6000 0607

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-486
AUTHOR	D. Schoorl; J. P. Rogowski; K Allen; V. Reid
DATE OF DOC(S)	2000
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Rosebud Mining Co, LLC; Rosebud Project; Hecla Mining Co.
COMMODITY If not obvious	gold; silver
NOTES	drill logs; geology; assay; total depth 665'; geochemistry 22 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 3/20/08
Initials Date
DB:
Initials Date
SCANNED:
Initials Date

Revised: 1/22/08

RS-486 Jan 2000

Mother Lode

6000 0607
4010

6000 0603

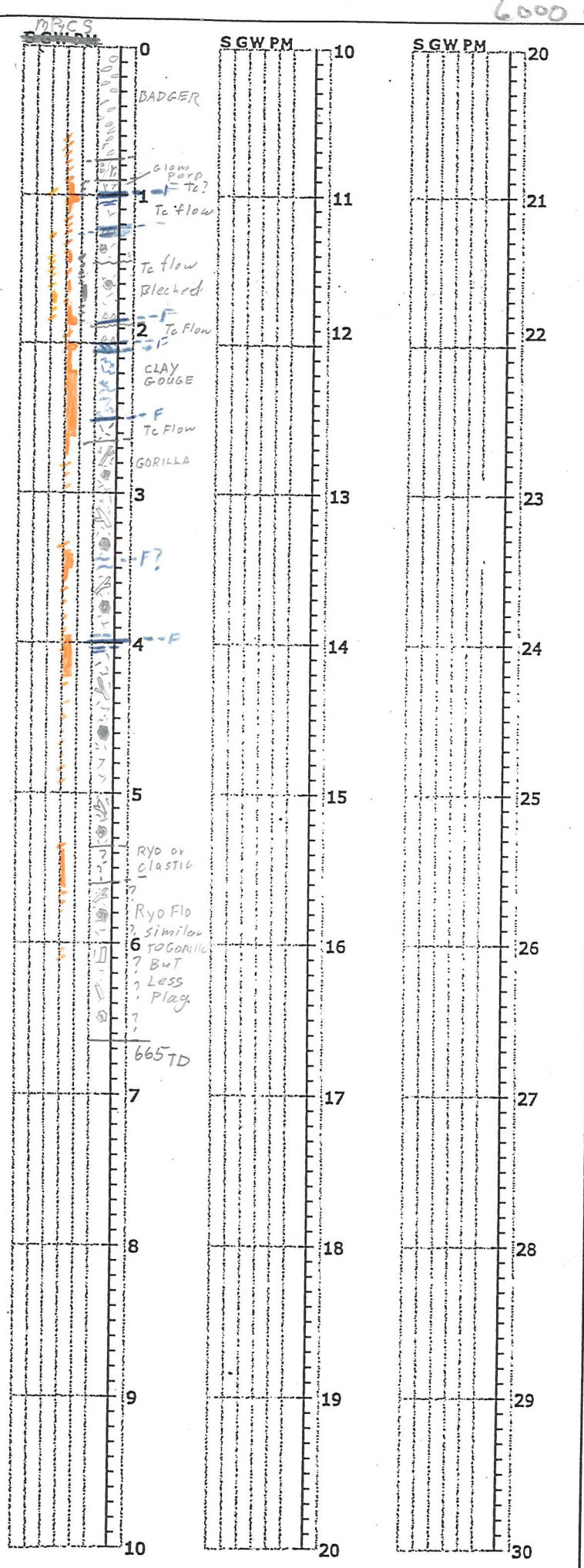
ROSEBUD MINING COMPANY, LLC.

HOLE #	RS-486
FINISH HOLE	23 Jan 2000
START HOLE	22 Jan 2000
LOGGED BY	Rogowski
HOLE TYPE	RC
T.D	665
ANGLE	-90
BEARING	—
SURVEYED TO	640
PAGE 1 OF	8

COLLAR COORDINATES

NORTH	2,206,445
EAST	481,535
ELEV	5505
DRILLER	DON SCHOORL
DRILLING CO.	Ekland

Drilled ± 100' Not mother lode shaft to see if there is a mineralized flat Fault @ abt 200 to 250' (No Joy)



ALTERATION INTENSITY

1 WEAK — 2 MODERATE — 3 STRONG

VERITHIN COLOR

737	SILICIFICATION
751	GREEN CLAY
747½	WHITE CLAY
755	PYRITE
757	MARCASITE

GRAPHIC LOG

VERITHIN COLOR

	BRECCIA
741	FAULT 741
	CONTACT
737	QUARTZ VEIN
741½	CALCITE VEIN
747½	CLAY VEIN
755	PYRITE VEIN

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

INTENSITY
1 = WEAK
2 = MODERATE
3 = STRONG
or % by Vol

HOLE NUMBER RS486
PAGE 2 OF 8
DATE 21 Jun 2000 to 23 Jun 2000
LOGGED BY Rogowski
TOTAL DEPTH 665

LOCATION ROSEBUD, NV
NORTHING 2,206,445
EASTING 481,535
ELEVATION 5505
AZIMUTH —
INCLINATION -90

AREA MOTHER LODE
DRILLING CO. EKlund
RIG TYPE RC
HOLE SIZE 6"
DOWN HOLE SURVEY BY Wel-Nav to

0-100

2/8

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE color	ALTERATION: SILICIFICATION -5%	15%	+25%	MATRIX %	CLASTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
0		Badger Detrital Clastic	0 to 75		Dark Red Brick Red	5					0					3										0														
10			clastic Tbg.			0										2																									
20			Badger clastic													1																									
30			most large clasts													tr																									
40			appear to be choc.													tr																									
50			flows that are													1																									
60			weakly magnetic													1																									
70																1																									
80																tr																									
90																2																									
100																2																									
						0										2																									
						0					1					1																									
						0					1					1																									
						0					1					2																									
						tr					1					2										0															
					1						2					0										0															
					tr						2	+3				tr										tr															

Glomo Porp Mix Glomo Porp & clastic

mix of glomo porp & Badger clastic some may be choc Fmag porp flow clastic is matrix supported & looks tech

yell & wt clay

wt & green clay

95% Porp clasts clay.

