60000604

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-483
AUTHOR	D. Schoerl; J.P. Rogowski; W. Eklund V. Reid; K. Allen
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; Wildrose; Hecla Mining Co.
COMMODITY If not obvious	gold; silver
NOTES	drill logs; geology; assay; total depth 1605' 36 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 - 483 99

60000604
4010

60000604

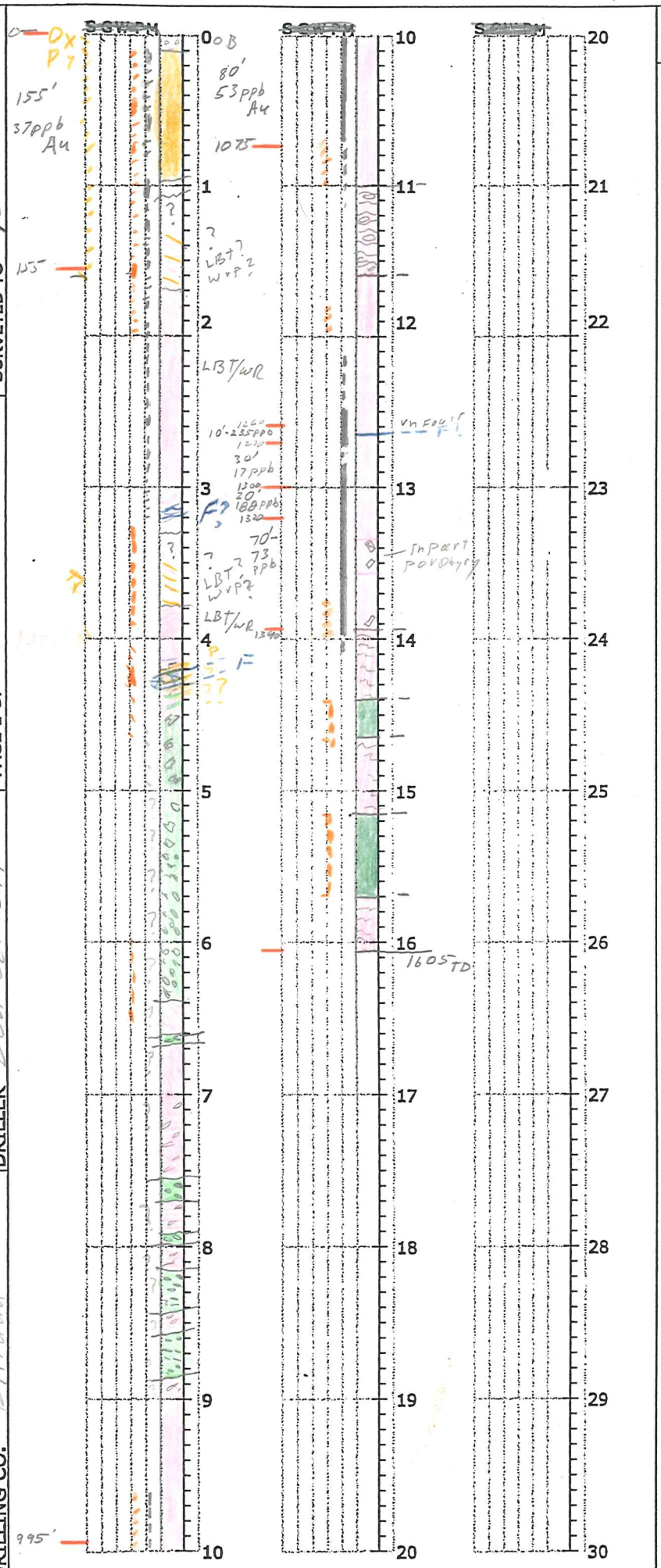
ROSEBUD MINING COMPANY, LLC.

Drilled on west side of Wild rose area

HOLE #	RS-483
FINISH HOLE	6 Jan 2000
LOGGED BY	Rogowski
ANGLE	-90
T.D	1605'
SURVEYED TO	1500
START HOLE	1 Jan 2000
HOLE TYPE	RC
BEARING	—
PAGE 1 OF	

COLLAR COORDINATES

NORTH	2,220,685
EAST	475,185
ELEV	5635
DRILLER	Don Schoorl
DRILLING CO.	Ekland



ALTERATION INTENSITY

1 WEAK — 2 MODERATE — 3 STRONG

VERITHIN COLOR

734½ ~~737~~	SILICIFICATION Gray
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

	LBT-743 Pink
	WRP 755 Golden Brn
	BUD-Like ?Epiclastic? True green 751 Poss Auto Bx
	Basalt or Andesite Dikes?

INSPECTORATE

ROCKY MOUNTAIN GEOCHEMICAL

A MEMBER OF THE INSPECTORATE GROUP OF COMPANIES

840 GREG STREET • SPARKS, NEVADA 89431 • PHONE (775) 359-6311 • FAX (775) 359-2944

Preliminary Analysis

DATE: Tuesday, January 25, 2000

JOB NO: 100-00-77

CLIENT: Hecla (Rosebud Mine)
P.O. Box 2610
Winnemucca, NV 89446 US

INVOICE NO:

CLIENT ORDER NO: RS-483

REPORT ON: 323 RC

SUBMITTED BY: Kurt Allen

DATE RECIEVED: Friday, January 07, 2000

ANALYSES: Rosebud Mine Development Protocol

ANALYTICAL METHODS: FA/AA, FA/GRAV

REMARKS:

CC: RMG File

E-MAILED TO:

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:09 NO.435 02/12

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:10 NO.435 03/12

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
1	RS-483 0'-5'	71	0.002		0.4	0.013	
2	RS-483 5'-10'	60	0.002		0.2	0.006	
3	RS-483 10'-15'	21	0.001	0 - 155	0.3	0.009	
4	RS-483 15'-20'	-2	-0.001	155' 37 oz/ton	0.2	0.006	
5	RS-483 20'-25'	41	0.001	30)1120	0.5	0.016	
6	RS-483 25'-30'	51	0.001		0.3	0.010	
7	RS-483 30'-35'	34	0.001		0.3	0.008	
8	RS-483 35'-40'	53	0.002		0.8	0.023	
9	RS-483 40'-45'	5	-0.001		0.3	0.008	
10	RS-483 45'-50'	45	0.001		0.2	0.007	
11	RS-483 50'-55'	51	0.001		0.2	0.007	
12	RS-483 55'-60'	237	0.007		0.7	0.021	
13	RS-483 60'-65'	55	0.002		0.3	0.008	
14	RS-483 65'-70'	16	-0.001		0.3	0.010	
15	RS-483 70'-75'	16	-0.001		0.3	0.009	
16	RS-483 75'-80'	7	-0.001		0.3	0.009	
17	RS-483 80'-85'	10	-0.001		0.2	0.006	
18	RS-483 85'-90'	M	M	M	M		
19	RS-483 90'-95'	43	0.001		1.7	0.051	
20	RS-483 95'-100'	8	-0.001		0.1	0.004	
21	RS-483 100'-105'	2	0.001		0.2	0.006	
22	RS-483 105'-110'	30	-0.001		0.2	0.005	
23	RS-483 110'-115'	8	-0.001		0.1	0.004	
24	RS-483 115'-120'	13	-0.001		0.1	0.004	
25	RS-483 120'-125'	5	-0.001		0.2	0.007	
26	RS-483 125'-130'	13	-0.001		0.8	0.022	
27	RS-483 130'-135'	67	0.002		0.5	0.014	
28	RS-483 135'-140'	100	0.003		0.6	0.018	
29	RS-483 140'-145'	5	-0.001		0.2	0.007	
30	RS-483 145'-150'	10	-0.001		0.7	0.019	
31	RS-483 150'-155'	41	0.001		0.3	0.009	
32	RS-483 155'-160'	4	-0.001		0.4	0.013	
33	RS-483 160'-165'	-2	-0.001		0.1	0.003	

