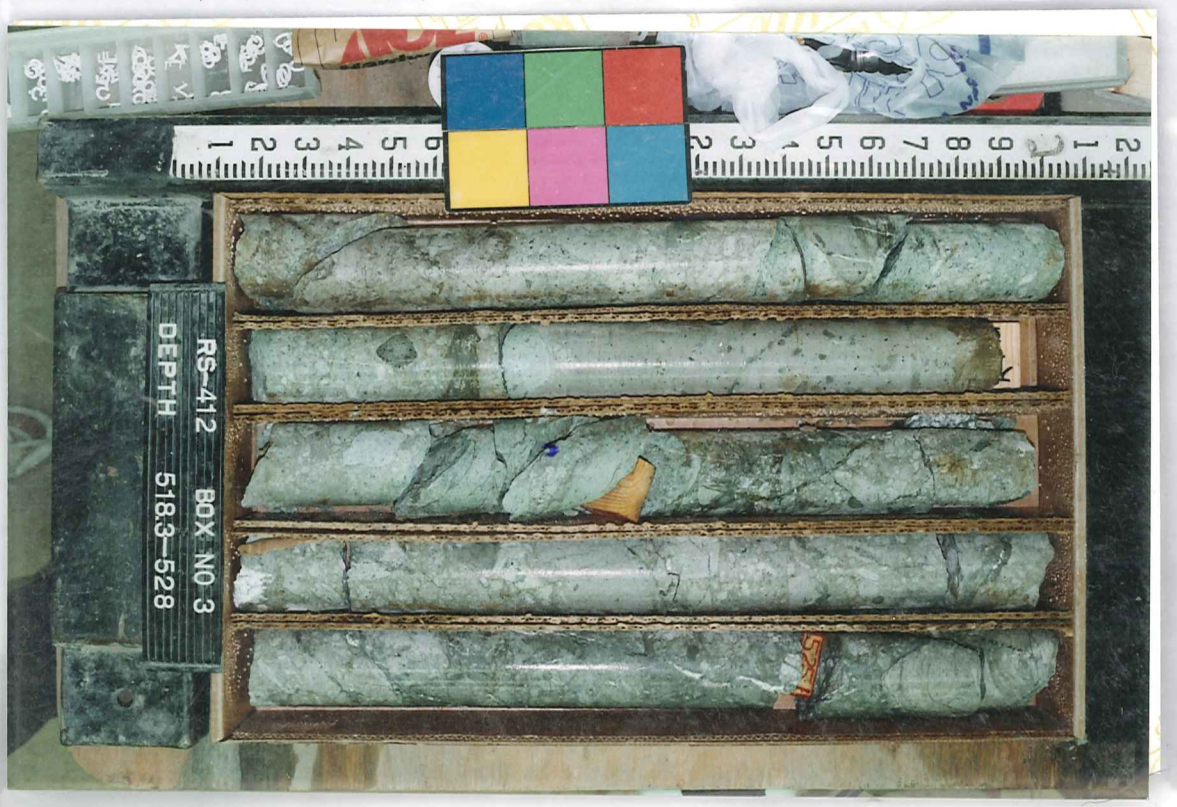
DEPTH 507.8—518.3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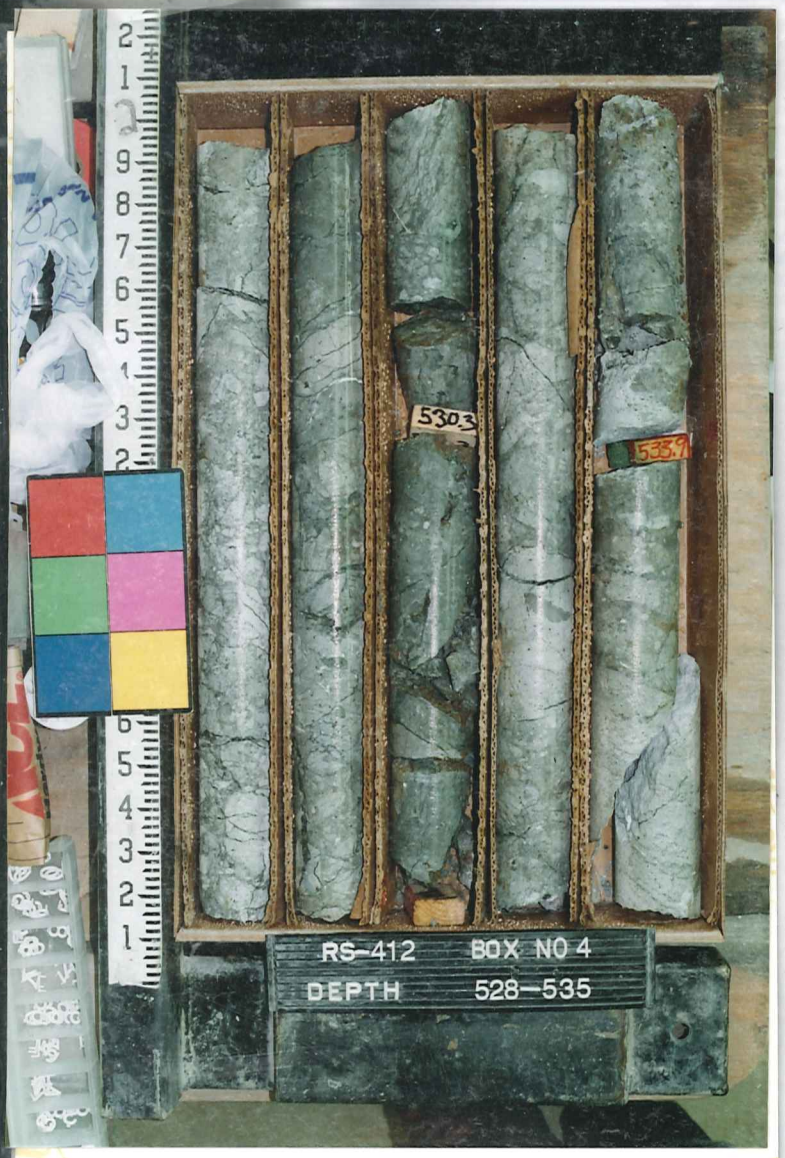

RS-412 BOX NO 4
DEPTH 528-535
530.3
533.9

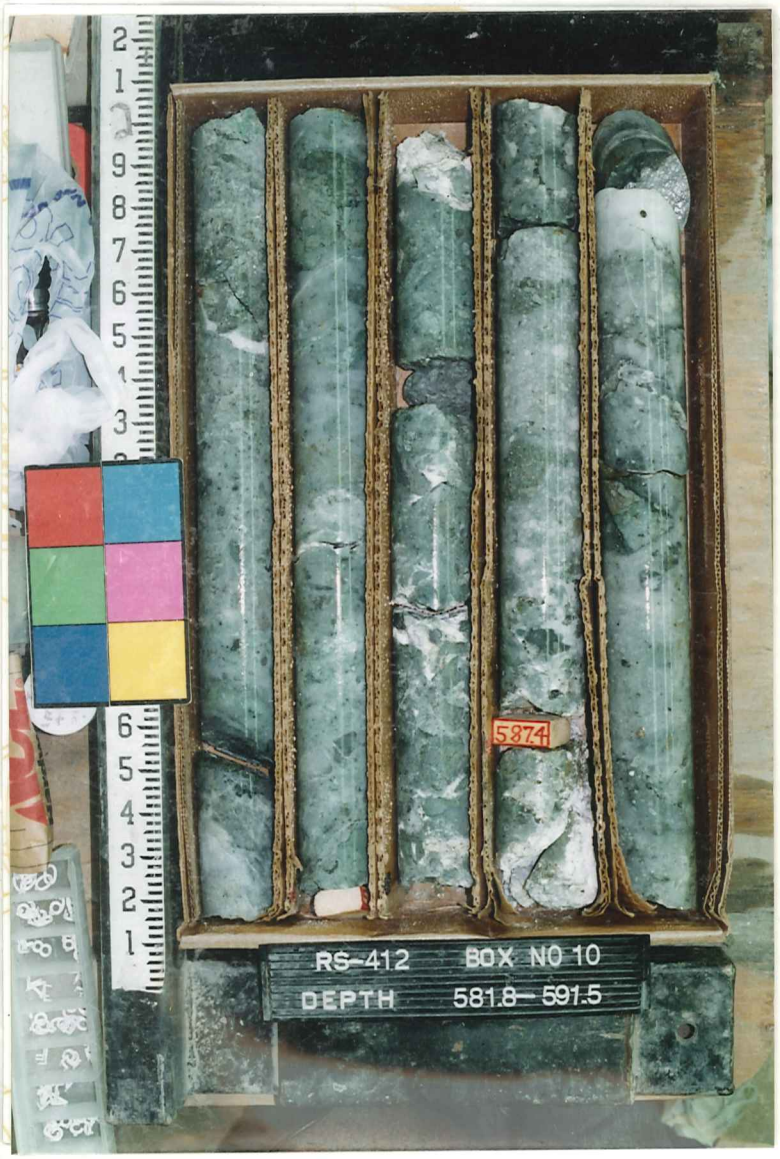
RS-412 BOX NO 5
DEPTH 535-542.8
537.0
540.4
541.8