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

INTENSITY
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or % by Vol

HOLE NUMBER RS 486
PAGE 3 OF 8
DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

1-200

3/8

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
100		F	100-105 wt clay gouge w/mix Rocks	H	
110			100 to 200 F.xln matrix w/ Biophenos & num micro Femags also very rare Feldspar phenos		
120		F	wt clay gouge		
130					
140					
150		Bleached clay & Iterated Rhyo	145 to 185 Bleached, same tc Rhyo Flow		
160					
170		Bleached silica	Prob. Vn structure	H / H	
180		F F	wt clay gouge	S / S	
190		Tc Flow Rhyolite	185-215 maroon - F.xln. matrix w/ biophenos & micro Femags	H / H	
200			Red gouge & Gonilla Pow	H	

FEET	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	CLASTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE
100	Tr					3					1							
110	0					2					1							
	0					0					1							
120	0					1					1							
	0					2					2							
130	0					1					1							
	0					1					1							
140	0					1					1							
	1					2					Tr							
150	Tr					1					1							
	Tr					1					1							
160	1					2					1							
	1					2					Tr							
170	2					1					0							
	2					1					0							
180	Tr					2					0							
	Tr					3					1							
190	0					0					Tr							
	0					0					1							
200	0					0					2							

FEET	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLSURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
100				0														
110																		
120				0														
130				Tr														
140				0														
150				Tr														
160				Tr														
170				Tr														
180				2	PyC													
190				Tr														
200				1	PyC													
				0														
				0														
				0														
				0														
				Tr														
				0														
				0														
				0														
				0														
				1	PyH													
				1?														
				1														
				Tr														
				Tr														
				2	PyC													
				Tr														
				1	PyC													
				0														
				0														
				0														

grey, Hi index mineral

gray w/ & Blk coated Py

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

INTENSITY
1 = WEAK
2 = MODERATE
3 = STRONG
or % by Vol

HOLE NUMBER RS-486
PAGE 4 OF 8
DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA Mother Lode 2-300
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

4/8

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
200		F	Rapgouge & Bx 185 to 215		
210		Phyo porp	Fxln matrix, w/Bio phenos & micro. Femag		
220		F	215 to 265		
230		?	strongly clay alt. Prob clay & gouge filled struct from 220 to 250	Swy →	
240		?			
250		? F	245 to 265 Lt gry tc flow. Has micro laths that may be Femag & micro clasts.	← Reddish & Red Brn	Mushy, Very soft Rhyolite Lt Gray to Reddish Brn
260					
270		Gorilla Rhyo Porp	265 to	Rhyo Flow or Int. Dk Reddish Brn	Rhyo Porp (Gorilla)
280			Gorilla type porp phenos of Bio & clomo P plag & rare k-spar. Fxln Reddish-brn matrix		
290					
300					

FEET	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX	CLASTS	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE
200	0					3					3							
210						2					1							
						2					1							
220						2+	3				2							
230						3												
						3												
						3												
240						3												
						3					2							
250						3					Tr							
						2+	3				1							
260						2+	3											
						2+	3											
270						2												
						2												
280						1												
						Tr												
290						Tr												
						Tr					1							
300	0					Tr					Tr							

FEET	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	AC-SUL %	SILBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOCURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
200				0														
300				0														

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

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HOLE NUMBER RS486
PAGE 5 OF 8
DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA Mother Lode 3-400
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

5/8

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
300			265 to	H	
310			Gorilla type porp	1	
			Fx.ln matrix, Red-		
320			Brn. color & phenos		
			of Bio. & Glomop		
330			plag. also micro		
			specks of Hem or		
340			Hem after Ferrom.		
350					
360					
370					
380					
390					
400		F		H	

Finely porphyritic
Weakly
Reddish Brown to maroon

ALTERATION

SILICIFICATION 5%	15%	+25%	MATRIX %	QUARTZ %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE
0					0					0							
										0							
										0							
										0							
										tr							
										tr							
					0					tr							
					tr					tr							
					2+3					0							
					3					1							
					3					tr							
					2					1							
					tr												
0					tr					1							

Has trace of Emerald green color

MINERALIZATION

SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SLF %	STIBNITE %	BARITE %
			0					
			0					

METALLURGY

OXIDE	SULF	CARBON	MOCLURE

ANALYTICAL DATA

FROM	TO	W	Au	Ag

Hecla MINING COMPANY
ROSEBUD PROJECT DRILL LOG

INTENSITY
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HOLE NUMBER RS-486
PAGE 6 OF 8
DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA Mother Lode 4-500
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

6/8

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	CLASTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOCURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
400		F	Clay + gouge	S		0					3					1											0														
410			265 to	H							2					1																					↓	H_2O			
			Gorilla type								2					1																									
420			porphyry if not								3					1																									
			the gorilla porp.								3					1																									
430			Reddish-Brown								1					2																									
			to Reddish gray								+4					1																									
440			matrix w/																																					
			Bio & Glomero-																																					
450			phyric plag, has																																					
			num. micro																																					
460			black laths of																																					
			Fe mags or Hem.																																					
470			replaced mag.																																					
480																																								
490																																								
500				H		0					+4					1											0														

Gorilla (Tc?) Rhyo Porp.

Fe/n matrix Rhyo Porp.

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

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HOLE NUMBER RS-486
PAGE 7 OF 8
DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA Mother Lode 5-600
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

7/8

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MAR %	QZ STS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SLF %	SILBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
500		Rhyo Flow Overburden	265 to 535	H	Rhyo Porp. Rodeo Creek Breccia	0					0					1											0														
510			Gorilla type																																						
			Bio phenocrysts																																						
520			glomerophyric																																						
			Rhyolite																																						
530											0																														
											tr																														
		Rhyo or clasts	535 to 560																																						
540			Not sure what this	MH	Rhyo Porp. Rodeo Creek Breccia						2																															
			is. matrix appears																																						
550			to be siltstone																																						
			clastic but overall																																						
			it looks like (to)																																						
			Rhyo Flow																																						
560				MH							2																														
		Rhyo Flow	similar to	H	Rhyo Porp. Rodeo Creek Breccia						1						1																									
570			265 to 535								1						2																								
			but mottled &								tr						1																								
580			not as many								0																														
			plag phenos.																																						
590			& poss. some K-spar																																						
			would qualify one																																						
600			of the Tc porp.	H		0					0						1										0														