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
34	RS-483 165'-170'	-2	-0.001		0.3	0.009	
35	RS-483 170'-175'	-2	-0.001		0.1	0.004	
36	RS-483 175'-180'	-2	-0.001		0.3	0.010	
37	RS-483 180'-185'	-2	-0.001		0.2	0.007	
38	RS-483 185'-190'	-2	-0.001		0.2	0.005	
39	RS-483 190'-195'	-2	-0.001		0.2	0.007	
40	RS-483 195'-200'	-2	-0.001		0.1	0.004	
41	RS-483 200'-205'	-2	-0.001		0.2	0.007	
42	RS-483 205'-210'	-2	-0.001		0.1	0.004	
43	RS-483 210'-215'	-2	-0.001		0.3	0.008	
44	RS-483 215'-220'	-2	-0.001		0.3	0.009	
45	RS-483 220'-225'	-2	-0.001		0.2	0.006	
46	RS-483 225'-230'	-2	-0.001		0.3	0.008	
47	RS-483 230'-235'	-2	-0.001		0.2	0.005	
48	RS-483 235'-240'	-2	-0.001		0.2	0.005	
49	RS-483 240'-245'	-2	-0.001		0.6	0.017	
50	RS-483 245'-250'	5	-0.001		0.1	0.004	
51	RS-483 250'-255'	-2	-0.001		0.1	0.003	
52	RS-483 255'-260'	13	-0.001		0.3	0.008	
53	RS-483 260'-265'	16	-0.001		0.4	0.012	
54	RS-483 265'-270'	-2	-0.001		0.2	0.007	
55	RS-483 270'-275'	-2	-0.001		0.2	0.006	
56	RS-483 275'-280'	-2	-0.001		0.1	0.003	
57	RS-483 280'-285'	-2	-0.001		0.2	0.005	
58	RS-483 285'-290'	-2	-0.001		0.3	0.010	
59	RS-483 290'-295'	-2	-0.001		0.4	0.012	
60	RS-483 295'-300'	-2	-0.001		0.1	0.004	
61	RS-483 300'-305'	-2	-0.001		0.3	0.008	
62	RS-483 305'-310'	-2	-0.001		0.2	0.006	
63	RS-483 310'-315'	-2	-0.001		0.2	0.007	
64	RS-483 315'-320'	-2	-0.001		0.3	0.010	
65	RS-483 320'-325'	149	0.004		0.6	0.018	
66	RS-483 325'-330'	3	-0.001		0.1	0.004	
67	RS-483 330'-335'	23	0.001		0.2	0.007	
68	RS-483 335'-340'	-2	-0.001		0.3	0.008	
69	RS-483 340'-345'	3	-0.001		0.2	0.007	

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:10 NO.435 04/12

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
70	RS-483 345'-350'	5	-0.001		0.2	0.007	
71	RS-483 350'-355'	-2	-0.001		0.2	0.007	
72	RS-483 355'-360'	-2	-0.001		0.2	0.007	
73	RS-483 360'-365'	36	0.001		0.2	0.005	
74	RS-483 365'-370'	2	-0.001		0.1	0.002	
75	RS-483 370'-375'	-2	-0.001		0.2	0.006	
76	RS-483 375'-380'	-2	-0.001		0.1	0.003	
77	RS-483 380'-385'	7	-0.001		0.2	0.005	
78	RS-483 385'-390'	-2	-0.001		0.1	0.003	
79	RS-483 390'-395'	-2	-0.001		0.2	0.005	
80	RS-483 395'-400'	15	-0.001		0.3	0.009	
81	RS-483 400'-405'	10	-0.001		0.2	0.005	
82	RS-483 405'-410'	-2	-0.001		0.2	0.006	
83	RS-483 410'-415'	-2	-0.001		0.1	0.004	
84	RS-483 415'-420'	-2	-0.001		0.2	0.005	
85	RS-483 420'-425'	-2	-0.001		0.2	0.005	
86	RS-483 425'-430'	-2	-0.001		0.2	0.000	
87	RS-483 430'-435'	-2	-0.001		0.1	0.003	
88	RS-483 435'-440'	-2	-0.001		0.1	0.004	
89	RS-483 440'-445'	-2	-0.001		0.1	0.003	
90	RS-483 445'-450'	-2	-0.001		0.1	0.004	
91	RS-483 450'-455'	-2	-0.001		0.1	0.003	
92	RS-483 455'-460'	10	-0.001		0.1	0.004	
93	RS-483 460'-465'	4	-0.001		0.3	0.009	
94	RS-483 465'-470'	3	-0.001		0.1	0.003	
95	RS-483 470'-475'	3	-0.001		0.2	0.007	
96	RS-483 475'-480'	-2	-0.001		0.1	0.004	
97	RS-483 480'-485'	-2	-0.001		0.2	0.007	
98	RS-483 485'-490'	-2	-0.001		0.1	0.002	
99	RS-483 490'-495'	-2	-0.001		0.2	0.007	
100	RS-483 495'-500'	4	-0.001		0.2	0.005	
101	RS-483 500'-505'	3	-0.001		0.1	0.004	
102	RS-483 505'-510'	7	-0.001		0.2	0.006	
103	RS-483 510'-515'	-2	-0.001		0.1	0.004	
104	RS-483 515'-520'	-2	-0.001		0.3	0.008	
105	RS-483 520'-525'	-2	-0.001		0.1	0.003	

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:10 NO.435 05/12

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
106	RS-483 525'-530'	-2	-0.001		0.2	0.007	
107	RS-483 530'-535'	8	-0.001		0.9	0.025	
108	RS-483 535'-540'	-2	-0.001		0.2	0.006	
109	RS-483 540'-545'	-2	-0.001		0.2	0.006	
110	RS-483 545'-550'	12	-0.001		0.1	0.004	
111	RS-483 550'-555'	-2	-0.001		0.2	0.005	
112	RS-483 555'-560'	152	0.004		0.5	0.014	
113	RS-483 560'-565'	-2	-0.001		0.1	0.004	
114	RS-483 565'-570'	-2	-0.001		0.2	0.007	
115	RS-483 570'-575'	-2	-0.001		0.3	0.008	
116	RS-483 575'-580'	17	-0.001		0.4	0.011	
117	RS-483 580'-585'	5	-0.001		0.2	0.007	
118	RS-483 585'-590'	3	-0.001		0.2	0.006	
119	RS-483 590'-595'	3	-0.001		0.2	0.007	
120	RS-483 595'-600'	-2	-0.001		0.2	0.006	
121	RS-483 600'-605'	-2	-0.001		0.1	0.003	
122	RS-483 605'-610'	-2	-0.001		0.2	0.006	
123	RS-483 610'-615'	-2	-0.001		0.3	0.010	
124	RS-483 615'-620'	-2	-0.001		0.2	0.006	
125	RS-483 620'-625'	-2	-0.001		0.5	0.014	
126	RS-483 625'-630'	10	-0.001		0.4	0.012	
127	RS-483 630'-635'	-2	-0.001		0.2	0.005	
128	RS-483 635'-640'	-2	-0.001		0.1	0.002	
129	RS-483 640'-645'	-2	-0.001		0.2	0.007	
130	RS-483 645'-650'	3	-0.001		0.1	0.004	
131	RS-483 650'-655'	-2	-0.001		0.2	0.005	
132	RS-483 655'-660'	-2	-0.001		0.2	0.006	
133	RS-483 660'-665'	-2	-0.001		0.1	0.003	
134	RS-483 665'-670'	-2	-0.001		1.1	0.033	
135	RS-483 670'-675'	-2	-0.001		0.2	0.007	
136	RS-483 675'-680'	7	-0.001		0.2	0.005	
137	RS-483 680'-685'	-2	-0.001		0.1	0.004	
138	RS-483 685'-690'	-2	-0.001		0.2	0.007	
139	RS-483 690'-695'	-2	-0.001		0.3	0.008	
140	RS-483 695'-700'	-2	-0.001		1.6	0.046	
141	RS-483 700'-705'	-2	-0.001		0.1	0.003	