RS-412 BOX NO 6
DEPTH 542.8-552.5
550.6

RS-412 BOX NO 7
DEPTH 552.5– 561.5
554.2
557.8
560.8

RS-412 BOX NO 8
DEPTH 561.5– 570.8
567.6

RS-412 BOX NO 9
DEPTH 570.8– 581.8
570.9
572.7
573.8
573.1
575.9
575.5
578.3
579.1
580.1
581.8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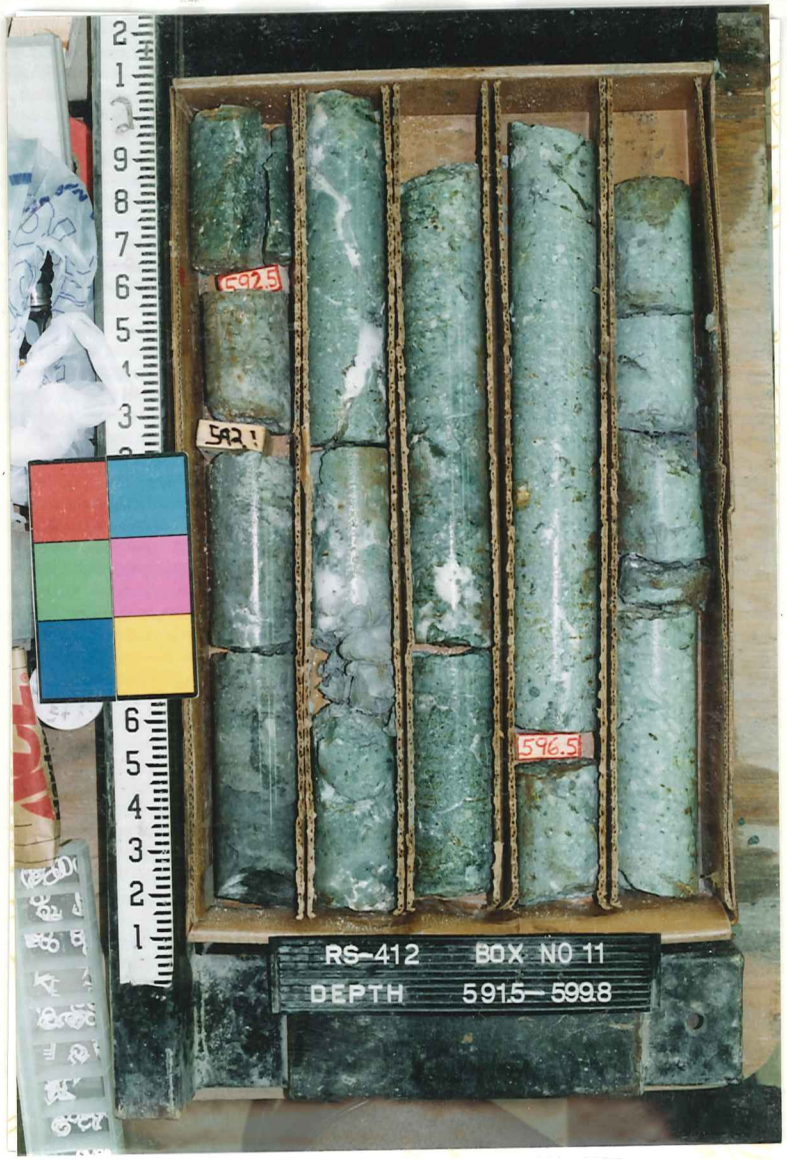
587.4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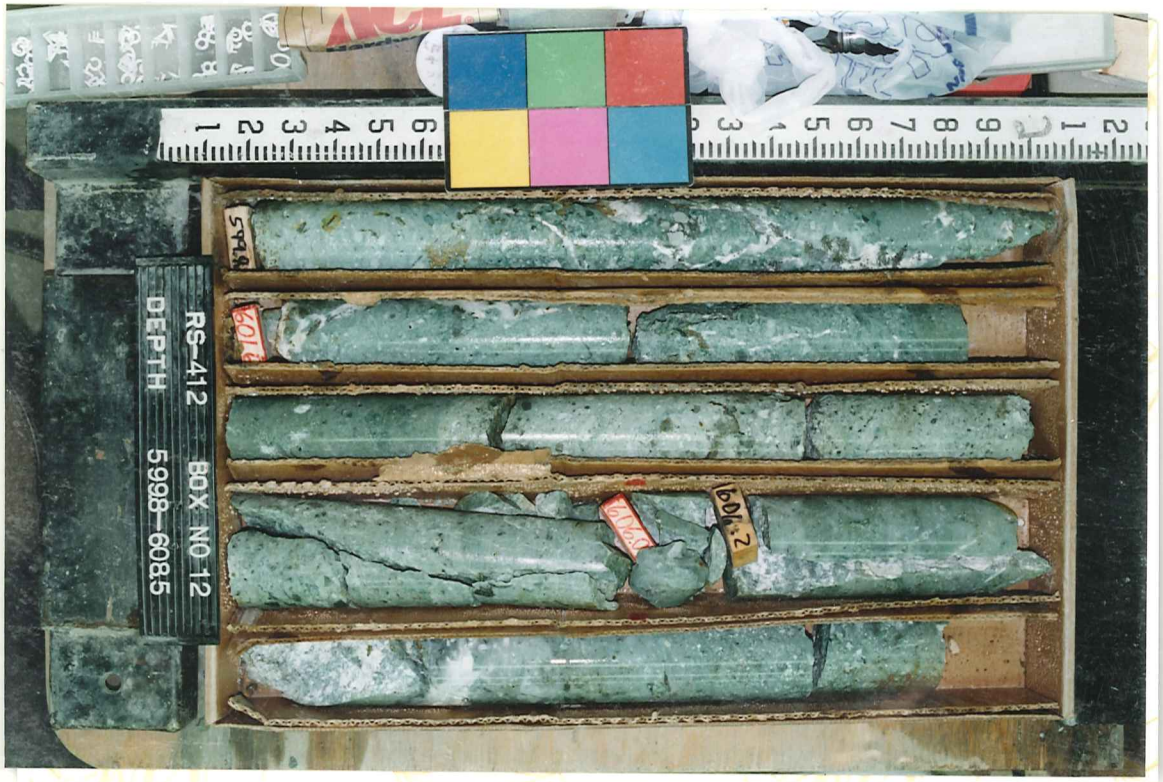
DEPTH 591.5– 599.8
592.5
592.1
596.5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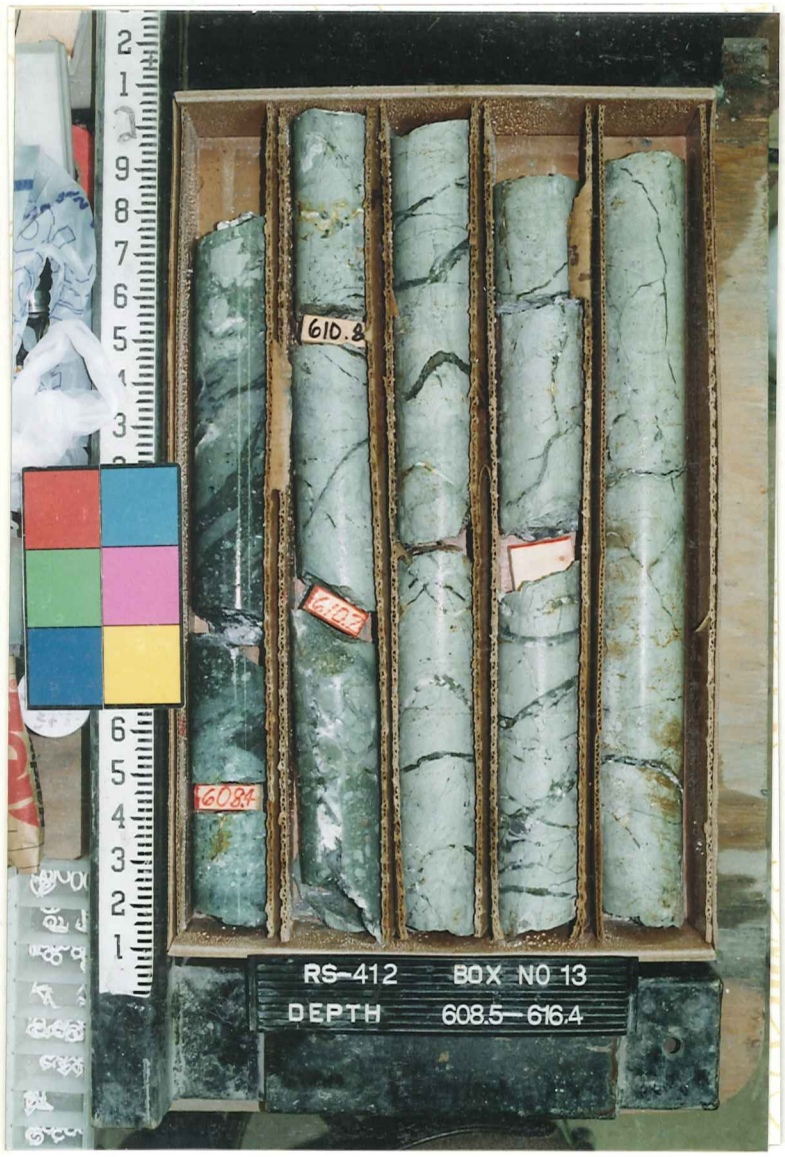
DEPTH 599.8– 608.5
598.5
601.0
604.2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608.4
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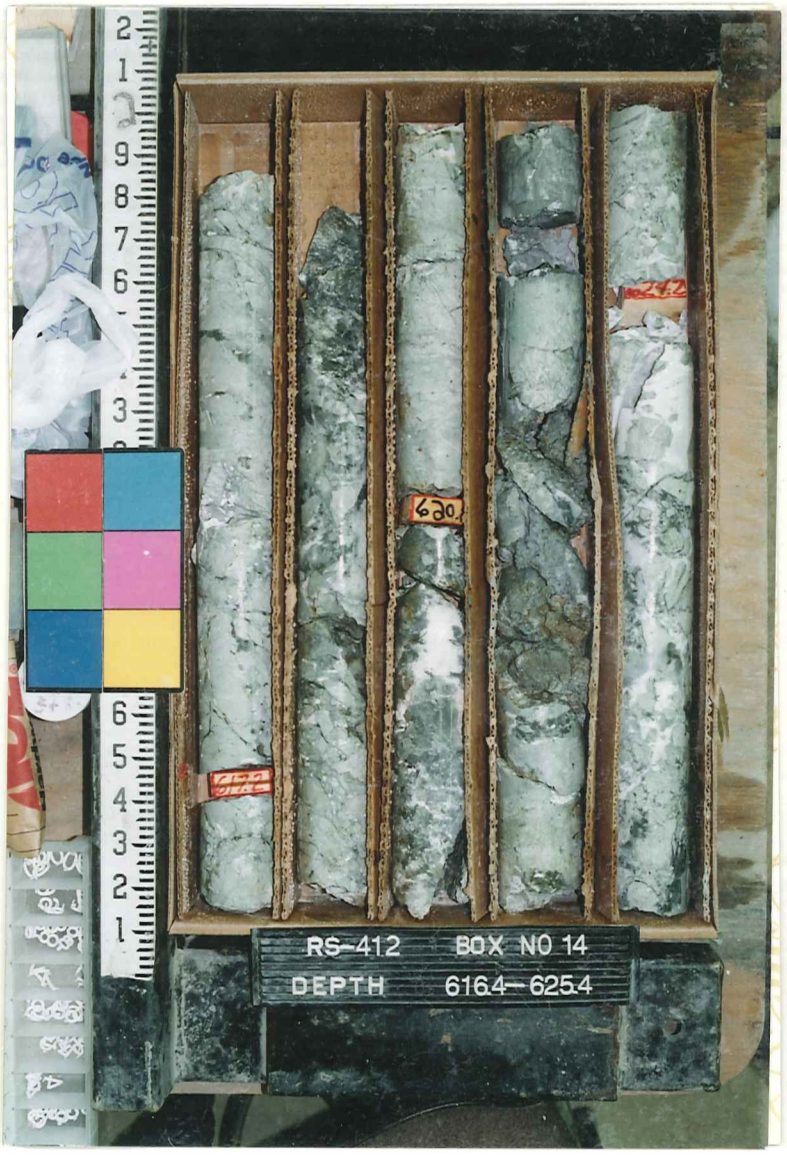
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RS-412 BOX NO 14
DEPTH 616.4-625.4

