60000703

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-476-99
AUTHOR	D. Mackerrow; M. Niemi; K. Allen; G. Secrist
DATE OF DOC(S)	1999
MULTI_DIST Y / N? Additional Dist_Nos:	
QUAD_NAME	Sulphur 7.5'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Hecla Mining Co; Rosebud Project; Newmont Gold Corp.; Rosebud Mining Co, LLC
COMMODITY If not obvious	gold; silver
NOTES	drill logs; geology; assay; total depth 1808'; receipts; geochemistry; handwritten notes 123 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 4/29/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

RS-476

60000703
4010

476

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

Intensity ...

60000703

Hecla MINING COMPANY

ROSEBUD PROJECT DIAMOND DRILL LOG

HOLE NUMBER	RS-476-99	LOCATION	Site D
PAGE 1 OF 13		NORTHING	
DATE	10-15-99	EASTING	
LOGGED BY	D.G. Mackerrow	ELEVATION	
SCALE	1" = 10'	AZIMUTH	S30°E
TOTAL DEPTH	1808	INCLINATION	-60

REMARKS: Northwest target area

LITH	OX/RE	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Chocole	R	1000-1032.1 Fe Mag Flow Chocolate Formation Vesicular rhyolite with a general mottled appearence. Moderate chloritic alteration with dark green chlorite filled vesicals 1022.3-1032.1 Cave Fault Sheared and highly argillized hanging wall 1022.3-1025.1. H'of silica and calcite. 1027-1027.7 silicified breccias and matrix	1000 1010 1020 1030	40 20 30 40 40	1000-1032.1 ≈3% pyrite d 1022.3-1032.1 Cave Fault Milled rubble breccia. Clast are supported by matrix	1000-1032.1 1-3% disseminated Pyrite. Pyrite veinlets are also present 1000-1022.3 moderate argillization 1022.3-1032.1 moderate to heavy argillization 1032.1-1072 Spotty silicification below the fault zone
Td		1032.1-1557 DOZER Fine grained to aphantic rhyolite. Pale gray white with traces of green chlorite staining. Pyrite after marcasite form .5 to 1% disseminated sulfide.	1040 1050		1053.8-1058.3 60° tca Fracture with white clay on the surfaces	1032.1-1058.3 Argillization of rhyolite between spotty silicification. There is a sharp alteration break at 1058.3 on a 30° tca shear. 1028.7-1032.1 Gray clay matrix of fine sulfide

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
1000	1006.5					
1006.5	1010					
1010	1017					
1017	1022.3					
1022.3	1026					
1026	1028.7					
1028.7	1032.1					
1032.1	1036.5					
1036.5	1041.9					
1041.9	1047					
1047	1053.8					

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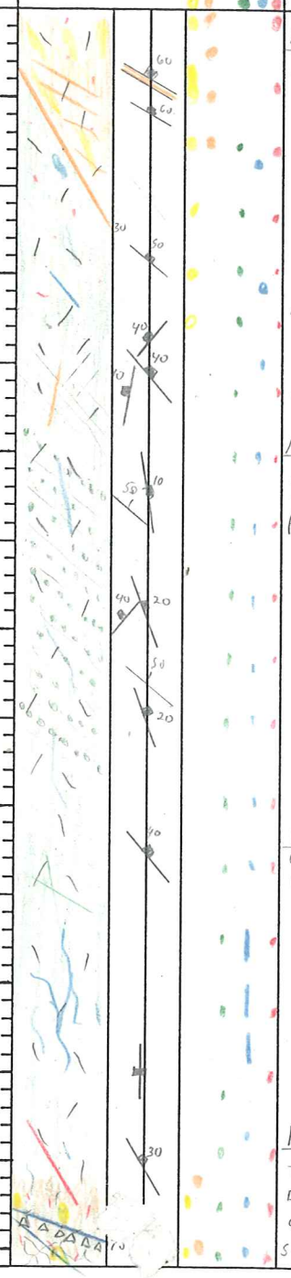
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
Td	R	1037.1-1557 DOZER From 1058.3 argillization decrease and core be concl. Pale green white vesicles with chlorite fillings begin at 1075 and continues to 1091 Pin. 1071 white clay on fx 1116 Argillization begins to increase from this point Mottled core appears with spotty silicification, Py/marcasite begins to generally increase	1050 1060 1070 1080 1090 1100 1110 1120		1053.8-1058.3 Fracture alteration base. clay along 300 tca fracture 1069 Fracture at 40° tca at both orientation to core traces of white clay and 1071 10° TCA Fracture cross cuts possible flow lamination 1097-1099.5 Fracture zone with 10° and 60° TCA planes 1118.5 2" shear plane that is highly argillized Down hole direction is Crushed bxa to 1120 Shear is 70° tca	1066.5-1072.2 White clay on fractures with Py/marcasite 1097-1099.5 white clay and chlorite on fracture 1115 30° tca fracture with Py/marcasite coati.	1047 1053.8 1058.3 1068 1072.2 1079 1089 1097 1103 1110 1118.5	1053.8 1058.3 1068 1072.2 1079 1089 1097 1103 1110 1118.5 1121.3					