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:11 NO.435 06/12

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
142	RS-483 705'-710'	6	-0.001		0.3	0.009	
143	RS-483 710'-715'	-2	-0.001		0.2	0.005	
144	RS-483 715'-720'	-2	-0.001		1.0	0.029	
145	RS-483 720'-725'	-2	-0.001		0.2	0.006	
146	RS-483 725'-730'	-2	-0.001		0.2	0.005	
147	RS-483 730'-735'	-2	-0.001		0.3	0.009	
148	RS-483 735'-740'	11	-0.001		0.3	0.010	
149	RS-483 740'-745'	-2	-0.001		0.3	0.008	
150	RS-483 745'-750'	-2	-0.001		0.2	0.005	
151	RS-483 750'-755'	-2	-0.001		0.2	0.005	
152	RS-483 755'-760'	-2	-0.001		0.1	0.003	
153	RS-483 760'-765'	-2	-0.001		0.2	0.005	
154	RS-483 765'-770'	-2	-0.001		0.3	0.009	
155	RS-483 770'-775'	11	-0.001		0.3	0.008	
156	RS-483 775'-780'	2	-0.001		0.2	0.006	
157	RS-483 780'-785'	-2	-0.001		0.1	0.003	
158	RS-483 785'-790'	-2	-0.001		0.2	0.007	
159	RS-483 790'-795'	-2	-0.001		0.2	0.005	
160	RS-483 795'-800'	-2	-0.001		0.2	0.006	
161	RS-483 800'-805'	-2	-0.001		0.1	0.004	
162	RS-483 805'-810'	-2	-0.001		0.2	0.007	
163	RS-483 810'-815'	-2	-0.001		0.2	0.006	
164	RS-483 815'-820'	-2	-0.001		0.2	0.006	
165	RS-483 820'-825'	2	-0.001		0.2	0.006	
166	RS-483 825'-830'	5	-0.001		0.3	0.008	
167	RS-483 830'-835'	-2	-0.001		0.6	0.018	
168	RS-483 835'-840'	-2	-0.001		0.1	0.004	
169	RS-483 840'-845'	12	-0.001		0.3	0.009	
170	RS-483 845'-850'	-2	-0.001		0.2	0.006	
171	RS-483 850'-855'	-2	-0.001		0.4	0.012	
172	RS-483 855'-860'	-2	-0.001		0.2	0.005	
173	RS-483 860'-865'	-2	-0.001		0.2	0.007	
174	RS-483 865'-870'	6	-0.001		0.3	0.009	
175	RS-483 870'-875'	-2	-0.001		0.2	0.005	
176	RS-483 875'-880'	-2	-0.001		0.2	0.006	
177	RS-483 880'-885'	-2	-0.001		0.2	0.006	

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:11 NO.435 07/12

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
178	RS-483 885'-890'	-2	-0.001		0.3	0.009	
179	RS-483 890'-895'	-2	-0.001		0.1	0.004	
180	RS-483 895'-900'	-2	-0.001		0.4	0.012	
181	RS-483 900'-905'	-2	-0.001		0.2	0.006	
182	RS-483 905'-910'	9	-0.001		0.2	0.006	
183	RS-483 910'-915'	28	0.001		0.2	0.006	
184	RS-483 915'-920'	-2	-0.001		0.2	0.005	
185	RS-483 920'-925'	-2	-0.001		0.2	0.006	
186	RS-483 925'-930'	-2	-0.001		0.1	0.003	
187	RS-483 930'-935'	-2	-0.001		0.2	0.007	
188	RS-483 935'-940'	-2	-0.001		0.7	0.020	
189	RS-483 940'-945'	-2	-0.001		0.2	0.005	
190	RS-483 945'-950'	-2	-0.001		0.8	0.024	
191	RS-483 950'-955'	-2	-0.001		0.6	0.017	
192	RS-483 955'-960'	-2	-0.001		0.1	0.003	
193	RS-483 960'-965'	6	-0.001		0.2	0.007	
194	RS-483 965'-970'	30	0.001		0.8	0.022	
195	RS-483 970'-975'	18	0.001		0.8	0.024	
196	RS-483 975'-980'	22	0.001		0.2	0.007	
197	RS-483 980'-985'	-2	-0.001		0.4	0.011	
198	RS-483 985'-990'	-2	-0.001		0.2	0.006	
199	RS-483 990'-995'	-2	-0.001		0.2	0.005	
200	RS-483 995'-1000'	18	-0.001	995-1075	0.2	0.006	
201	RS-483 1000'-1005'	47	0.001	80	0.9	0.025	
202	RS-483 1005'-1010'	56	0.002	53 ppb Au	0.8	0.022	
203	RS-483 1010'-1015'	43	0.001	16)854	0.5	0.016	
204	RS-483 1015'-1020'	83	0.002		1.4	0.041	
205	RS-483 1020'-1025'	50	0.001		1.3	0.037	
206	RS-483 1025'-1030'	39	0.001		0.9	0.025	
207	RS-483 1030'-1035'	91	0.003		1.2	0.035	
208	RS-483 1035'-1040'	59	0.002		1.0	0.029	
209	RS-483 1040'-1045'	61	0.002		0.9	0.026	
210	RS-483 1045'-1050'	80	0.002		0.5	0.015	
211	RS-483 1050'-1055'	83	0.002		0.4	0.011	
212	RS-483 1055'-1060'	40	0.001		0.3	0.009	
213	RS-483 1060'-1065'	65	0.002		0.4	0.013	

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:12 NO.435 08/12

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
214	RS-483 1065'-1070'	20	0.001		0.4	0.011	
215	RS-483 1070'-1075'	19	0.001		0.2	0.005	
216	RS-483 1075'-1080'	6	-0.001		0.2	0.007	
217	RS-483 1080'-1085'	4	-0.001		0.2	0.007	
218	RS-483 1085'-1090'	-2	-0.001		0.1	0.004	
219	RS-483 1090'-1095'	2	-0.001		0.2	0.007	
220	RS-483 1095'-1100'	-2	-0.001		0.1	0.004	
221	RS-483 1100'-1105'	-2	-0.001		0.2	0.005	
222	RS-483 1105'-1110'	12	-0.001		0.1	0.004	
223	RS-483 1110'-1115'	-2	-0.001		0.2	0.006	
224	RS-483 1115'-1120'	-2	-0.001		0.1	0.003	
225	RS-483 1120'-1125'	-2	-0.001		0.1	0.004	
226	RS-483 1125'-1130'	-2	-0.001		0.2	0.006	
227	RS-483 1130'-1135'	-2	-0.001		1.0	0.028	
228	RS-483 1135'-1140'	-2	-0.001		0.52	0.006	
229	RS-483 1140'-1145'	-2	-0.001		0.1	0.004	
230	RS-483 1145'-1150'	-2	-0.001		0.2	0.005	
231	RS-483 1150'-1155'	-2	-0.001		0.1	0.003	
232	RS-483 1155'-1160'	-2	-0.001		0.4	0.013	
233	RS-483 1160'-1165'	2	-0.001		0.1	0.003	
234	RS-483 1165'-1170'	4	-0.001		0.2	0.007	
235	RS-483 1170'-1175'	-2	-0.001		0.1	0.003	
236	RS-483 1175'-1180'	-2	-0.001		0.1	0.003	
237	RS-483 1180'-1185'	-2	-0.001		0.3	0.010	
238	RS-483 1185'-1190'	-2	-0.001		0.3	0.009	
239	RS-483 1190'-1195'	-2	-0.001		0.1	0.003	
240	RS-483 1195'-1200'	-2	-0.001		0.1	0.003	
241	RS-483 1200'-1205'	-2	-0.001		0.3	0.010	
242	RS-483 1205'-1210'	3	-0.001		0.1	0.004	
243	RS-483 1210'-1215'	-2	-0.001		0.3	0.010	
244	RS-483 1215'-1220'	-2	-0.001		0.4	0.013	
245	RS-483 1220'-1225'	-2	-0.001		0.1	0.004	
246	RS-483 1225'-1230'	5	-0.001		0.4	0.012	
247	RS-483 1230'-1235'	16	-0.001		0.3	0.009	
248	RS-483 1235'-1240'	3	-0.001		0.5	0.015	
249	RS-483 1240'-1245'	-2	-0.001		0.2	0.005	