RS-412 BOX NO 15
DEPTH 625.4-634.6
629.5
630.8

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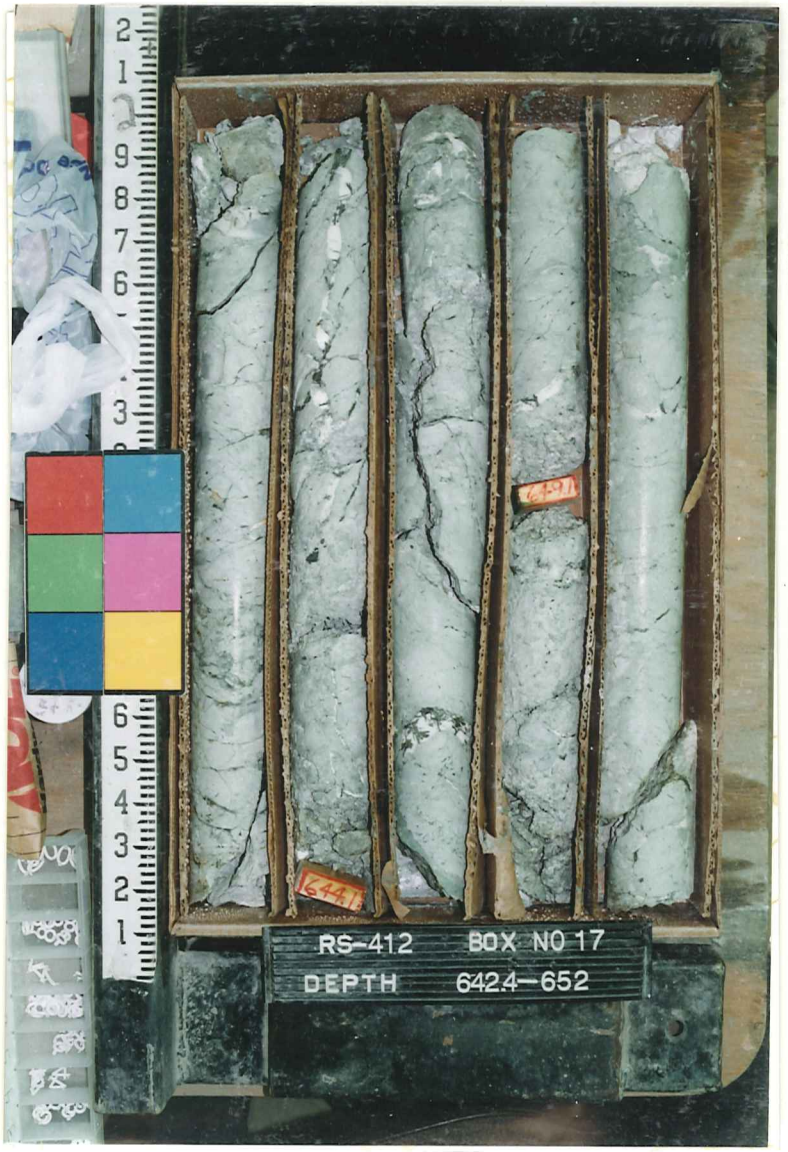
DEPTH 6346-6424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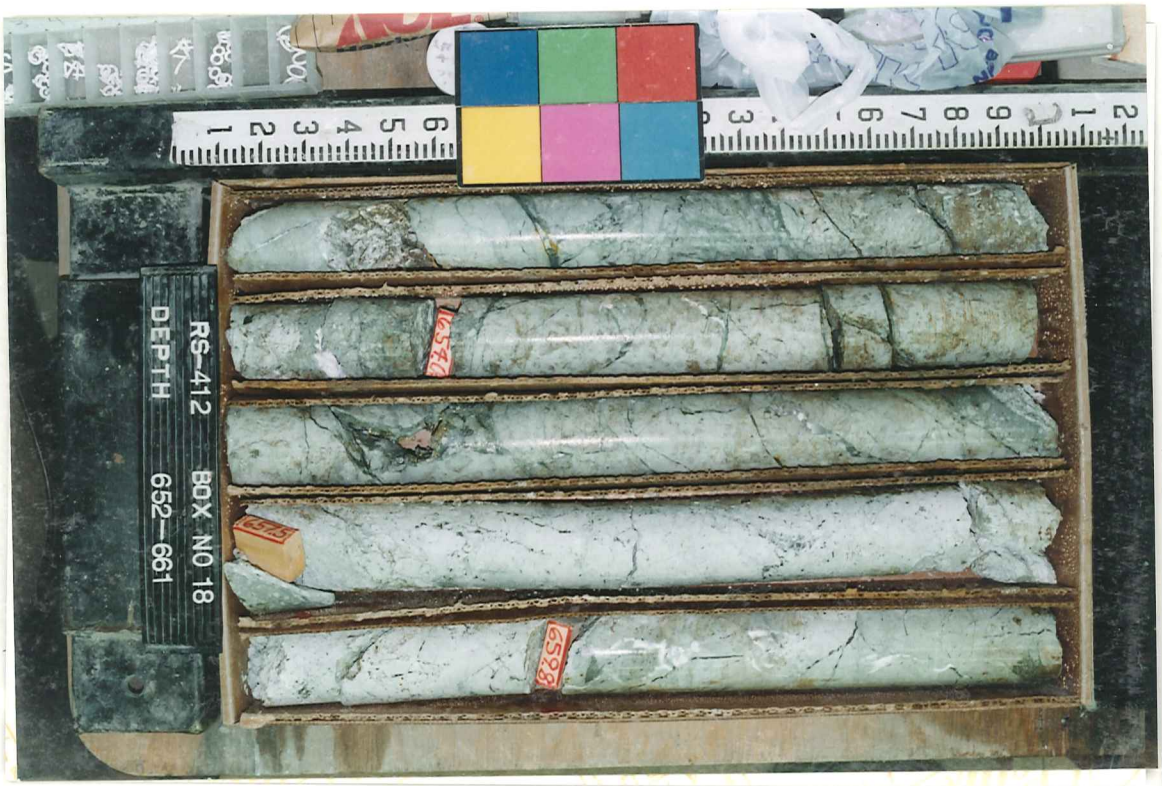
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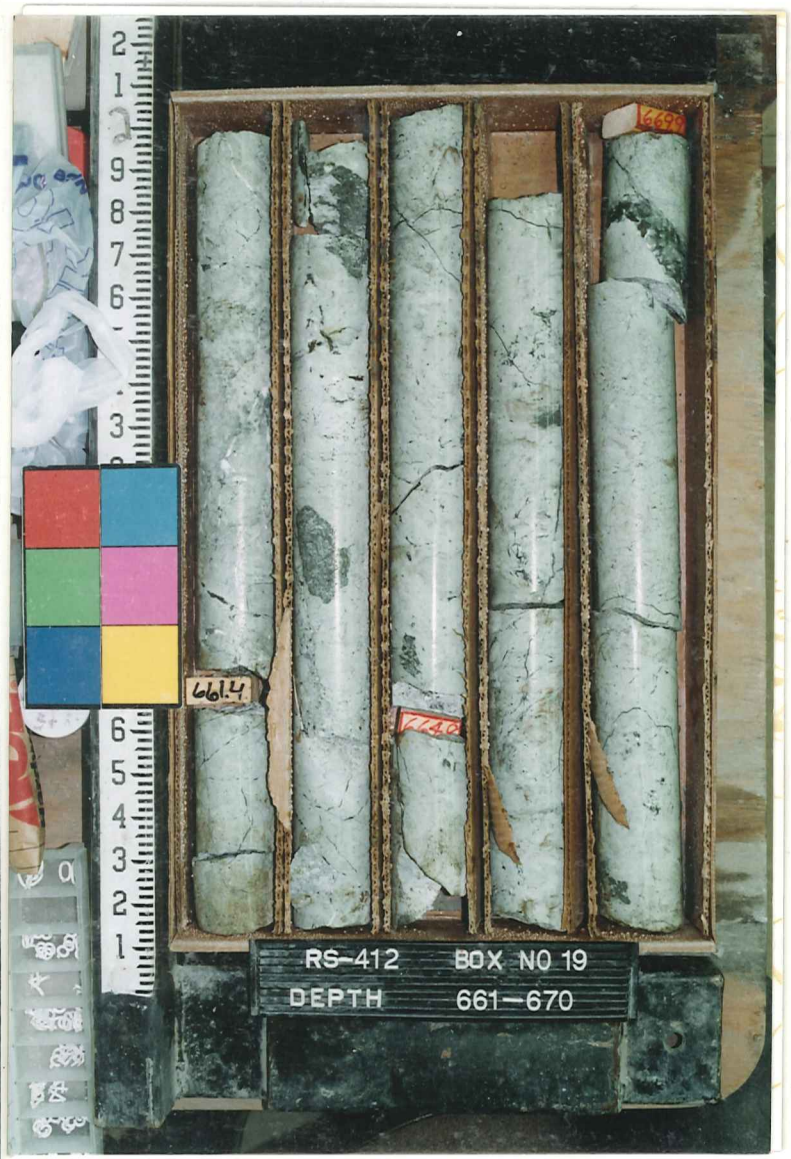
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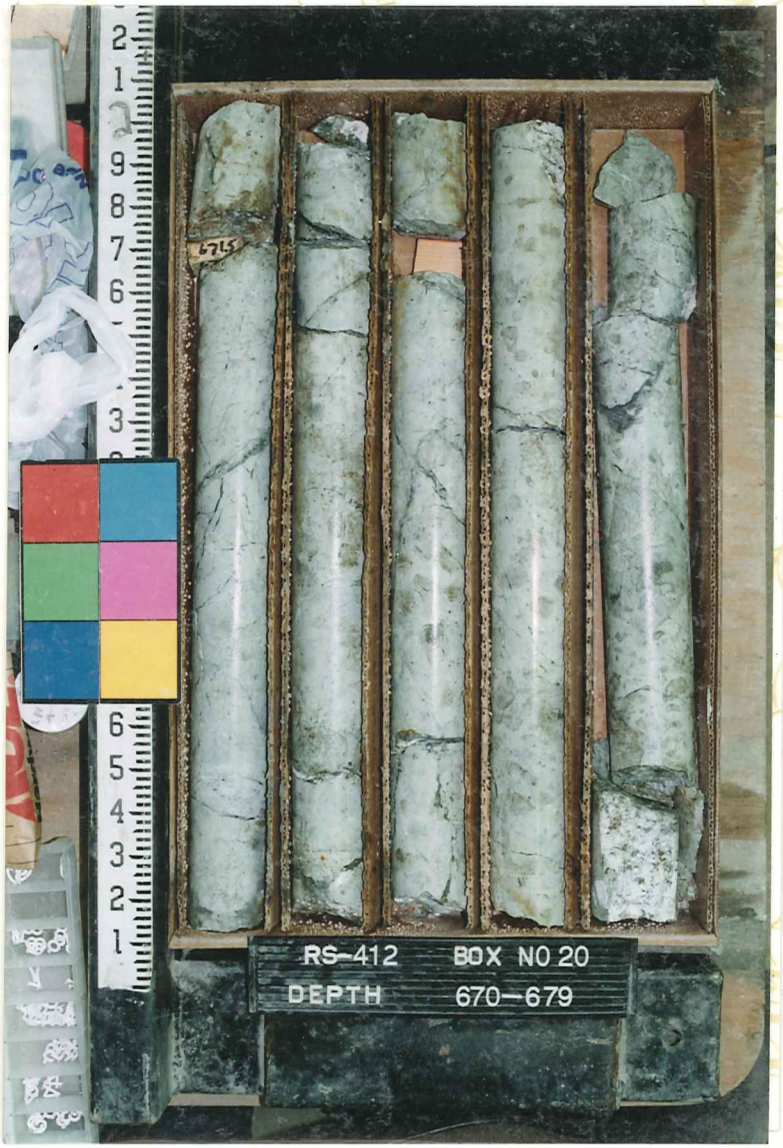
DEPTH 661—670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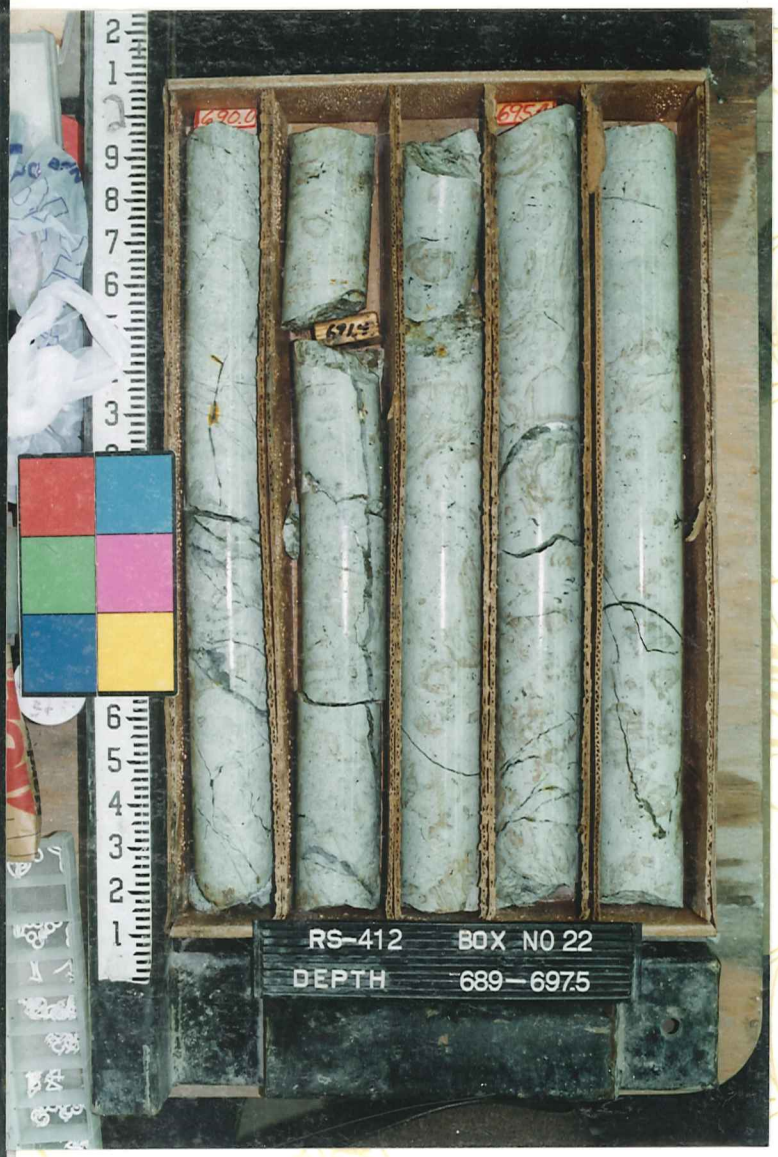
DEPTH 670—679

RS-412 BOX NO 21
DEPTH 679—689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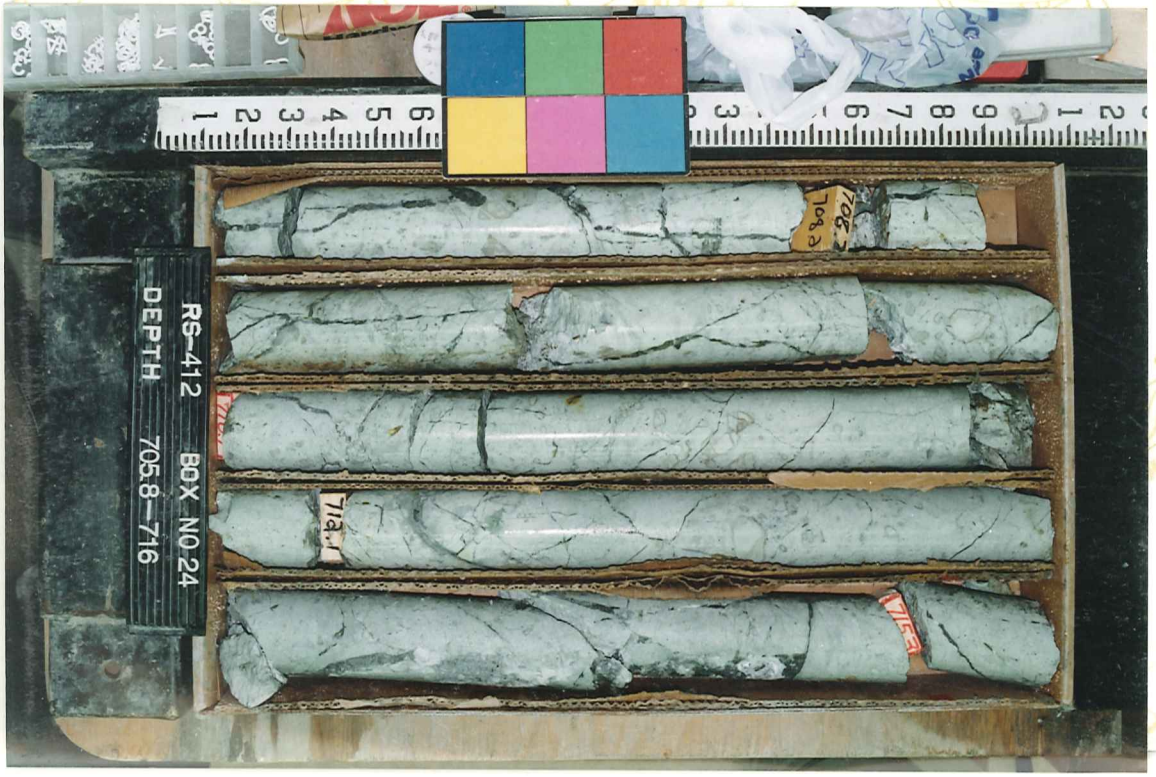
DEPTH 689-697.5