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

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HOLE NUMBER RS-486
PAGE 8 OF 8
DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

AREA Motherlode 6 -665 TD
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

8/8

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MAJOR	QUARTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	AS-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
600			560 to 665 (tc)	H		0					tr					tr										0														
610			similar to tc gorilla								tr																														
			but not so many								0																														
620			plag matrix																																						
			is same													tr																									
630																1																									
		Ring Dike			Fx in Ryolite Rock this whole Brown											tr																									
640																																									
650																																									
660																																									
				H		0					0					tr										0														
TD																																									
70																																									
80																																									
90																																									
00																																									

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431
PHONE: (775) 356-0806
FAX: (775) 356-1413

CLIENT: *HECLA MINING CO.*
CLIENT REF: KURT ALLEN
AAL REF: Sp65767
METHOD: AAL03-0

ELEMENT	Ag	Al	As	Au	B	Ba	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Se	Sr	Te	Th	Ti	Tl	U	V	W	Zn
SAMPLES	ppb	%	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppb	%	ppm	%	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
RS-486 000-020	39	0.73	4.4	1.6	12	70.8	0.17	0.76	0.11	1.6	6.1	9.48	1.84	3	16	0.24	40	0.12	403	1.86	0.088	4.4	0.014	38.76	0.05	0.6	0.3	42.6	< .02	12.5	0.013	0.08	1.9	14	0.9	53.4
RS-486 020-040	29	0.67	4.2	0.8	6	46.6	0.16	0.89	0.06	0.8	3.1	4.95	1.64	2.7	< 5	0.23	39.2	0.04	665	1.26	0.046	2.2	0.009	22.89	0.01	0.62	0.2	72.1	< .02	14.4	0.004	0.06	0.7	4	0.8	33.8
RS-486 040-060	32	0.54	2.3	0.4	4	45	0.13	0.73	0.07	0.8	4	6.47	1.77	2.5	7	0.22	40.6	0.04	380	1.29	0.04	3.3	0.012	18.65	< .01	0.45	0.3	90.6	0.02	14.6	0.005	0.06	1.7	10	0.9	26.4
RS-486 060-080	32	0.56	3	0.4	3	59.6	0.14	1.15	0.09	0.7	4.1	5.87	1.8	2.5	9	0.23	47.8	0.03	580	1.27	0.04	2.9	0.014	21.51	< .01	1.03	0.3	126.4	< .02	15.2	0.004	0.06	1.5	6	0.8	29.5
RS-486 080-100	80	1.37	6.7	0.8	4	109.6	0.12	0.86	0.13	1.2	3.4	7.37	1.9	5.3	35	0.52	28.4	0.08	442	1.68	0.064	2.5	0.016	23.26	0.04	1.8	0.3	150.7	0.02	11.5	0.003	0.14	2.1	9	0.5	41.2
RS-486 100-120	101	0.8	2.2	0.5	1	63.4	0.12	0.68	0.14	0.8	3.3	6.86	1.69	3.2	22	0.34	33.3	0.04	504	1.62	0.043	2.4	0.013	22.07	0.03	1.05	0.2	163.6	< .02	12.3	0.004	0.09	2.4	8	0.6	27.3
RS-486 120-140	82	0.88	3.1	1.1	1	118.3	0.13	1.03	0.22	1	3.2	5.74	1.78	3.2	36	0.37	35.6	0.04	724	1.1	0.049	2.3	0.015	23.16	0.06	1.86	0.2	194.9	0.02	11.8	0.004	0.09	1.6	6	0.6	31.8
RS-486 140-160	139	1.15	7.5	0.8	1	143.3	0.16	0.64	0.12	1.4	2.6	6.48	1.73	4.2	91	0.42	39.7	0.04	305	1.81	0.056	2	0.018	25.48	0.45	2.26	0.4	196.6	< .02	12.5	< .001	0.12	0.7	3	0.2	52.7
RS-486 160-180	184	1.22	10.6	2.2	< 1	97.5	0.19	0.49	0.27	1.4	2.9	6.94	1.83	4.6	91	0.4	46.1	0.04	256	3.92	0.056	2.3	0.023	27.15	0.52	2.65	0.5	207	< .02	13.7	< .001	0.13	0.8	4	< .2	60.8
RS-486 180-200	94	0.86	7	1	< 1	108.8	0.05	0.78	0.28	0.8	2.8	6.22	1.67	3.7	33	0.32	21.2	0.03	621	1.64	0.044	2.5	0.009	20.66	0.2	2.15	0.3	148.1	< .02	9.2	0.001	0.07	1.3	5	0.6	33.9
RS-486 200-220	170	1.3	2.3	0.2	1	79.1	0.13	1.51	0.38	0.9	3.6	8.72	2.37	5.6	14	0.48	26.8	0.05	1270	1.44	0.073	3.1	0.01	36.28	< .01	2.44	0.2	233.9	0.03	13.7	0.004	0.12	3	6	1	43.9
RS-486 220-240	54	1.13	2.7	1	1	116.8	0.04	1.52	0.45	0.8	2.9	2.74	1.87	4.8	6	0.37	24.2	0.05	1181	1.52	0.058	2.2	0.006	30.59	< .01	1.37	0.2	223.6	0.02	12	0.001	0.08	2.3	7	1	39.6
RS-486 240-260	65	1.59	2.6	1.1	< 1	188.6	0.1	1.24	0.39	1.8	3.4	2.97	2.68	5.3	7	0.43	39	0.09	779	0.68	0.067	1.5	0.063	30.82	0.01	0.52	0.2	427.5	0.04	11.8	0.001	0.15	2.7	17	0.4	41.4