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:12 NO.435 09/12

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
250	RS-483 1245'-1250'	8	-0.001		0.4	0.011	
251	RS-483 1250'-1255'	27	0.001		0.2	0.007	
252	RS-483 1255'-1260'	41	0.001		0.5	0.015	
253	RS-483 1260'-1265'	175	0.005		0.8	0.023	
254	RS-483 1265'-1270'	296	0.009		1.0	0.030	
255	RS-483 1270'-1275'	17	-0.001		0.2	0.005	
256	RS-483 1275'-1280'	19	0.001		0.2	0.005	
257	RS-483 1280'-1285'	16	-0.001		0.4	0.012	
258	RS-483 1285'-1290'	15	-0.001		0.1	0.003	
259	RS-483 1290'-1295'	13	-0.001		0.4	0.011	
260	RS-483 1295'-1300'	23	0.001		0.2	0.005	
261	RS-483 1300'-1305'	228	0.007		0.9	0.027	
262	RS-483 1305'-1310'	219	0.006		1.5	0.043	
263	RS-483 1310'-1315'	151	0.004		0.7	0.020	
264	RS-483 1315'-1320'	154	0.004		0.9	0.025	
265	RS-483 1320'-1325'	89	0.003		0.4	0.013	
266	RS-483 1325'-1330'	51	0.001		0.5	0.015	
267	RS-483 1330'-1335'	85	0.002		0.4	0.012	
268	RS-483 1335'-1340'	28	0.001		0.4	0.011	
269	RS-483 1340'-1345'	42	0.001		0.3	0.008	
270	RS-483 1345'-1350'	57	0.002		0.4	0.011	
271	RS-483 1350'-1355'	49	0.001		0.3	0.010	
272	RS-483 1355'-1360'	126	0.004		0.4	0.011	
273	RS-483 1360'-1365'	133	0.004		0.8	0.023	
274	RS-483 1365'-1370'	53	0.002		0.2	0.007	
275	RS-483 1370'-1375'	30	0.001		0.3	0.010	
276	RS-483 1375'-1380'	68	0.002		0.4	0.012	
277	RS-483 1380'-1385'	118	0.003		0.6	0.018	
278	RS-483 1385'-1390'	98	0.003		0.3	0.008	
279	RS-483 1390'-1395'	33	0.001		0.4	0.012	
280	RS-483 1395'-1400' M	M		M	M		
281	RS-483 1400'-1405' M	M		M	M		
282	RS-483 1405'-1410'	29	0.001		0.4	0.011	
283	RS-483 1410'-1415'	13	-0.001		0.2	0.005	
284	RS-483 1415'-1420'	12	-0.001		0.4	0.012	
285	RS-483 1420'-1425'	11	-0.001		0.1	0.003	

1260-1270
10' 235ppb
2) 471

30' 1270-1300
15ppb
1300 1320
4) 752

20'

1300 TO 1390
90' 99ppb Au
18) 1779

1320-1390
70' 73
14) 1027

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:12 NO.435 10/12

CLIENT: Hecla (Rosebud Mine)

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
286	RS-483 1425'-1430'	22	0.001		0.9	0.025	
287	RS-483 1430'-1435'	21	0.001		0.4	0.011	
288	RS-483 1435'-1440'	12	-0.001		0.3	0.009	
289	RS-483 1440'-1445'	10	-0.001		0.1	0.004	
290	RS-483 1445'-1450'	19	0.001		0.2	0.006	
291	RS-483 1450'-1455'	12	-0.001		0.2	0.006	
292	RS-483 1455'-1460'	11	-0.001		0.1	0.004	
293	RS-483 1460'-1465'	10	-0.001		0.2	0.007	
294	RS-483 1465'-1470'	18	0.001		0.2	0.007	
295	RS-483 1470'-1475'	13	-0.001		0.3	0.008	
296	RS-483 1475'-1480'	15	-0.001		0.2	0.006	
297	RS-483 1480'-1485'	12	-0.001		0.3	0.008	
298	RS-483 1485'-1490'	13	-0.001		0.4	0.013	
299	RS-483 1490'-1495'	14	-0.001		0.2	0.006	
300	RS-483 1495'-1500'	11	-0.001		0.3	0.010	
301	RS-483 1500'-1505'	11	-0.001		0.3	0.008	
302	RS-483 1505'-1510'	14	-0.001		0.3	0.010	
303	RS-483 1510'-1515'	9	-0.001		0.2	0.005	
304	RS-483 1515'-1520'	10	-0.001		0.2	0.006	
305	RS-483 1520'-1525'	12	-0.001		0.1	0.004	
306	RS-483 1525'-1530'	18	0.001		0.2	0.007	
307	RS-483 1530'-1535'	9	-0.001		0.2	0.005	
308	RS-483 1535'-1540'	7	-0.001		0.1	0.003	
309	RS-483 1540'-1545'	11	-0.001		0.2	0.006	
310	RS-483 1545'-1550'	23	0.001		0.2	0.006	
311	RS-483 1550'-1555'	14	-0.001		0.2	0.005	
312	RS-483 1555'-1560'	9	-0.001		0.1	0.002	
313	RS-483 1560'-1565'	13	-0.001		0.3	0.008	
314	RS-483 1565'-1570'	23	0.001		0.2	0.006	
315	RS-483 1570'-1575'	9	-0.001		0.2	0.007	
316	RS-483 1575'-1580'	15	-0.001		0.2	0.006	
317	RS-483 1580'-1585'	13	-0.001		0.2	0.005	
318	RS-483 1585'-1590'	13	-0.001		0.6	0.017	
319	RS-483 1590'-1595'	17	-0.001		0.4	0.012	
320	RS-483 1595'-1600'	11	-0.001		0.6	0.018	
321	RS-483 1600'-1605'	24	0.001		0.3	0.009	

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:13 NO.435 11/12

CLIENT: Hecla (Rosebud Mine)

100-00-77	Sample Designation	Gold FA/AA ppb	Gold FA/AA oz/ton	Gold FA/GRAV oz/ton	Silver FA/AA ppm	Silver FA/AA oz/ton	Silver FA/GRAV oz/ton
322	RS-483 1605'-1610'	24	0.001		0.6	0.017	
323	STD 75338	1820	0.053		28.8	0.840	

ROCKY MOUNTAIN GEO 7753592944 01/25 '00 15:13 NO.435 12/12

Tuesday, January 25, 2000

By _____

Hecla MINING COMPANY
ROSEBUD PROJECT DRILL LOG

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

HOLE NUMBER RS-483
PAGE 2 OF
DATE Jan 2000 to
LOGGED BY Rogowski
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING 2,220,685
EASTING 475,185
ELEVATION 5635
AZIMUTH
INCLINATION -90°

AREA Wildrose N. of Rosebud
DRILLING CO. Eklund
RIG TYPE RC
HOLE SIZE 6"
DOWN HOLE SURVEY BY Wel-HAV TO

0-100 2/

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION QUARTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
0		OB	OB - Large frags, some	H												2																									
		"	alt. is well silicified - Has LBT &	H												Tr																									
10			WRP																																						
		WILDROSE Rhyolite Porphyry Yel-Brn Ox to Pink to white	Prob. WRP - has same Texture. Feld is clay alt. + blends into matrix	H		2					1					Q			Ox Py																					
20						3					tr								3 intensity																					
			v.fine 1mm Qt			2					1																													
30			pheno, both	MH		1					1																													
			coarse + Fine			1					1								3																					
40			text.			1					1								1																					
						1					1					0																							
50						1					2					1																							
				VH		3					1					1																							
60						3					tr					0																							
				H		2																																	
70				H		2																																	
				MH		1					1																												
80						1					1																												
						Tr					2																Py Gossan on fract + in Vugs												
90						Tr					1																												
						tr					Tr					0			1																				
100			@95 - Drk gray Dike or silic Wrp	H	H	2					0					tr			1																				

Hecla MINING COMPANY
ROSEBUD PROJECT DRILL LOG

INTENSITY
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or % by Vol

HOLE NUMBER RS 483
PAGE 3 OF
DATE
LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

1-200

3/

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION QUARTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AC-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
0	0	Dike	Drk gray-Fxln Dike	H	Fine	3					Tr				0	Tr											0						V								
	10%	Drk gray	has phenos of Feld		xln																																				
10			& Bio and lock silic	H	"	3										0																	Jaro								
			Hi mag & spec																														Goet + trace								
			11.0 to 16.6 -	H	"	2																																			
20			Prob. LBT/WR	H	Fine xln	1																																			
			Has Flow banding		some porp text	2																																			
30			& is 80% Fxln, but			1																																			
			often see the			1																																			
40			"porphyry" text.			1																																			
						2																																			
50						2																																			
						1																																			
60						1					2																														
						?Tr					2																														
70						1					1																														
			LBT/WR																																						
			m-Drk gray, Hard	V H		1					1																0														
80			but not complete			2								on Fract													Tr														
			silic - Tr Flow																																						
90		m-Drk gray	text. Trace diss Py												0																										
						2																																			
200					VFxln Clear	2					1					0																									

Strong Oxidization

Not oxidized

Hecla MINING COMPANY
ROSEBUD PROJECT DRILL LOG

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LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION QUARTZ %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	X-SUL %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
200		LIB Thin Rhyolite Flow	200–300' LBT/WR, m to drk gray (silicified) Flow text. (micro mag specks up to 10% a - strongly magnetic (semi clear @ Hi magnification) (some white wax like clay on fract)	VH	Very fine x'ln – has same micro phenos	2?					Tr?				Tr on 1	0											0						Tr Flox on some Fract →	UN OXIDIZED →							
300				VH		2?					Tr?					0											0														