RS-412 BOX NO 23
DEPTH 697.5-705.8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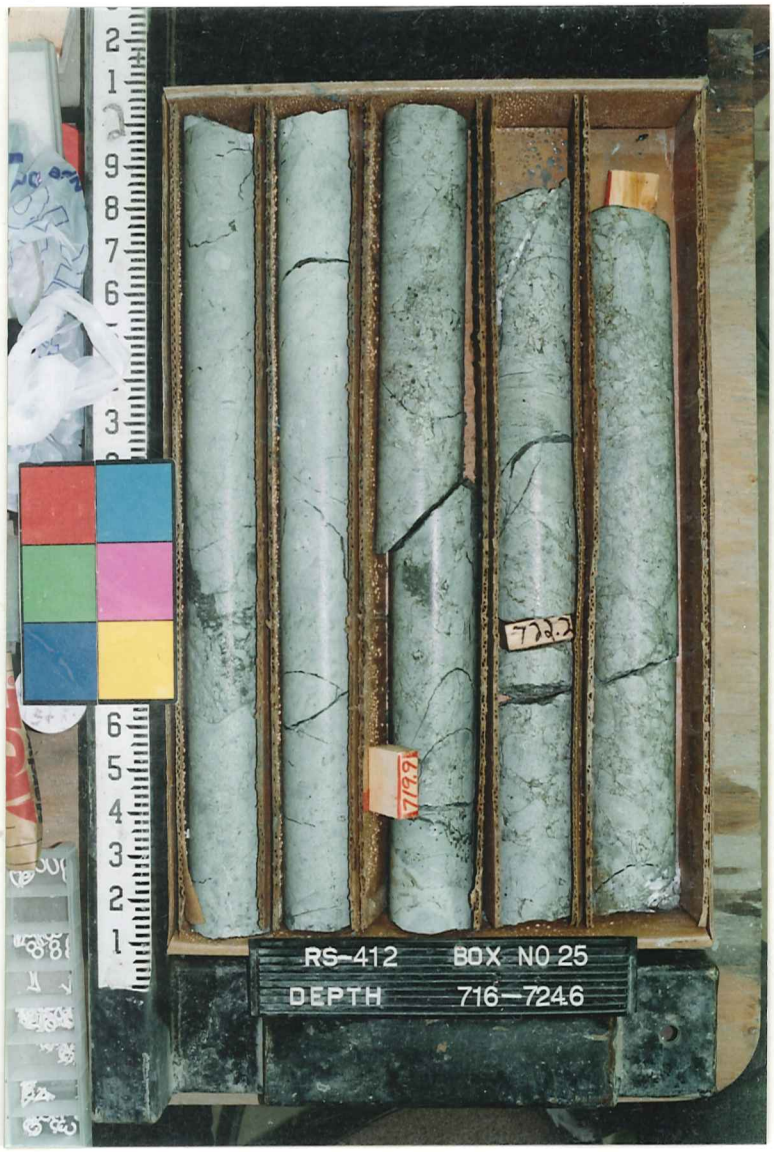
DEPTH 705.8-716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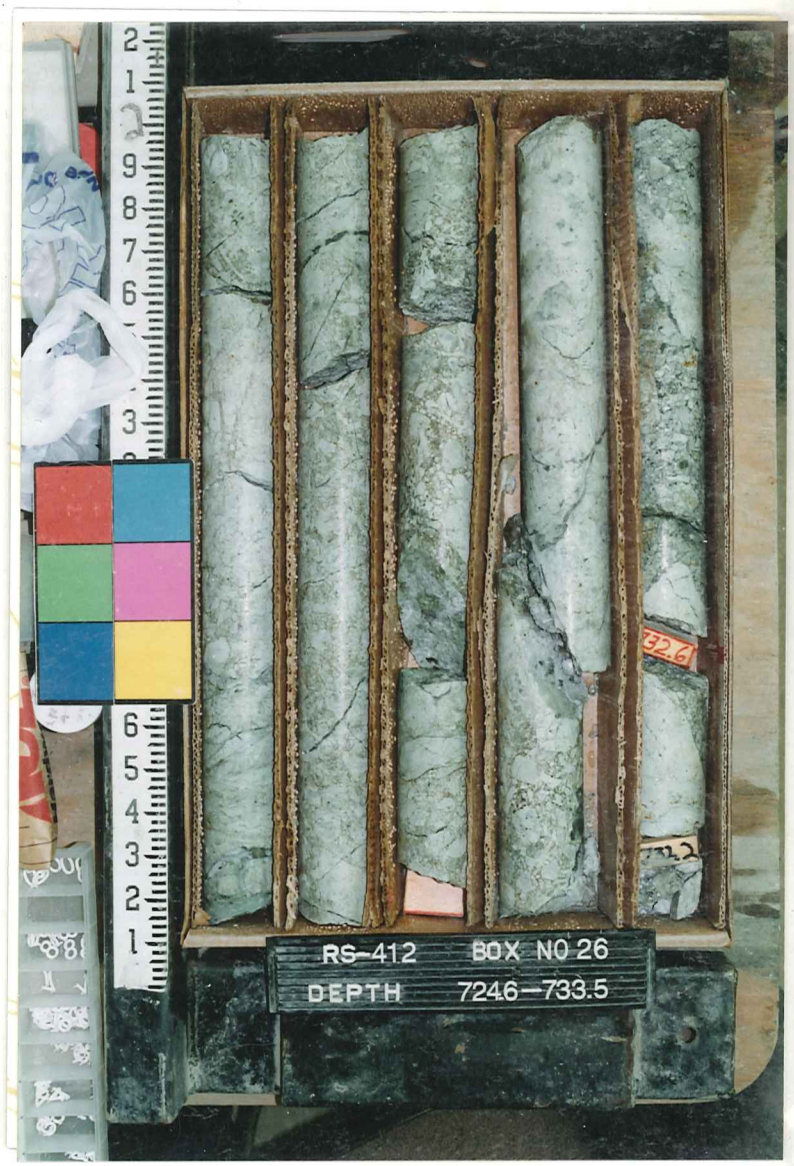
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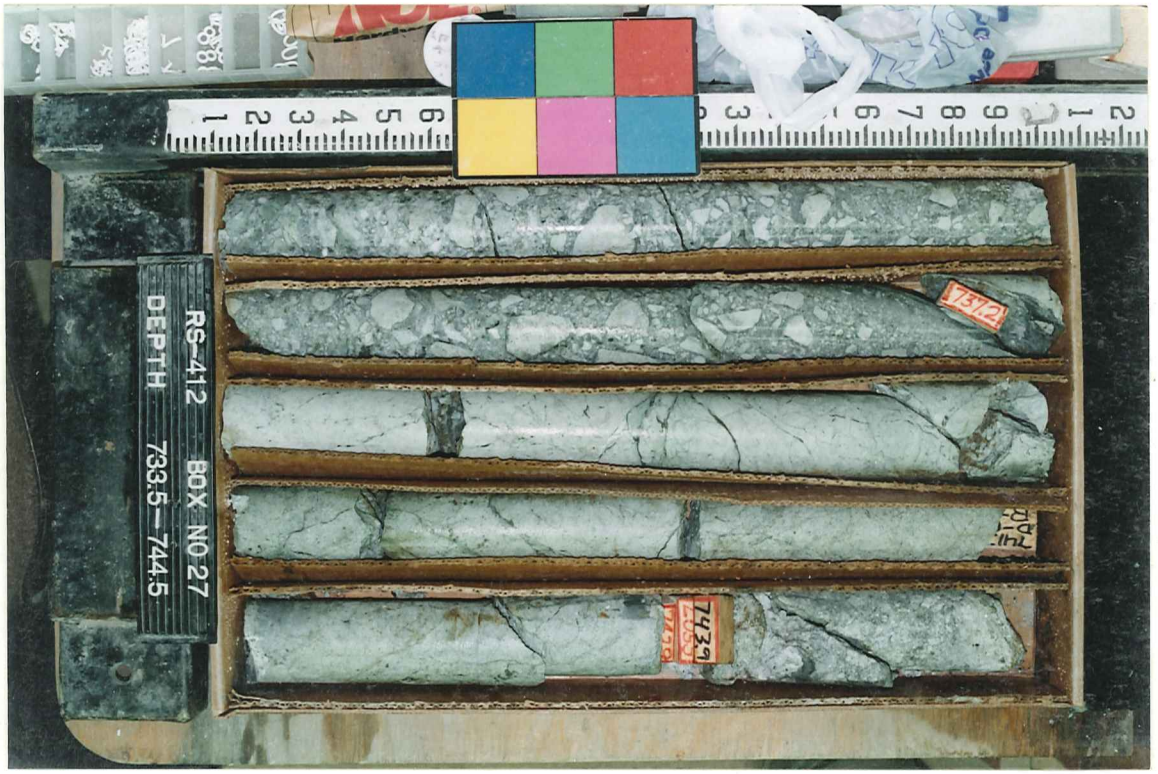
DEPTH 724.6—733.5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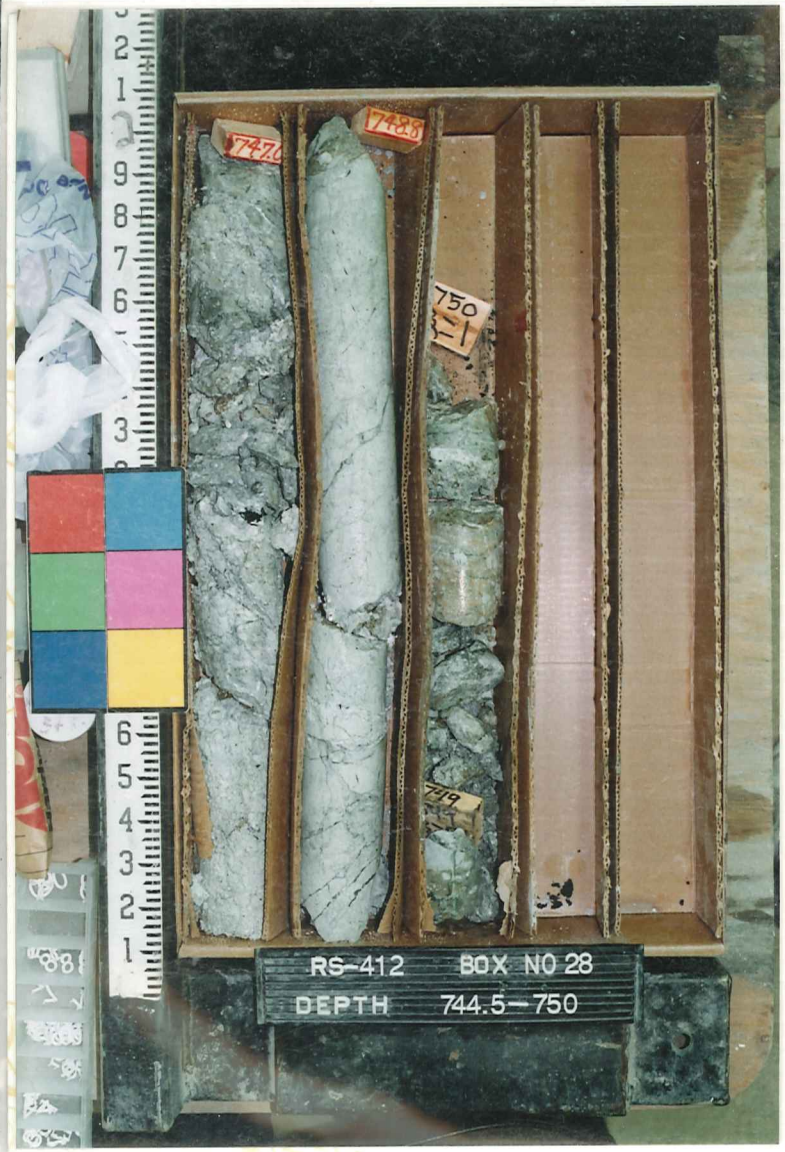
DEPTH 733.5—744.5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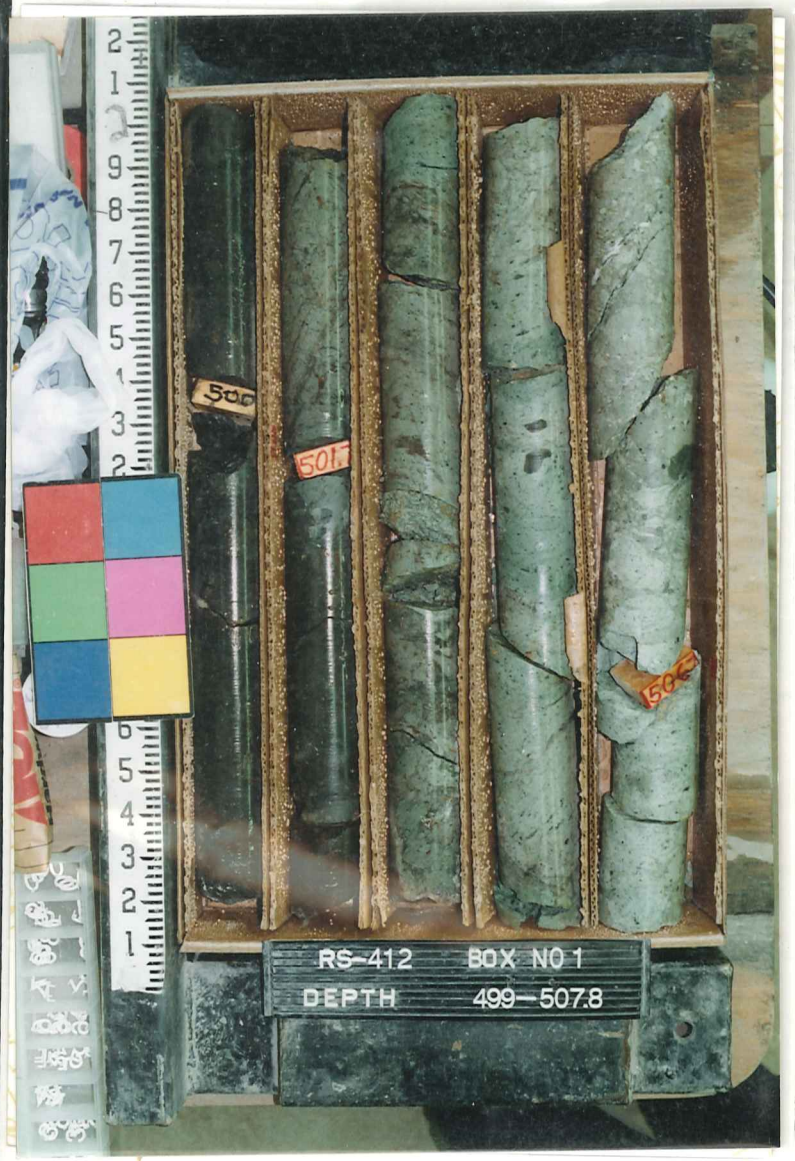
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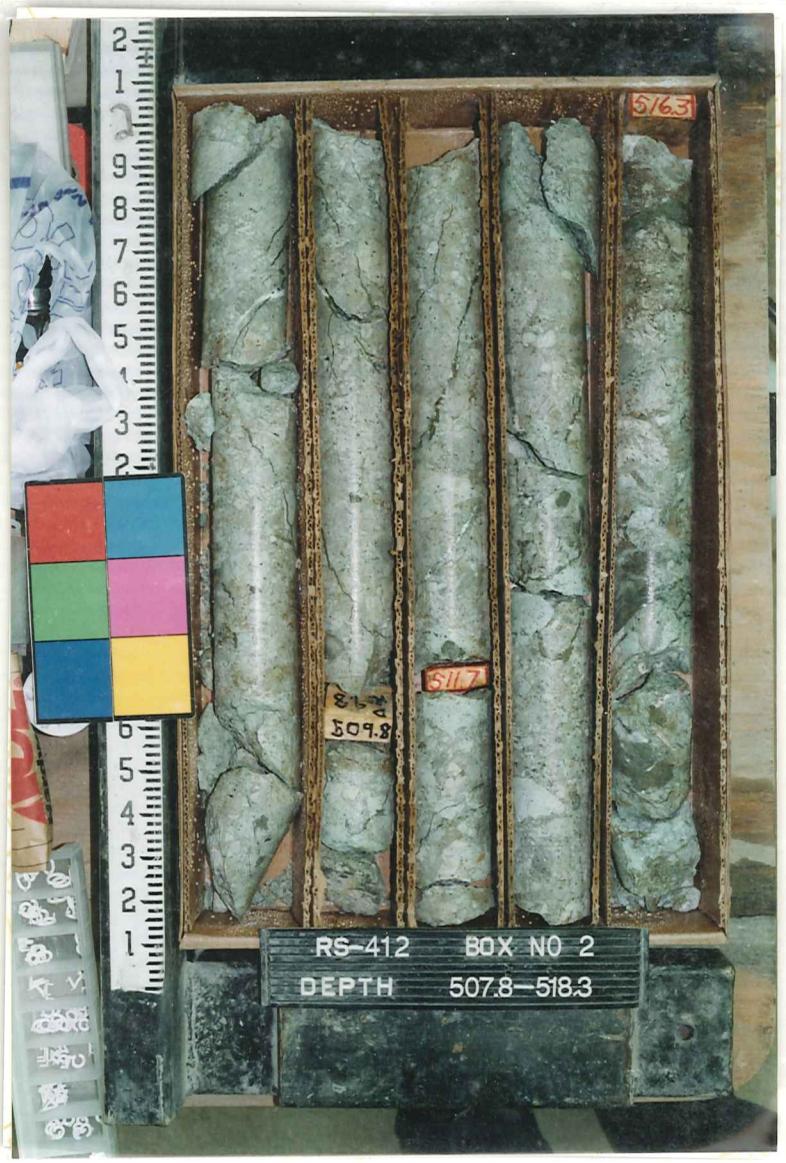
DEPTH 499—507.8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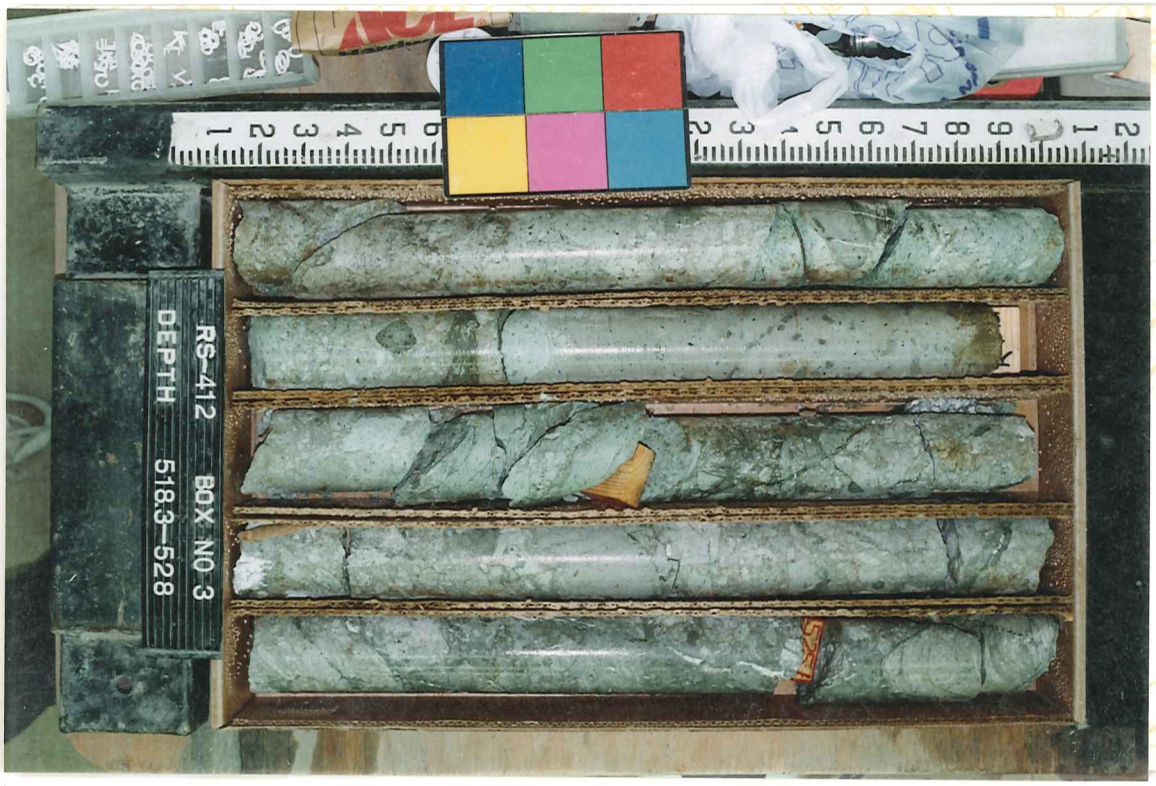
DEPTH 507.8—518.3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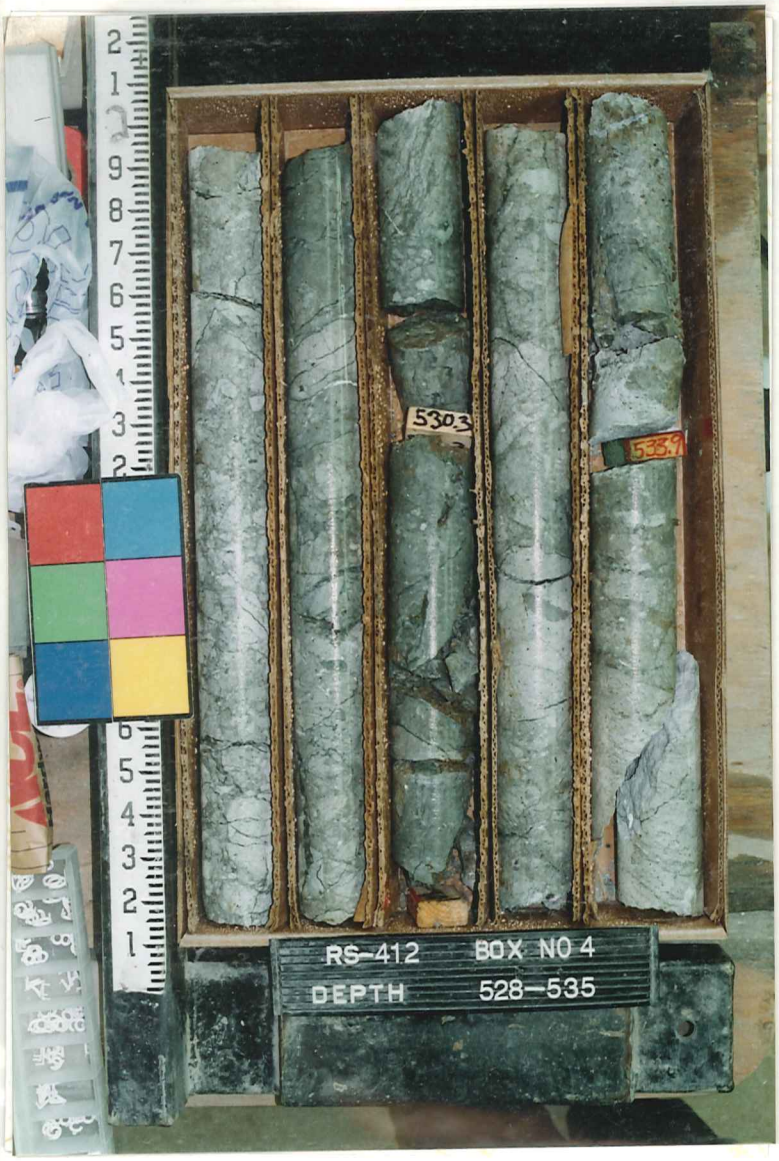
DEPTH 518.3—528