RS-486 260-280	66	1.53	2.6	1.4	1	92.2	0.15	1.31	0.34	4.9	4.5	6.89	3.89	6.4	< 5	0.51	36.7	0.15	584	0.61	0.071	2.7	0.128	28.73	< .01	0.59	0.2	363	0.04	9	0.018	0.24	2	24	0.4	47
RS-486 280-300	80	0.77	1	0.8	4	79.5	0.08	1.56	0.31	6.4	6.9	10.08	3.76	4	< 5	0.26	26.5	0.14	1175	1.29	0.062	4.1	0.113	12.2	< .01	0.43	0.3	172.6	< .02	5.9	0.03	0.09	3.3	26	0.7	61.9
RS-486 300-320	110	0.68	1.5	1.2	5	76.4	0.05	1.18	0.33	8.4	8.6	16.03	4.12	3.9	7	0.22	26.4	0.17	1036	1.86	0.064	5.9	0.119	12.29	0.01	0.49	0.3	115.2	< .02	5.7	0.045	0.07	3	28	0.7	79.2
RS-486 320-340	103	1.34	2.5	1	3	417.5	0.07	1.16	0.23	7.1	6.7	12.67	3.88	5.4	8	0.3	29.6	0.29	948	1.32	0.077	4.4	0.121	14.39	0.01	0.37	0.3	245.6	0.02	7.4	0.017	0.19	2.7	25	0.4	63
RS-486 340-360	75	1.8	3	1	2	113.8	0.1	1.32	0.24	9.8	7.7	13.64	3.85	7.7	< 5	0.32	36.4	0.54	1071	0.88	0.088	4.4	0.128	17.48	< .01	0.33	0.3	375.2	0.03	7	0.016	0.26	1.9	28	< .2	95.6
RS-486 360-380	88	0.89	2.1	1.1	5	107.5	0.12	1.62	0.17	9	11.6	21.16	4.54	5.8	5	0.23	27.2	0.32	992	2.42	0.066	7.1	0.112	14.24	< .01	0.66	0.3	105.8	< .02	5.8	0.062	0.09	2.8	31	0.7	88.2
RS-486 380-400	106	1.5	2.6	1.1	2	173.5	0.16	1.27	0.24	7.8	7.5	27.32	3.91	6.1	< 5	0.34	31.9	0.39	792	1.21	0.08	4.1	0.115	118.37	0.02	0.68	0.2	271.8	0.03	6.1	0.02	0.23	2.3	23	< .2	141.5
RS-486 400-420	79	1.9	3.7	1.1	1	118	0.12	1.43	0.14	7.7	5.3	15.38	3.58	6.9	6	0.43	38.5	0.41	700	0.47	0.097	2.7	0.129	65.7	0.02	0.65	0.2	409.8	0.03	6.6	0.008	0.37	1.8	21	< .2	120.3
RS-486 420-440	118	1.06	1.7	0.4	1	119.1	0.08	1.86	0.22	7.7	6.6	12.29	4.03	5.6	< 5	0.32	28.4	0.29	965	1.18	0.062	4	0.115	26.39	0.01	1.36	0.2	195	0.02	4.5	0.041	0.13	3.3	24	< .2	94.9
RS-486 440-460	116	0.92	2.5	0.5	1	131.5	0.1	1.66	0.19	6.7	8.1	18.03	4.62	5	5	0.31	26.9	0.18	776	1.83	0.067	5.9	0.109	18.61	< .01	1.04	0.3	156.2	< .02	6.5	0.048	0.11	2.4	23	0.5	69.3
RS-486 460-480	116	1.12	2.2	2.3	2	123.8	0.07	1.71	0.18	7	6.9	13.92	4.23	6	20	0.42	22.4	0.17	1056	1.48	0.101	4.1	0.112	23.18	< .01	1.1	0.3	142.4	< .02	5.1	0.071	0.16	2.9	31	0.4	81.9
RS-486 480-500	76	0.77	1.9	< .2	1	75.8	0.04	1.29	0.14	6.3	5.6	13.24	3.82	4.2	< 5	0.26	24	0.19	620	1.39	0.061	3.2	0.102	23.61	< .01	1.33	0.3	136.7	< .02	6.1	0.049	0.09	3	24	0.4	72.5
RS-486 500-520	89	0.73	1.8	0.8	1	71.4	0.02	1.3	0.16	6.1	5.2	10.91	3.73	3.8	28	0.24	26.1	0.16	654	1.06	0.058	3.2	0.101	12.62	0.01	2.01	0.3	162.1	< .02	8.2	0.058	0.06	3.1	23	0.7	69.8
RS-486 520-540	117	0.85	2.6	1.1	< 1	96	0.14	1.64	0.29	5.7	3.6	9.43	3.79	3.9	19	0.27	29.3	0.15	705	0.93	0.064	2.5	0.106	23.68	0.01	1.32	0.3	201.1	0.03	8.5	0.054	0.07	2.6	18	0.6	67.6
RS-486 540-560	165	1.31	2.3	1.3	< 1	97.6	0.28	1.96	0.13	6.8	3.4	8.94	4.12	5.9	< 5	0.31	36.5	0.24	732	0.26	0.088	2.3	0.119	32.3	0.01	1.1	0.2	302.9	0.03	7.5	0.029	0.06	2.6	12	0.4	75.2
RS-486 560-580	73	0.73	3.6	2.6	1	73.1	0.08	2.1	0.24	6.7	4	10.1	3.73	4.6	< 5	0.25	29.5	0.17	990	0.68	0.058	2.8	0.111	16.59	< .01	0.69	0.3	140.4	< .02	6.7	0.06	0.05	1.9	17	0.6	72
RS-486 580-600	86	0.58	4.1	2.1	2	75	0.21	1.81	0.15	6.2	3.7	7.27	3.56	4.2	< 5	0.25	28.8	0.13	728	0.48	0.052	2.2	0.112	27.13	0.01	0.66	0.3	106.3	< .02	7.7	0.07	0.04	1.2	14	0.6	58.1
RS-486 600-620	79	1.01	3.8	1.6	5	107.2	0.23	1.39	0.28	6.4	7.6	16.3	4.82	6.4	5	0.46	25.7	0.14	880	1.85	0.138	5	0.107	20.2	< .01	1.01	0.3	94.9	< .02	7.3	0.074	0.11	2.4	30	0.6	88.1
RS-486 620-640	41	1.23	2.6	0.6	5	137.8	0.03	1.38	0.19	7.1	7.1	14.9	4.38	7.2	< 5	0.51	24.2	0.25	1024	1.81	0.233	4.5	0.1	16.01	< .01	0.61	0.3	107.1	< .02	7.3	0.067	0.13	4.3	30	0.6	83.9
RS-486 640-665	51	1.06	3.9	0.4	4	122.7	0.03	0.89	0.18	7.6	6.9	13.16	4.24	6.8	24	0.46	24.3	0.19	839	1.89	0.19	3.7	0.106	16.75	< .01	0.59	0.3	89.3	< .02	7.6	0.073	0.13	4.3	31	0.5	85.3
75367	33645	0.97	72.4	1612.5	< 1	94.5	0.66	0.89	0.24	3.1	22.8	12.73	2.02	3	243	0.4	19.2	0.09	253	8.87	0.03	12.3	0.069	21.77	1.84	10.17	18.1	82.4	0.02	3.4	< .001	0.31	0.7	3	0.4	77.4
STANDARD DS2	228	1.71	57.5	188.5	2	145.2	11.18	0.51	10.78	12.2	153.7	120.71	3.08	6.6	237	0.17	17.4	0.57	780	13.71	0.032	33.4	0.086	33.21	0.01	9.42	2.2	26.8	1.81	3.8	0.092	1.86	19	72	6.8	162

