60000517

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-411
AUTHOR	C. Ballew; R. Lisle, R. Vance; K. Allen; S. King; G. Langstadt; J. Welch
DATE OF DOC(S)	1997-1998
MULTI_DIST Y / (N?) Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Newmont Gold Co.; Newmont Exploration, Ltd; Hecla Mining Co.
COMMODITY If not obvious	gold; silver
NOTES	drill logs; geology; assay; geochemistry photographs; total depth 500'; invoices 91 p.

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

SS: DD 3/18/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

RS-411

60000517
4010

6000 0517

NEWMONT EXPLORATION LIMITED — DRILL HOLE SUMMARY

Project: Rosebud Location: Hecla's East Zone Drill Hole No.: RS-411

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

Purpose: Mine Geology Infill Results:

Date Started: 10/8/97 - 10/9/97 rc Date Finished: 11/15/97 - 11/19/97 core

Grid System: Northing: Easting: Elevation:

Collar Az/Inc.: / -90 Drill Site: Total Depth: 677

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	677	core / HQ			Boart-Longyear
		/			
		/			

LITHOLOGIC SUMMARY

From	To	Formation	Rock Type

ALTERATION/ MINERALIZATION

SIGNIFICANT ASSAYS

From	To	Width	Au oz/st	Cutoff

DOWNHOLE SURVEYS

Directional Date:

Other

Depth (ft)	Azimuth	Inclination
670	31.4' @ 51°	-85.2

Water Table Depth:

Water Flow Rate:

COMMENTS

see Welnar survey

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046804

American Assay Laboratories

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

NEWMONT GOLD COMPANY

COPIES TO : RANDY VANCE

: KURT ALLEN

:

:

CLIENT REFERENCE No: RS-411 RECEIVED : 17 OCT 1997

No. SAMPLES : 102 REPORTED : 17 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 SP046804

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-411

REPORTED : 17 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-411 00-05	49		0.001		0.6	<0.02
RS-411 05-10	6		<0.001		<0.5	<0.02
RS-411 10-15	59		0.002		0.6	<0.02
RS-411 15-20	60		0.002		0.6	<0.02
RS-411 20-25	122		0.004		1.7	0.05
RS-411 25-30	307		0.009		1.2	0.04
RS-411 30-35	179		0.005		1.1	0.03
RS-411 35-40	177		0.005		2.3	0.07
RS-411 40-45	71		0.002		0.9	0.03
RS-411 45-50	118		0.003		1.0	0.03
RS-411 50-55	91		0.003		1.3	0.04
RS-411 55-60	937		0.027		1.0	0.03
RS-411 60-65B	106		0.003		<0.5	<0.02
RS-411 60-65	482		0.014		1.8	0.05
RS-411 65-70	295		0.009		2.1	0.06
RS-411 70-75	995		0.029		3.0	0.09
RS-411 75-80	470		0.014		2.9	0.08
RS-411 80-85	186		0.005		3.1	0.09
RS-411 85-90	292		0.009		2.9	0.08
RS-411 90-95	142	138	0.004	0.004	2.4	0.07
RS-411 95-100	464		0.014		3.4	0.10
RS-411 100-105	334	348	0.010	0.010	3.5	0.10
RS-411 105-110	210		0.006		4.1	0.12
RS-411 110-115	204		0.006		3.8	0.11
RS-411 115-120	180		0.005		3.0	0.09

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PROJECT : ROSEBUD
REFERENCE : RS-411

REPORTED : 17 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-411 120-125	184		0.005		3.2	0.09
RS-411 125-130	184		0.005		3.5	0.10
RS-411 130-135	132		0.004		4.2	0.12
RS-411 135-140	60		0.002		2.4	0.07
RS-411 135-140B	100		0.003		<0.5	<0.02
RS-411 140-145	118		0.003		3.0	0.09
RS-411 145-150	82		0.002		3.1	0.09
RS-411 150-155	154		0.004		2.8	0.08
RS-411 155-160	54		0.002		2.5	0.07
RS-411 160-165	116		0.003		2.9	0.08
RS-411 165-170	100		0.003		3.2	0.09
RS-411 170-175	184		0.005		3.2	0.09
RS-411 175-180	274	290	0.008	0.008	2.6	0.08
RS-411 180-185	300		0.009		1.8	0.05
RS-411 185-190	618	640	0.018	0.019	2.4	0.07
RS-411 190-195	675		0.020		3.7	0.11
RS-411 195-200	185		0.005		2.9	0.08
RS-411 200-205	175		0.005		3.3	0.10
RS-411 205-210	1870		0.055		5.0	0.15
RS-411 210-215	262		0.008		1.0	0.03
RS-411 215-220	73		0.002		1.7	0.05
RS-411 220-225	14		<0.001		0.5	<0.02
RS-411 225-230	5		<0.001		0.5	<0.02
RS-411 230-235	202		0.006		2.0	0.06
RS-411 235-240	12		<0.001		0.7	0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046804

American Assay Laboratories

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PROJECT : ROSEBUD
REFERENCE : RS-411

REPORTED : 17 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-411 240-245	11		<0.001		<0.5	<0.02
RS-411 245-250	<5		<0.001		<0.5	<0.02
RS-411 250-255	136	130	0.004	0.004	1.7	0.05
RS-411 255-260	31		<0.001		1.4	0.04
RS-411 260-265	53		0.002		1.2	0.04
RS-411 265-270	27		<0.001		0.8	0.02
RS-411 270-275	46		0.001		1.2	0.04
RS-411 275-280	57		0.002		1.4	0.04
RS-411 280-285	118		0.003		2.2	0.06
RS-411 285-290	82		0.002		1.4	0.04
RS-411 290-295	194		0.006		2.5	0.07
RS-411 295-300	96		0.003		2.3	0.07
RS-411 300-305	62		0.002		2.3	0.07
RS-411 305-310	111		0.003		1.3	0.04
RS-411 310-315	23		<0.001		0.9	0.03
RS-411 315-320	<5		<0.001		0.8	0.02
RS-411 320-325	<5		<0.001		<0.5	<0.02
RS-411 325-330	12		<0.001		<0.5	<0.02
RS-411 330-335	<5		<0.001		<0.5	<0.02
RS-411 335-340	<5		<0.001		<0.5	<0.02
RS-411 340-345	<5		<0.001		<0.5	<0.02
RS-411 345-350	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-411 350-355	<5		<0.001		<0.5	<0.02
RS-411 355-360	<5		<0.001		<0.5	<0.02
RS-411 360-365	<5		<0.001		0.7	0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046804

American Assay Laboratories

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REFERENCE : RS-411

REPORTED : 17 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-411 365-370	35		0.001		0.6	<0.02
RS-411 370-375	<5		<0.001		<0.5	<0.02
RS-411 375-380	<5		<0.001		<0.5	<0.02
RS-411 380-385	<5		<0.001		<0.5	<0.02
RS-411 385-390	<5		<0.001		<0.5	<0.02
RS-411 390-395	32		<0.001		1.5	0.04
RS-411 395-400	30		<0.001		1.3	0.04
RS-411 400-405	<5		<0.001		<0.5	<0.02
RS-411 405-410	<5		<0.001		<0.5	<0.02
RS-411 410-415	<5		<0.001		<0.5	<0.02
RS-411 415-420	<5		<0.001		<0.5	<0.02
RS-411 420-425	<5		<0.001		<0.5	<0.02
RS-411 425-430	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-411 425-430B			INSUFFICIENT SAMPLE			
RS-411 430-435	<5		<0.001		<0.5	<0.02
RS-411 435-440	<5		<0.001		<0.5	<0.02
RS-411 440-445	<5		<0.001		<0.5	<0.02
RS-411 445-450	<5		<0.001		0.9	0.03
RS-411 450-455	<5		<0.001		2.4	0.07
RS-411 455-460	<5		<0.001		0.6	<0.02
RS-411 460-465	<5	<5	<0.001	<0.001	0.6	<0.02
RS-411 465-470	<5		<0.001		0.5	<0.02
RS-411 470-475	<5		<0.001		<0.5	<0.02
RS-411 475-480	<5		<0.001		0.6	<0.02
RS-411 480-485	<5	<5	<0.001	<0.001	0.5	<0.02

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SAMPLES	Au FA30 ppb	Au(R) FA30 ppb	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag D210 ppm	Ag(OZ) D210 OPT
RS-411 485-490	<5		<0.001		0.5	<0.02
RS-411 490-495	<5		<0.001		0.5	<0.02
RS-411 495-500	<5	<5	<0.001	<0.001	<0.5	<0.02

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AAL 01-2 ICP PACKAGE DETECTION LIMITS

ELEMENT SAMPLES	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppb	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
	0.3	0.01	2	3	1	2	0.01	0.2	1	1	1	0.01	5	0.01	1	0.01	2	1	0.01	1	0.001	3	2	1	2	0.01	5	1	2	1

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

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431
PHONE: (702) 356-0606
FAX: (702) 356-1413

CLIENT: *NEWMONT EXPLORATION*
CLIENT REF: ROSEBUD MINE
AAL REF: SP046804
METHOD: AAL 01-2

ELEMENT SAMPLES	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppb	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
RS-411 00-20	0.8	1.44	34	10	178	< 3	0.49	< .2	3	9	13	2.84	50	0.41	29	0.25	392	2	0.11	7	0.04	23	< 3	77	7	0.05	< 8	21	< 2	55
RS-411 20-40	0.8	1.07	146	3	180	< 3	0.22	< .2	1	2	7	2.19	25	0.45	27	0.06	50	3	0.08	2	0.018	28	6	104	8	< .01	< 8	3	< 2	10
RS-411 40-60	0.4	0.82	153	3	135	< 3	0.17	0.2	1	4	10	2.37	35	0.43	19	0.04	50	5	0.05	3	0.025	25	7	181	6	< .01	< 8	2	< 2	11
RS-411 60-65B	< .3	1.4	702	9	360	< 3	1.04	1.1	7	55	87	2.97	8060	0.29	18	0.25	267	9	0.02	35	0.104	16	34	70	4	0.01	< 8	155	2	70
RS-411 60-80	1.6	1.05	171	< 3	21	< 3	0.2	1.1	4	3	9	2.61	50	0.36	22	0.04	36	2	0.02	4	0.018	28	7	115	7	< .01	< 8	2	< 2	49
RS-411 80-100	2.6	1.58	175	< 3	20	< 3	0.21	0.4	11	2	8	2.88	60	0.39	23	0.05	30	2	0.01	10	0.012	29	12	93	7	< .01	< 8	2	< 2	474
RS-411 100-120	2.8	1.09	288	< 3	18	< 3	0.22	0.3	3	3	9	2.9	45	0.29	23	0.04	53	2	0.01	6	0.013	26	13	114	7	< .01	< 8	1	< 2	160
RS-411 120-140	2.6	1.24	200	< 3	19	< 3	0.23	0.2	1	2	7	2.75	35	0.39	22	0.04	48	2	0.01	2	0.016	26	9	156	8	< .01	< 8	2	< 2	78
RS-411 135-140B	< .3	1.45	738	10	392	< 3	1.09	1.2	8	58	93	3.14	7630	0.3	19	0.26	279	10	0.02	38	0.108	18	36	73	5	0.01	< 8	163	2	74
RS-411 140-160	2.1	1.14	117	< 3	19	< 3	0.27	0.3	1	2	8	2.72	25	0.42	25	0.05	49	1	0.01	2	0.023	31	8	135	8	< .01	< 8	2	< 2	77
RS-411 160-180	2.5	0.92	179	< 3	35	< 3	0.35	0.4	1	2	9	3.17	15	0.39	24	0.05	291	2	0.03	2	0.039	25	6	18	7	< .01	< 8	2	< 2	102
RS-411 180-200	2.1	0.99	142	< 3	21	< 3	0.33	0.2	2	2	8	2.56	25	0.39	22	0.04	140	3	0.02	2	0.026	28	7	115	7	< .01	< 8	2	< 2	93
RS-411 200-220	2	1.38	101	< 3	34	< 3	0.35	0.3	1	2	8	2.88	< 10	0.54	29	0.06	77	2	0.02	2	0.037	37	9	62	8	< .01	< 8	3	< 2	90
RS-411 220-240	0.7	0.85	41	< 3	31	< 3	0.72	0.2	1	1	6	2.59	15	0.37	27	0.04	552	2	0.03	1	0.042	23	5	36	9	< .01	< 8	2	< 2	106
RS-411 240-260	0.7	0.91	29	< 3	43	< 3	0.55	0.2	1	2	7	2.9	20	0.35	28	0.04	877	2	0.03	2	0.04	28	4	42	10	< .01	< 8	4	< 2	133
RS-411 260-280	0.6	1.05	24	< 3	15	< 3	0.29	0.2	1	2	7	2.79	20	0.46	26	0.04	63	1	0.02	2	0.036	30	6	123	8	< .01	< 8	2	< 2	159
RS-411 280-300	1.4	0.77	49	< 3	23	< 3	0.24	< .2	12	3	7	2.81	30	0.3	24	0.03	53	2	0.01	23	0.036	31	10	306	8	< .01	< 8	1	< 2	422
RS-411 300-320	1	1.09	19	< 3	36	< 3	0.27	0.2	2	2	8	2.56	15	0.44	28	0.04	54	2	0.01	4	0.024	45	8	173	10	< .01	< 8	2	< 2	107
RS-411 320-340	< .3	1.03	7	< 3	66	< 3	0.44	0.2	1	3	7	2.96	20	0.35	34	0.05	1609	2	0.03	2	0.04	26	5	88	11	< .01	< 8	5	< 2	113
RS-411 340-360	< .3	0.73	3	< 3	41	< 3	1.91	0.3	1	3	6	2.38	20	0.32	36	0.04	1000	2	0.03	2	0.043	30	< 3	102	11	0.03	< 8	8	< 2	54
RS-411 360-380	< .3	0.93	7	< 3	34	< 3	1.13	0.3	1	3	8	2.55	10	0.34	32	0.05	822	2	0.03	2	0.041	35	4	73	10	< .01	< 8	5	< 2	54
RS-411 380-400	0.5	0.81	7	< 3	25	< 3	1.05	0.4	1	2	7	2.84	< 10	0.24	30	0.05	629	2	0.03	1	0.042	30	4	65	9	< .01	< 8	5	< 2	46
RS-411 400-420	< .3	0.75	2	< 3	64	< 3	1.61	0.3	1	3	7	2.54	20	0.26	36	0.04	731	2	0.04	1	0.043	22	< 3	137	10	0.03	< 8	7	< 2	44
RS-411 420-440	< .3	0.55	3	3	39	< 3	1.53	0.3	1	2	7	2.39	< 10	0.25	34	0.04	911	1	0.03	1	0.041	35	3	106	10	0.04	< 8	8	2	50
RS-411 425-430B	< .3	1.41	722	9	422	< 3	1.08	1.3	7	57	93	3.07	7950	0.3	18	0.25	277	10	0.02	37	0.106	15	34	70	5	0.01	< 8	160	2	73
RS-411 440-460	< .3	0.56	5	3	49	< 3	1.55	0.4	< 1	3	8	2.5	< 10	0.26	34	0.04	759	1	0.04	2	0.039	24	4	124	11	0.05	< 8	9	2	36
RS-411 460-480	< .3	0.5	2	< 3	51	< 3	1.54	0.4	< 1	3	7	2.53	< 10	0.26	36	0.03	693	1	0.05	1	0.041	30	4	123	10	0.05	< 8	7	2	31
RS-411 480-500	< .3	0.49	3	3	59	< 3	1.46	0.4	1	3	7	2.45	< 10	0.26	35	0.03	606	2	0.04	2	0.041	29	3	100	9	0.05	< 8	7	< 2	28
STANDARD C3	5.3	1.86	54	19	146	20	0.57	23.5	12	172	66	3.49	870	0.15	20	0.59	747	26	0.04	38	0.085	37	15	28	19	0.1	19	83	19	156
STANDARD G-1	< .3	1.02	4	< 3	257	< 3	0.6	< .2	4	90	3	2.16	10	0.48	8	0.64	574	2	0.07	9	0.075	4	< 3	68	3	0.15	< 8	44	< 2	43

unaltered, hbl-phyric, massive, microporphyritic flow/intrusion
Ca >> K > Na, andesite? or feldspar not digested

SP

SUBMITTAL FORM

American Assay Laboratories

Geochemical • Environmental • Metallurgical

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(702) 738-2594

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

Other Offices
Lima, Peru
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: 10/16/97 Number of Samples: 103

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

SAMPLE IDENTIFICATION	TYPE	ELEMENTS REQUIRED
RS-411	RC	Au/Ag FA/AA each sample (5')
0-500' T.D. (100 samples)		
+65B		
+140B		
+430B		
65B		
140B		430B

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 Rastelic/Randy Vance
Rosebud Mine

Results to:

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

Comments:

CLIENT FILE COPY

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT EXPLORATION LTD. *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-411

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/17/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 096.50

WELLNAV

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/670' T/700'.

****
****
*** 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-411

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R CLOS.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION	TEMP. DEG. F.
50.0	50.00	0.11	-0.293	-89.28	341.83	0.30 N	0.10 W	1.44	0.72	0.31	AT 341.83	060.60
100.0	99.99	0.43	-1.068	-88.80	343.28	1.10 N	0.35 W	0.96	0.48	1.15	AT 342.49	060.46
150.0	149.98	1.14	-1.833	-88.67	021.52	2.14 N	0.28 W	1.68	0.84	2.16	AT 352.43	060.39
200.0	199.96	2.59	-2.218	-87.82	044.30	3.36 N	0.59 E	2.17	1.08	3.41	AT 010.00	060.32
250.0	249.92	4.54	-2.120	-87.65	061.87	4.52 N	2.16 E	1.42	0.71	5.01	AT 025.53	060.46
300.0	299.87	6.63	-1.598	-87.41	067.00	5.45 N	4.10 E	0.65	0.33	6.82	AT 036.99	060.39
350.0	349.81	8.96	-0.942	-87.04	065.63	6.42 N	6.32 E	0.75	0.38	9.01	AT 044.54	060.39
400.0	399.74	11.59	-0.256	-86.73	064.73	7.56 N	8.79 E	0.63	0.31	11.59	AT 049.27	060.24
450.0	449.65	14.49	0.217	-86.50	055.18	9.04 N	11.33 E	1.22	0.61	14.50	AT 051.40	060.10
500.0	499.53	18.03	0.326	-85.38	050.12	11.21 N	14.13 E	2.35	1.17	18.03	AT 051.58	060.10
550.0	549.38	21.91	0.275	-85.72	049.45	13.71 N	17.09 E	0.69	0.34	21.91	AT 051.26	060.24
600.0	599.23	25.71	0.240	-85.55	050.55	16.16 N	20.01 E	0.38	0.19	25.72	AT 051.08	060.46
650.0	649.07	29.75	0.137	-85.19	047.70	18.80 N	23.05 E	0.85	0.43	29.75	AT 050.80	061.11
670.0	669.00	31.43	0.070	-85.16	048.85	19.92 N	24.31 E	0.51	0.10	31.43	AT 050.67	063.91
700.0	698.89	33.97	-0.002	-85.13	048.97	21.59 N	26.22 E	0.11	0.03	33.97	AT 050.54	063.98

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*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   700.0 FEET EQUALS     33.97    FEET AT   050.54         *
*                          ********                         *
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

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* NEWMONT EXPLORATION LTD. *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/17/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 096.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/670' T/700'.