Hecla MINING COMPANY
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HOLE NUMBER RS483
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TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

5/

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	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 %	JC-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
300			Same as 2+0300	H		?					0					0											0													
310			but more			1																																			
320	F?	Pegy ABx	cream color																			Ox Sat cement Bx																		
			mottling & wt																																						
		Dry Gray	clay on fract		1Ex1in - 1" low bands																																				
330			CALL is LBT WR Not sure																																						
			328+0390 -			0					1+0	2																					?								
340			very similar to																																						
			above but change																																						
350			in color																																						
			@ 350																																						
360			See a single Feld																																						
			pheno 0.5 mm,																																						
370		Pink to LT Brown	@370 - Nontronite																																						
			on fract																																						
380			NOTE: this could		Ex1in - Only a HINT of Flow bandings (same phase)																																				
			be Wrp, but phenos																																						
			are very rare																																						
390						0										0																	?								
		Tr ABx	Drk gray LBT/WR			+L					1?					1																									
		"	Tr Auto Bx - (micro clasts)	H	VE Ex1in in micro LBT	TV					1?					2											0														
400																																									

Hecla MINING COMPANY
ROSEBUD PROJECT DRILL LOG

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HOLE NUMBER: RS-483
PAGE: 6 OF
DATE:
LOGGED BY:
TOTAL DEPTH:

LOCATION: ROSEBUD, NV
NORTHING:
EASTING:
ELEVATION:
AZIMUTH:
INCLINATION:

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

4-500 6/

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION QUARTZ %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
400		LBT/WR Flow	4-500 LBT/WR	H	LBT/WR & other things	?					Tr					1											0						0								
						0																																		
410		clay	M. to Dk. Gray	H							Tr																						0								
			Shows an	M H							1																						Tr								
420		clay	increase in pale	H							1																						1								
		Fault Auto to Bx	green clay toward	S to H							2																0						1								
430		clay	500'	S to H							2					1											0						1								
		clay		H							1					2											Tr						Tr								
440			Note: From 410 to								1				Tr	1											Tr						0								
			425 could have								1					1											Tr														
450			Wrp & LBT/WR mix.			0					Tr					1											Tr														
			(Not Certain) also			Tr									Tr	1											Tr														
			Auto Bx																																					
460			Gray Fault Gouge			Tr										Tr											0														
			mixed in from																																					
			410 to 445			1																																		
470		Bud like unit				1?																																		
			Bud like																																					
			* From 410 to												Tr												0														
480			is in part fragmental		Exin LBT/WR Frags in Fragmental matrix											Tr											0														
			(Bx) Auto? or tec?												Tr	1											Tr														
490			Look Auto & Gen.													1											Tr														
			micro Bx.												Tr	1											Tr														
500				H		1?					Tr					2											1														

Note: Most Argillization is Pale green (BUD LIKE)

Hecla MINING COMPANY
ROSEBUD PROJECT DRILL LOG

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or % by Vol

HOLE NUMBER RS-483
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LOGGED BY
TOTAL DEPTH

LOCATION ROSEBUD, NV
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

7/

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE
500		FRAGMENTAL, BUD LIKE UNIT	BUD Like unit most clast are LBT but definately Fragmental from 410 to 645 From 560 to: is much clearer BUD w/ soft, pale green, micro bx matrix. ← Num spotted LBT frags	Soft matrix Hard clasts	BUD Texture - Hard, Fine lasts in micro frag matrix = occa. a clast appears silicified & HARD Generally the lt. green matrix is Tr. to soft Pale green matrix may be chlor but I don't think so
510					
520					
530					
540					
550					
560					
570					
580					
590					
600					

FEET	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	QUARTS %	ARGILLIC 5%	15%	+25%	TYPE	PROPYLITIC % CHLORITE	CALCITE	POTASSIC % K-SPAR	ALUNITE	OXIDATION 5%	15%	+25%	VIENING %	TYPE
500																		
510																		
520																		
530																		
540																		
550																		
560																		
570																		
580																		
590																		
600																		

FEET	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOCURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
500				0														
510																		
520																		
530				0														
540				Tr	on Fract													
550				0														
560																		
570																		
580																		
590																		
600				0														

Hecla MINING COMPANY
ROSEBUD PROJECT DRILL LOG

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HOLE NUMBER RS-483
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INCLINATION

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

6-700

8/

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 %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
600			600 to 645 BUD Like			1?					1-2					1-2																									
610			clastic same		Same as above											1-2																									
			as above													1																									
620																1																									
																1																									
630																1																									
640			Note @ 265 may	Some	Same as above	Some fragments are																																		
			be color change only																																						
650																											Tr														
			645 to								1-2																														
			occa Bio-(black)																																						
660			Fxln, mottled L+	H		?					0																Tr															
			drk gray, aphyric																																						
670			Has some hint of													1																										
			Auto Bx. Has bio &													2																										
680			Looks like LBT/wr													1											Tr															
			* @ 665 is what may												Tr	1											Tr	or Tr	ACT													
690			be Wrp													1																										
			No Flow banding													2																										
700			but has speckled	H		?					0				Tr	2																										

LBT/wr
Rhyo = low

Twrp

Hecla MINING COMPANY
ROSEBUD PROJECT DRILL LOG

INTENSITY
1 = WEAK
2 = MODERATE
3 = STRONG
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AREA 7-800
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

9/

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 %	X-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
700			700–800 LBT/WR, very fine	VH							0					1											0														
710			xln & definately flow banded		VF=Xln & in part F=low banded										tr	1																									
															tr	1																									
720			* traces of micro bx.													Tr																									
																tr																									
730			* still mod magnetic												tr	1																									
																1																									
740			* mottled Lt & drk gray													1																									
																Tr																									
750			some flow bx																																						
760			755 to 770 Lt yell-brn & clastic poss bad-like or flow bx. * something that looks like sand grains												0																										
															0																										
770															0																										
															Tr												0														
780															tr												Tr	in ltg gray band													
															tr												0														
															Tr																										
790			← Poss bad-like w/ sand grains																																						
800				VH							0				Tr	+											0														

some frags are very hard and could be silicified, most of it may be Hard on air fluo

Hecla MINING COMPANY
ROSEBUD PROJECT DRILL LOG

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

8-900

10/

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	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
800		Pmz	med gray rhyo. flow bx	VH	Fx In	0					6					Tr											0														
810																Tr																									
																Tr																									
820		? Epiclastic or flow Bx	Pink & Brn. Rhyo.- in part fragmental * BUD-like	H	Bud like											0																									
830																																									
840				H												0																									
850		Rhyo	Rhyo. Flow Bx., gray	VH	Fx In											Tr																									
860																																									
				VH							0					Tr																									
870		Epiclastic or Flow Bx	Pink & Brn. Rhyo 865-875 - white & yellow in part fragmental * Bud-like	H	Bud-like						1					0											0														
											Tr																														
880											0					0											Tr														
				H												Tr											0														
890		Rhyo	Rhyo. Flow Bx. gray	VH	Fx In											Tr																									
																Tr																									
900				VH		0					0																0														

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AREA Wildrose 99
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

9-1000

11/

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	15%	+25%	MATRIX %	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-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
900		Rhyo (flows?) m-Dk gray	900,1000	H		0					0					2						Hairline Tr	Qt				0														
910	0		VFx/ln Rhyo flow, only a trace of flow banding, weakly fragmental													tr 2 1 tr tr 0 2 2 1 1																									
920																																									
930	0		← Brown color Has mag																																						
940	0		Gray to 960 then progress from gray to brown to pink & white																																						
950	0					0										1 1																									
960				H		tr					0					tr											0														
				VH		1					1					tr																									
			960-1000																																						
970			← mag. destruct. starts @ abt 970', well Ox-mag destroyed			1					1					tr											0														
						1-2					1					0											tr														
980						2					1																0														
						2					1																														
			985 to 1000 pink & white pink Hem stain & white silicification			2	w/ silica				1								Black IRON OX tr																						
990						2					1																														
						2					1																														
1000				VH		2					1					0											0														

No mag

Hecla MINING COMPANY
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AREA Wildrose
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