530.3
533.9
RS-412 BOX NO 4
DEPTH 528-535

537.0
540.4
541.8
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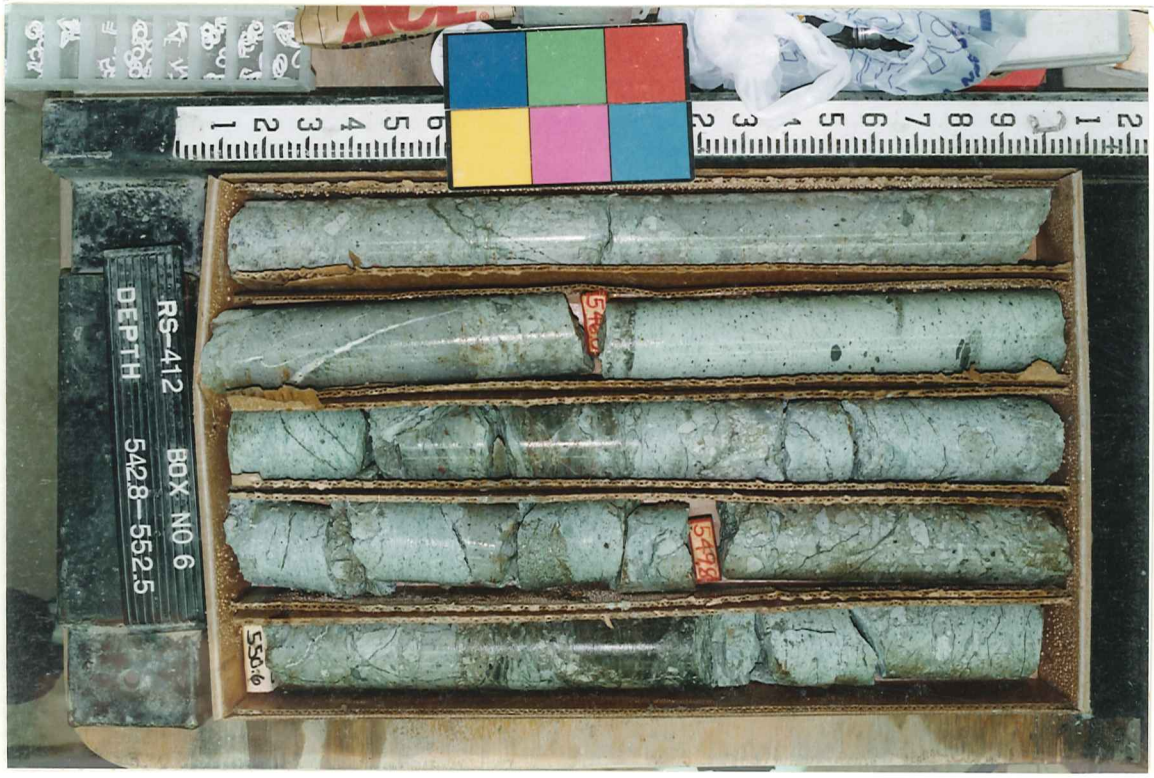
DEPTH 535-542.8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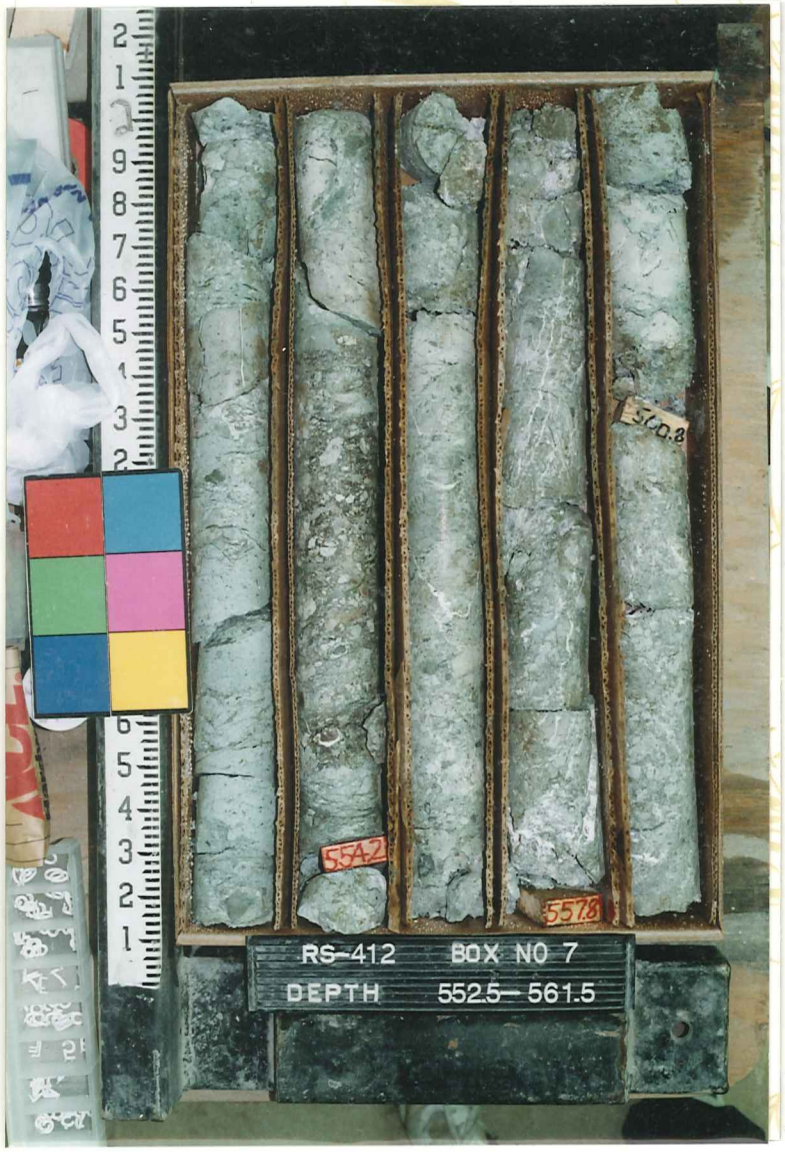
DEPTH 542.8-552.5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RS-412 BOX NO 8
DEPTH 561.5– 570.8