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*** THIS DIRECTIONAL SURVEY REPORT IS ****
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* 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-411 -/ 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	0.19	-0.251	-89.28	341.83	0.30 N	0.10 W	1.44	0.72	0.31	AT 341.83	060.60
100.0	99.99	0.70	-0.914	-88.80	343.28	1.10 N	0.35 W	0.96	0.48	1.15	AT 342.49	060.46
150.0	149.98	1.59	-1.460	-88.67	021.52	2.14 N	0.28 W	1.68	0.84	2.16	AT 352.43	060.39
200.0	199.96	3.09	-1.442	-87.82	044.30	3.36 N	0.59 E	2.17	1.08	3.41	AT 010.00	060.32
250.0	249.92	4.95	-0.825	-87.65	061.87	4.52 N	2.16 E	1.42	0.71	5.01	AT 025.53	060.46
300.0	299.87	6.82	0.237	-87.41	067.00	5.45 N	4.10 E	0.65	0.33	6.82	AT 036.99	060.39
350.0	349.81	8.89	1.494	-87.04	065.63	6.42 N	6.32 E	0.75	0.38	9.01	AT 044.54	060.39
400.0	399.74	11.24	2.859	-86.73	064.73	7.56 N	8.79 E	0.63	0.31	11.59	AT 049.27	060.24
450.0	449.65	13.91	4.092	-86.50	055.18	9.04 N	11.33 E	1.22	0.61	14.50	AT 051.40	060.10
500.0	499.53	17.28	5.144	-85.38	050.12	11.21 N	14.13 E	2.35	1.17	18.03	AT 051.58	060.10
550.0	549.38	21.03	6.135	-85.72	049.45	13.71 N	17.09 E	0.69	0.34	21.91	AT 051.26	060.24
600.0	599.23	24.71	7.121	-85.55	050.55	16.16 N	20.01 E	0.38	0.19	25.72	AT 051.08	060.46
650.0	649.07	28.62	8.101	-85.19	047.70	18.80 N	23.05 E	0.85	0.43	29.75	AT 050.80	061.11
670.0	669.00	30.26	8.488	-85.16	048.85	19.92 N	24.31 E	0.51	0.10	31.43	AT 050.67	063.91
700.0	698.89	32.73	9.098	-85.13	048.97	21.59 N	26.22 E	0.11	0.03	33.97	AT 050.54	063.98

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*                         ********                          *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                         ********                          *
*  700.0 FEET EQUALS    33.97   FEET AT   050.54            *
*                         ********                          *
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

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* NEWMONT EXPLORATION LTD. *
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JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/17/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 096.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00

WELNAV

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/670' T/700'.

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** CORRECT TO THE BEST OF MY KNOWLEDGE ***
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COMPANY REPRESENTATIVE
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-411 / 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	-0.25	-0.188	-89.28	341.83	0.30 N	0.10 W	1.44	0.72	0.31	AT 341.83	060.60
100.0	99.99	-0.91	-0.701	-88.80	343.28	1.10 N	0.35 W	0.96	0.48	1.15	AT 342.49	060.46
150.0	149.98	-1.46	-1.590	-88.67	021.52	2.14 N	0.28 W	1.68	0.84	2.16	AT 352.43	060.39
200.0	199.96	-1.44	-3.092	-87.82	044.30	3.36 N	0.59 E	2.17	1.08	3.41	AT 010.00	060.32
250.0	249.92	-0.82	-4.945	-87.65	061.87	4.52 N	2.16 E	1.42	0.71	5.01	AT 025.53	060.46
300.0	299.87	0.24	-6.818	-87.41	067.00	5.45 N	4.10 E	0.65	0.33	6.82	AT 036.99	060.39
350.0	349.81	1.49	-8.887	-87.04	065.63	6.42 N	6.32 E	0.75	0.38	9.01	AT 044.54	060.39
400.0	399.74	2.86	-11.236	-86.73	064.73	7.56 N	8.79 E	0.63	0.31	11.59	AT 049.27	060.24
450.0	449.65	4.09	-13.907	-86.50	055.18	9.04 N	11.33 E	1.22	0.61	14.50	AT 051.40	060.10
500.0	499.53	5.14	-17.283	-85.38	050.12	11.21 N	14.13 E	2.35	1.17	18.03	AT 051.58	060.10
550.0	549.38	6.13	-21.034	-85.72	049.45	13.71 N	17.09 E	0.69	0.34	21.91	AT 051.26	060.24
600.0	599.23	7.12	-24.710	-85.55	050.55	16.16 N	20.01 E	0.38	0.19	25.72	AT 051.08	060.46
650.0	649.07	8.10	-28.623	-85.19	047.70	18.80 N	23.05 E	0.85	0.43	29.75	AT 050.80	061.11
670.0	669.00	8.49	-30.261	-85.16	048.85	19.92 N	24.31 E	0.51	0.10	31.43	AT 050.67	063.91
700.0	698.89	9.10	-32.725	-85.13	048.97	21.59 N	26.22 E	0.11	0.03	33.97	AT 050.54	063.98

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*                        ********                           *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                        ********                           *
*   700.0 FEET EQUALS    33.97   FEET AT  050.54            *
*                        ********                           *
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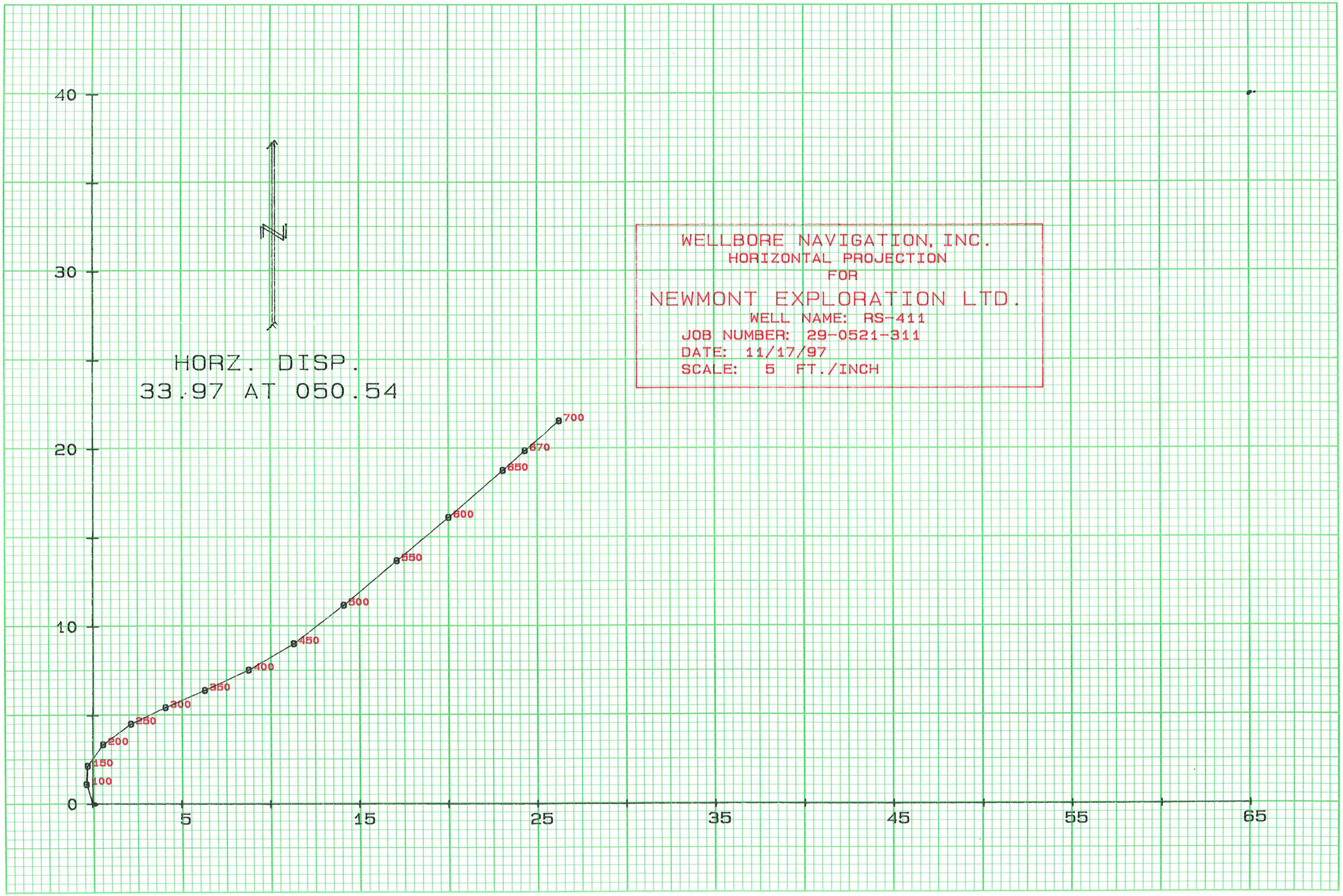

STARLIGHT PRINTING (801) 467-2841

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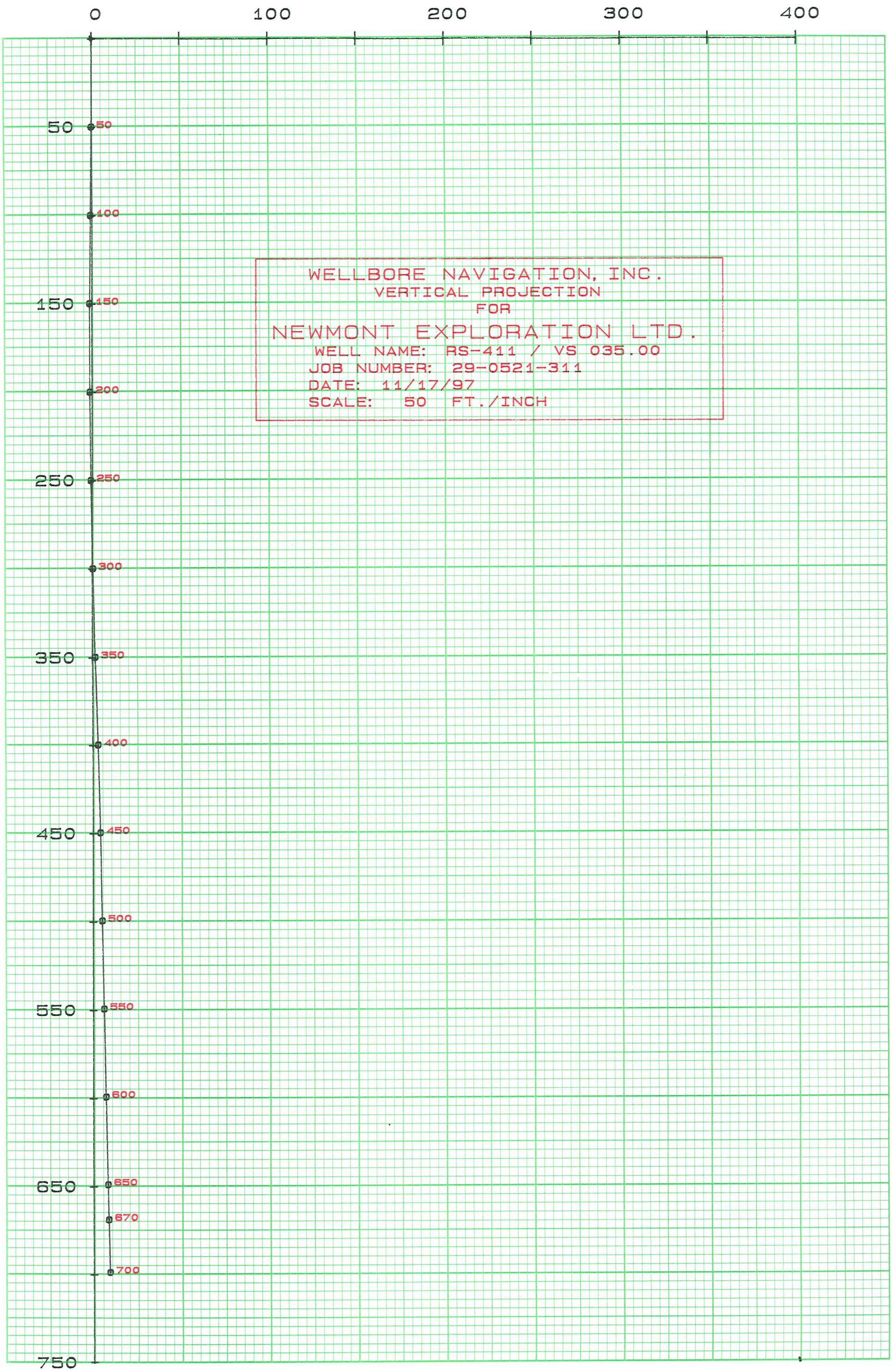

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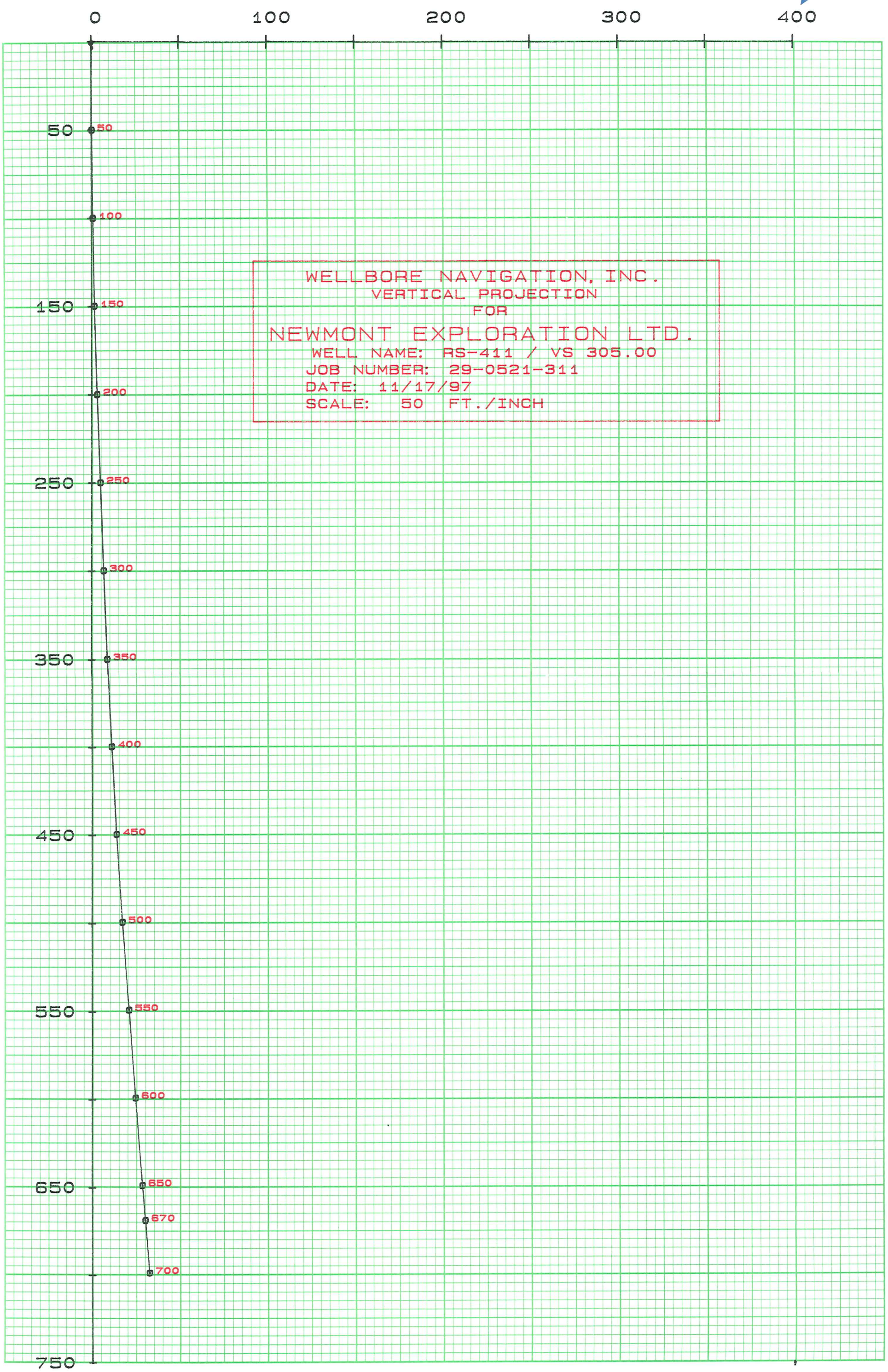

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 1 of 10
Log'd by: G. Langstaff Date: 10/14/97	County: Pershing	Easting:	Azimuth:	Elevation:	Core/Chips(Intervals): chips 0-500'	

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
			various																	colluvium		calcareous dirt to 15'		
			shades																					
			of dark																					
5			reddish																					
			browns																					
			5R4/2,																					
			10R4/2																					
10			in brown																					
			clay																					
																				?				
15			5GY7/2	Volc	vf	massive															TcFG	still lots of dark chips from colluvium		59
			to 5GG6/1			granular	<1	<1mm	long	dkgreen	hbl-schl?	w	dissem, phenos?	arg	white clay							to 25'		
			pale																			<.2mm pyrite(?) molds		
			greenish																			some whiter, aphanitic chips		
20			grey w/																					60
			local																					
			orange																					
			stain																					
25			+10YR6/6																					122
			orange				<1	1mm	pris	vitrgray	feldspar?					<1mm	rare	?	orange drusqtz			still some brown clay from above(?)		
			chips				<1	<.5mm	round	vitrgray	feldspar?					hair-line	rare	?	qtz			also some pale orange clay		
																						most orange chips more clay-rich and		
30																						crumbly but some granular qtz		307
35																								179.
			5YR7/2	Volc	v.f	granular,						w	dissem	arg	white clay	<2mm	rare	?	qtz		brecciated	pinker breccia (?) matrix cutting		
			5YR6/2			breccia						w	dissem	sil?	vf qtz	hair-line	rare	?	qtz		TcFG?	greener clasts or whiter rounded clasts up		
40			pinkish-grey																			to 3mm; still some orange chips		177.
			5YR7/2			granular										<3mm	common		qtz			hard, aphanitic white and cream chips		
			pinkish-grey			no? breccia										<2mm			orange clay + drusqtz					
			greener																					
45																								71
						more																hard white and cream chips		
						breccia																		
						textures																		
50																								118

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 2 of 10
Log'd by: G. Langstaff Date: 10/14/97	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
55			5GY7/1 greenish-gray w/ minor	Volc	vf	granular, massive & breccia	<3	up to 5 mm	sub-round	gray-white	volc. lithic	W W	dissem dissem	arg sil?	white clay vf qtz	<3mm	pres.	none	qtz		brecciated TcFG	breccia matrix is redder than clasts but orange is from orange clay and limonite stains; some greener chips w/dk green specks from above?		91
60			10YR 6/6 orange																					937
65							<1	1mm	square	pale green	feldspar→chl?											hard, greenish, aphanitic chip		482
70																hair-line	rare	?	qtz			first occurrence of pyrite-vf dissem cubes		295
75			5G 6/1-5B 5/1 greenish gray	? Volc	? vf	rare breccia texture ?						m w	dissem/vein dissem	arg sil	white clay vf/mc qtz	<2mm <3mm	pres. pres	? none	pyrite py+qtz		Tc FG	no more orange chips but hard white chips some pyrite in silicified breccia matrix		985
80						breccia texture not apparent, granular	<1 <1	<1mm <1mm	equant square	green pale green	hbl→chl? feld→chl?											bladed py/marc in vein qtz may avg 2-3% pyrite overall some hard white chips (clay qtz?) some veins w/pyrite core and qtz margins		470
85												w sil	dissem not evident	arg	white clay							1 chip redder chip with breccia texture pyrite mostly in veins		166
90							<1	1mm	oblong	green	feld→chl?					<2mm	rare		clay + drusy qtz			hard, white aphanitic chips		292
95																						many veins with pyrite cores, qtz margins		138 142
100																						bladed py/marc in vein qtz		464

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 3 of 10
Log'd by: G. Langstaff Date: 10/14/97	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	Δ	D D D D	5B7/1- 5B6/1, less 5G 6/1; all	Volc	vf/aph	massive, granular						W	dissem	py	pyrite	<5mm	pres.	none	pyrite		TcFG	many veins w/pyrite cores, qtz margins hard, white, aphanitic chips (clay, qtz?)		348
												W	dissem	arg	white clay		qtz may be		drusy					
												W	patchy	silt?	mc qtz									334
				rare	hydra	breccia!?	30	<.5mm	sub-ang sub-round	white	volc. lithic													
110		D D D D	pale grey w/green or blue tints		matrix-supp			qtz+pyrite in		matrix												rare greener chips		210
115		D D D D																				bladed py/marc in vein qtz		204
120	Δ	D D D D																				chips of pink, clayey, aphanitic volc. chip of brownish breccia		180
125		D D D D																				still many veins w/py core, qtz margins rare greener chips		184
130	Δ	D D D D																				chip of brownish breccia		184
135		D D D D																				pink clay with pyrite + qtz (vein?)		132
140		D D D D																				rare pink clay		60
145		D D D D																						100
150		D D D D																						118