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP055767

PO BOX 11530
RENO NV,USA
Ph.(775) 356-0606, Fax.(775) 356-1413

HECLA MINING COMPANY

COPIES TO : KURT ALLEN
:
:
:

CLIENT REFERENCE No: RS-486 RECEIVED : 28 JAN 2000

No. SAMPLES : 133 REPORTED : 14 FEB 2000

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 : Leonard E. Mackedon B.S.

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP055767

CLIENT : HECLA MINING COMPANY
PROJECT : MOTHER LODE
REFERENCE : RS-486

REPORTED : 14 FEB 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-486 000-005	<5		<0.001			
RS-486 005-010	<5		<0.001			
RS-486 010-015	<5	<5	<0.001	<0.001		
RS-486 015-020	<5		<0.001			
RS-486 020-025	<5		<0.001			
RS-486 025-030	<5		<0.001			
RS-486 030-035	<5		<0.001			
RS-486 035-040	<5		<0.001			
RS-486 040-045	<5		<0.001			
RS-486 045-050	<5		<0.001			
RS-486 050-055	<5		<0.001			
RS-486 055-060	<5		<0.001			
RS-486 060-065	<5		<0.001			
RS-486 065-070	<5		<0.001			
RS-486 070-075	<5		<0.001			
RS-486 075-080	<5		<0.001			
RS-486 080-085	<5	<5	<0.001	<0.001		
RS-486 085-090	<5		<0.001			
RS-486 090-095	<5		<0.001			
RS-486 095-100	<5		<0.001			
RS-486 100-105	<5		<0.001			
RS-486 105-110	<5		<0.001			
RS-486 110-115	<5		<0.001			
RS-486 115-120	<5		<0.001			
RS-486 120-125	<5		<0.001			

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP055767

CLIENT : HECLA MINING COMPANY
PROJECT : MOTHER LODE
REFERENCE : RS-486

REPORTED : 14 FEB 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-486 125-130	<5		<0.001			
RS-486 130-135	<5		<0.001			
RS-486 135-140	<5		<0.001			
RS-486 140-145	<5		<0.001			
RS-486 145-150	<5		<0.001			
RS-486 150-155	<5		<0.001			
RS-486 155-160	<5		<0.001			
RS-486 160-165	<5	<5	<0.001	<0.001		
RS-486 165-170	<5		<0.001			
RS-486 170-175	<5		<0.001			
RS-486 175-180	<5		<0.001			
RS-486 180-185	<5		<0.001			
RS-486 185-190	<5	<5	<0.001	<0.001		
RS-486 190-195	<5		<0.001			
RS-486 195-200	<5		<0.001			
RS-486 200-205	<5		<0.001			
RS-486 205-210	<5		<0.001			
RS-486 210-215	<5		<0.001			
RS-486 215-220	<5		<0.001			
RS-486 220-225	<5		<0.001			
RS-486 225-230	<5		<0.001			
RS-486 230-235	<5		<0.001			
RS-486 235-240	<5		<0.001			
RS-486 240-245	<5		<0.001			
RS-486 245-250	<5		<0.001			

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP055767

CLIENT : HECLA MINING COMPANY
PROJECT : MOTHER LODE
REFERENCE : RS-486

REPORTED : 14 FEB 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-486 250-255	<5		<0.001			
RS-486 255-260	<5		<0.001			
RS-486 260-265	<5		<0.001			
RS-486 265-270	<5	<5	<0.001	<0.001		
RS-486 270-275	<5		<0.001			
RS-486 275-280	<5		<0.001			
RS-486 280-285	<5		<0.001			
RS-486 285-290	<5		<0.001			
RS-486 290-295	<5		<0.001			
RS-486 295-300	<5		<0.001			
RS-486 300-305	<5		<0.001			
RS-486 305-310	<5		<0.001			
RS-486 310-315	<5		<0.001			
RS-486 315-320	<5		<0.001			
RS-486 320-325	<5		<0.001			
RS-486 325-330	<5	<5	<0.001	<0.001		
RS-486 330-335	<5	<5	<0.001	<0.001		
RS-486 335-340	<5		<0.001			
RS-486 340-345	<5		<0.001			
RS-486 345-350	<5		<0.001			
RS-486 350-355	<5		<0.001			
RS-486 355-360	<5		<0.001			
RS-486 360-365	<5		<0.001			
RS-486 365-370	<5		<0.001			
RS-486 370-375	<5		<0.001			

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP055767

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PROJECT : MOTHER LODE
REFERENCE : RS-486

REPORTED : 14 FEB 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-486 375-380	<5		<0.001			
RS-486 380-385	<5		<0.001			
RS-486 385-390	<5		<0.001			
RS-486 390-395	<5		<0.001			
RS-486 395-400	<5		<0.001			
RS-486 400-405	<5		<0.001			
RS-486 405-410	<5	<5	<0.001	<0.001		
RS-486 410-415	<5		<0.001			
RS-486 415-420	<5		<0.001			
RS-486 420-425	<5		<0.001			
RS-486 425-430	<5		<0.001			
RS-486 430-435	<5		<0.001			
RS-486 435-440	<5		<0.001			
RS-486 440-445	<5		<0.001			
RS-486 445-450	<5		<0.001			
RS-486 450-455	<5		<0.001			
RS-486 455-460	<5		<0.001			
RS-486 460-465	<5		<0.001			
RS-486 465-470	<5		<0.001			
RS-486 470-475	<5		<0.001			
RS-486 475-480	<5		<0.001			
RS-486 480-485	<5		<0.001			
RS-486 485-490	<5		<0.001			
RS-486 490-495	<5		<0.001			
RS-486 495-500	<5		<0.001			