10-1100

12/

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION QUARTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SUL %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1000		Hem, Jarc & Goet Color Rhyo	1000 to 1100, weakly	H		2-3					0					0											tr	Py	A											
1010			flow banded & VFxln			2-3																					0													
			rhyolite. Prob			3	← Hem stain				0																0													
1020			LBT/mR			2					1																0													
			occa. see clast			2					1																													
1030			w/ flow text around			3					tr																													
			← mnOx? on frac clast			3					tr																0													
1040			some black Bio			2-3					tr																1	Py/A												
		Fxln Rhyo Lt gray to wt				3																					0													
1050						3																					tr													
						3																					tr													
1060					VFxln	3																					1	Py/A tr encap												
						3																					tr													
1070						3					tr																tr	Py C												
						2					1																tr													
1080		Silici Rhyo wt & pale green				2					1								0								3													
			1085-1100	H		2					1																tr													
1090				mH		2					1																tr													
						2					1																0													
1100				mH		1					1					0			0								0													

Hem & Jarc stain
Hem stain & Jarc stain
Fe Ox after on frac
Py

Hecla MINING COMPANY
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AREA Wildrose
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

11-1200

13/

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	MOLYBDENITE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1100		Rhyolite Ignimbrite or Remorphic Rh. flow	1100 to 1160 (Ig)	H	V. Fx/n Rhyolite	Tr					0					Tr											0														
1110			Ignimbrite? see			Tr										Tr																									
			a few clasts			0																																			
1120			w/ flowage around																								0														
			clasts. Remorphic																								0														
1130			tuff?																								0														
			M to Lt gray, very																								0														
1140			fine xln. See																								0														
			rare bio & very																								0														
1150			rare Qtz													1											0														
																1											0														
1160			? ? maybe gradational													1											Tr														
		Rhyolite Flow Lt gray to Lt green	1160-1200 similar			0					0					Tr											0														
1170			to above but no			Tr					Tr																Tr														
			clast - some			Tr																					Tr														
1180			rare flow bands			1					1																1														
						Tr					1																Tr														
1190						0					0																Tr														
						0					Tr																0														
1200				H		0					0					Tr											0														

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

12-1300 14/

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE color	ALTERATION: SILICIFICATION 5%	15%	+25%	MAGPCA %	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 %	K-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1200		Very Fxln & Dense Rhyolite	1200-1300 LBT/WR, strongly flow banded - Has micro feld + Bio phenos very rare. Pale green alt. starts from flow bands + phenos. Is very hard but I do not think the dr. gray is silicified, just normal Rhyo the lighter gray + white appear to be true silicification. Prob Py + silici struct near 1265 (no gouge)	VH		?					0					tr								0																
1210											0					tr								0																
											tr					tr								0																
1220											tr					tr								0																
						?					0					0								0																
1230						2?																		tr			w/ cut QT silici												
						?												?						tr																
1240					DRK gray	?																		tr																
						?					0													1			along gry + wt silica stgrs												
1250						2																		5			flow bands + Encap silica												
						3																		2									Note @ 1257 Py on flow bands cut by 90 Py stgrs								
1260	VH?					3																		2																
	F?					3																		3																
	R					3																		5																
1270	VH?					tr																		tr																
						tr																		tr				tr												
1280						tr																		0																
						2																		1																
1290						3																		tr																
				VH	Ltgray	3					0					0								5			encap silica												
1300																																								

Hecla MINING COMPANY

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

13-1400

15/18

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	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	MINERALIZATION: SULFIDES 5%	15%	+25%	PY %	CPY %	MAR %	K-SUL %	SILBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOGURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1300		90's Rhyo Flow w/ pass wrp dikes	1300–1390.15 strongly silicified, flow banded Rhyo? Prob LBT/wk. See a few phenos from 1335 to 1355 & could be porp in part or a sillor dike	VH	Fine xln flow banded Lt gray	3					Tr					0											3														
1310																		1 on Fract									4	very fine disp												
1320																											5														
																											6														
																											2														
1330																											2														
																											2														
1340			Porphyry in part; Porp in part																								2														
																											1														
1350			Porp-part																								3														
																											2														
1360																											1														
			LBT								Tr																1														
1370											Tr																3														
											Tr																4														
1380											1																2														
											1																1														
1390			LBT + porp								1																3														
						3					1					0											2														
1400		Spinnel rite	LBT + Ig	VH		2					1					1											1														

Hecla MINING COMPANY

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	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	MOLYBDE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1400			1400 – 1440 &																																						
			1465 to 1500	H		0					0					Tr										Tr														
1410			drk gray to blk													1										Tr														
		Rhyo Flow Blk to Drk gray	rhyo flow of LBT/Ux													1										0														
1420			flow bands are													1										1														
			wavy, very vesc.													Tr																								
1430			fine xln		V. F xln Rhyo Flow											1																								
			Some wt. clay on													2																								
1440			fract.								0					1																								
		A.F. Dike - basalt or andesite	Prop. Dike cutting	MS		0					2					Tr																								
1450			Ig (Ignimbrite)																																					
			has green blotches																																					
			as seen in occur																							0														
1460			andesite flows. Is																							Tr														
			Fxln + no obvious phenos																																					
				MS	matrix porphyritic	0					2					Tr										Tr														
1470				H		0					0					1										0														
																										Tr														
1480																																								
1490		Rhyo Flow Blk to Drk gray			Very fine Rhyo flow											1																								
											0					2																								
1500				H		0					0					1										Tr														

Hecla MINING COMPANY

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

15-1600

17/18

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MATRIX %	SILICIFICATION QUARTZ %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SUL %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1500		Rhyo Flow	1500-1515 - LBT/WR? Flow band dark Rhyo wavy flow bands Bich bd @ 1505	VH	Flow band dark gray	0					0					1											tr														
1510																1											tr														
				VH							0					1											tr														
1520				MS							1					1											0														
																2											0														
1530																1																									
1540																																									
1550																																									
1560		Flow or dike - looks like Dozer or one of the Andesite Porp.																																							
1570				MS	? Dike? - Dozer or Andesite porphyry Pale green						1																														
1580		Rhyolite	Same as 1500 to 1515	VH	Flow band dark gray						0					1																								
																tr																								
1590																1																									
																1																									
1600				VH		0									1	1											0														

Hecla MINING COMPANY

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AREA 16 to 1606 TD
DRILLING CO.
RIG TYPE
HOLE SIZE
DOWN HOLE SURVEY BY

18/18

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MAJOR %	SILICIFICATION QUARTS %	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VIENING %	VIENING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	K-SLF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
1600		Rhyo Flow	Blk Rhyo flow	VH	Fx In											tr											0														
1606 TD																																									
10																																									
20																																									
30																																									
40																																									
50																																									
60																																									
70																																									
80																																									
90																																									
00																																									

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

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

JOB NUMBER: 29-0588-311

WELL NAME: RS-483 / VS 000.00

LOCATION: WILDROSE

SURVEY DATE: 01/04/2000

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= 856'

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

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

PROJECTED F/1260' T/1500'.