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 4 of 10
Log'd by: G. Langstaff Date: 10/14/97	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
				See description, previous page																	TcFG			
																					↓			
155	△	◻	5G 7/1 to 5G 7/1	Volc	vf/fgn local	massive to breccia	20-100	up to 3mm?	subang subrnd	pale	volc. lithic	W W	dissem dissem	arg py	pale clay pyrite	<2mm	pres	none	py±qtz		TcLLT	many veins w/pyrite cores, qtz margins more pyrite in clasts than in breccia		82
160	△	◻	greenish gray w/ local 10R6/2			(jigsaw)	in	browner	siliceous matrix													matrix gradation from reddish-brown fractures to matrix-supported breccia		154
165	△	◻	reddish gray																					54
170	△	◻																						116
175	/	◻					<1	1.5mm	oblong	green	hbl-schl?											bladed py/mare in vein qtz breccia textures rare		100
180	△	◻																				pinker more aphanitic rock in sharp contact with greener granular rock, both have dissem pyrite slightly calcareous to 185'		184
185	△	◻																						290 274
190	△	◻																				more chips w/ breccia textures		300
195	△	◻														<3mm	com.	none	qtz±drusy			a lot more vein quartz and breccia chips in sample		640 618
200	△	◻																				much fewer qtz and breccia chips hard, white, aphanitic chip		675

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 5 of 10
Log'd by: G. Langstaff Date: 10/18/97	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
205			5G6/1-5G7/1-5B7/1 pale grey	Volc	vf-aph	massive, locally granular	<1	1mm	stubby	green	hbl→chl?	W W	dissem dissem	pyrite, arg	py cubes, white clay	<4mm	common	none?	pyrite ± white clay		TeFG	pyrite usually as core of qtz vein some greener chips, white clay(?) chip tarnished, fine, lumpy cpy(?) in qtz + clay veinlet		185
210	Δ?		[some 5GY7/1 greenish]				<1	1mm	stubby	green	hbl→chl?											browner chips possibly breccia matrix but rare		175
215	Δ?																					still a few rare brown chips		1870
220							<1	.5mm	stubby	green	hbl→chl?											some greener chips, some paler chips rare brown to cream chips bladed pylmara? in qtz		262
225							<1	<.5mm	chunky	red-brown	FeOx? after pyrite?											chips are greenish to very pale cream slightly calcareous		73
230			5GY8/1	Volc	vf	massive,																more dark qtz-py chips from veins(?) weakly calcareous		14
235			pale greenish grey			granular										[hairline	rare	none	qtz]			rare brown, aphanitic chip		5
240							<1	1.5mm	long	pale green	hbl/fld?											some clay chips of about same color possibly less disseminated pyrite than in greener rock above slightly calcareous		202
245							<1	1mm <.5mm	long chunky	green red-brown	hbl→chl? FeOx after pyrite?											less pyrite veins weakly calcareous		12
250																						slightly calcareous		11

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 6 of 10
Log'd by: G. Longstaff Date: 10/18/97	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
255			5GY8/1 5G8/1 pale greenish	Volc	aph-vf	massive, locally granular						m? w	dissem dissem	arg py	white clay pyrite	<1mm hairline <3mm	rare pres pres	none none ?	pale green? qtz py+qtz		TcFG	rare brown chips possibly local breccia matrix		6
260			grey				<1 <1	2mm .5mm	long platy?	dk green green	hbl? bi→chl?					<3mm	pres	?	py+qtz					130 136
265																								31
270							<1	1.5mm	long	pale green	hbl/feld?										variably brecciated TcFG	rare brown chips may be breccia matrix		
275																						rare brown chips and pale chips with brown veinlets		
280																						rare brown chips		57
285												possibly very weak silicification to 290'										more brown chips, some with white clasts (?) most pyrite in veins		118
290							<1	2mm	long	green	hbl→chl?											some brown chips with pyrite		
295												[weak silicification?]										significantly more vein pyrite than above, perhaps 3-5% overall, but negligible dissem pyrite		
300																						apparently more clay than above bladed py/mica?		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 7 of 10
Log'd by: G. Langstaff Date: 10/18/97	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
305			5G7/1-	Volc	vf	massive,	<1	≤1mm	round long	green	hbl/feld? → chl?	m	dissem	arg	white clay	<5mm	comm	none	py+qtz		variably	small brown chips and brown veinlets		
			5GY8/1			granular						w	dissem	pyrite	py cubes						brecciated	<.5mm		
			pale																		Tc FG			
			greenish																					
310			grey					rare green things														rare brown chips		
315																						rare brown chips, white clayey chips		
320																						rare brown chips		
325							<1	<1mm	prism	green	hbl>chl?										Tc FG	aphanitic, cream, clayey chip rare brown chips slightly calcareous to 330'		
330							<1	.5mm	stubby	green	chl?											rare, aphanitic, cream chips more dissem, less vein pyrite		
335												w	dissem	arg	white clay							rare, aphanitic, cream chips		
												w	dissem	py	pyrite									
340			10R3/2-	Volc	aph	massive,	<1	1.5mm	tab?	white	feldspar										unaltered	weakly calcareous to 350?		
345			5RP2/2			porphyritic	1-2	<.2mm	prism. specks	black	hbl					<1mm	rare	none?	calcite		Tc FG y feldspar	some reddish brown mottling some calcite in amygdales(?) or replacing phenos(?)		
350																						red clay suggests brecciation		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 8 of 10
Log'd by: G. Langstaff Date: 10/18/97	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
			5RP2/2	Volc	aph	massive,	<1	<1mm	irreg	clear/vitr	qtz?					<1mm	rare	none	calcite		unaltered	some calcite may be in amygdales		
			dusty			porphyr.	1	<.2mm	prism/needle	black	hbl										TcFG	weakly calcareous to 365'		
			red				<1	<.5mm	plate	black	bi?										w/feldspar			
355			5GY6/1	Volc	vf/aph	massive,						w	dissem	arg	whiteclay	<3mm	rare	?	py±qtz		TcFG	rare brown breccia matrix?		
			greenish			rarely	<1	1.5mm	prism,	green	hbl→chl?	w	dissem	pyrite	pycubes						w/feldspar?	rare, aphanitic, cream colored chips		
360			grey			granular																		
365																								
370			this interval paler																			slightly calcareous		
							<1	5mm	prism?	white	feldspar?											weakly calcareous to 400'		
375							<1	<.3mm	square	dk green	hbl?													
							<1	1.5mm	prism	green	hbl→chl?					<1mm	rare	?	calcite			no more pyrite veins?		
380																								
							<1	<.5mm	oblong	green	hbl→chl?											almost negligible pyrite		
385																								
							<1	1.5mm	long	green	hbl→chl?					<1mm	rare	?	calcite			much less argillic alteration and		
																<2mm	rare	?	py±qtz			dissem pyrite than 355-360'		
390																								
							<1	1mm	needle	green	hbl→chl?					<2mm	rare	?	py±qtz			more vein pyrite		
395																								
							<1	1.5mm	prism?	green	hbl→chl?													
400																								

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 9 of 10
Log'd by: G. Langstaff Date: 10/18/97	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
405			5GY6/1 greenish grey	Volc	vf/aph	massive	<1	1mm	prism	green	hbl → chl?	W	dissem	arg	white clay						Tc FG	minor brown, breccia matrix/vein lets only a trace of pyrite weakly calcareous to 450'		
410			5RP2/2 dusky purple	Volc	aph	massive, weakly microporphy	1	<1.2mm	prism specks	black	hbl?					<2mm	pres	none	calcite		Tc FG (hbl only)	some calcite my fill amygdales red and gray mottling some calcite in rock gmass 2mm green thing at top		
415																								
420																								
425																								
430			10R2/2 dusky red																			vein calcite chips up to 3mm interval has redder, less purple color		
435																						w/o gray mottling but texture and hbl microphenos look the same though less apparent		
440																								
445																								
450																						rare chips of reddish brown clay vf pyrite cube in one chip		

Project: ROSEBUD JV	State: Nevada	Northing:	Inclination:	Total Depth:	Hole No. RS-411	Page 10 of 10
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Depth (ft.)	GRAPHIC Rock	GRAPHIC Alt/Vn	ROCK Color	ROCK Rock Type	ROCK Grain Size	ROCK Structure (Sed.,Vol.)	PHENOS/LAPILLI/CLASTS %	PHENOS/LAPILLI/CLASTS Size	PHENOS/LAPILLI/CLASTS Shape	PHENOS/LAPILLI/CLASTS Color	PHENOS/LAPILLI/CLASTS Mineral/ Type	ALTERATION Int.	ALTERATION Distrib.	ALTERATION Type	ALTERATION Minerals	VEINS Thick.	VEINS Abund.	VEINS Selvedge	VEINS Minerals	INTERPRETATION Rock Name/ Composition	INTERPRETATION Formation	Comments	Recovery	Assay
455	/ \		generally 5P 3/2 greyish purple	Volc	aph	massive, microporphy	2	<.5mm (hbl throughout but very rare)	needle needles	black	hbl feldspar?					<2mm	rare	none	calcite		TcFG (hbl only)	slightly calcareous		
460			with 10R3/2 reddish-brown				<1	2mm	oblong	pale green	amygd?	W	pervasive	bleaching								weakly calcareous to 500'		
465			mottling and staining along																					
470			fractures				<1	<1mm	chunky	greywhite	feldspar?										TcFG w/feldspar			
475							<1	<1mm	chunky	pale green	feld→chl?													
480							<1	1.5mm	oblong	grey green	feld→chl?													
485			more N3(grey) than greyish purple				<1	<1mm	chunky	vitr grey	feldspar													
490																								
495							<1	<1mm	round	vitr grey	quartz?													
500							<1	.3mm	subround	dark brown	volcanic (aphanitic)													
							<1	1mm	prism?	vitr grey	feldspar?													

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

Hecla MINING COMPANY

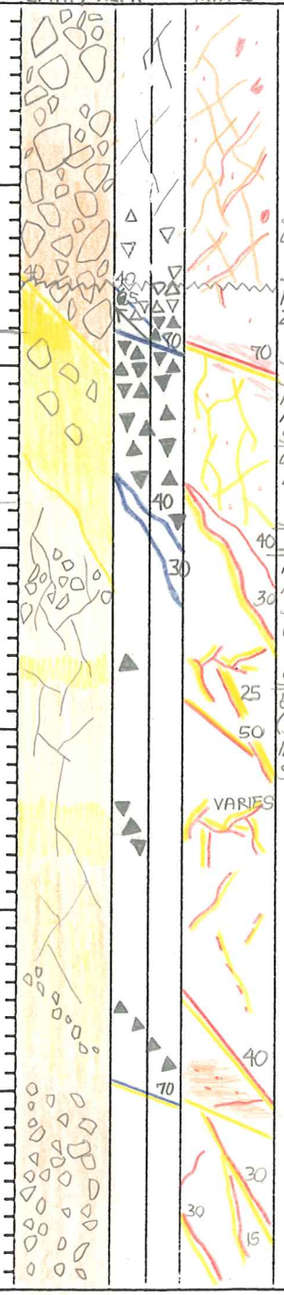
ROSEBUD PROJECT DIAMOND DRILL LOG

HOLE NUMBER	RS-411	LOCATION	EAST ZONE	REMARKS	
PAGE	1 OF 3	NORTHING			RC PRE-COLLAR
DATE	11/18/97	EASTING			
LOGGED BY	HATT	ELEVATION			
SCALE	1" = 10'	AZIMUTH			
TOTAL DEPTH	676.4'	INCLINATION			

REC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	Ag2
		499' = CORE POINT		RC RC									
499.0-503.7' FG Tc		499-503.7': POSSIBLY MASSIVE APHANITIC FLOW. NO BX SEEN. FINE RED-BRN HmOx VEINLET STOCKWK TO CRACKLE BX. 503.7-505.0: PALE GRN, SPR. TO MOD. ARGILLIZATION. GOUGY FROM 503.7-505. POSSIBLE MINOR FAULT.	500		JOINTS & FRAX SPARSE TO ~530'.	499'-~535' PERVASIVE 'DISTAL' HmOx TO ~535'. HARD, UNARGILLIZED. WK BLEACHING OF FLOW BANDED, DEVITRIFIED FRAGMTS. WK SPARRY WHT CALCITE VNLTS DOWN TO ~540'	499.0	503.7		<	<		
503.7-556.2' LLT	Tc	505'-~535': FAIRLY HARD & HEMATIZED PERVASIVELY TO A DUSKY PURPLE CHARACTERISTIC OF CHOCOLATE Fm. TUFF BRECCIA ANGULAR TO SUB-ANGULAR PEA- TO PEBBLE-SIZED HETERO-LITHIC? FRAGMENTS IN COMMINUTED MATRIX OF THE SAME MATERIAL. FRAGMENTS CONSIST OF PALER, ANGULAR, 'FLOW' BANDED APHANITIC & LESS OBVIOUS, MASSIVE, PLAG-BEARING DARK PURPLE POPULATIONS. 502-512': BRECCIA FINER-GRAINED & MORE COMMINUTED THRU HERE. LESS COMMINUTION & LARGER FRAGMENTS BELOW 512'.	510				503.7	507.8		<	<		
							507.8	511.8		<	<		
							511.8	515.7		<	<		
			520	40			515.7	520.0		<	<		
							520.0	524.0		<	<		
		FROM 535'-556.2': LOSE HmOx STAIN. ROCK IS TEXTURALLY IDENTICAL TO ABOVE, BUT INCREASINGLY ARGILLIZED & BLEACH (Fe-LEACHED) DOWNHOLE. CONTINUOUS LITHOLOGY WITH ALTERATN BOUNDARY.	530		FROM 532': SLICKS WEAKLY DEVELOPED ON SOME FRAX SURFACES.	FROM 535': YOU LOSE HmOx, WEAKLY TO MODERATELY BLEACHED; MODERATELY ARGILLIZED, MINOR DISSEMINATED FG PYRITE NEARLY FROM WHERE PERVASIVE HmOx GOES AWAY. WK BLEACHING, INCREASES TO STRONG BY 540'.	524.0	527.7		<	<		
							527.7	531.7		<	<		
				45			531.7	535.8		<	<		
			540			535-539.5': WK PROPYLITIC ALTN OR MORE LIKELY GREEN CLAYS +/- CHLORITE.	535.8	539.7		<	<		
							539.7						

SEC	RQD	LITHOLOGY	FT
ALT	TC	~540'-556.2': ROCK IS ~~SO~~ MODERATELY FRIABLE, DULL WARM GREY WITH OFF-WHT FRAGMENTS. ~~MODERATELY ARGILLIZED~~ TEXTURALLY IDENTICAL TO ABOVE.	540
		555.3-567.6': SOUTH RIDGE FAULT ZONE.	550
		555.3-557.5': GOUGY PALE GREEN STRONGLY ARGILLIZED FAULT ZONE. FINELY MILLED GRIT- TO GRAVEL-SIZED FRAGMENTS OF WALLROCK FLOAT IN A GREASY PALE GREEN GOUGE. THESE FRAGMENTS COMMONLY ARE SILICIFIED & GRAINY (CATACLASTS?), SUGGESTING THE GOUGE ZONE IS LATE WRT SILICA FLOODING.	
555.3'-676.4 DOZER		557.5-568.4': SILICIFIED FAULT/FAULT-RELATED BRECCIA:	560
		557.5'-558.4': STR., PERVASIVE, SOMEWHAT CHALCEDONIC SILICA-FLOODED, MILLED BRECCIA. SOME DISSEMINATED Py IS PRESENT, STRONGLY LOCALIZED IN ILL-DEFINED FRAGMTS. THIS MILLED BXA GIVES WAY TO MOSAIC/CRACKLE BXA BELOW A SILICA-PYRITE COATED, SLICKED FRACTURE AT 558.4.	
		558.4-568.3': MODERATELY SILICIFIED, SILICA-CEMENTED, MONOLITHIC DOZER CRACKLE/MOSAIC BRECCIA. TECTONIC & (PRIMARILY) HYDROTHERMAL ORIGIN PROBABLE. DULL RUDDY TAN ~~FR~~ V. ANGULAR FRAGMTS IN CHALCEDONIC SILICA CEMENTED ROCK FLOUR MATRIX. ~~RUDDY-BUFF FRAGMENTS?~~	570
		568.3'-599.6': TIGHTLY PACKED MONOLITHIC DOZER CRACKLE BRECCIA WITH MINOR ZONE OF MORE OPEN SILICA-CEMENTED HYDROTHERMAL MOSAIC BXA, AT: 575.9-576.6', 583.9-587.1'. MOD'LY STRONGLY TO MODERATE SILICA-MARCASITE VEINED DOZER IN THIS INTERVAL. SOME DISRUPTED FLOW BANDING. BUFF TO OFF-WHITE.	580
		575.9-576.6': OPEN SPACE VEIN/VUG PAVED WITH ~2mm OF FINE DRUSY QUARTZ. LATER BLOCKY BARITE + BLADED MARCASITE GROW IN OPEN SPACE. LAYERED MILKY SILICA.	
		583.9-587.1': MILKY SILICA VN/BXA CEMENT WITH FINE DRUSY QUARTZ IN OPEN SPACE. NO LATE BARITE.	590
		599.6': BRECCIA (DOZER AUTOBRECCIA?) BELOW JOINT. STRONGLY BRECCIATED. FINELY COMMINUTED DOZER FRAGMENTS, PEA- TO GRAVEL-SIZED ~~AB~~ INTENSELY BLEACHED, MOD'LY ARGILLIZED SUB-ANGULAR, WHT. MATRIX VARIES FROM PALE RUDDY TAN TO PALE GREY.	600
		598'-602': FAINTLY RUDDY-TAN RK FLOUR (DOZER) MATRIX IS OVERPRINTED WITH FG STRINGERS & DISS'D PYRITE.	
		~605': INCREASE IN SILICA. MILKY SILICA FLOODS MATRIX OF AUTOBRECCIA FROM 605'- POSSIBLY DIFFUSED OUT OF THE SILICA-MARCASITE VEINLETS STILL ONLY PRESENT TO A MODEST DEGREE.	610

GRAPHIC LOG



STRUCTURE
SOME FAULT-RELATED BXA OVERPRINT: ~551-555.3'.
555.3-557.5': SOUTH RIDGE FAULT MAIN GOUGY FAULT ZONE.
557.5-558.4': MILLED (WKLY) SILICIFIED FAULT BXA. 2ND DRY SLIP SURFACE AT 558.4' RAKE = 65°
558.4-568.3': HYDROTHERMAL UN-MILLED CRACKLE BXA. FAULT-RELATED ONLY.
567.7'-
568.3': FAULT-RELATED BXA & PERVASIVE SILICA END ABRUPTLY AT SILICA-RICH STRUCTURE AT 30-40° TO C/A.
568.3- : WEAK TO MODERATE DISSEMINATED SILICA (SILICIFICATION) IS PRESENT IN DOZER NEAR STRONG SILICA-MARCASITE VEINING

ALTERATION AND MINERALIZATION
~540'-565.3': MOD'LY ARGILLIZED WITH STR-MOD, FRACTURE COATING CLAY. FRIABLE, SUGGESTING ~~EX~~ PERVASIVE CLAY ALTERATION IS GREATER THAN IT FIRST LOOKS. MOD. TO WK STRINGER VNLTS & BLEBS OF DULL BRASSY PY.
555.3-557.5': STR. TO INTENSE CLAY IN SHEAR ZONE & GOUGE. PALE SAGE GREEN.
557.5-558.5': INTENSE, TEXTURE-DESTRUCTIVE SILICIFICATION. PERVASIVE & CHALCEDONIC IN APPEARANCE. STR. DISS'D VFG PY AT FRAX AT 558.5
558.5-568.3': STR. SILICIFICATION LESS INTENSE THAN ABOVE. SILICA FLOODING OF BXA MATRIX ONLY; FRAGMTS ARE SILICIFIED BUT W/O TEXTURE DESTRUCTION OR TOTAL REPLACEMT. WK DISS'D PY W/ BLEBS IN SILICA MATRIX. SOME OPEN SPACE IN SILICA VNLTS/CEMENT. LINE W/ FINE DRUSY QUARTZ.
568.3'-599.6': VEIN-CONTROLLED SILICA-MARCASITE. WK TO TRACE DISSEMINATED BRASSY PYRITE. MOD/WK BLCH.
575.9-576.6': STR. SILICA-MARCASITE. LATE BARITE.
599.6'-676.4': VEIN SILICA-MARCASITE CONTINUES MODERATE, TO STRONG. MARCASITE IS MOST CLOSELY ASSOCIATED WITH COMPARATIVELY CLEAR, GREYISH MASSIVE QUARTZ THAT LINES VEIN WALLS IN THE THICKER VEINS. A LATER PHASE IS WHITER, MORE OPAQUE AND LARGELY BARREN OF SULFIDES.