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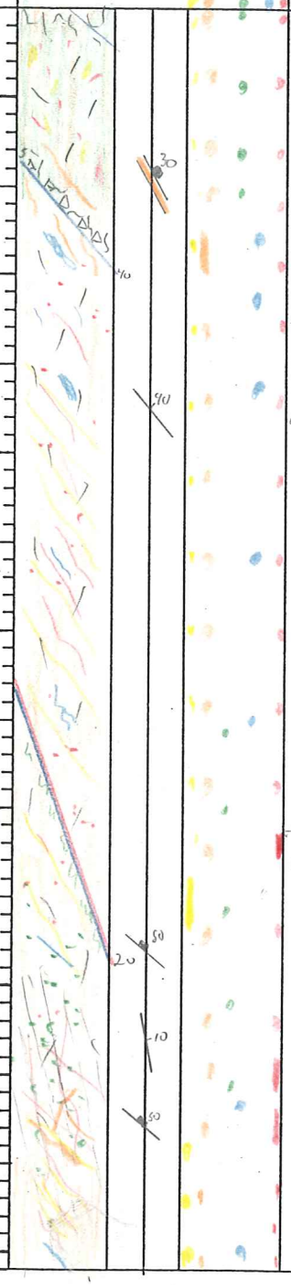
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
Td	R	1032.1-1557 DOZER Fine grain flow continues Flow laminations locally present. "Spotty" silicification	1120 1130 1140 1150 1160 1170 1180 1190		1118.5-1121.3 Crackle breccia below argillized shear at 1118.5. 1123-1124.5 weak crackle texture 1130.2-1133.3 Fracture zone with crackle breccia core at 1131-1131.5 1166 1" shear with dark marcasite pyrite	1116-1130.2 mottled core appearance with increased fine sulfides with trace silicification 1116 Pyrite/marcasite veinlets increase in number with dark masses ≤ 1/8" in diameter Silicification forms narrow darker bands parallel/along flow laminations 1183-1193 sulfide veinlets have faint halos of bleaching	1121.3 1130.2 1133.3 1141.5 1151.4 1158 1165.5 1167 1173 1183	1130.2 1133.3 1141.5 1151.4 1158 1165.5 1167 1173 1183 1193.5					
1183-1185 steep foliation of flow lamination												

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
Td	R	1032.1-1557 DOZER Fine grained rhyolite Flow continues, Argillization increases From	1190 1200	40 50	1202.5-1206 Fracture Zone with sulfide and white clay.	Argillization increase From 1198 Down hole Dark marcasite/pyrite Fracture coating,	1183 1193.5	1193.5 1197.3				
		Continued on Page 5					SEE PAGE 5					

HOLE NUMBER RS-475-99 PAGE 5 OF 13

LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	1032.1 13.5-7 DOZER Fine grained rhyolite flow. Faint foliation seen as faint silicified bands darkened by ultra fine pyrite. Marcasite replace by pyrite 1264.7 – 1276.5 Fracture Zone with intervals of Crackle Breccia 1264.7-1268.6 crackle Bxa 1268.6 – 1269.7 Fracture zone 1269.7-1270.7 Mosaic Breccia 1270.7-1271.9 Fracture zone 1271.9 – 1273.6 Crackle Breccia 1273.6 – 1275.5 Fracture Zone 1275.5-1276.5 Mosaic Bxa	1200 1210 1220 1230 1240 1250 1260 1270	50 50 40 50 30 30 50 40 20 20 20	1209.5-1215 Fractures coated with clay and py/marcasite coating 1234 Pyrite veinlets that parrallels flow foliation offset by 3/8" the cross cutting py-veinlet 1239.3-1241 Crackle Breccia with open vugs. 1244.5 50° tca fracture with slicks 30° tca 1264.7-1268.6 Fracture/crackle breccia 1267 20° tca fx with 0° tca slips	Pyrite/marcasite veinlets cross cut flow foliation. Disseminated Pyrite after marcasite at ≈ 3% 1209.5 – 1215 Argillized rhyolite with white clay filled fractures and dark py/marcasite fracture coating Calcite veins 1237-1241 Calcite/Pyrite veinlets with pyrite after marcasite 1239.3 – 1241 Open vugs with coarse crystalline calcite and white clay 1253.7-1260 White clay filled vugs. Pyrite has corroded. QTz veinlets at 20° tca 1264.7-1268.6 White clay on 10% of fractures