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP055767

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PROJECT : MOTHER LODE
REFERENCE : RS-486

REPORTED : 14 FEB 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-486 500-505	<5		<0.001			
RS-486 505-510	<5		<0.001			
RS-486 510-515	<5		<0.001			
RS-486 515-520	<5		<0.001			
RS-486 520-525	<5		<0.001			
RS-486 525-530	<5	<5	<0.001	<0.001		
RS-486 530-535	<5		<0.001			
RS-486 535-540	<5		<0.001			
RS-486 540-545	<5	<5	<0.001	<0.001		
RS-486 545-550	<5		<0.001			
RS-486 550-555	<5		<0.001			
RS-486 555-560			SAMPLE NOT RECEIVED			
RS-486 560-565	<5		<0.001			
RS-486 565-570	<5		<0.001			
RS-486 570-575	<5		<0.001			
RS-486 575-580	<5		<0.001			
RS-486 580-585	<5		<0.001			
RS-486 585-590	<5		<0.001			
RS-486 590-595	<5	<5	<0.001	<0.001		
RS-486 595-600	<5		<0.001			
RS-486 600-605	<5		<0.001			
RS-486 605-610	<5		<0.001			
RS-486 610-615	<5		<0.001			
RS-486 615-620	<5		<0.001			
RS-486 620-625	<5		<0.001			

AMERICAN ASSAY LABORATORIES

PROVISIONAL REPORT SP055767

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PROJECT : MOTHER LODE
REFERENCE : RS-486

REPORTED : 14 FEB 2000

SAMPLES	Au	Au(R)	Au(OZ)	Au(RZ)	Ag	Ag(OZ)
RS-486 625-630	<5		<0.001			
RS-486 630-635	<5	<5	<0.001	<0.001		
RS-486 635-640	<5		<0.001			
RS-486 640-645	<5		<0.001			
RS-486 645-650	<5		<0.001			
RS-486 650-655	<5		<0.001			
RS-486 655-660	<5		<0.001			
RS-486 660-665	<5		<0.001			
75367	2202		0.064			

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SUBMITTAL FORM

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American Assay Laboratories

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Santiago, Chile
Mendoza, Argentina

Company: Rosebud Mining, LLC

Address: PO Box 2610

City Winnemucca State NV Zip 89446

Telephone Number: (775) 623-6912 Fax Number: (775) 623-8967

Project Name: Mother Lode Purchase Order Number:

Date Submitted: 25 Jan. 2000 Number of Samples: 367

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

SAMPLE IDENTIFICATION	TYPE	ELEMENTS REQUIRED
RS-486 (Drill hole)	RC	Au + Ag — Use Rosebud
0 to 665		Production protocol
RS-487 0 to 645		sample prep + assay
RS-489 0 to 525		
Note: Please make up		30 lbs composite of
the sample pulps		for ICP + Se trace
elements		
1 (one) pulp — Rosebud		
production standard		
at end of run		

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
PO Box 2610
Winnemucca, NV 89446

Results to:

Kurt Allen

Same

Comments:

Plus two samples left behind @ Hole RS 485 35-40 & 45 to 50

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Project Name: Mother Lode Purchase Order Number:

Date Submitted: 25 Jan 2000 Number of Samples: 367

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

SAMPLE IDENTIFICATION	TYPE	ELEMENTS REQUIRED
RS-486 (Drill Hole)	RC	Au & Ag - Use Rosebud
0 to 665		Exploration protocol
RS-487 0 to 645		sample prep & assays
RS-488 0 to 525		
Note: Please make up 20 foot composite of		
the sample pulps		for ICP + Se Trace
elements		
1 (one) pulp - Rosebud		
production standard		
at end of run		

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
PO Box 2610
Winnemucca, NV 89446

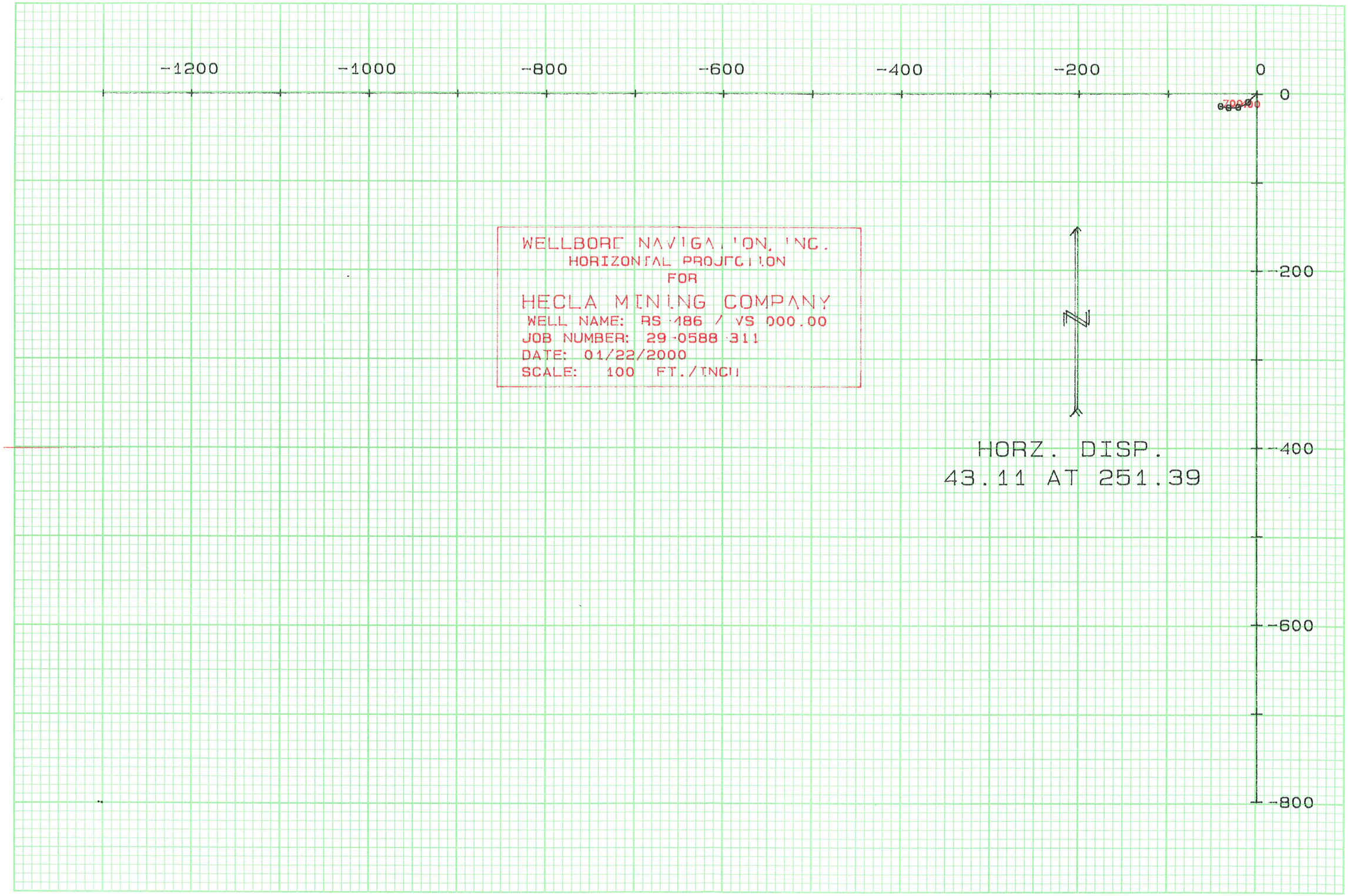
Results to:

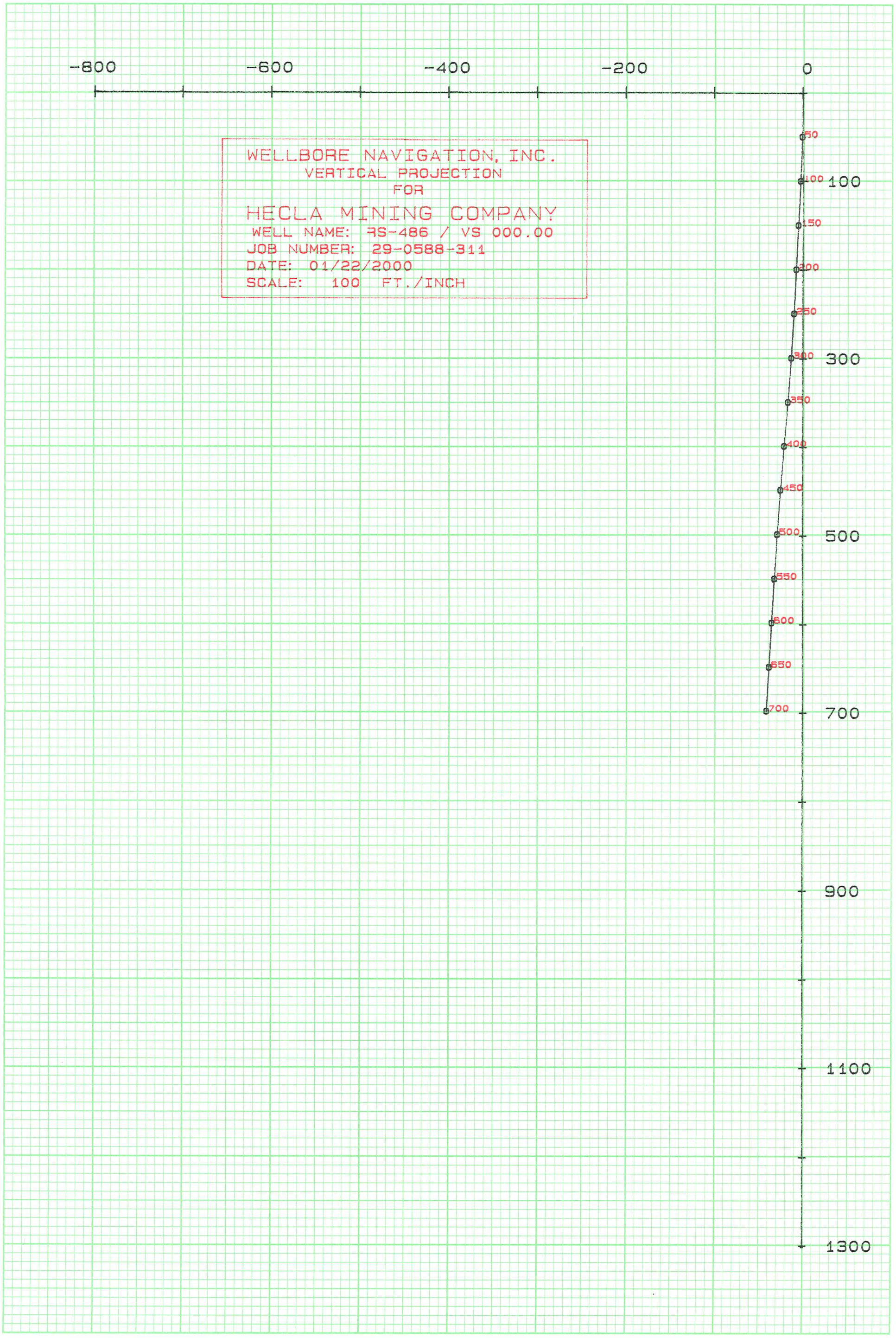
Kurt Allen
same

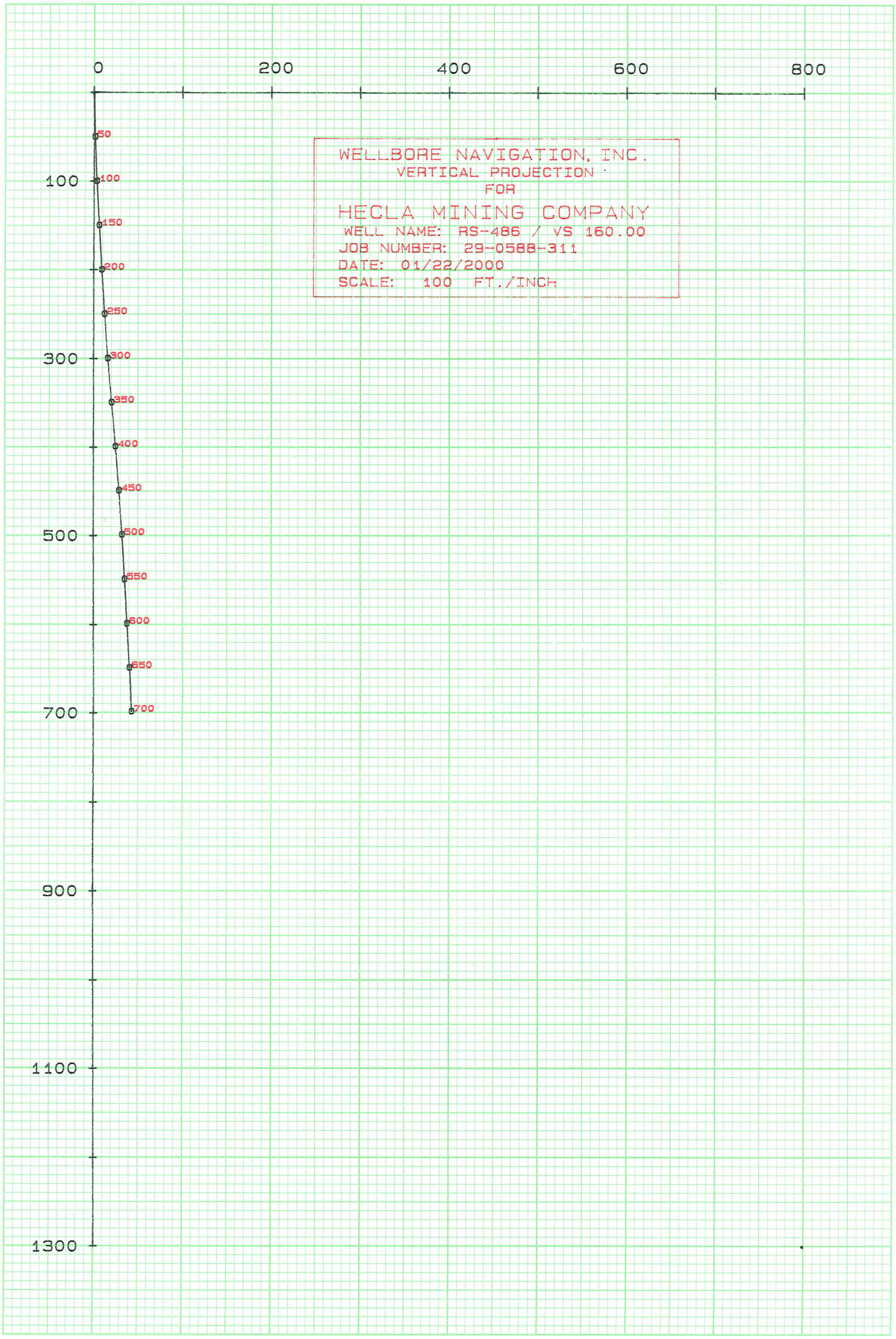
Comments:

Plus two samples left behind @ Hole RS 485 35-40 & 45 to 50

CLIENT FILE COPY







WELLBORE NAVIGATION.INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* HECLA MINING COMPANY *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-486 / VS 000.00

LOCATION: ROSEBUD

SURVEY DATE: 01/22/2000

SURVEY ENGINEER: VERN REID

GYRO REFERENCE BEARING: TRUE NORTH

TIE-ON COORDINATES AT: 0 M.D.
TAKEN FROM: COLLAR

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 090.00
WATER CONTACT= 286'

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

COMMENTS: **** EKLUND ****
** DON SCHOORL **

PROJECTED F/645' 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: 29-0588-311 WELL NAME: RS-486 / VS 000.00

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
0.0	0.00	0.00	0.000	-89.11	236.76	0.00 N	0.00 E	0.00		0.00	AT 000.00	
50.0	49.99	-1.00	0.550	-88.28	243.30	0.55 S	1.00 W	1.68	0.84	1.14	AT 241.07	046.87
100.0	99.94	-2.79	1.753	-86.75	232.36	1.75 S	2.79 W	3.19	1.59	3.29	AT 237.84	048.08
150.0	149.83	-5.11	3.958	-85.87	221.95	3.96 S	5.11 W	2.21	1.10	6.47	AT 232.26	049.68
200.0	199.71	-7.47	6.572	-86.05	222.22	6.57 S	7.47 W	0.36	0.18	9.95	AT 228.68	050.85
250.0	249.59	-9.90	9.101	-85.91	225.34	9.10 S	9.90 W	0.52	0.26	13.45	AT 227.41	051.66