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2	Ag2
539.7	544.3		<	<		
544.3	548.3		.001	.08		
548.3	552.2		<	.04		
552.2	555.3		.001	.06		
555.3	557.7		<	.05		
557.7	558.7		.002	.02		
558.7	561.7		.004	.39		
561.7	564.5		.014	.50	.013	
564.5	567.4		.004	.04		
567.4	568.4		.004	.02		
568.4	572.6		.002	<		
572.6	577.7		.008	.05		
577.7	582.5		.010	.03	.009	
582.5	587.3		.031	.09		
587.3	592.4		.005	.04		
592.4	595.9		.009	.07		
595.9	599.6		.003	.02		
599.6	602.3		.002	.02		
602.3	606.9		.007	.02		

HOLE NUMBER RS-411 PAGE 3 OF 3

SEC	RQD	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
FROM 555.3' DOZER		599.6-605.5': DOZER AUTOBRECCIA. DESCRIBED PAGE 2. SILICA-MARCASITE VEINING CONTINUES MODERATE TO STRONG. WALLROCK IS CLASSIC DOZER: PALE WHT-GRN-GRY, VFG TO APHANITIC APHYRIC & LACED WITH ARGILLIZATION, WEAK TO MODERATE. AUTOBRECCIATION TEXTURES AS DESCRIBED ABOVE CONTINUE TO TD. BUT ARE OVERPRINTED BY ARGILLIZATION & WK BLEACHING AND HYDROTHERMAL BRECCIA.	610 620 630 640 650 660 670 680		612.2': SLICKS AT 15° ON 0.3" THICK SILICA-MARCASITE VN 632.4': HEALED BXA VN, 2" WIDE. ~645': SEMI-HEALED QUARTZ MARCASITE STOCKWORK GRADES INTO SEMI-HEALED QUARTZ-CEMENTED MOSAIC BXA LOSS LOSS LOSS	FROM 617' LATE WHT CHALKY CLAY ON FRAX AND LOCALLY DISSEMINATED IN WALLROCK. MODERATE ARGILLIZATION. 632.4': SILICA CEMENTED (+MARCASITE) PEBBLE BRECCIA 642-645': COPIOUS BLOCKY BARITE IN OPEN SPACE VEINS WITH BLADED MARCASITE. FINE DRUSY QUARTZ LINES WALLS. FROM ~645'-664': MINOR SILICIFICATION OVERPRINTS ARGILLIZATION & BLEACHING IN SMALLER FRAGMENTS IN BRECCIA. MINOR MARCASITE W/ QZ. 664': MODERATE ARGILLIZATN IN UNBRECCIATED RK. LITTLE TO NO SULFOSALTS SEEN PSEUDOMORPHING AFTER MARCASITE. 676.4-676.7': LOST HOLE
		FROM ~645': OPEN SPACE FRACTURES GIVE WAY TO SILICA CEMENTED, MONOLITHIC DOZER BRECCIA OF PROBABLE PARTIAL HYDROTHERMAL ORIGIN. SUB-ROUNDED TO ANGULAR FRAGMTS & MINOR AMOUNT OF COMMINUTED DOZER MATRIX. THIS HYDROTHERMAL BRECCIA CONTINUES TO ~664'.	655.0 655.3 662.8 664.6			
		664'-TD: MASSIVE MODERATELY ARGILLIZED DOZER.				
		676.4' T.D.				

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	Ag2
606.9	610.9		.005	<		
610.9	612.2		.015	.05		
612.2	615.8		.002	.02		
615.8	619.8		.003	<		
619.8	624.5		.017	.08		
624.5	629.5		.011	.04		
629.5	634.5		.016	.04	.013	
634.5	639.6		.017	.06		
639.6	641.8		.006	.07		
641.8	643.8		.031	.08	.027	
643.8	646.1		.002	.03		
646.1	652.3		.011	.03		
655.3	660.1		.006	.11		
660.1	662.8		.002	.05		
670.6	673.0		.002	.06		
673.7	676.7		.011	.06	.011	

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-411 DATE 11/20/97 LOGGED BY: HM PAGE 1 OF 3

TOTAL DRILLED

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	506.6	80.3%	103.9%	56.6%										
506.6	516.7	99.0%	99.0%	99.0										
516.7	520.0	97.0%	97.0%	97.0										
520.0	530.0	98.0%	99.0%	94.0										
530.0	540.2	91.2%	98.0%	86.3										
540.2	550.3	?	98.0%	15.8										
550.3	560.3	?	97.0%	36.0										
560.3	570.1	91.8%	102.0%	68.0										
570.1	580.4	91.3%	95.1%	89.3										
580.4	590.4	99.0%	99.0%	99.0										
590.4	600.5	96.0%	99.0%	91.0										

HOW SOLID?

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-411 DATE: 11/21/97 LOGGED BY: KSM 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)
600.5	600.9	100.0	100.0	100.0										
600.9	610.9	98.0	98.0	96.0										
610.9	621.1	99.0	99.0	86.3										
621.1	622.7	87.5	87.5	87.5										
622.7	631.1	97.6	97.6	77.4										
631.1	641.0	98.0	98.0	76.8										
641.0	651.1	98.0	98.0	52.5										
651.1	655.0	28.2	28.2	28.2										
655.0	655.3	0	0	0										
655.3	661.1	98.3	98.3	70.7										
661.1	664.6	48.6	48.6	48.6										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-411 DATE: 11/21/97 LOGGED BY: HLM PAGE 2 OF 3

DRILL RUN		SOLID CORE RECOVERY (%)	TOTAL CORE RECOVERY (%)	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO				DOWNHOLE DEPTH	POINT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)
664.6	667.6	6.7	6.7	0										
667.6	670.6	0	0	0										
670.6	673.0	91.7	91.7	70.8										
673.0	673.7	0	0	0										
673.7	676.4	<5.0	<5.0	0										
676.4	676.7	<5.0	<5.0	0										

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 0046804-CM
INVOICE DATE: 12/22/97

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

AWC

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

CUSTOMER P.O.	PROJECT	TERMS
RS-411	ROSEBUD EXPLOR.	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
	CREDIT MEMO TO BE APPLIED TO SP#46804 FOR ICP'S WHICH WERE NOT REQUSTED BY NEWMONT EXPLORATION.		
28-	MULTI-ELEMENT ICP PACKAGE	9.80	274.40-

ok AWC Exploration

NET INVOICE:	274.40-
LESS DISCOUNT:	54.88-
FREIGHT:	.00
INVOICE TOTAL:	219.52-

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046804

American Assay Laboratories

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

NEWMONT GOLD COMPANY

COPIES TO : RANDY VANCE
: KURT ALLEN
:
:

CLIENT REFERENCE No: RS-411 RECEIVED : 17 OCT 1997

No. SAMPLES : 102 REPORTED : 17 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 SP046804

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-411

REPORTED : 17 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-411 00-05	49		0.001		0.6	<0.02
RS-411 05-10	6		<0.001		<0.5	<0.02
RS-411 10-15	59		0.002		0.6	<0.02
RS-411 15-20	60		0.002		0.6	<0.02
RS-411 20-25	122		0.004		1.7	0.05
RS-411 25-30	307		0.009		1.2	0.04
RS-411 30-35	179		0.005		1.1	0.03
RS-411 35-40	177		0.005		2.3	0.07
RS-411 40-45	71		0.002		0.9	0.03
RS-411 45-50	118		0.003		1.0	0.03
RS-411 50-55	91		0.003		1.3	0.04
RS-411 55-60	937		0.027		1.0	0.03
RS-411 60-65B	106		0.003		<0.5	<0.02
RS-411 60-65	482		0.014		1.8	0.05
RS-411 65-70	295		0.009		2.1	0.06
RS-411 70-75	995		0.029		3.0	0.09
RS-411 75-80	470		0.014		2.9	0.08
RS-411 80-85	186		0.005		3.1	0.09
RS-411 85-90	292		0.009		2.9	0.08
RS-411 90-95	142	138	0.004	0.004	2.4	0.07
RS-411 95-100	464		0.014		3.4	0.10
RS-411 100-105	334	348	0.010	0.010	3.5	0.10
RS-411 105-110	210		0.006		4.1	0.12
RS-411 110-115	204		0.006		3.8	0.11
RS-411 115-120	180		0.005		3.0	0.09

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046804

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-411

REPORTED : 17 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-411 120-125	184		0.005		3.2	0.09
RS-411 125-130	184		0.005		3.5	0.10
RS-411 130-135	132		0.004		4.2	0.12
RS-411 135-140	60		0.002		2.4	0.07
RS-411 135-140B	100		0.003		<0.5	<0.02
RS-411 140-145	118		0.003		3.0	0.09
RS-411 145-150	82		0.002		3.1	0.09
RS-411 150-155	154		0.004		2.8	0.08
RS-411 155-160	54		0.002		2.5	0.07
RS-411 160-165	116		0.003		2.9	0.08
RS-411 165-170	100		0.003		3.2	0.09
RS-411 170-175	184		0.005		3.2	0.09
RS-411 175-180	274	290	0.008	0.008	2.6	0.08
RS-411 180-185	300		0.009		1.8	0.05
RS-411 185-190	618	640	0.018	0.019	2.4	0.07
RS-411 190-195	675		0.020		3.7	0.11
RS-411 195-200	185		0.005		2.9	0.08
RS-411 200-205	175		0.005		3.3	0.10
RS-411 205-210	1870		0.055		5.0	0.15
RS-411 210-215	262		0.008		1.0	0.03
RS-411 215-220	73		0.002		1.7	0.05
RS-411 220-225	14		<0.001		0.5	<0.02
RS-411 225-230	5		<0.001		0.5	<0.02
RS-411 230-235	202		0.006		2.0	0.06
RS-411 235-240	12		<0.001		0.7	0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046804

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-411

REPORTED : 17 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-411 240-245	11		<0.001		<0.5	<0.02
RS-411 245-250	<5		<0.001		<0.5	<0.02
RS-411 250-255	136	130	0.004	0.004	1.7	0.05
RS-411 255-260	31		<0.001		1.4	0.04
RS-411 260-265	53		0.002		1.2	0.04
RS-411 265-270	27		<0.001		0.8	0.02
RS-411 270-275	46		0.001		1.2	0.04
RS-411 275-280	57		0.002		1.4	0.04
RS-411 280-285	118		0.003		2.2	0.06
RS-411 285-290	82		0.002		1.4	0.04
RS-411 290-295	194		0.006		2.5	0.07
RS-411 295-300	96		0.003		2.3	0.07
RS-411 300-305	62		0.002		2.3	0.07
RS-411 305-310	111		0.003		1.3	0.04
RS-411 310-315	23		<0.001		0.9	0.03
RS-411 315-320	<5		<0.001		0.8	0.02
RS-411 320-325	<5		<0.001		<0.5	<0.02
RS-411 325-330	12		<0.001		<0.5	<0.02
RS-411 330-335	<5		<0.001		<0.5	<0.02
RS-411 335-340	<5		<0.001		<0.5	<0.02
RS-411 340-345	<5		<0.001		<0.5	<0.02
RS-411 345-350	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-411 350-355	<5		<0.001		<0.5	<0.02
RS-411 355-360	<5		<0.001		<0.5	<0.02
RS-411 360-365	<5		<0.001		0.7	0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046804

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-411

REPORTED : 17 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-411 365-370	35		0.001		0.6	<0.02
RS-411 370-375	<5		<0.001		<0.5	<0.02
RS-411 375-380	<5		<0.001		<0.5	<0.02
RS-411 380-385	<5		<0.001		<0.5	<0.02
RS-411 385-390	<5		<0.001		<0.5	<0.02
RS-411 390-395	32		<0.001		1.5	0.04
RS-411 395-400	30		<0.001		1.3	0.04
RS-411 400-405	<5		<0.001		<0.5	<0.02
RS-411 405-410	<5		<0.001		<0.5	<0.02
RS-411 410-415	<5		<0.001		<0.5	<0.02
RS-411 415-420	<5		<0.001		<0.5	<0.02
RS-411 420-425	<5		<0.001		<0.5	<0.02
RS-411 425-430	<5	<5	<0.001	<0.001	<0.5	<0.02
RS-411 425-430B			INSUFFICIENT SAMPLE			
RS-411 430-435	<5		<0.001		<0.5	<0.02
RS-411 435-440	<5		<0.001		<0.5	<0.02
RS-411 440-445	<5		<0.001		<0.5	<0.02
RS-411 445-450	<5		<0.001		0.9	0.03
RS-411 450-455	<5		<0.001		2.4	0.07
RS-411 455-460	<5		<0.001		0.6	<0.02
RS-411 460-465	<5	<5	<0.001	<0.001	0.6	<0.02
RS-411 465-470	<5		<0.001		0.5	<0.02
RS-411 470-475	<5		<0.001		<0.5	<0.02
RS-411 475-480	<5		<0.001		0.6	<0.02
RS-411 480-485	<5	<5	<0.001	<0.001	0.5	<0.02

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP046804

American Assay Laboratories

CLIENT : NEWMONT GOLD COMPANY
PROJECT : ROSEBUD
REFERENCE : RS-411

REPORTED : 17 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-411 485-490	<5		<0.001		0.5	<0.02
RS-411 490-495	<5		<0.001		0.5	<0.02
RS-411 495-500	<5	<5	<0.001	<0.001	<0.5	<0.02

AMERICAN ASSAY LABORATORIES

AAL 01-2 ICP PACKAGE DETECTION LIMITS

ELEMENT	Ag	Al	As	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Sr	Th	Ti	U	V	W	Zn
SAMPLES	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	0.3	0.01	2	3	1	2	0.01	0.2	1	1	1	0.01	5	0.01	1	0.01	2	1	0.01	1	0.001	3	2	1	2	0.01	5	1	2	1

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

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431
PHONE: (702) 356-0606
FAX: (702) 356-1413

CLIENT: *NEWMONT EXPLORATION*
CLIENT REF: ROSEBUD MINE
AAL REF: SP046804
METHOD: AAL 01-2

ELEMENT SAMPLES	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppb	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P %	Pb ppm	Sb ppm	Sr ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Zn ppm
RS-411 00-20	0.8	1.44	34	10	178	< 3	0.49	< .2	3	9	13	2.84	50	0.41	29	0.25	392	2	0.11	7	0.04	23	< 3	77	7	0.05	< 8	21	< 2	55
RS-411 20-40	0.8	1.07	146	3	180	< 3	0.22	< .2	1	2	7	2.19	25	0.45	27	0.06	50	3	0.08	2	0.018	28	6	104	8	< .01	< 8	3	< 2	10
RS-411 40-60	0.4	0.82	153	3	135	< 3	0.17	0.2	1	4	10	2.37	35	0.43	19	0.04	50	5	0.05	3	0.025	25	7	181	6	< .01	< 8	2	< 2	11
RS-411 60-65B	< .3	1.4	702	9	360	< 3	1.04	1.1	7	55	87	2.97	8060	0.29	18	0.25	267	9	0.02	35	0.104	16	34	70	4	0.01	< 8	155	2	70
RS-411 60-80	1.6	1.05	171	< 3	21	< 3	0.2	1.1	4	3	9	2.61	50	0.36	22	0.04	36	2	0.02	4	0.018	28	7	115	7	< .01	< 8	2	< 2	49
RS-411 80-100	2.6	1.58	175	< 3	20	< 3	0.21	0.4	11	2	8	2.88	60	0.39	23	0.05	30	2	0.01	10	0.012	29	12	93	7	< .01	< 8	2	< 2	474
RS-411 100-120	2.8	1.09	288	< 3	18	< 3	0.22	0.3	3	3	9	2.9	45	0.29	23	0.04	53	2	0.01	6	0.013	26	13	114	7	< .01	< 8	1	< 2	160
RS-411 120-140	2.6	1.24	200	< 3	19	< 3	0.23	0.2	1	2	7	2.75	35	0.39	22	0.04	48	2	0.01	2	0.016	26	9	156	8	< .01	< 8	2	< 2	78
RS-411 135-140B	< .3	1.45	738	10	392	< 3	1.09	1.2	8	58	93	3.14	7630	0.3	19	0.26	279	10	0.02	38	0.108	18	36	73	5	0.01	< 8	163	2	74
RS-411 140-160	2.1	1.14	117	< 3	19	< 3	0.27	0.3	1	2	8	2.72	25	0.42	25	0.05	49	1	0.01	2	0.023	31	8	135	8	< .01	< 8	2	< 2	77
RS-411 160-180	2.5	0.92	179	< 3	35	< 3	0.35	0.4	1	2	9	3.17	15	0.39	24	0.05	291	2	0.03	2	0.039	25	6	18	7	< .01	< 8	2	< 2	102
RS-411 180-200	2.1	0.99	142	< 3	21	< 3	0.33	0.2	2	2	8	2.56	25	0.39	22	0.04	140	3	0.02	2	0.026	28	7	115	7	< .01	< 8	2	< 2	93
RS-411 200-220	2	1.38	101	< 3	34	< 3	0.35	0.3	1	2	8	2.88	< 10	0.54	29	0.06	77	2	0.02	2	0.037	37	9	62	8	< .01	< 8	3	< 2	90
RS-411 220-240	0.7	0.85	41	< 3	31	< 3	0.72	0.2	1	1	6	2.59	15	0.37	27	0.04	552	2	0.03	1	0.042	23	5	36	9	< .01	< 8	2	< 2	106
RS-411 240-260	0.7	0.91	29	< 3	43	< 3	0.55	0.2	1	2	7	2.9	20	0.35	28	0.04	877	2	0.03	2	0.04	28	4	42	10	< .01	< 8	4	< 2	133
RS-411 260-280	0.6	1.05	24	< 3	15	< 3	0.29	0.2	1	2	7	2.79	20	0.46	26	0.04	63	1	0.02	2	0.036	30	6	123	8	< .01	< 8	2	< 2	159
RS-411 280-300	1.4	0.77	49	< 3	23	< 3	0.24	< .2	12	3	7	2.81	30	0.3	24	0.03	53	2	0.01	23	0.036	31	10	306	8	< .01	< 8	1	< 2	422
RS-411 300-320	1	1.09	19	< 3	36	< 3	0.27	0.2	2	2	8	2.56	15	0.44	28	0.04	54	2	0.01	4	0.024	45	8	173	10	< .01	< 8	2	< 2	107
RS-411 320-340	< .3	1.03	7	< 3	66	< 3	0.44	0.2	1	3	7	2.96	20	0.35	34	0.05	1609	2	0.03	2	0.04	26	5	88	11	< .01	< 8	5	< 2	113
RS-411 340-360	< .3	0.73	3	< 3	41	< 3	1.91	0.3	1	3	6	2.38	20	0.32	36	0.04	1000	2	0.03	2	0.043	30	< 3	102	11	0.03	< 8	8	< 2	54
RS-411 360-380	< .3	0.93	7	< 3	34	< 3	1.13	0.3	1	3	8	2.55	10	0.34	32	0.05	822	2	0.03	2	0.041	35	4	73	10	< .01	< 8	5	< 2	54
RS-411 380-400	0.5	0.81	7	< 3	25	< 3	1.05	0.4	1	2	7	2.84	< 10	0.24	30	0.05	629	2	0.03	1	0.042	30	4	65	9	< .01	< 8	5	< 2	46
RS-411 400-420	< .3	0.75	2	< 3	64	< 3	1.61	0.3	1	3	7	2.54	20	0.26	36	0.04	731	2	0.04	1	0.043	22	< 3	137	10	0.03	< 8	7	< 2	44
RS-411 420-440	< .3	0.55	3	3	39	< 3	1.53	0.3	1	2	7	2.39	< 10	0.25	34	0.04	911	1	0.03	1	0.041	35	3	106	10	0.04	< 8	8	2	50
RS-411 425-430B	< .3	1.41	722	9	422	< 3	1.08	1.3	7	57	93	3.07	7950	0.3	18	0.25	277	10	0.02	37	0.106	15	34	70	5	0.01	< 8	160	2	73
RS-411 440-460	< .3	0.56	5	3	49	< 3	1.55	0.4	< 1	3	8	2.5	< 10	0.26	34	0.04	759	1	0.04	2	0.039	24	4	124	11	0.05	< 8	9	2	36
RS-411 460-480	< .3	0.5	2	< 3	51	< 3	1.54	0.4	< 1	3	7	2.53	< 10	0.26	36	0.03	693	1	0.05	1	0.041	30	4	123	10	0.05	< 8	7	2	31
RS-411 480-500	< .3	0.49	3	3	59	< 3	1.46	0.4	1	3	7	2.45	< 10	0.26	35	0.03	606	2	0.04	2	0.041	29	3	100	9	0.05	< 8	7	< 2	28
STANDARD C3	5.3	1.86	54	19	146	20	0.57	23.5	12	172	66	3.49	870	0.15	20	0.59	747	26	0.04	38	0.085	37	15	28	19	0.1	19	83	19	156
STANDARD G-1	< .3	1.02	4	< 3	257	< 3	0.6	< .2	4	90	3	2.16	10	0.48	8	0.64	574	2	0.07	9	0.075	4	< 3	68	3	0.15	< 8	44	< 2	43