****
****
*** 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-483 / 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 DISPLACEMENT DISP.	STATION DISPLACEMENT DIRECTION	TEMP. DEG F
0.0	0.00	0.00	0.000	-89.37	350.86	0.00 N	0.00 E	0.00		0.00	AT 000.00	
50.0	49.97	-0.24	-1.499	-87.15	350.84	1.50 N	0.24 W	4.44	2.22	1.52	AT 350.84	057.16
100.0	99.88	-0.87	-4.493	-85.83	346.39	4.49 N	0.87 W	2.69	1.35	4.58	AT 349.07	058.71
150.0	149.76	-1.35	-7.881	-86.28	358.09	7.88 N	1.35 W	1.84	0.92	8.00	AT 350.29	060.09
200.0	199.69	-1.58	-10.481	-87.72	349.69	10.48 N	1.58 W	3.00	1.50	10.60	AT 351.42	061.02
250.0	249.64	-2.36	-12.495	-87.26	330.03	12.49 N	2.36 W	1.94	0.97	12.71	AT 349.32	062.29
300.0	299.58	-3.97	-14.447	-86.86	312.03	14.45 N	3.97 W	2.00	1.00	14.98	AT 344.63	063.36
350.0	349.51	-5.74	-16.502	-86.87	326.53	16.50 N	5.74 W	1.58	0.79	17.47	AT 340.82	064.49
400.0	399.43	-7.18	-18.769	-86.97	328.64	18.77 N	7.18 W	0.30	0.15	20.10	AT 339.06	065.88
450.0	449.36	-8.65	-21.043	-86.82	325.67	21.04 N	8.65 W	0.44	0.22	22.75	AT 337.65	066.90
500.0	499.28	-10.29	-23.266	-86.84	321.44	23.27 N	10.29 W	0.47	0.23	25.44	AT 336.14	067.03
550.0	549.20	-12.11	-25.439	-86.66	318.79	25.44 N	12.11 W	0.47	0.23	28.17	AT 334.54	067.69
600.0	599.11	-14.12	-27.658	-86.47	316.83	27.66 N	14.12 W	0.45	0.22	31.06	AT 332.95	068.49
650.0	649.02	-16.10	-29.925	-86.63	321.13	29.92 N	16.10 W	0.61	0.30	33.98	AT 331.72	069.55
700.0	698.93	-18.06	-32.172	-86.53	316.83	32.17 N	18.06 W	0.55	0.28	36.89	AT 330.70	070.88
750.0	748.85	-19.92	-34.308	-86.96	321.09	34.31 N	19.92 W	0.99	0.49	39.67	AT 329.85	072.24
800.0	798.79	-21.48	-36.251	-87.33	321.51	36.25 N	21.48 W	0.74	0.37	42.14	AT 329.35	073.47
850.0	848.75	-22.72	-37.880	-87.98	324.51	37.88 N	22.72 W	1.32	0.66	44.17	AT 329.05	083.81
900.0	898.72	-23.71	-39.265	-88.12	324.47	39.26 N	23.71 W	0.28	0.14	45.87	AT 328.88	086.65
950.0	948.69	-24.66	-40.537	-88.24	321.91	40.54 N	24.66 W	0.29	0.14	47.45	AT 328.69	088.73
1000.0	998.67	-25.55	-41.799	-88.21	327.39	41.80 N	25.55 W	0.34	0.17	48.99	AT 328.56	090.24
1050.0	1048.65	-26.55	-43.021	-88.15	314.40	43.02 N	26.55 W	0.83	0.42	50.55	AT 328.32	092.01
1100.0	1098.62	-27.80	-44.190	-87.92	311.71	44.19 N	27.80 W	0.50	0.25	52.21	AT 327.82	092.88
1150.0	1148.58	-29.39	-45.391	-87.50	303.25	45.39 N	29.39 W	1.08	0.54	54.08	AT 327.08	093.49
1200.0	1198.52	-31.17	-46.866	-87.18	315.49	46.87 N	31.17 W	1.30	0.65	56.28	AT 326.38	094.63
1250.0	1248.47	-32.84	-48.542	-87.39	314.52	48.54 N	32.84 W	0.43	0.21	58.61	AT 325.92	095.01