RS-412 BOX NO 9
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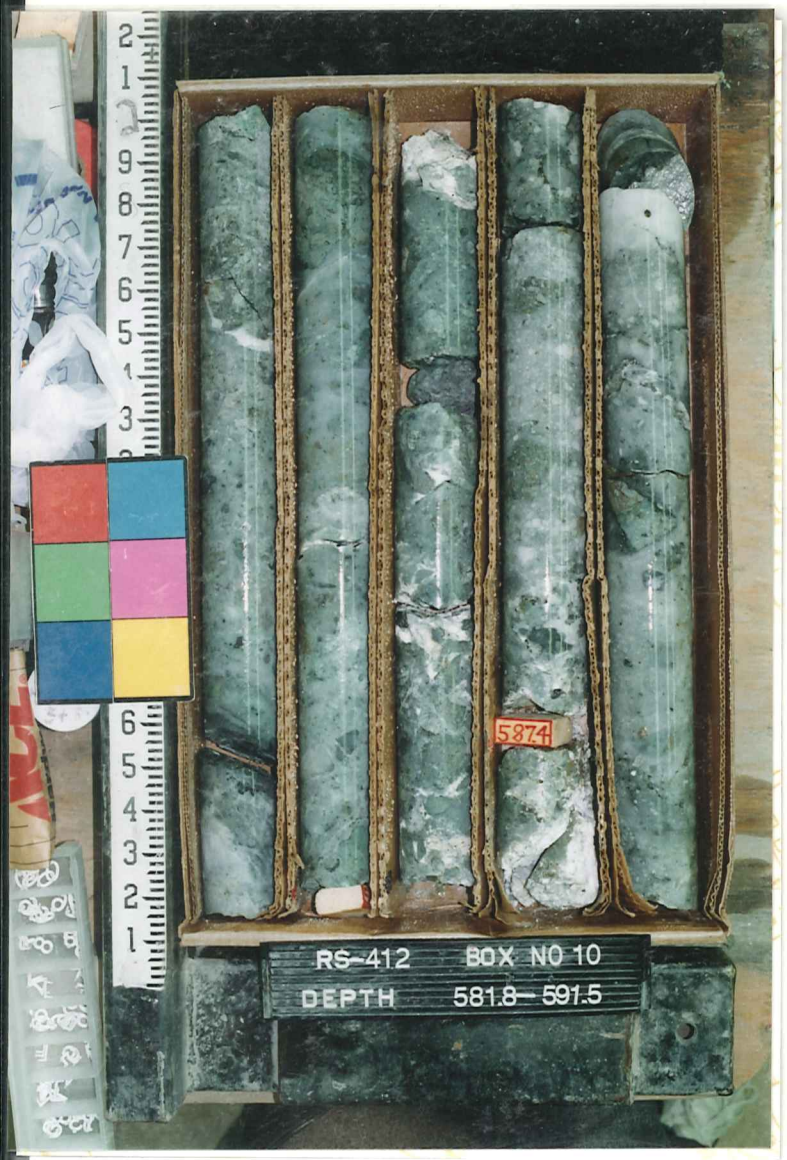
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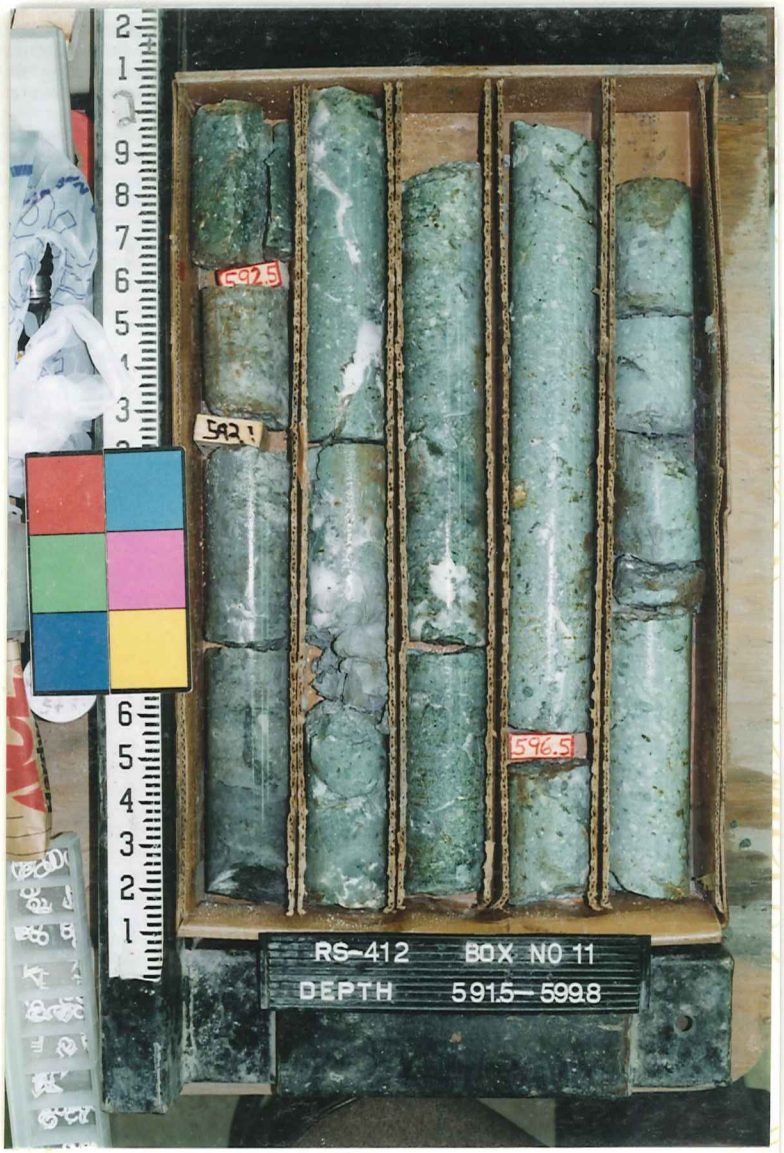
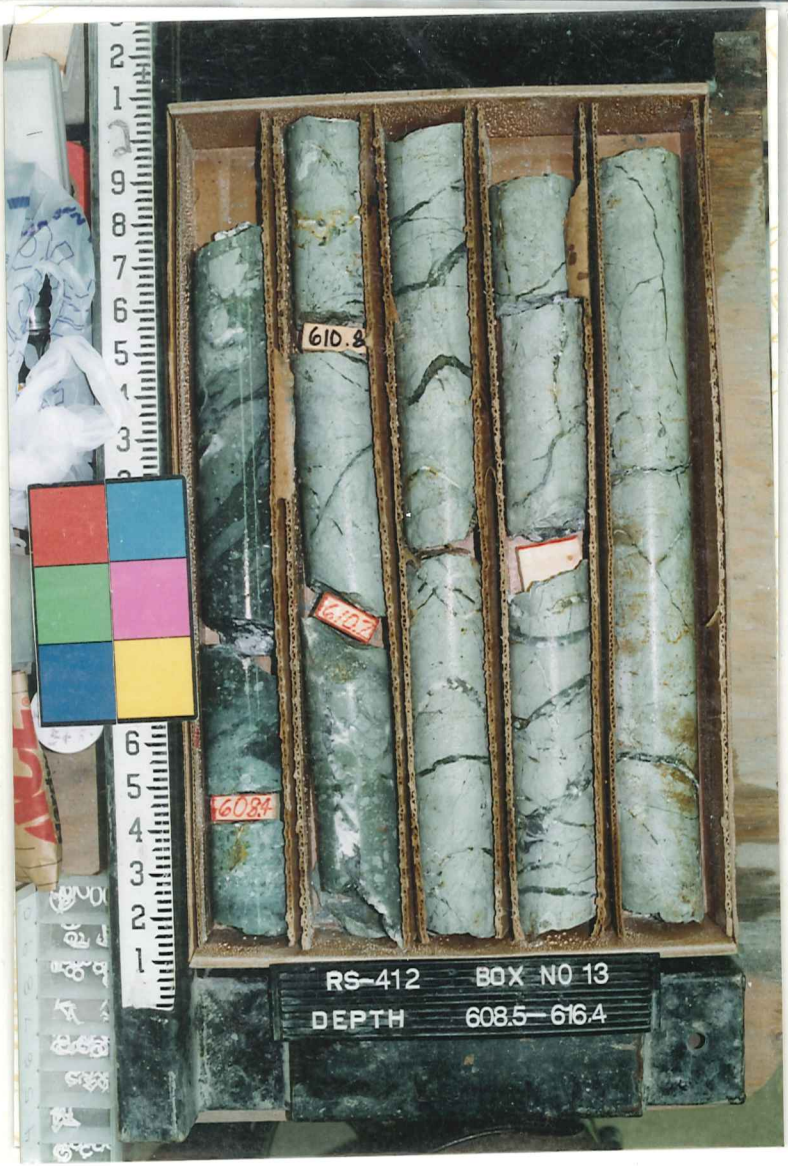
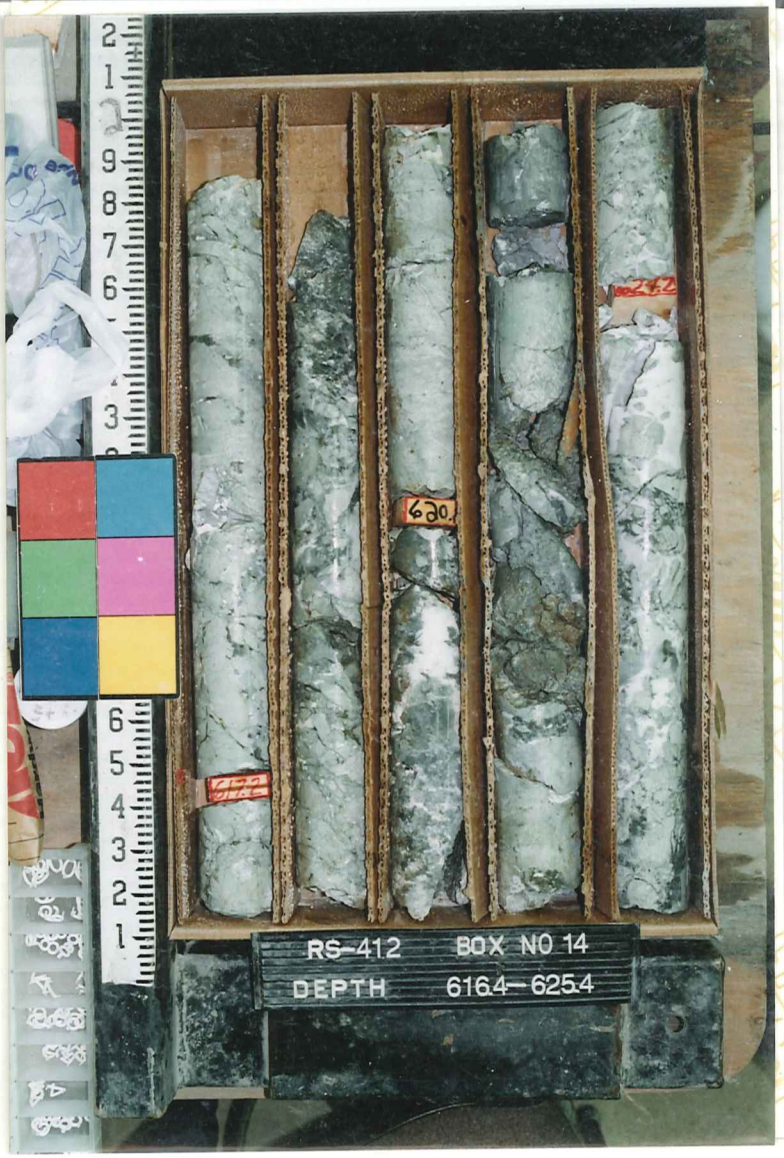
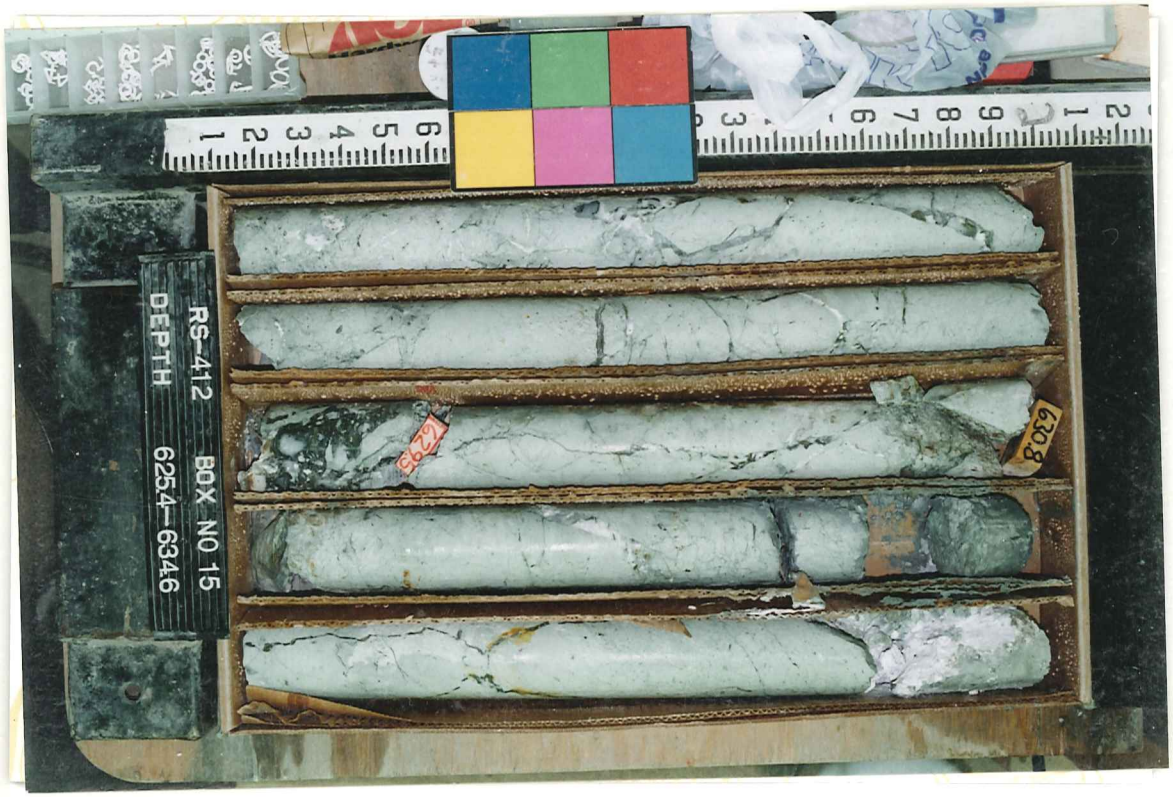
DEPTH 581.8– 591.5
587.4