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 0047466-IN
INVOICE DATE: 12/11/97

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-411	ROSEBUD DEVELOP	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
45	SAMPLES RECEIVED	.00	.00
45	JAW CRUSHING CHARGE	1.30	58.50
45	COARSE MILLING CHARGE	4.50	202.50
45	SPLITTING CHARGE	2.40	108.00
45	RING MILLING CHARGE	2.00	90.00
45	Au (1 A.T. FIRE ASSAY)	8.00	360.00
45	HYDROCHLORIC/NITRIC DIGESTION	2.00	90.00
45	Ag ANALYSES	1.00	45.00

8652-86-5210-477
FDA

~~86-5030~~

NET INVOICE:	954.00
LESS DISCOUNT:	190.80
FREIGHT:	.00
INVOICE TOTAL:	763.20

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047466

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-411 RECEIVED : 1 DEC 1997

No. SAMPLES : 45 REPORTED : 1 DEC 1997

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
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047466

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-411

REPORTED : 1 DEC 1997

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-411 499.0-503.7	<0.001		<0.02
RS-411 503.7-507.8	<0.001		<0.02
RS-411 507.8-511.8	<0.001		<0.02
RS-411 511.8-515.7	<0.001		<0.02
RS-411 515.7-520.0	<0.001		<0.02
RS-411 520-524	<0.001		<0.02
RS-411 524.0-527.7	<0.001		<0.02
RS-411 527.7-531.7	<0.001		<0.02
RS-411 531.7-535.8	<0.001		<0.02
RS-411 535.8-539.7	<0.001		<0.02
RS-411 539.7-544.3	<0.001		<0.02
RS-411 544.3-548.3	0.001		0.08
RS-411 548.3-552.2	<0.001		0.04
RS-411 552.2-555.3	0.001		0.06
RS-411 555.3-557.7	<0.001		0.05
RS-411 557.7-558.7	0.002		0.02
RS-411 558.7-561.7	0.004		0.39
RS-411 561.7-564.5	0.014	0.013	0.50
RS-411 564.5-567.4	0.004		0.04
RS-411 567.4-568.4	0.004		0.02
RS-411 568.4-572.6	0.002		<0.02
RS-411 572.6-577.7	0.008		0.05
RS-411 577.7-582.5	0.010	0.009	0.03
RS-411 582.5-587.3	0.031		0.09
RS-411 587.3-592.4	0.005		0.04

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047466

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-411

REPORTED : 1 DEC 1997

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-411 592.4-595.9	0.009		0.07
RS-411 595.9-599.6	0.003		0.02
RS-411 599.6-602.3	0.002		0.02
RS-411 602.3-606.9	0.007		0.02
RS-411 606.9-610.9	0.005		<0.02
RS-411 610.9-612.2	0.015		0.05
RS-411 612.2-615.8	0.002		0.02
RS-411 615.8-619.8	0.003		<0.02
RS-411 619.8-624.5	0.017		0.08
RS-411 624.5-629.5	0.011		0.04
RS-411 629.5-634.5	0.016	0.013	0.04
RS-411 634.5-639.6	0.017		0.06
RS-411 639.6-641.8	0.006		0.07
RS-411 641.8-643.8	0.031	0.027	0.08
RS-411 643.8-646.1	0.002		0.03
RS-411 646.1-652.3	0.011		0.03
RS-411 655.3-660.1	0.006		0.11
RS-411 660.1-662.8	0.002		0.05
RS-411 670.6-673.0	0.002		0.06
RS-411 673.7-676.7	0.011	0.011	0.06

xAMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047466

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-411 RECEIVED : 1 DEC 1997

No. SAMPLES : 45 REPORTED : 1 DEC 1997

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
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047466

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-411

REPORTED : 1 DEC 1997

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-411 499.0-503.7	<0.001		<0.02
RS-411 503.7-507.8	<0.001		<0.02
RS-411 507.8-511.8	<0.001		<0.02
RS-411 511.8-515.7	<0.001		<0.02
RS-411 515.7-520.0	<0.001		<0.02
RS-411 520-524	<0.001		<0.02
RS-411 524.0-527.7	<0.001		<0.02
RS-411 527.7-531.7	<0.001		<0.02
RS-411 531.7-535.8	<0.001		<0.02
RS-411 535.8-539.7	<0.001		<0.02
RS-411 539.7-544.3	<0.001		<0.02
RS-411 544.3-548.3	0.001		0.08
RS-411 548.3-552.2	<0.001		0.04
RS-411 552.2-555.3	0.001		0.06
RS-411 555.3-557.7	<0.001		0.05
RS-411 557.7-558.7	0.002		0.02
RS-411 558.7-561.7	0.004		0.39
RS-411 561.7-564.5	0.014	0.013	0.50
RS-411 564.5-567.4	0.004		0.04
RS-411 567.4-568.4	0.004		0.02
RS-411 568.4-572.6	0.002		<0.02
RS-411 572.6-577.7	0.008		0.05
RS-411 577.7-582.5	0.010	0.009	0.03
RS-411 582.5-587.3	0.031		0.09
RS-411 587.3-592.4	0.005		0.04

AMERICAN ASSAY LABORATORIES

ANALYSIS REPORT SP047466

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-411

REPORTED : 1 DEC 1997

SAMPLES	Au(OZ) FA30 OPT	Au(RZ) FA30 OPT	Ag(OZ) D210 OPT
RS-411 592.4-595.9	0.009		0.07
RS-411 595.9-599.6	0.003		0.02
RS-411 599.6-602.3	0.002		0.02
RS-411 602.3-606.9	0.007		0.02
RS-411 606.9-610.9	0.005		<0.02
RS-411 610.9-612.2	0.015		0.05
RS-411 612.2-615.8	0.002		0.02
RS-411 615.8-619.8	0.003		<0.02
RS-411 619.8-624.5	0.017		0.08
RS-411 624.5-629.5	0.011		0.04
RS-411 629.5-634.5	0.016	0.013	0.04
RS-411 634.5-639.6	0.017		0.06
RS-411 639.6-641.8	0.006		0.07
RS-411 641.8-643.8	0.031	0.027	0.08
RS-411 643.8-646.1	0.002		0.03
RS-411 646.1-652.3	0.011		0.03
RS-411 655.3-660.1	0.006		0.11
RS-411 660.1-662.8	0.002		0.05
RS-411 670.6-673.0	0.002		0.06
RS-411 673.7-676.7	0.011	0.011	0.06

SP

SUBMITTAL FORM

PAGE 1

American Assay Laboratories

Geochemical • Environmental • Metallurgical

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

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Tucson, AZ 85706
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Fax
(520) 294-6352

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

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

Other Offices
Lima, Peru
Santiago, Chile
Mendoza, Argentina

Company: ROSEBUD MINE Co. LLT

Address: P.O. BOX 2610

City WINNEMUCCA State NV Zip 89446

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

Project Name: ROSEBUD DEVELOPMENT Purchase Order Number:

Date Submitted: 11/26/97 Number of Samples: 43

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

RS-411 SAMPLE IDENTIFICATION		TYPE	ELEMENTS REQUIRED
499.0-503.7	557.7-552.7	CORE	AU-AG FOLLOWING
503.7-507.8	558.7-561.7		ROSEBUD DEVELOPMENT CORE
507.8-511.8	561.7-564.5		DRILLING PROTOCOL
511.8-515.7	564.5-568.4		
515.7-520.0	568.4-572.6		
520.0-524.0	572.6-577.7		
524.0-527.7	577.7-582.5		
527.7-531.7	582.5-587.3		
531.7-535.8	587.3-592.4		
535.8-539.7	592.4-595.9		
539.7-544.3	595.9-599.6		
544.3-548.3	599.6-602.3		
548.3-552.2	602.3-606.9		
552.2-555.3	606.9-610.9		
555.3-557.7	610.9-615.8		

COARSE REJECTS (Normally Discarded After 60 Days)

[ ] Return COD after analysis complete

PULPS (Normally Stored Free For One Month)

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

RESULTS AND INVOICES TO BE SENT TO:

Invoice to:

KURT ALLEN

Results to:

KURT ALLEN @ ROSEBUD MINE
RANDY VANCE

Comments: 2 PAGES

CLIENT FILE COPY

SP

SUBMITTAL FORM

PAGE 2

American Assay Laboratories

Geochemical • Environmental • Metallurgical

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

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

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

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

Other Offices
Lima, Peru
Santiago, Chile
Mendoza, Argentina

Company: ROSEBUD MINE CO. LLT

Address: P.O. BOX 2610

City WINNEMUCCA State NV Zip 89446

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

Project Name: ROSEBUD DEVELOPMENT Purchase Order Number:

Date Submitted: 11/26/97 Number of Samples: 43

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

SAMPLE IDENTIFICATION	TYPE	ELEMENTS REQUIRED
615.2-619.8	CORE	AU-AQ FOLLOWING
619.8-624.5		ROSEBUD DEVELOPMENT CORE
624.5-629.5		DRILLING PROTOCOL
629.5-634.5		
634.5-639.6		
639.6-641.2		
641.2-643.8		
643.2-646.1		
646.1-[redacted] 652.3		
[redacted]		
655.3-660.1		
660.1-662.2		
670.6-673.0		
673.7-676.7 TD		

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 @ ROSEBUD
RANDY VANCE

Comments: 2 PAGES

CLIENT FILE COPY

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 0046804-IN
INVOICE DATE: 11/05/97

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-411	ROSEBUD EXPLOR.	NET 30 - DUE IN U.S. DOLLARS

QUANTITY	DESCRIPTION	PRICE	AMOUNT
103	SAMPLES RECEIVED	.00	.00
100	DRYING	1.00	100.00
100	JAW CRUSHING CHARGE	1.30	130.00
100	SPLITTING CHARGE	1.20	120.00
100	FINE MILLING CHARGE	2.00	200.00
102	Au (1 A.T. FIRE ASSAY)	8.00	816.00
102	HYDROCHLORIC/NITRIC DIGESTION	2.00	204.00
102	Ag ANALYSES	1.00	102.00
100	COMPOSITE CHARGE	1.00	100.00
28	MULTI-ELEMENT ICP PACKAGE	9.80	274.40

8652-86-5210-477

NET INVOICE:	2,046.40
LESS DISCOUNT:	409.28
FREIGHT:	.00
INVOICE TOTAL:	1,637.12

AMERICAN ASSAY LABORATORIES

PROVISTONAL REPORT SP047466

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

HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

NSI

CLIENT REFERENCE No: RS-411 RECEIVED : 1 DEC 1997

No. SAMPLES : 45 REPORTED : 1 DEC 1997

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
Ag(OZ)	D210	10%	OPT	0.02

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047466

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-411

REPORTED : 1 DEC 1997

SAMPLES	Au(OZ)	Au(RZ)	Ag(OZ)
RS-411 499.0-503.7	<0.001		<0.02
RS-411 503.7-507.8	<0.001		<0.02
RS-411 507.8-511.8	<0.001		<0.02
RS-411 511.8-515.7	<0.001		<0.02
RS-411 515.7-520.0	<0.001		<0.02
RS-411 520-524	<0.001		<0.02
RS-411 524.0-527.7	<0.001		<0.02
RS-411 527.7-531.7	<0.001		<0.02
RS-411 531.7-535.8	<0.001		<0.02
RS-411 535.8-539.7	<0.001		<0.02
RS-411 539.7-544.3	<0.001		<0.02
RS-411 544.3-548.3	0.001		0.08
RS-411 548.3-552.2	<0.001		0.04
RS-411 552.2-555.3	0.001		0.06
RS-411 555.3-557.7	<0.001		0.05
RS-411 557.7-558.7	0.002		0.02
RS-411 558.7-561.7	0.004		0.39
RS-411 561.7-564.5	0.014	0.013	0.50
RS-411 564.5-567.4	0.004		0.04
RS-411 567.4-568.4	0.004		0.02
RS-411 568.4-572.6	0.002		<0.02
RS-411 572.6-577.7	0.008		0.05
RS-411 577.7-582.5	0.010	0.009	0.03
RS-411 582.5-587.3	0.031		0.09
RS-411 587.3-592.4	0.005		0.04

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP047466

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : RS-411

REPORTED : 1 DEC 1997

SAMPLES	Au(OZ)	Au(RZ)	Ag(OZ)
RS-411 592.4-595.9	0.009		0.07
RS-411 595.9-599.6	0.003		0.02
RS-411 599.6-602.3	0.002		0.02
RS-411 602.3-606.9	0.007		0.02
RS-411 606.9-610.9	0.005		<0.02
RS-411 610.9-612.2	0.015		0.05
RS-411 612.2-615.8	0.002		0.02
RS-411 615.8-619.8	0.003		<0.02
RS-411 619.8-624.5	0.017		0.08
RS-411 624.5-629.5	0.011		0.04
RS-411 629.5-634.5	0.016	0.013	0.04
RS-411 634.5-639.6	0.017		0.06
RS-411 639.6-641.8	0.006		0.07
RS-411 641.8-643.8	0.031	0.027	0.08
RS-411 643.8-646.1	0.002		0.03
RS-411 646.1-652.3	0.011		0.03
RS-411 655.3-660.1	0.006		0.11
RS-411 660.1-662.8	0.002		0.05
RS-411 670.6-673.0	0.002		0.06
RS-411 673.7-676.7	0.011	0.011	0.06

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT EXPLORATION LTD. *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-411

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/17/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 096.50

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/670' T/700'.

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-411

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R CLOS.	INCL HORZ	BEARING AZIMUTH	COORDINATES LATITUDE	COORDINATES DEPARTURE	D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION	TEMP. DEG. F.
50.0	50.00	0.11	-0.293	-89.28	341.83	0.30 N	0.10 W	1.44	0.72	0.31	AT 341.83	060.60
100.0	99.99	0.43	-1.068	-88.80	343.28	1.10 N	0.35 W	0.96	0.48	1.15	AT 342.49	060.46
150.0	149.98	1.14	-1.833	-88.67	021.52	2.14 N	0.28 W	1.68	0.84	2.16	AT 352.43	060.39
200.0	199.96	2.59	-2.218	-87.82	044.30	3.36 N	0.59 E	2.17	1.08	3.41	AT 010.00	060.32
250.0	249.92	4.54	-2.120	-87.65	061.87	4.52 N	2.16 E	1.42	0.71	5.01	AT 025.53	060.46
300.0	299.87	6.63	-1.598	-87.41	067.00	5.45 N	4.10 E	0.65	0.33	6.82	AT 036.99	060.39
350.0	349.81	8.96	-0.942	-87.04	065.63	6.42 N	6.32 E	0.75	0.38	9.01	AT 044.54	060.39
400.0	399.74	11.59	-0.256	-86.73	064.73	7.56 N	8.79 E	0.63	0.31	11.59	AT 049.27	060.24
450.0	449.65	14.49	0.217	-86.50	055.18	9.04 N	11.33 E	1.22	0.61	14.50	AT 051.40	060.10
500.0	499.53	18.03	0.326	-85.38	050.12	11.21 N	14.13 E	2.35	1.17	18.03	AT 051.58	060.10
550.0	549.38	21.91	0.275	-85.72	049.45	13.71 N	17.09 E	0.69	0.34	21.91	AT 051.26	060.24
600.0	599.23	25.71	0.240	-85.55	050.55	16.16 N	20.01 E	0.38	0.19	25.72	AT 051.08	060.46
650.0	649.07	29.75	0.137	-85.19	047.70	18.80 N	23.05 E	0.85	0.43	29.75	AT 050.80	061.11
670.0	669.00	31.43	0.070	-85.16	048.85	19.92 N	24.31 E	0.51	0.10	31.43	AT 050.67	063.91
700.0	698.89	33.97	-0.002	-85.13	048.97	21.59 N	26.22 E	0.11	0.03	33.97	AT 050.54	063.98

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*                         ********                          *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                         ********                          *
*   700.0 FEET EQUALS     33.97    FEET AT   050.54         *
*                         ********                          *
*************************************************************
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT EXPLORATION LTD. *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/17/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 096.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/670' T/700'.

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311 WELL NAME: RS-411 -/ 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	0.19	-0.251	-89.28	341.83	0.30 N	0.10 W	1.44	0.72	0.31	AT 341.83	060.60
100.0	99.99	0.70	-0.914	-88.80	343.28	1.10 N	0.35 W	0.96	0.48	1.15	AT 342.49	060.46
150.0	149.98	1.59	-1.460	-88.67	021.52	2.14 N	0.28 W	1.68	0.84	2.16	AT 352.43	060.39
200.0	199.96	3.09	-1.442	-87.82	044.30	3.36 N	0.59 E	2.17	1.08	3.41	AT 010.00	060.32
250.0	249.92	4.95	-0.825	-87.65	061.87	4.52 N	2.16 E	1.42	0.71	5.01	AT 025.53	060.46
300.0	299.87	6.82	0.237	-87.41	067.00	5.45 N	4.10 E	0.65	0.33	6.82	AT 036.99	060.39
350.0	349.81	8.89	1.494	-87.04	065.63	6.42 N	6.32 E	0.75	0.38	9.01	AT 044.54	060.39
400.0	399.74	11.24	2.859	-86.73	064.73	7.56 N	8.79 E	0.63	0.31	11.59	AT 049.27	060.24
450.0	449.65	13.91	4.092	-86.50	055.18	9.04 N	11.33 E	1.22	0.61	14.50	AT 051.40	060.10
500.0	499.53	17.28	5.144	-85.38	050.12	11.21 N	14.13 E	2.35	1.17	18.03	AT 051.58	060.10
550.0	549.38	21.03	6.135	-85.72	049.45	13.71 N	17.09 E	0.69	0.34	21.91	AT 051.26	060.24
600.0	599.23	24.71	7.121	-85.55	050.55	16.16 N	20.01 E	0.38	0.19	25.72	AT 051.08	060.46
650.0	649.07	28.62	8.101	-85.19	047.70	18.80 N	23.05 E	0.85	0.43	29.75	AT 050.80	061.11
670.0	669.00	30.26	8.488	-85.16	048.85	19.92 N	24.31 E	0.51	0.10	31.43	AT 050.67	063.91
700.0	698.89	32.73	9.098	-85.13	048.97	21.59 N	26.22 E	0.11	0.03	33.97	AT 050.54	063.98

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   700.0 FEET EQUALS     33.97    FEET AT   050.54         *
*                          ********                         *
*************************************************************
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* NEWMONT EXPLORATION LTD. *
****

JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 11/17/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 096.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00

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

COMMENTS: ** BOART LONGYEAR **
*** DEAN KEYSER ***
*** BILL KURPIS ***
PROJECTED F/670' T/700'.