300.0	299.44	-12.95	11.440	-85.22	238.57	11.44 S	12.95 W	2.46	1.23	17.28	AT 228.53	061.52
350.0	349.25	-16.86	13.382	-84.73	248.13	13.38 S	16.86 W	1.94	0.97	21.52	AT 231.55	062.80
400.0	399.05	-21.09	14.724	-85.04	256.98	14.72 S	21.09 W	1.69	0.85	25.72	AT 235.08	063.46
450.0	448.88	-25.12	15.425	-85.56	263.68	15.42 S	25.12 W	1.51	0.76	29.48	AT 238.45	064.01
500.0	498.75	-28.70	15.535	-86.20	273.56	15.53 S	28.70 W	1.91	0.95	32.63	AT 241.57	064.37
550.0	548.65	-31.93	15.320	-86.38	274.05	15.32 S	31.93 W	0.37	0.18	35.41	AT 244.37	064.77
600.0	598.55	-35.03	15.040	-86.47	276.28	15.04 S	35.03 W	0.33	0.17	38.12	AT 246.76	065.39
650.0	648.46	-37.99	14.500	-86.61	284.56	14.50 S	37.99 W	1.04	0.52	40.67	AT 249.11	066.43
700.0	698.37	-40.86	13.757	-86.60	284.52	13.76 S	40.86 W	0.02	0.01	43.11	AT 251.39	066.51

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*************************************************************
*                        ********                           *
*     THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                        ********                           *
*   700.0 FEET EQUALS     43.11   FEET AT  251.39           *
*                        ********                           *
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