1300.0	1298.41	-34.47	-50.144	-87.37	314.54	50.14 N	34.47 W	0.04	0.02	60.85	AT 325.50	094.96
1350.0	1348.36	-36.11	-51.757	-87.36	314.55	51.76 N	36.11 W	0.02	0.01	63.11	AT 325.10	094.98
1400.0	1398.31	-37.75	-53.377	-87.36	314.83	53.38 N	37.75 W	0.03	0.01	65.37	AT 324.73	094.98
1450.0	1448.25	-39.39	-55.001	-87.34	314.45	55.00 N	39.39 W	0.05	0.03	67.65	AT 324.39	094.99
1500.0	1498.20	-41.05	-56.614	-87.36	314.07	56.61 N	41.05 W	0.05	0.03	69.93	AT 324.06	094.98

```
*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*  1500.0 FEET EQUALS     69.93    FEET AT   324.06         *
*                          ********                         *
*************************************************************
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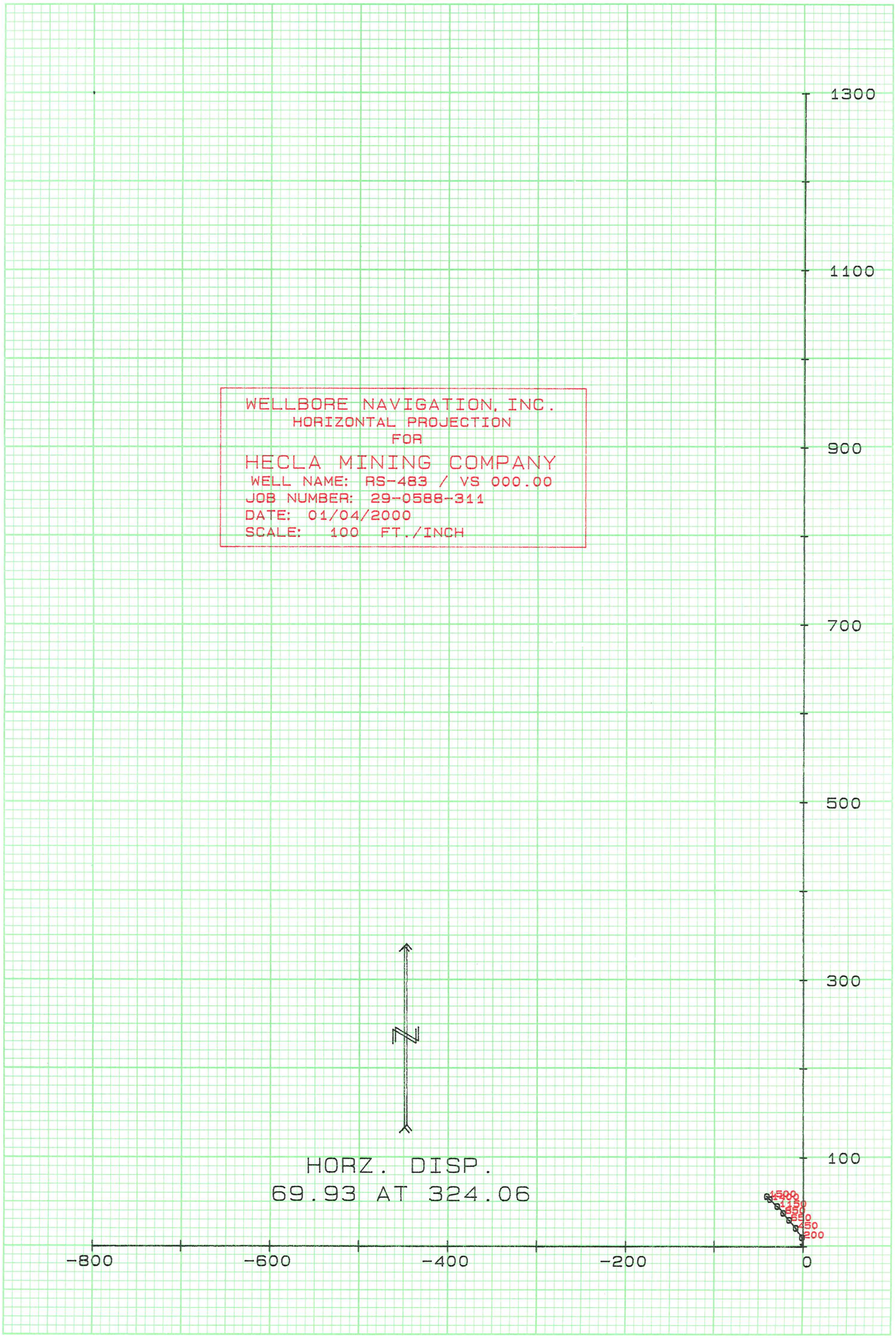

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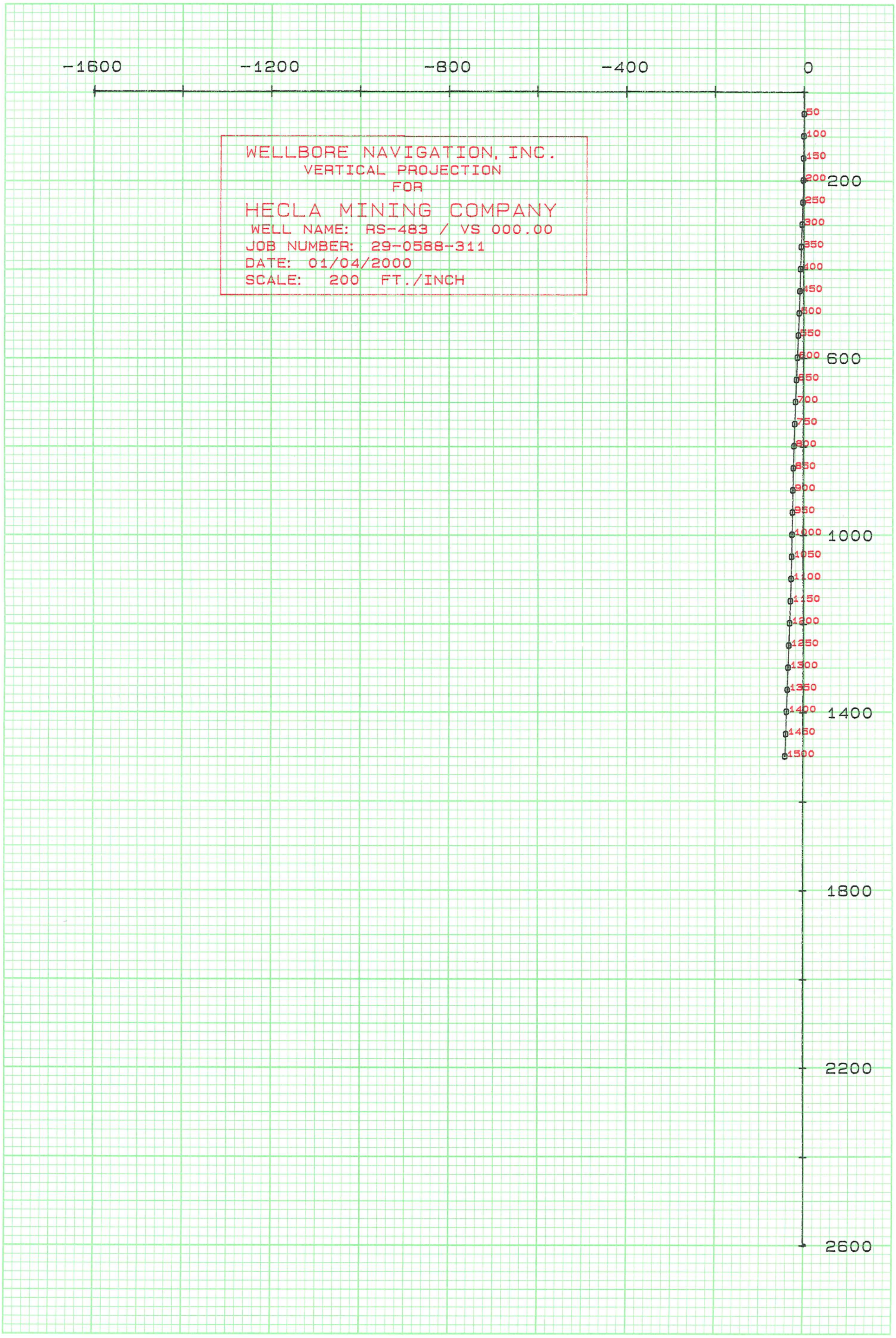


orig

Robert

INSPECTORATE

ROCKY MOUNTAIN GEOCHEMICAL

A MEMBER OF THE INSPECTORATE GROUP OF COMPANIES
840 GREG STREET • SPARKS, NEVADA 89431 • PHONE (775) 359-6311 • FAX (775) 359-2944

Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped _____
Shipped Via _____
# of Cartons _____
# of Samples _____

Sent Out 7 Jan 2000

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
Kurt Allen	← SAME
Rosebud Mining, LLC	
P.O. Box 2610	
Winnemucca, NV 89446	
(775) 623-6912 FAX: (775) 623-6967	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
321	RC	Drill Hole RS-483 0 to 160s	Au, Ag: Use Rosebud Mine Development Protocol.
		NOTE: Please make up 20 foot composits for the trace Element method.	
1	Pulp	Rosebud Production Standard at end of run.	

COARSE REJECT (Free storage for 30 days)
- [x] Return/collect after analysis
- [ ] Return/collect after 30 days
- [ ] Discard after 30 days

IF NOT MARKED, REJECT DISCARDED AFTER 30 DAYS

PULP (Free storage for 6 months)
- [x] Return/collect after analysis
- [ ] Return/collect at 6 months
- [ ] Discard at 6 months

IF NOT MARKED, PULP IS DISCARDED AFTER 6 MONTHS

COARSE REJECTS/PULPS WILL BE DISCARDED UNLESS OTHERWISE REQUESTED

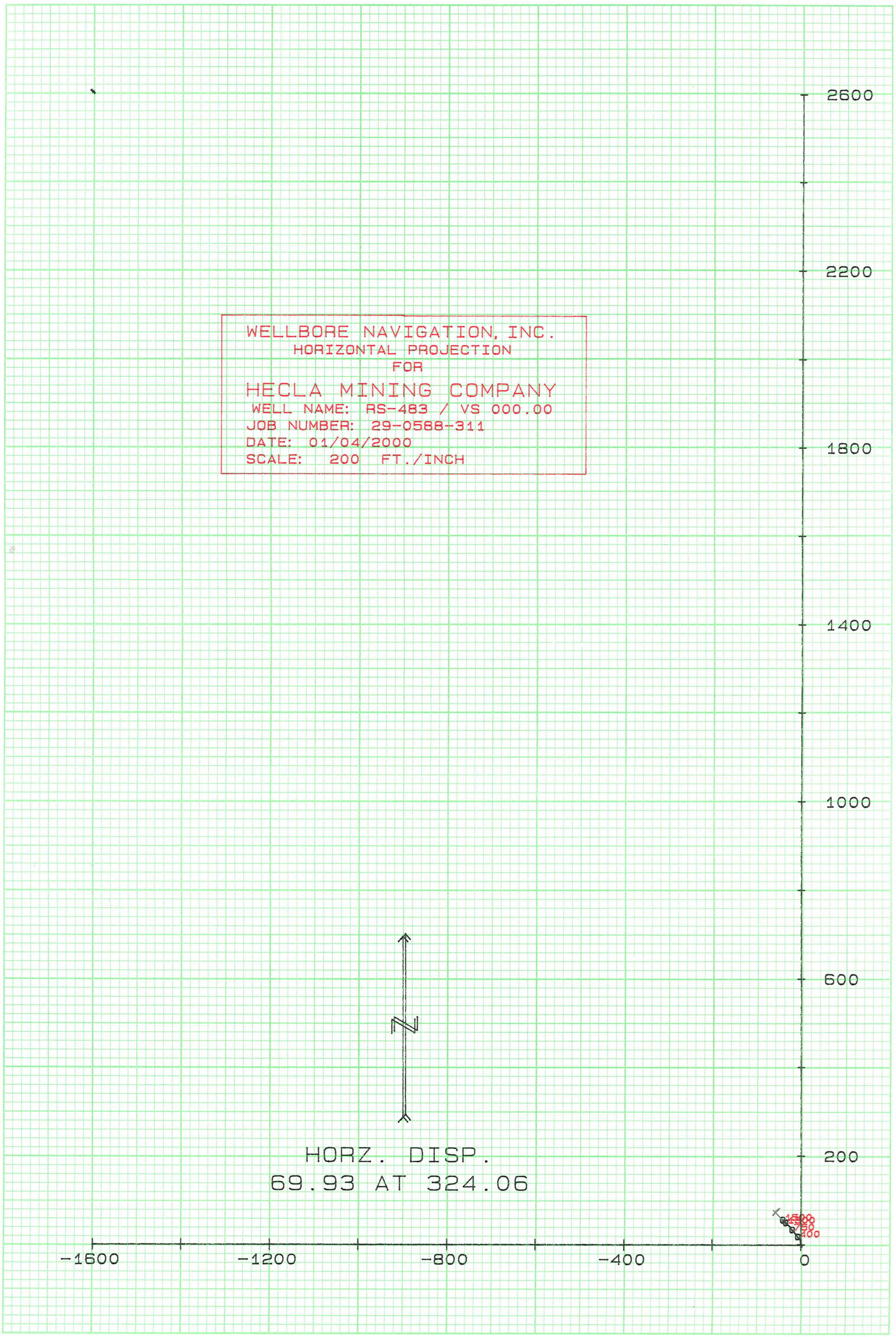
Au - GOLD METHOD
- [x] Fire Assay/A.A.
- [ ] Fire Assay/Gravimetric
- [ ] NaCN/A.A.

RESULTS REPORTED IN:
- [x] ppb
- [ ] PPM
- [x] oz/T
- [ ] grams/T

TRACE ELEMENT METHOD
- [ ] Wet Chem./A.A.
- [x] Wet Chem./ICP + Se

RESULTS REPORTED IN:
- [x] ppm
- [ ] Percent %
- [ ] oz/T
- [ ] grams/T

ADDITIONAL INSTRUCTIONS:
FAX copy of results to J. P. Rogowski - (775) 623-6967

NOV96:PM5:RENO3:GEOCHEM

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