****
****
*** 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-411 / 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	-0.25	-0.188	-89.28	341.83	0.30 N	0.10 W	1.44	0.72	0.31	AT 341.83	060.60
100.0	99.99	-0.91	-0.701	-88.80	343.28	1.10 N	0.35 W	0.96	0.48	1.15	AT 342.49	060.46
150.0	149.98	-1.46	-1.590	-88.67	021.52	2.14 N	0.28 W	1.68	0.84	2.16	AT 352.43	060.39
200.0	199.96	-1.44	-3.092	-87.82	044.30	3.36 N	0.59 E	2.17	1.08	3.41	AT 010.00	060.32
250.0	249.92	-0.82	-4.945	-87.65	061.87	4.52 N	2.16 E	1.42	0.71	5.01	AT 025.53	060.46
300.0	299.87	0.24	-6.818	-87.41	067.00	5.45 N	4.10 E	0.65	0.33	6.82	AT 036.99	060.39
350.0	349.81	1.49	-8.887	-87.04	065.63	6.42 N	6.32 E	0.75	0.38	9.01	AT 044.54	060.39
400.0	399.74	2.86	-11.236	-86.73	064.73	7.56 N	8.79 E	0.63	0.31	11.59	AT 049.27	060.24
450.0	449.65	4.09	-13.907	-86.50	055.18	9.04 N	11.33 E	1.22	0.61	14.50	AT 051.40	060.10
500.0	499.53	5.14	-17.283	-85.38	050.12	11.21 N	14.13 E	2.35	1.17	18.03	AT 051.58	060.10
550.0	549.38	6.13	-21.034	-85.72	049.45	13.71 N	17.09 E	0.69	0.34	21.91	AT 051.26	060.24
600.0	599.23	7.12	-24.710	-85.55	050.55	16.16 N	20.01 E	0.38	0.19	25.72	AT 051.08	060.46
650.0	649.07	8.10	-28.623	-85.19	047.70	18.80 N	23.05 E	0.85	0.43	29.75	AT 050.80	061.11
670.0	669.00	8.49	-30.261	-85.16	048.85	19.92 N	24.31 E	0.51	0.10	31.43	AT 050.67	063.91
700.0	698.89	9.10	-32.725	-85.13	048.97	21.59 N	26.22 E	0.11	0.03	33.97	AT 050.54	063.98

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   700.0 FEET EQUALS    33.97    FEET AT   050.54          *
*                          ********                         *
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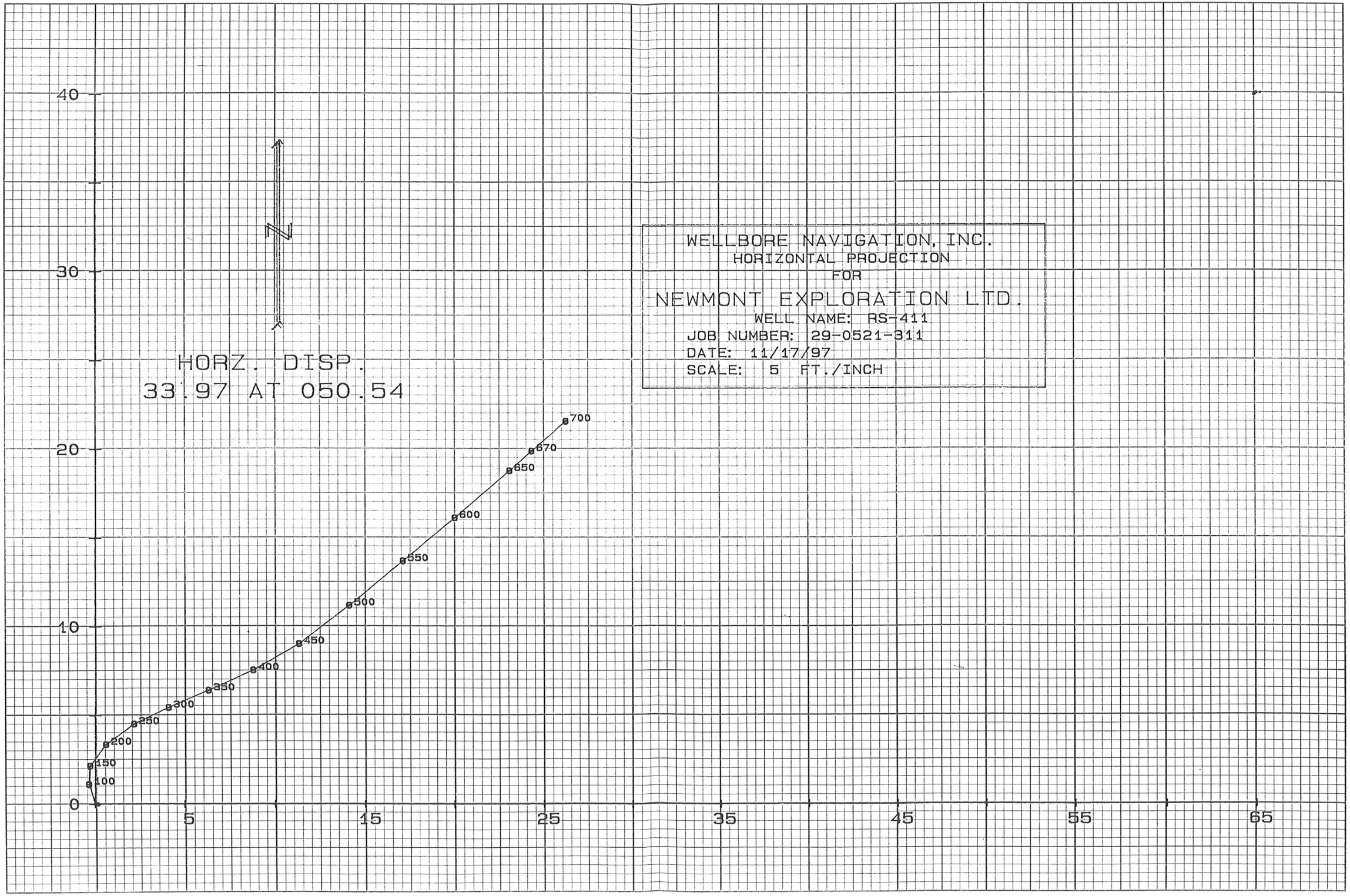

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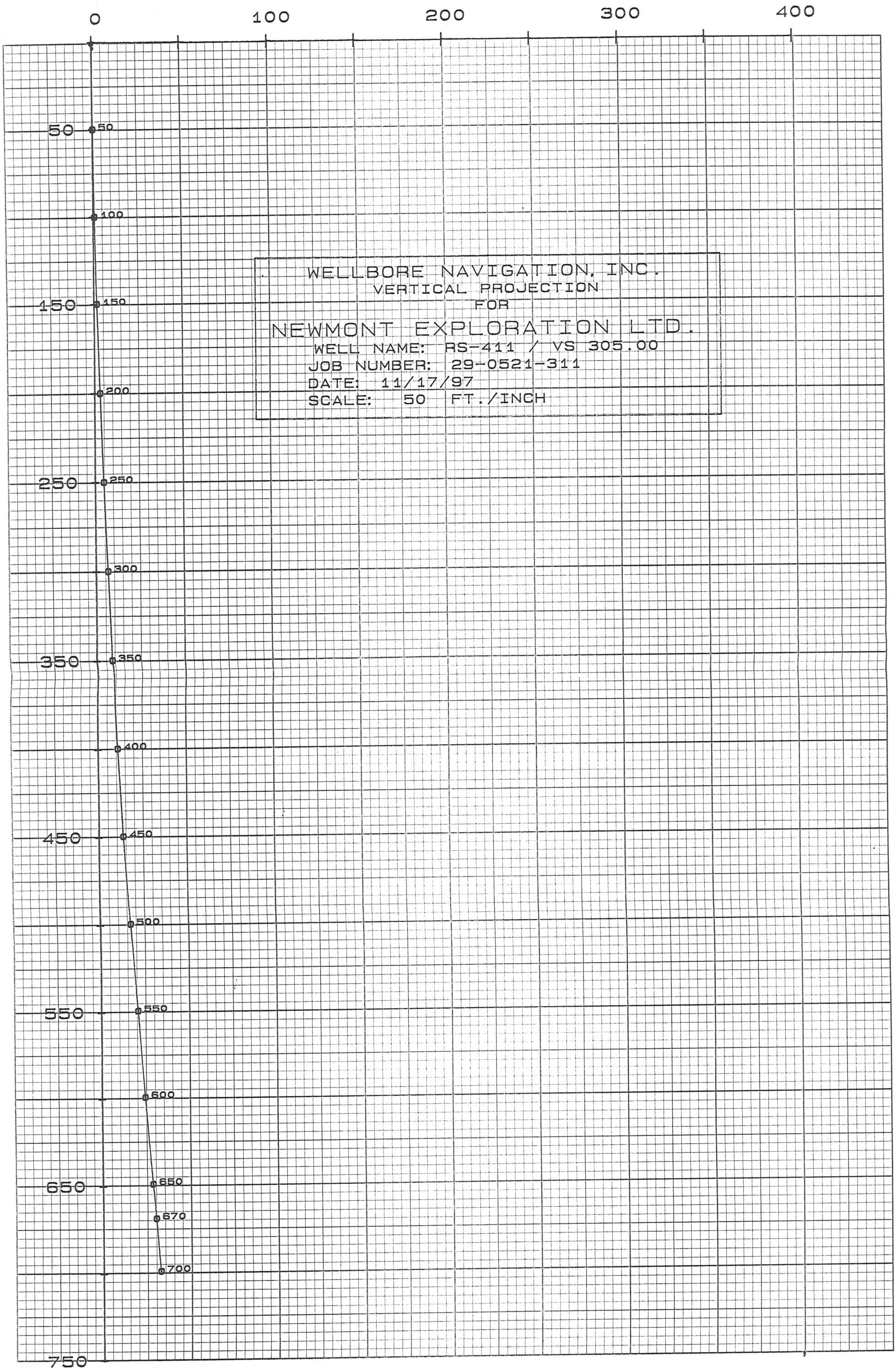
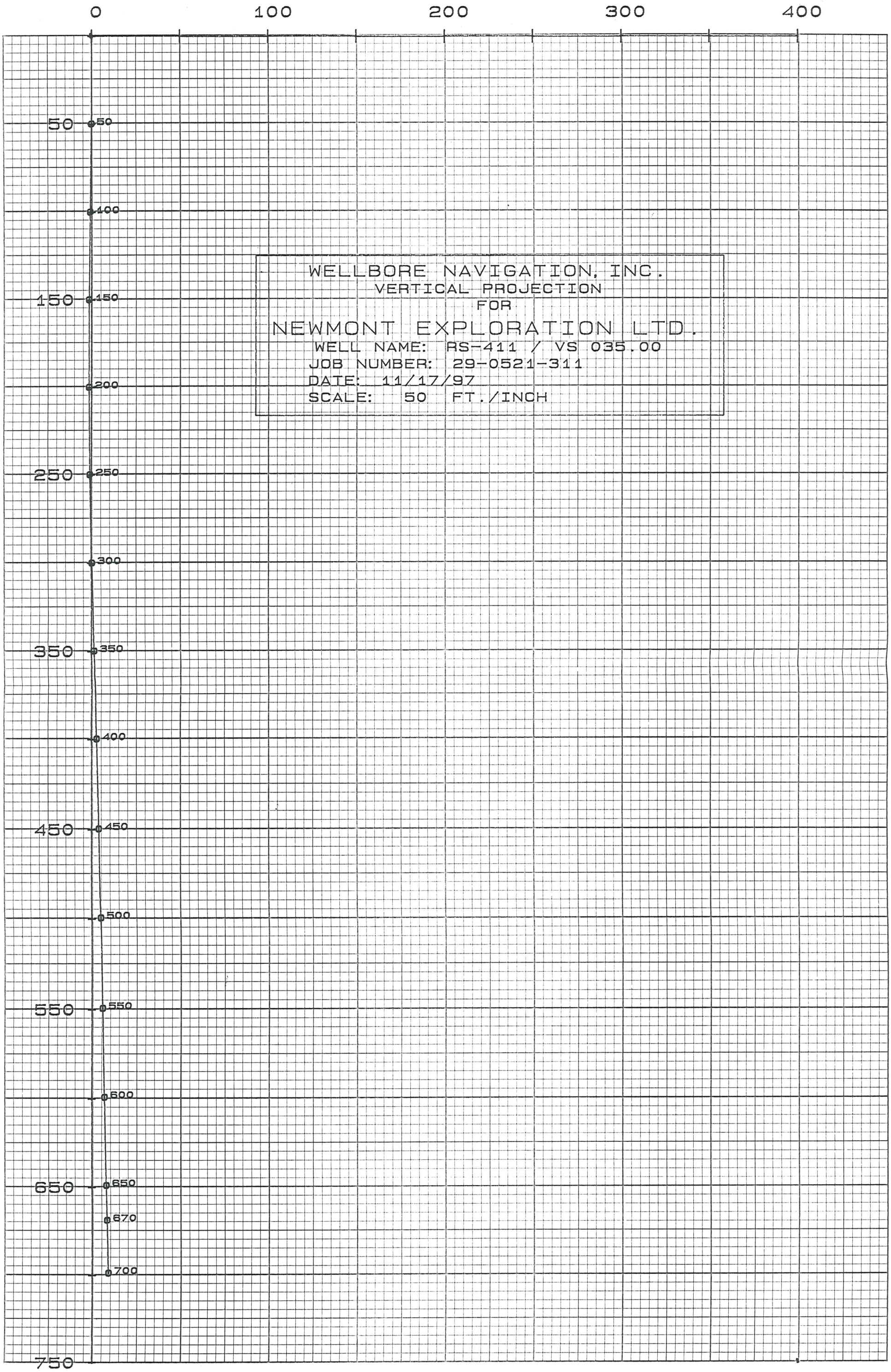


STARLIGHT PRINTING (801) 467-2841



WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

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

JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/09/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 356.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 125.00

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

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

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / 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	-0.28	-0.189	-89.23	339.28	0.31 N	0.12 W	1.54	0.77	0.34	AT 339.28	066.14
100.0	99.99	-0.96	-0.897	-88.49	356.92	1.29 N	0.27 W	1.62	0.81	1.32	AT 348.01	066.36
150.0	149.97	-1.41	-2.069	-88.50	031.15	2.50 N	0.03 E	1.77	0.89	2.50	AT 000.69	066.21
200.0	199.95	-1.21	-3.526	-88.07	052.22	3.58 N	1.03 E	1.51	0.76	3.73	AT 016.11	065.57
250.0	249.92	-0.57	-5.170	-87.88	059.80	4.56 N	2.50 E	0.66	0.33	5.20	AT 028.71	064.85
300.0	299.88	0.47	-6.934	-87.41	070.02	5.41 N	4.36 E	1.26	0.63	6.95	AT 038.85	064.13
350.0	349.82	1.75	-8.929	-87.15	065.60	6.31 N	6.55 E	0.67	0.33	9.10	AT 046.07	063.48
400.0	399.75	3.02	-11.297	-86.68	061.37	7.52 N	8.96 E	1.04	0.52	11.69	AT 049.98	062.83
450.0	449.66	4.23	-14.039	-86.44	056.37	9.07 N	11.52 E	0.77	0.38	14.66	AT 051.77	062.33
500.0	499.54	5.32	-17.304	-85.66	050.93	11.13 N	14.28 E	1.73	0.86	18.10	AT 052.08	062.04

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*************************************************************
*                         ********                          *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                         ********                          *
*   500.0 FEET EQUALS     18.10    FEET AT   052.08         *
*                         ********                          *
*************************************************************
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

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

JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / VS 305.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/09/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 356.50

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 035.00

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

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

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / 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	0.19	-0.278	-89.23	339.28	0.31 N	0.12 W	1.54	0.77	0.34	AT 339.28	066.14
100.0	99.99	0.90	-0.962	-88.49	356.92	1.29 N	0.27 W	1.62	0.81	1.32	AT 348.01	066.36
150.0	149.97	2.07	-1.412	-88.50	031.15	2.50 N	0.03 E	1.77	0.89	2.50	AT 000.69	066.21
200.0	199.95	3.53	-1.207	-88.07	052.22	3.58 N	1.03 E	1.51	0.76	3.73	AT 016.11	065.57
250.0	249.92	5.17	-0.569	-87.88	059.80	4.56 N	2.50 E	0.66	0.33	5.20	AT 028.71	064.85
300.0	299.88	6.93	0.467	-87.41	070.02	5.41 N	4.36 E	1.26	0.63	6.95	AT 038.85	064.13
350.0	349.82	8.93	1.748	-87.15	065.60	6.31 N	6.55 E	0.67	0.33	9.10	AT 046.07	063.48
400.0	399.75	11.30	3.023	-86.68	061.37	7.52 N	8.96 E	1.04	0.52	11.69	AT 049.98	062.83
450.0	449.66	14.04	4.232	-86.44	056.37	9.07 N	11.52 E	0.77	0.38	14.66	AT 051.77	062.33
500.0	499.54	17.30	5.317	-85.66	050.93	11.13 N	14.28 E	1.73	0.86	18.10	AT 052.08	062.04

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*   500.0 FEET EQUALS     18.10    FEET AT   052.08         *
*                          ********                         *
*************************************************************
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

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

JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / VERTICAL

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/09/97

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: 356.50

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

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

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

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0521-311

WELL NAME: RS-411 / 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	-0.321	-89.23	339.28	0.31 N	0.12 W	1.54	0.77	0.34	AT 339.28	066.14
100.0	99.99	0.58	-1.183	-88.49	356.92	1.29 N	0.27 W	1.62	0.81	1.32	AT 348.01	066.36
150.0	149.97	1.56	-1.957	-88.50	031.15	2.50 N	0.03 E	1.77	0.89	2.50	AT 000.69	066.21
200.0	199.95	3.02	-2.189	-88.07	052.22	3.58 N	1.03 E	1.51	0.76	3.73	AT 016.11	065.57
250.0	249.92	4.77	-2.063	-87.88	059.80	4.56 N	2.50 E	0.66	0.33	5.20	AT 028.71	064.85
300.0	299.88	6.77	-1.591	-87.41	070.02	5.41 N	4.36 E	1.26	0.63	6.95	AT 038.85	064.13
350.0	349.82	9.05	-0.952	-87.15	065.60	6.31 N	6.55 E	0.67	0.33	9.10	AT 046.07	063.48
400.0	399.75	11.69	-0.428	-86.68	061.37	7.52 N	8.96 E	1.04	0.52	11.69	AT 049.98	062.83
450.0	449.66	14.66	-0.078	-86.44	056.37	9.07 N	11.52 E	0.77	0.38	14.66	AT 051.77	062.33
500.0	499.54	18.10	0.000	-85.66	050.93	11.13 N	14.28 E	1.73	0.86	18.10	AT 052.08	062.04