RS-412 BOX NO 11
DEPTH 591.5– 599.8
592.5
592.1
596.5

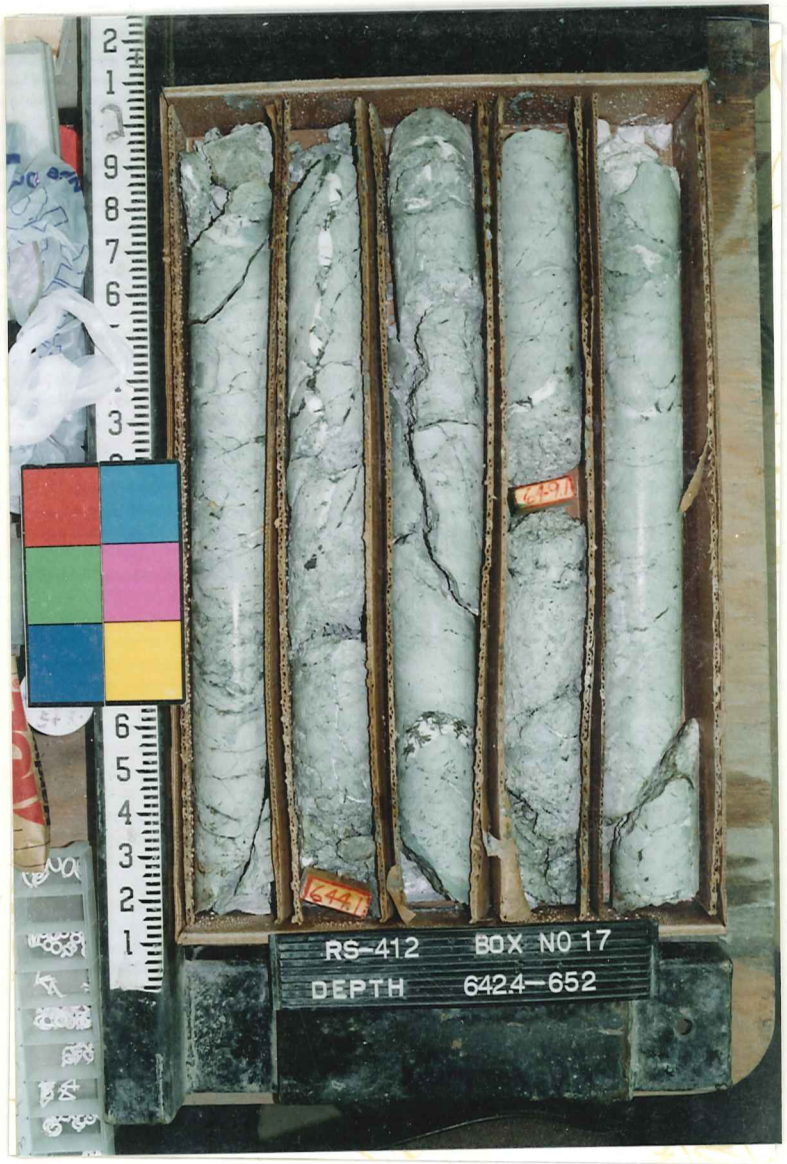
RS-412 BOX NO 12
DEPTH 599.8– 608.5
604.2