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*************************************************************
*                         ********                          *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                         ********                          *
*   500.0 FEET EQUALS    18.10   FEET AT   052.08           *
*                         ********                          *
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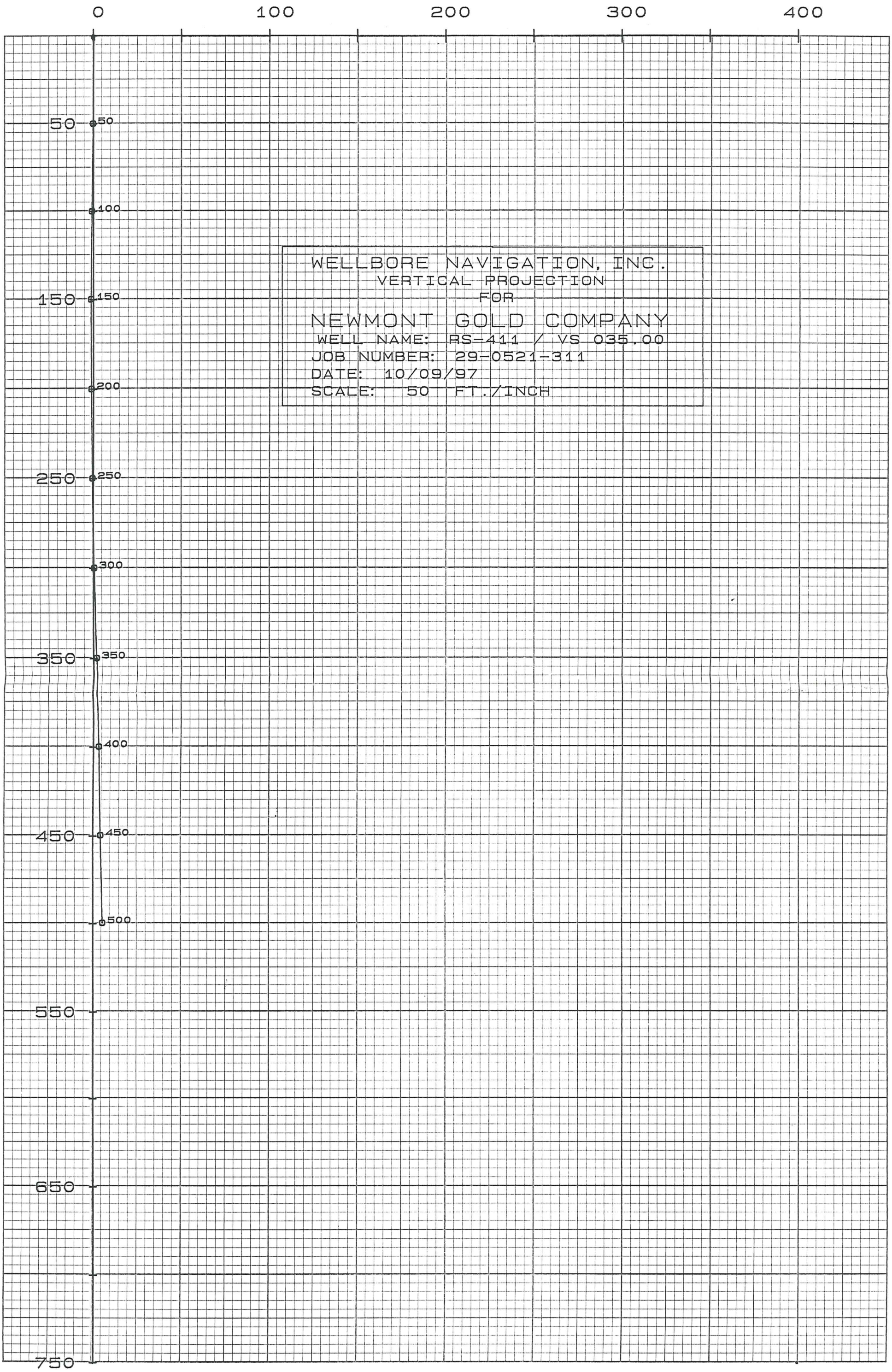
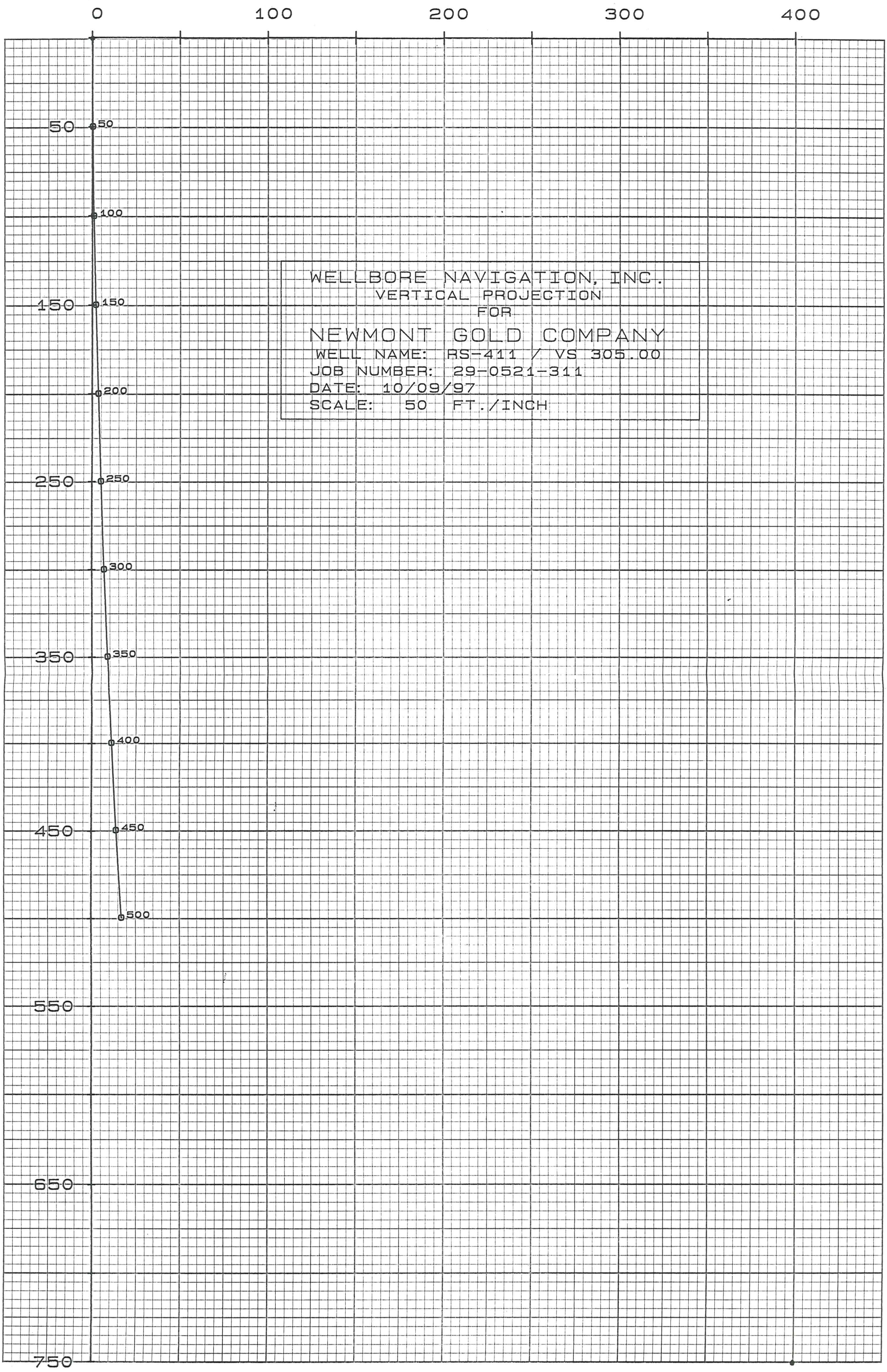
STARLIGHT PRINTING (801) 467-2841



STARLIGHT PRINTING (801) 467-2841



Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-411
PAGE 1 OF 3
DATE 6-29-98
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 CLASTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
		coll	Colluvium																		X																				
20		↓																			X																				
																					X																				
		TcFG	Chocolate Fm - fine-grained																		X																				
40																					X																				
																					X																				
60																					X																				
																					X																				
80																				X																					
																			X																						
100																																									
120																			X																						
140																			X																						
																			X																						
160			Bxa - part of undiff. Choc. Fm? (~160'-120'.)																	X																					
																			X																						
180		↓																		X																					
																				X																					

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-411
PAGE 2 OF 3
DATE
LOGGED BY
TOTAL DEPTH

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION 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-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
		TcFG																		X																					
220																																									
240																			X																						
260																			X																						
																			X																						
280																			X																						
																				X																					
300																			X																						
320																																									
																				X																					
340																					X																				
																					X																				
360																				X																					
																			X																						
380																			X																						
																			X																						

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-411
PAGE 3 OF 3
DATE
LOGGED BY
TOTAL DEPTH

LOCATION
NORTHING
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ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION																		MINERALIZATION									METALLURGY				ANALYTICAL DATA				
						SILICIFICATION					ARGILLIC				PROPYLITIC %		POTASSIC %		OXIDATION			VIENING		SULFIDES			PY	CPY	MAR	K-SUL	STIBNITE	BARITE	OXIDE	SULF	CARBON	MOISTURE	FROM	TO	W	Au	Ag
						5%	15%	+25%	MATRIX %	CLASTS %	5%	15%	+25%	TYPE	CHLORITE	CALCITE	H-SPAR	ALUNITE	5%	15%	+25%	%	TYPE	5%	15%	+25%	%	%	%	%	%	%										
		TC FG																		X																						
420																					X																					
																					X																					
440																					X																					
																					X																					
460																					X																					
																					X																					
																					X																					
480																					X																					
																					X																					
																					X																					
500																																										

503.7
RS - 411 BOX NO 1
DEPTH 499-507

511.2
507.2
RS - 411 BOX NO 2
DEPTH 507-516

515.7
516.7
520.0
RS - 411 BOX NO 3
DEPTH 516-524.8

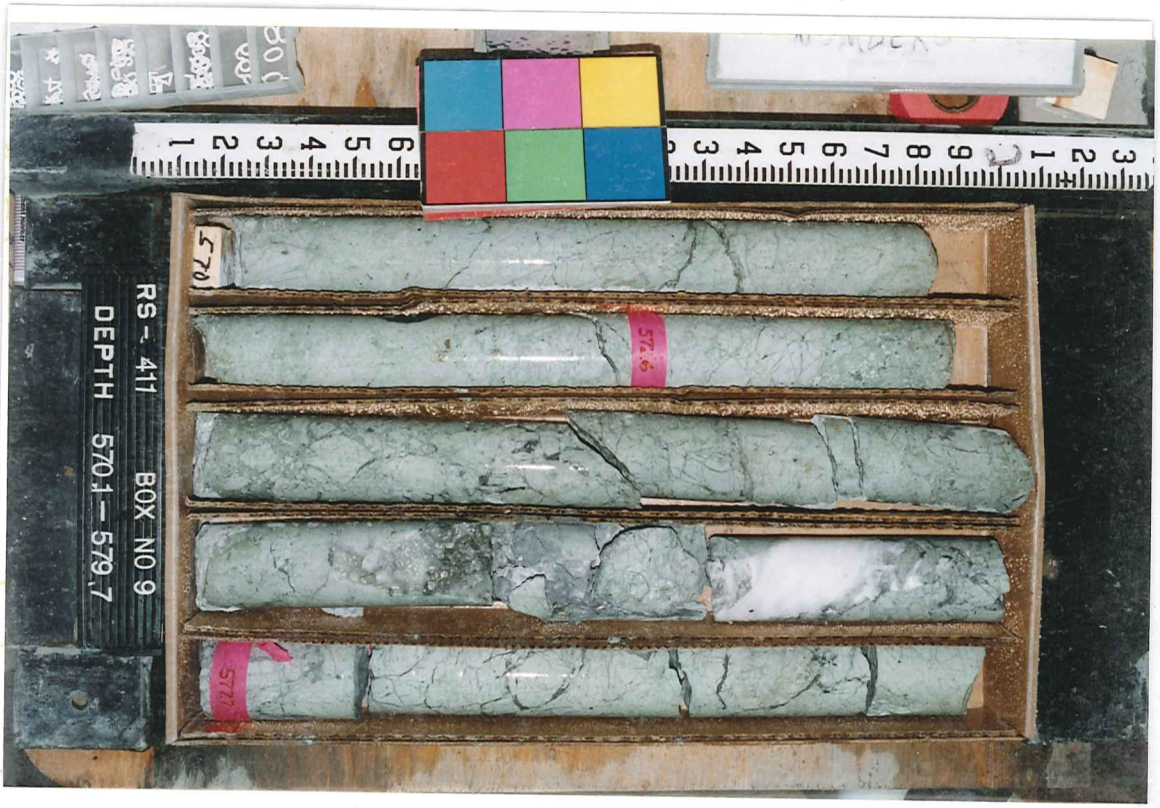
RS - 411 BOX NO 4
DEPTH 524.8-533.5
527.7

RS - 411 BOX NO 5
DEPTH 533.5- 542.5
540.2

RS - 411 BOX NO 6
DEPTH 542.5- 552
548.3
550.3

RS - 411 BOX NO 7
DEPTH 552 — 561

RS - 411 BOX NO 8
DEPTH 561 — 570.1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582.5
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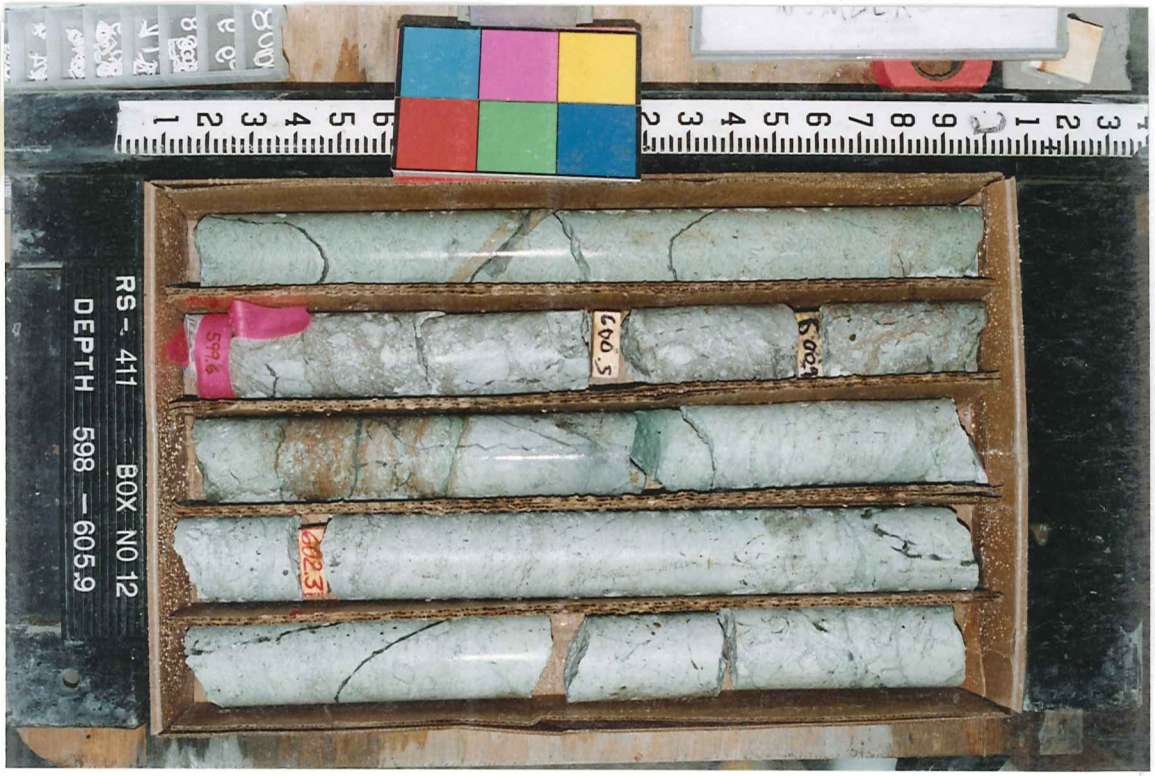
DEPTH 579.7 - 588.7

590.4
592.4
595.9
RS - 411 BOX NO 11
DEPTH 588.7 - 598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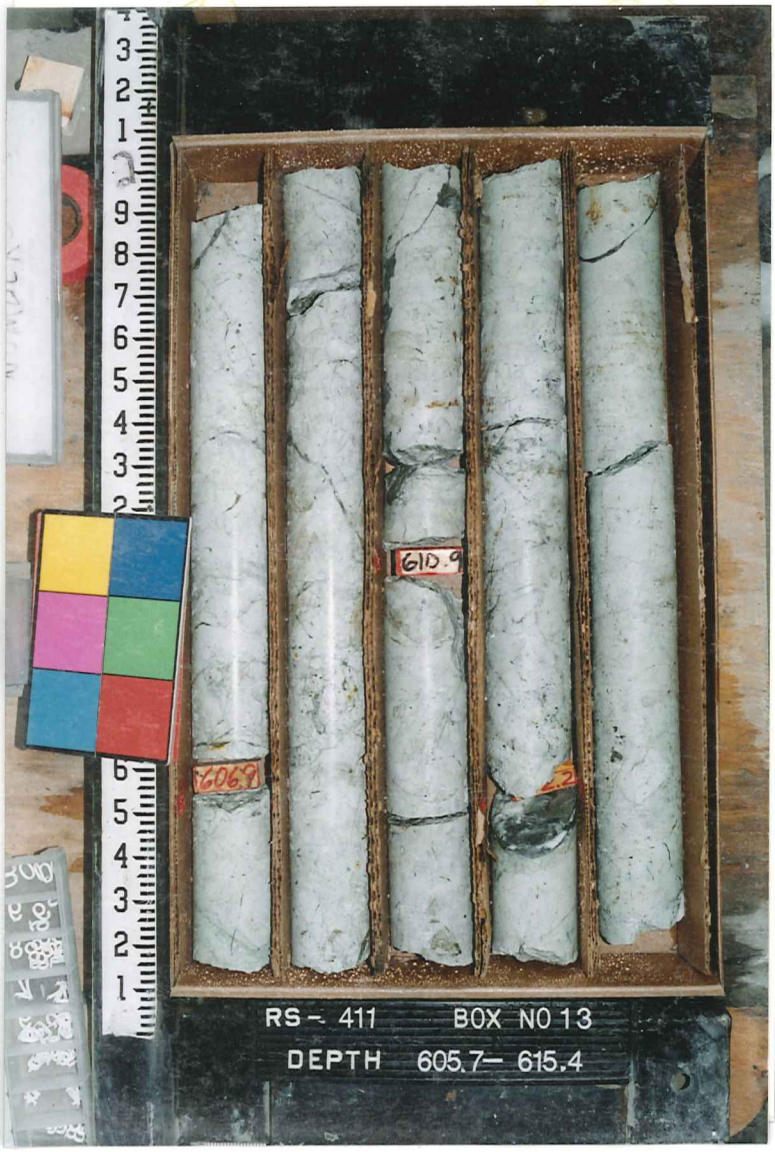
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606.9
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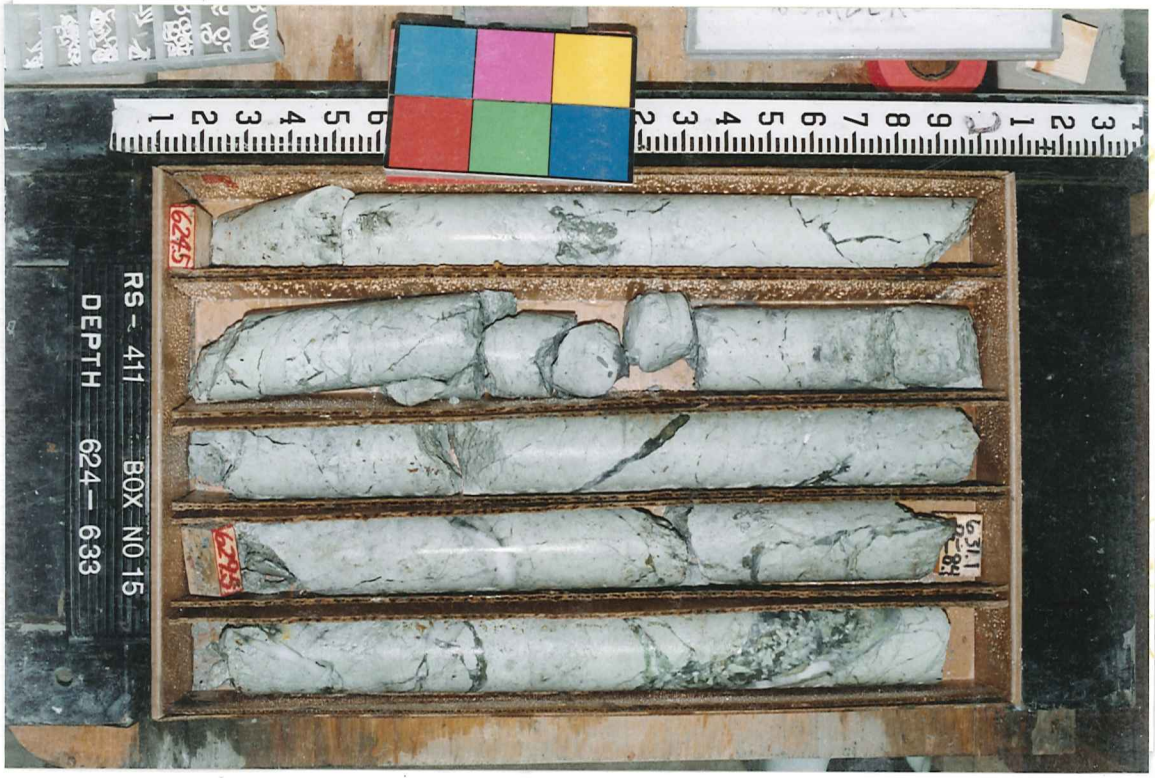
DEPTH 605.7 - 615.4

622
619.8
615.8
621.1
RS - 411 BOX NO 14
DEPTH 615.4 - 624


624.5
629.5
631.1
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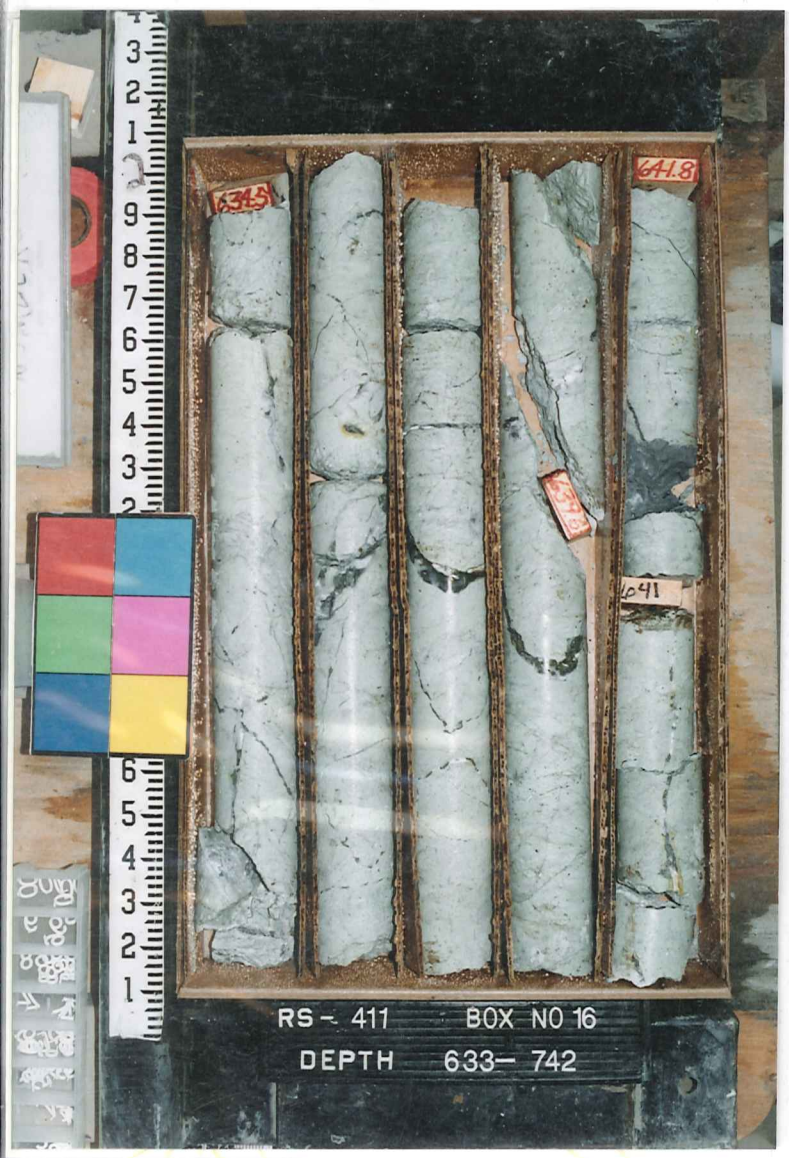
DEPTH 624 - 633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DEPTH 633- 742

RS - 411 BOX NO 17
DEPTH 642-651.1

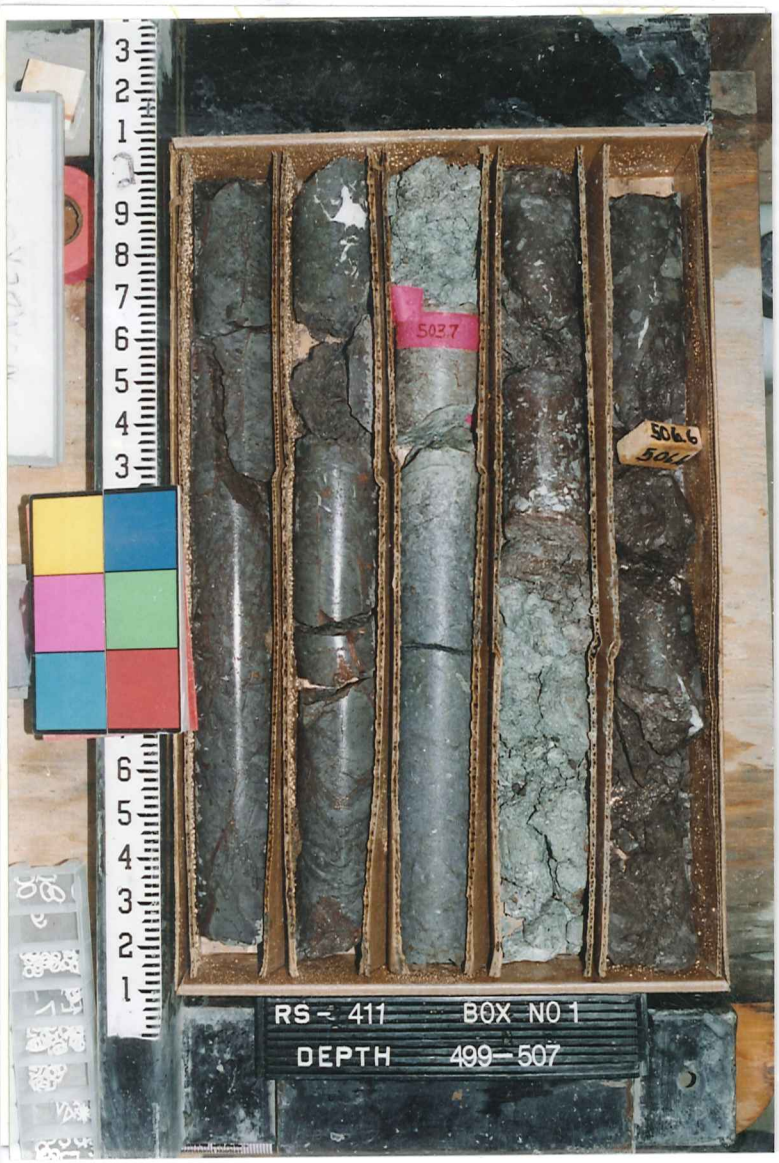
RS - 411 BOX NO 18
DEPTH 651.1-664.6

503.7
506.6
RS- 411 BOX NO 1
DEPTH 499 – 507

RS- 411 BOX NO 2
DEPTH 507– 516

503.7
506.6
RS- 411 BOX NO 1
DEPTH 499 — 507

511.8
507.0
RS- 411 BOX NO 2
DEPTH 507— 516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DEPTH 499-507

RS - 411 BOX NO 2
DEPTH 507-516

RS - 411 BOX NO 3
DEPTH 516-524.8

RS - 411 BOX NO 4
DEPTH 524.8 - 533.5

RS - 411 BOX NO 5
DEPTH 533.5 - 542.5

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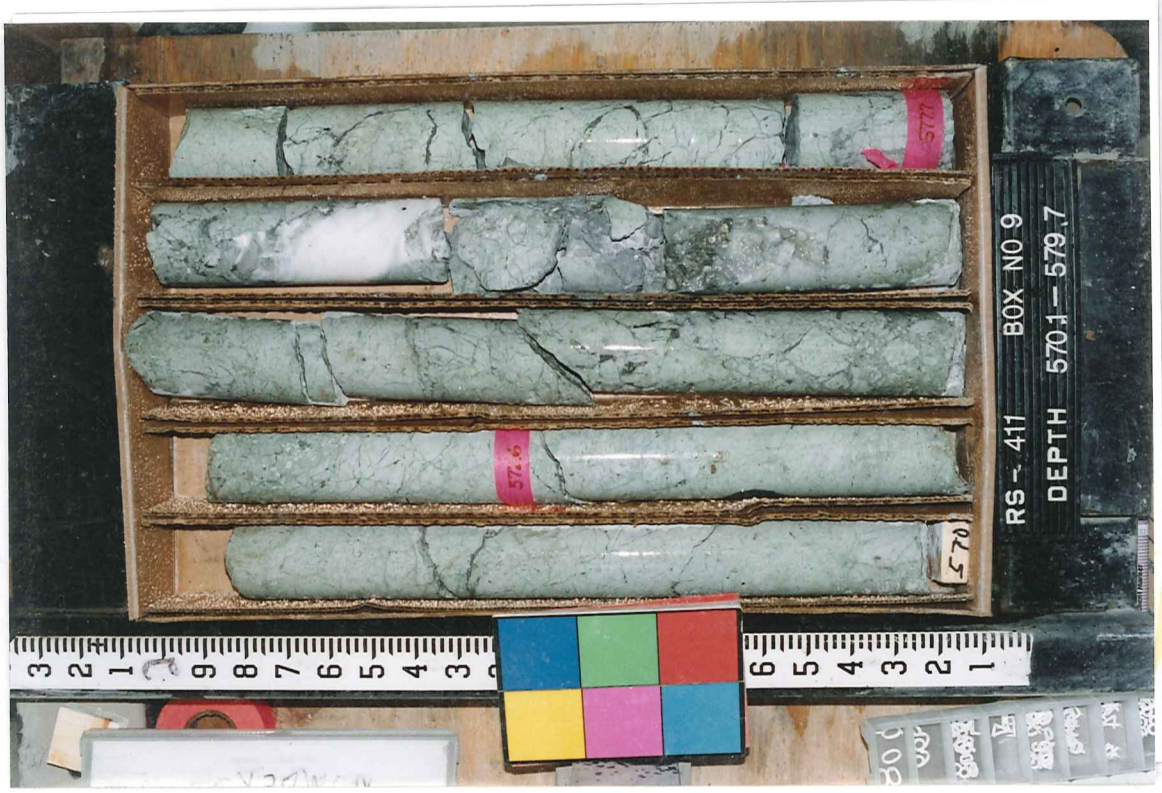
DEPTH 542.5 - 552

RS - 411 BOX NO 7
DEPTH 552 - 561

RS - 411 BOX NO 8
DEPTH 561 - 570.1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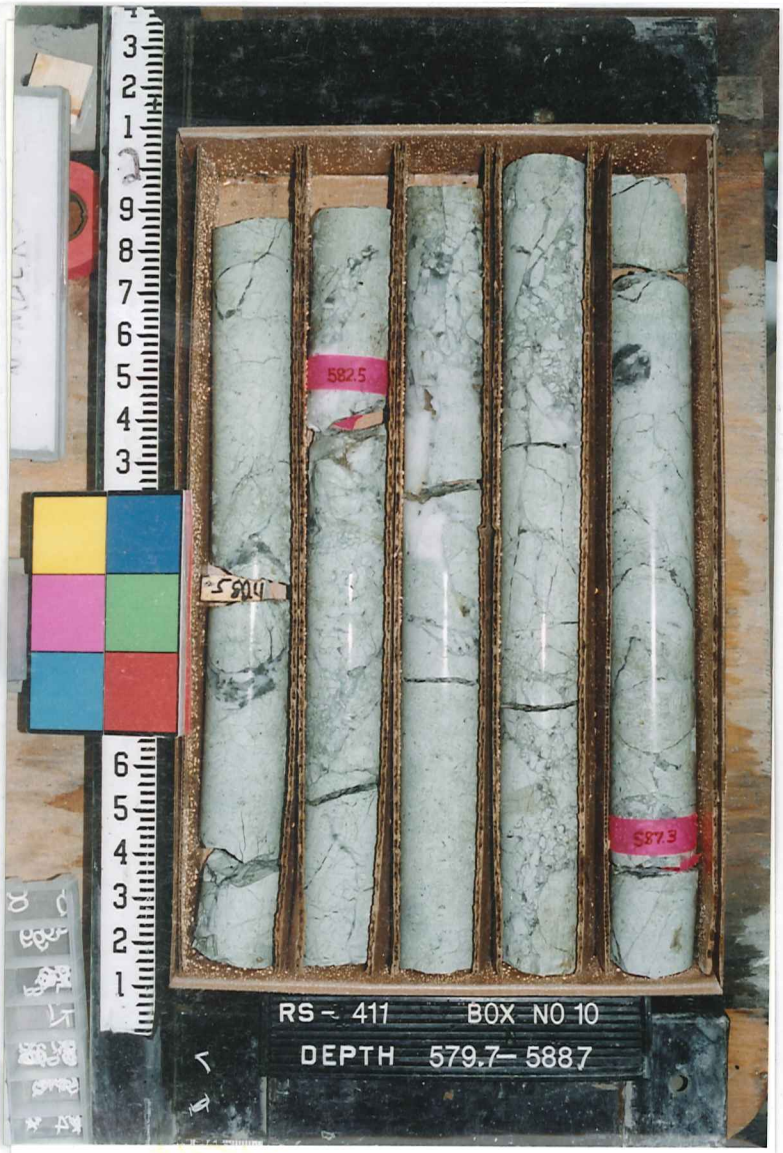

5825
5873
RS - 411 BOX NO 10
DEPTH 579.7 - 588.7

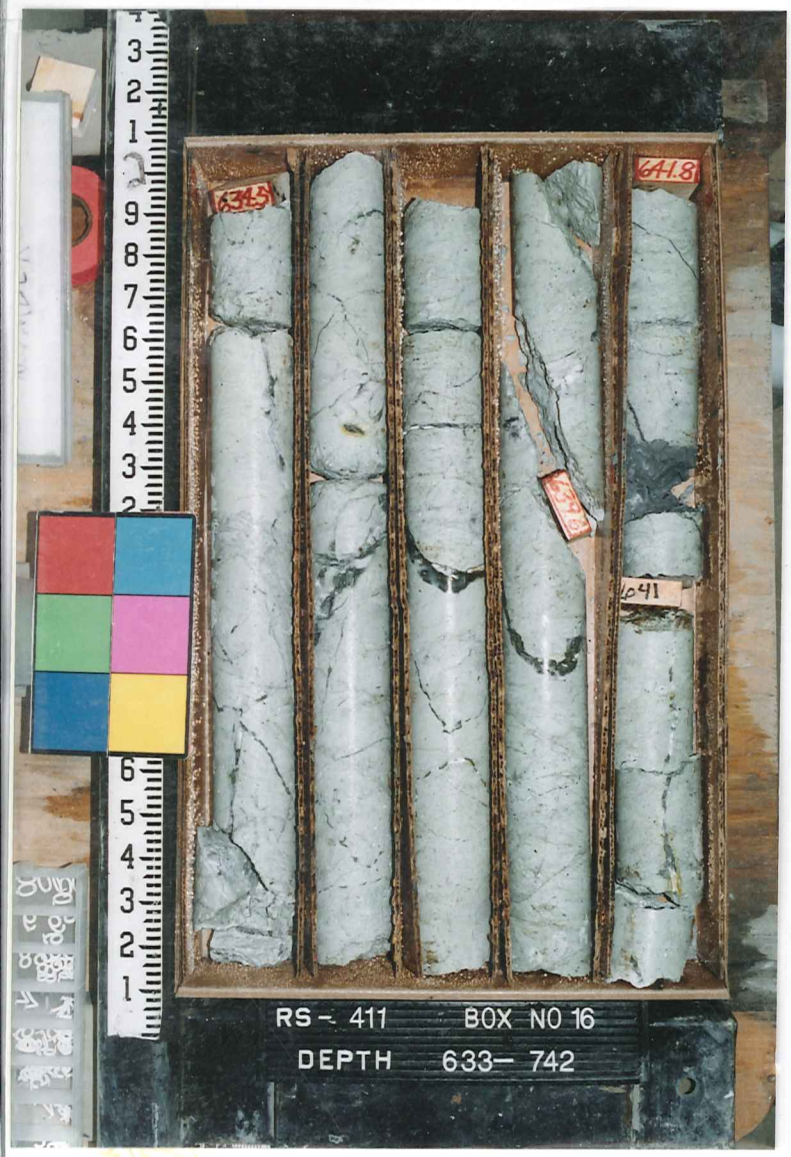
590.4
590.4
592.4
595.9
RS - 411 BOX NO 11
DEPTH 588.7 - 598

602.3
600.5
597.6
RS - 411 BOX NO 12
DEPTH 598 - 605.9

610.9
RS - 411 BOX NO 13
DEPTH 605.7 - 615.4

623.7
619.8
615.8
621.1
RS - 411 BOX NO 14
DEPTH 615.4 - 624

624.5
628.5
631.8
RS - 411 BOX NO 15
DEPTH 624 - 633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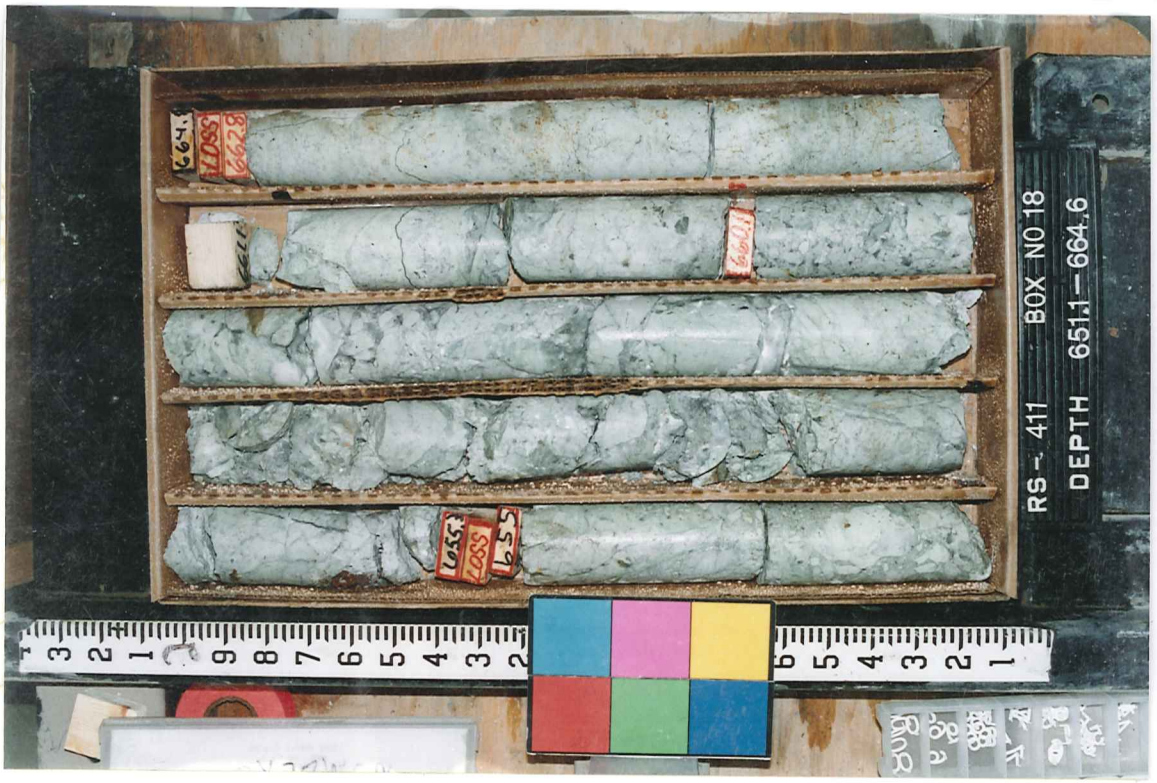
DEPTH 633- 742

RS - 411 BOX NO 17
DEPTH 642-651.1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DEPTH 651.1 - 664.6