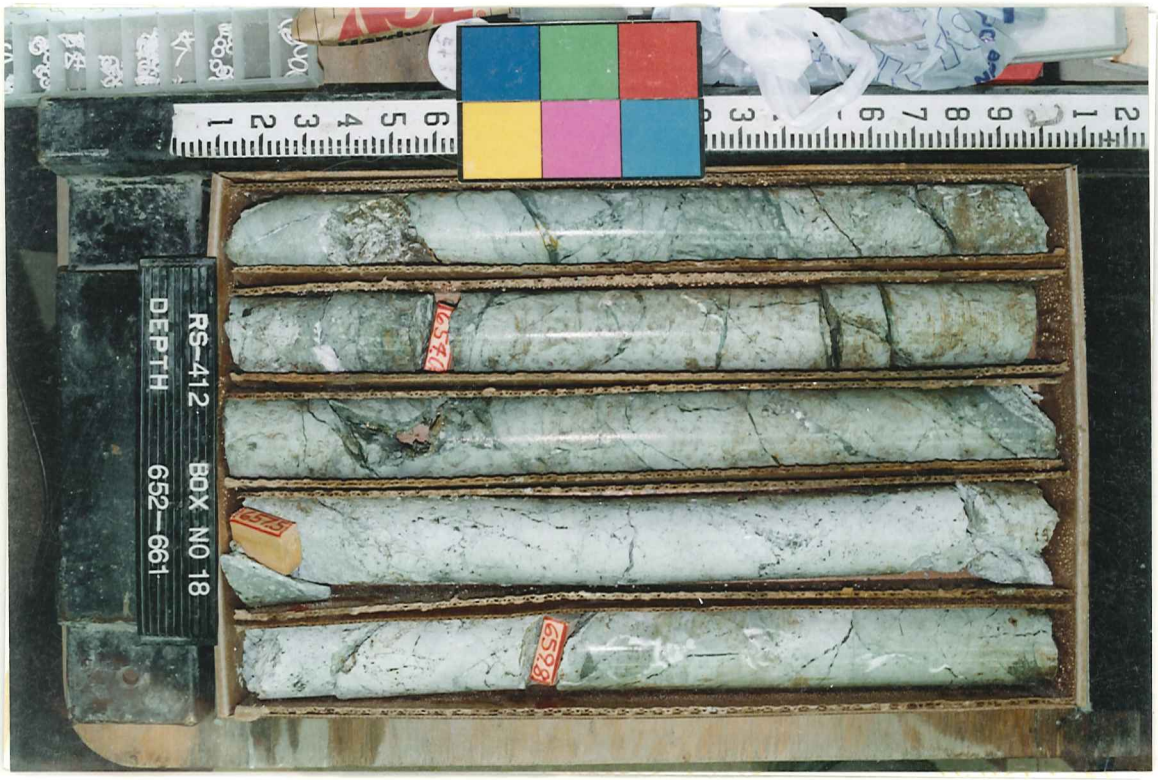

610.8
6084
RS-412 BOX NO 13
DEPTH 608.5–616.4

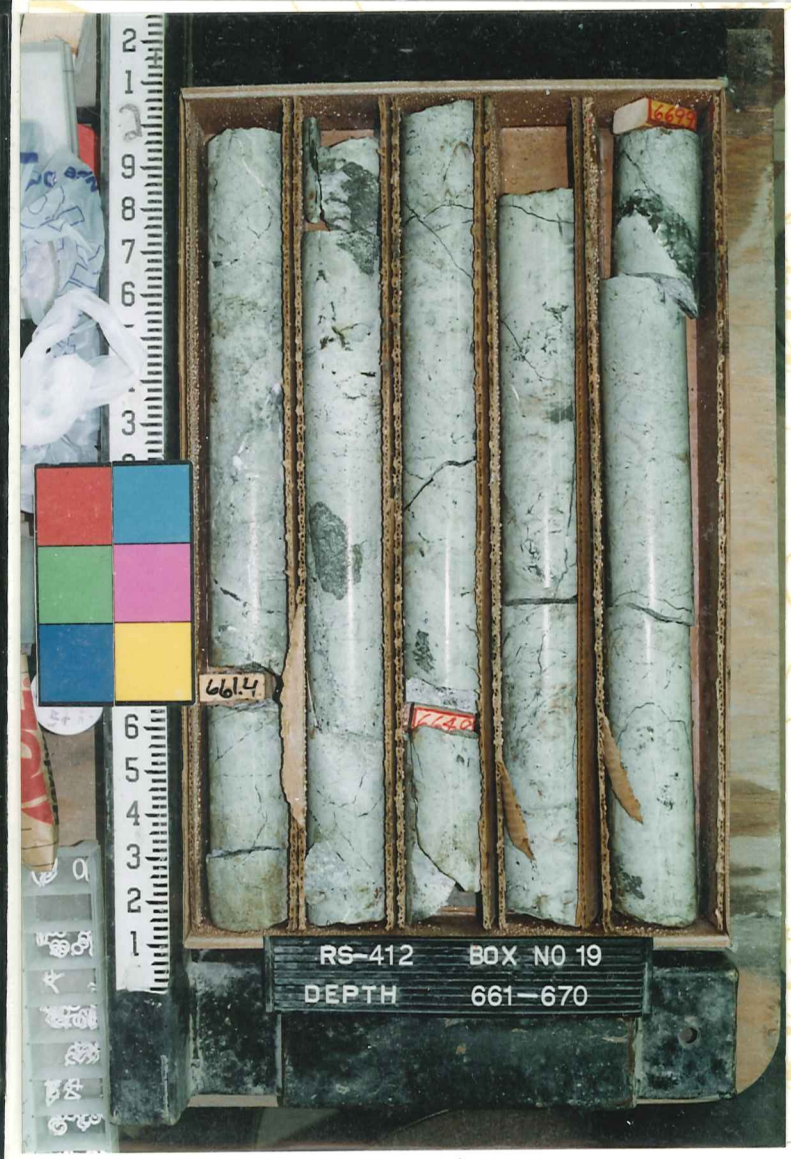

630.
RS-412 BOX NO 14
DEPTH 616.4–625.4

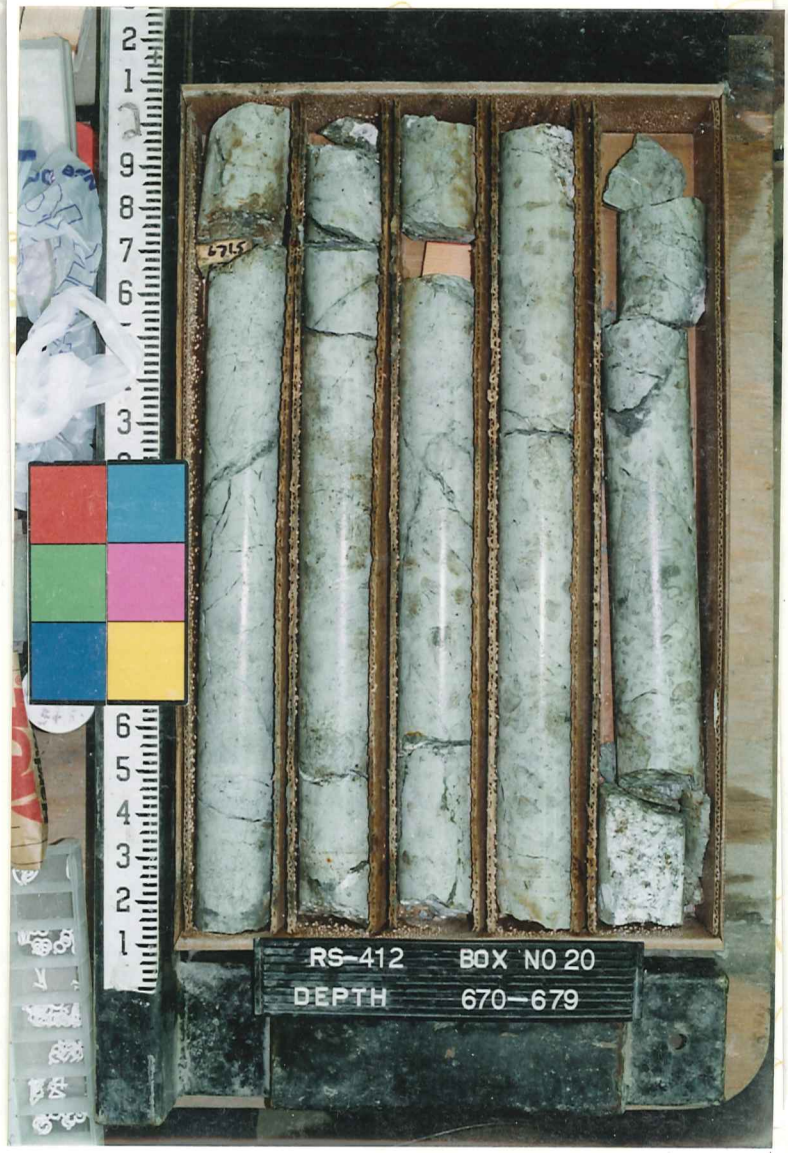

6295
6308
RS-412 BOX NO 15
DEPTH 625.4–634.6

RS-412 BOX NO 16
DEPTH 6346-6424
6341.4
6368
6392

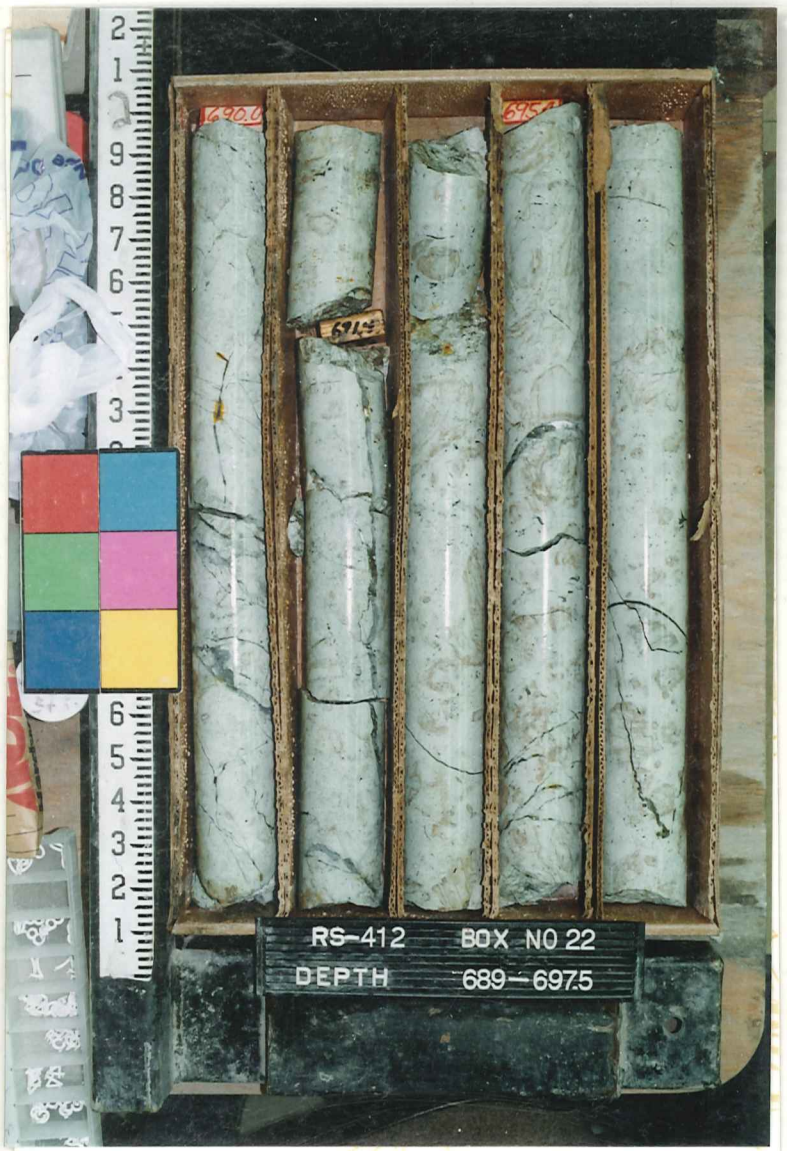

RS-412 BOX NO 17
DEPTH 6424-652
6441


RS-412 BOX NO 18
DEPTH 652-661

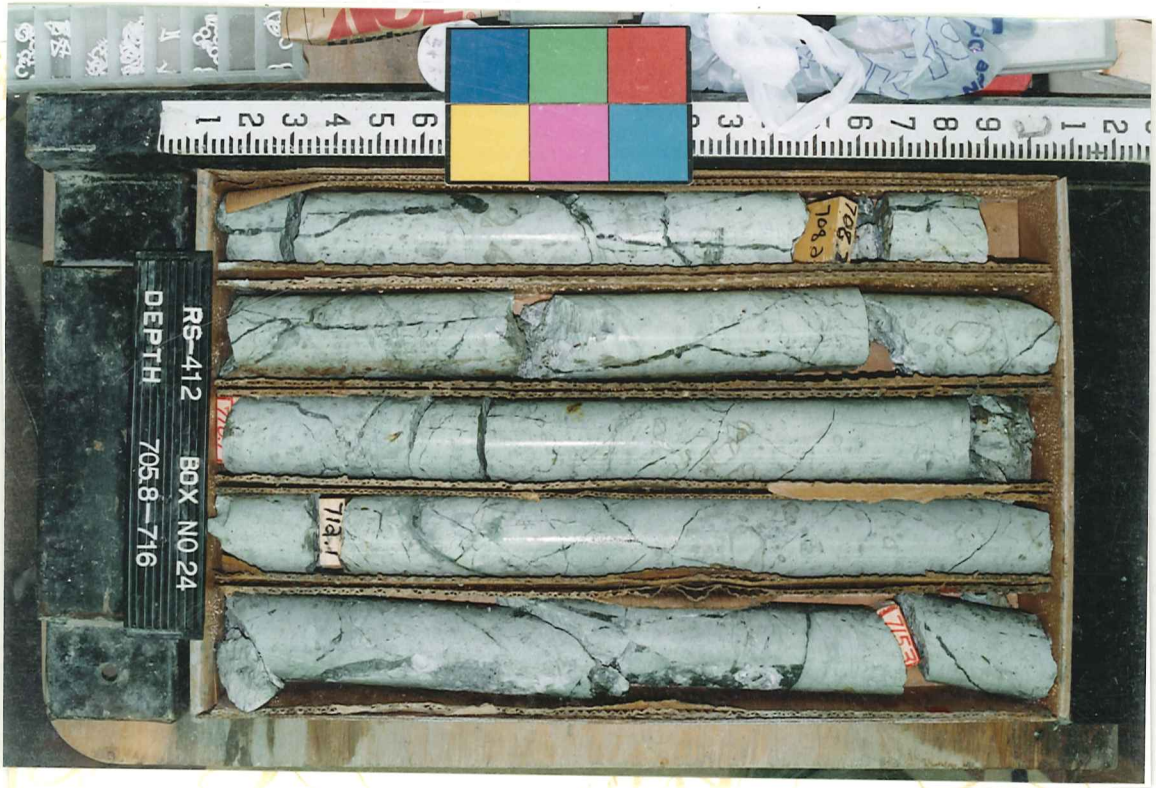

RS-412 BOX NO 19
DEPTH 661-670
661.4


RS-412 BOX NO 20
DEPTH 670-679

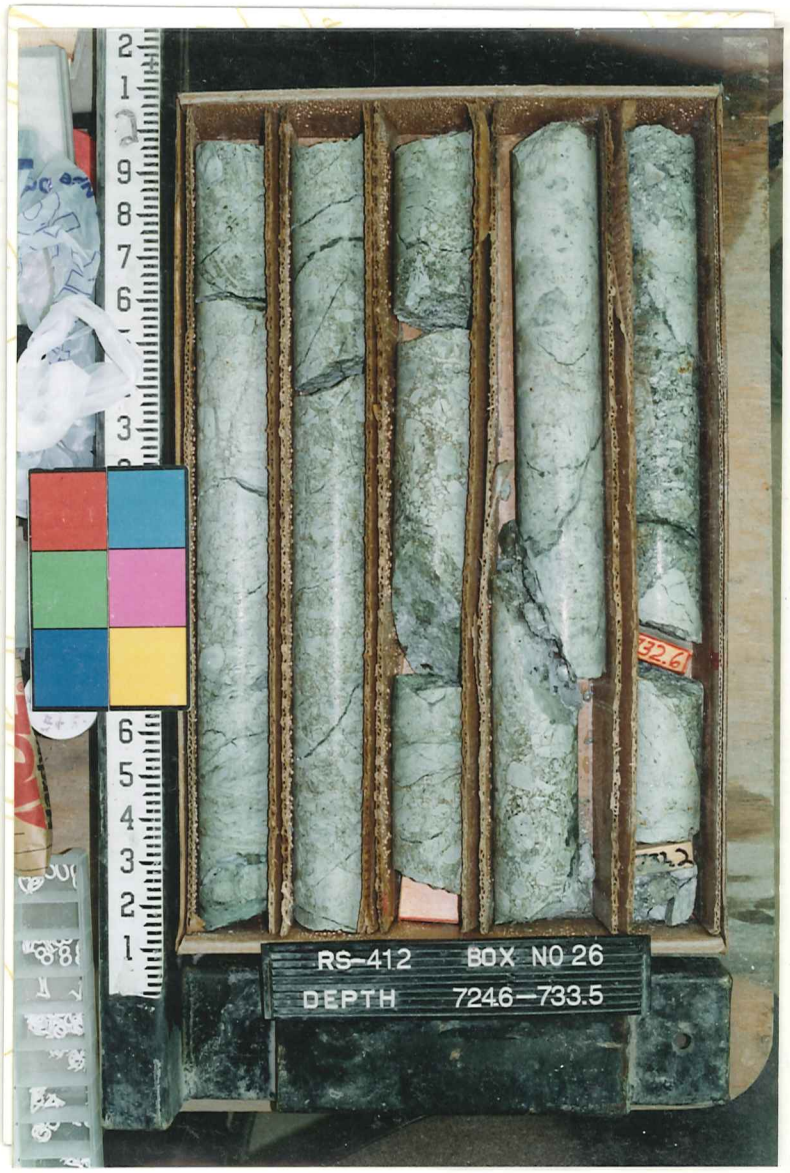
RS-412 BOX NO 21
DEPTH 679-689

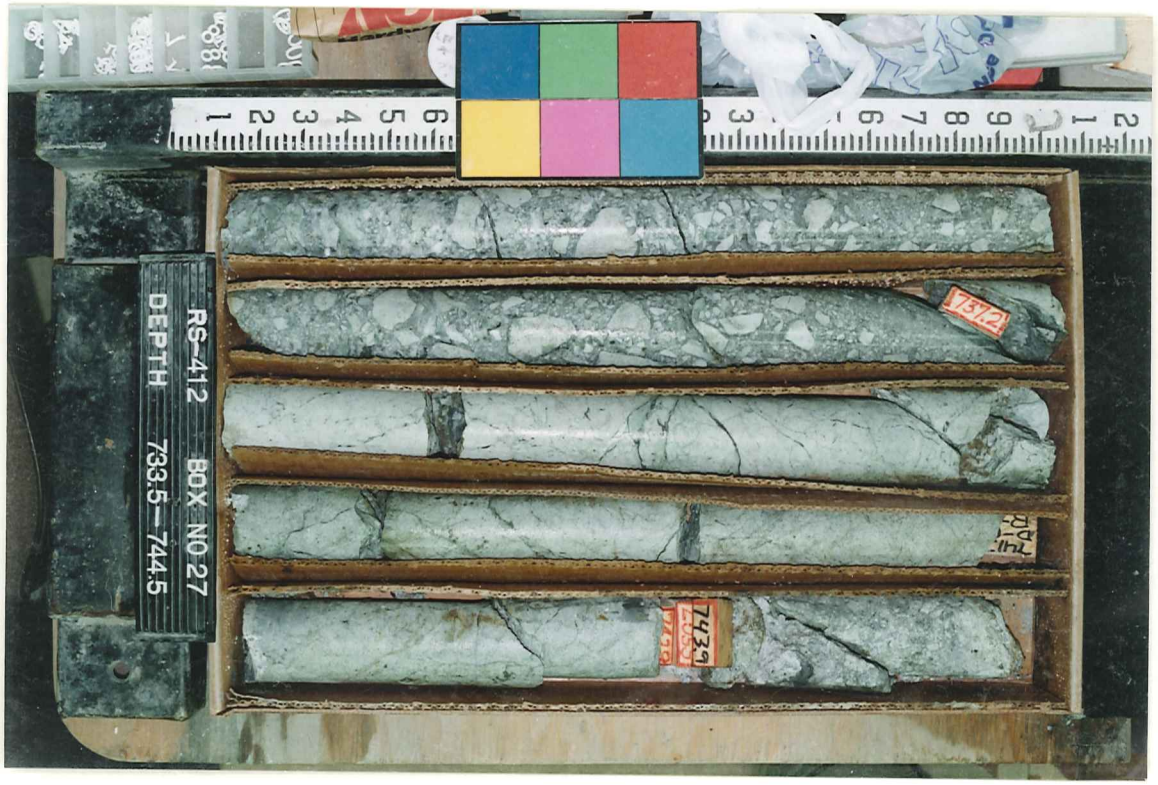

RS-412 BOX NO 22
DEPTH 689—697.5

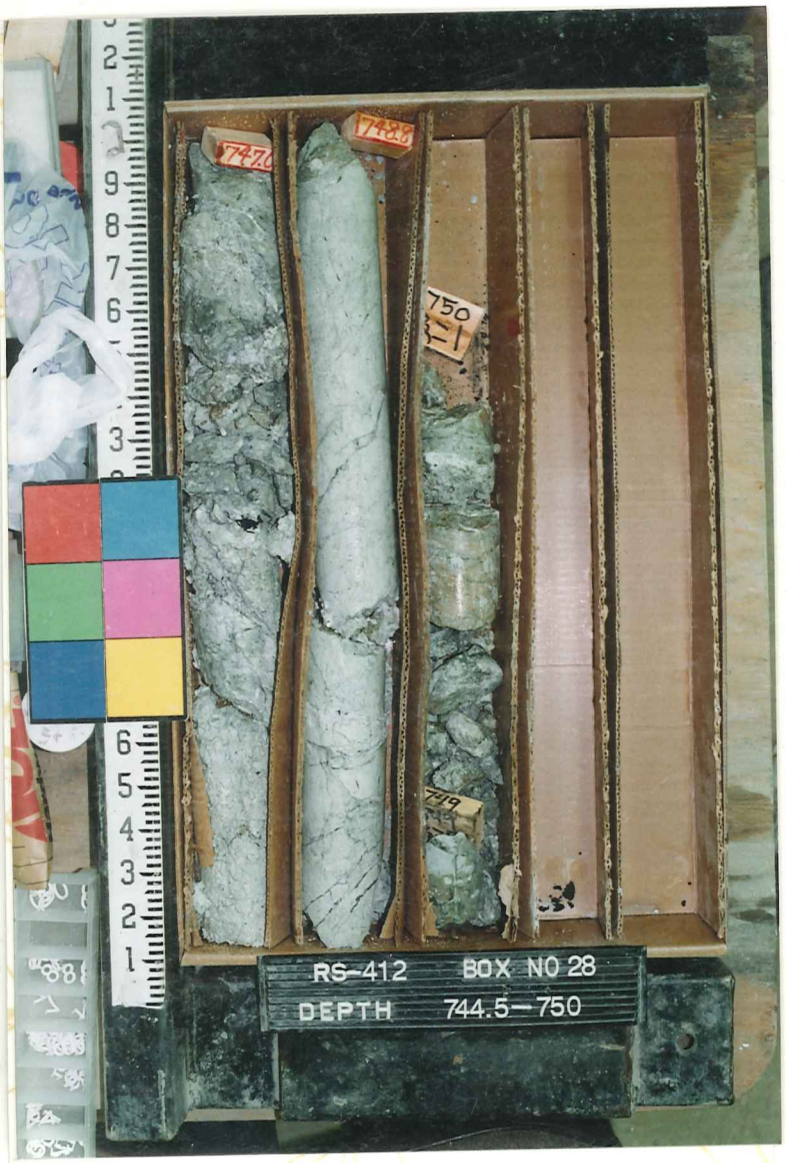
RS-412 BOX NO 23
DEPTH 697.5—705.8


RS-412 BOX NO 24
DEPTH 705.8—716

RS-412 BOX NO 25
DEPTH 716—724.6


RS-412 BOX NO 26
DEPTH 724.6—733.5


RS-412 BOX NO 27
DEPTH 733.5—744.5


RS-412 BOX NO 28
DEPTH 744.5—750