ANALYTICAL DATA						
FROM	TO	W	Au	Ag	Au2	A
1199.3	1204					
1204	1209.5					
1209.5	1215					
1215	1220					
1220	1225					
1225	1230					
1230	1235					
1235	1239.3					
1239.3	1241					
1241	1245					
1245	1250					
1250	1253.7					
1253.7	1260					
1260	1264.7					
1264.7	1268.6					
1268.6	1271.3					

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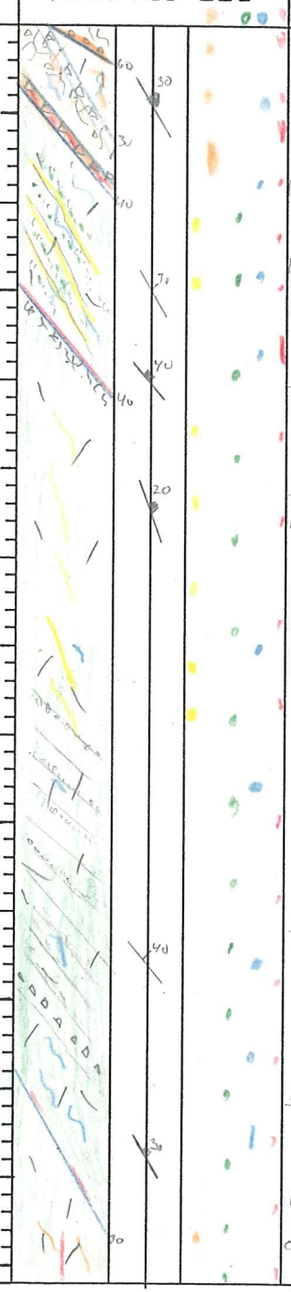
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2	A
Td	R	1032.1-1557 DOZER Fine grained rhyolite continues. Light gray silicified bands parrallel to flow foliation small chlorite filled vesicles align with flow foliation 1340.7 – 1393 Solid core with minimal fracture	1270 1280 1290 1300 1310 1320 1330 1340		1270.9 60° tca Shear x ½" wide with hanging wall crackle breccia to 1269.7 1271.3 – 1272.6 Crackle breccia at 30° tca 1275.5 – 1276.5 mosaic breccia 1276 – 1280.3 Fracture zone with sulfide on surface 1287.8 1" shear zone 1326.5 – 1327 Autobreccia 1333.2 1" shear x 20° tca 1338.3 – 1340.7 0° tca fx on side of core. Oblique slip 40° tca	Argillization still black core traces of white clay and calcite in crackle breccia surfaces 1275.5 – 1276.5 Increased sulfide in matrix of shear darken by mass 1271.3 – 1275.5 silicified flow band fragments 1289.1 – 1317.5 Sulfide content ≤ 1% 1317.5 sulfide are vient, trace levels 1305-1307 Traces of silicification along 20° tca fx 1334-1341.5 Traces of white glay on fractures	1271.3 1276.5 1280.3 1287.5 1289.1 1296.5 1307 1317.5 1328 1333.2 1338.4	1276.5 1280.3 1287.5 1289.1 1296.5 1307 1317.5 1328 1333.2 1338.4 1341.5					

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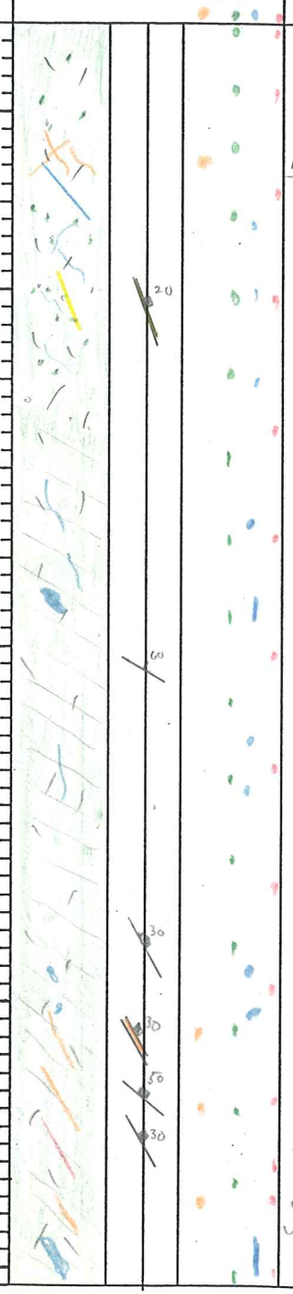
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
Td	R	1032.1-1557 DOZER Fine grained rhyolite · Continues as above. Pale mint green color. Faint flow luminations Present as lighter color bands	1340 1350 1360 1370 1380 1390 1400 1410		1347-1351 Fracture zone with Traces of white clay 1403.8 Fracture with fine sulfide on surface, Ft is 30° to with oblique slip 10° to	1356 qtz vein 1/16" wide 1395-1457 White clay in trace amount on Ft	1341.5 1347 1351 1361.5 1372 1382.5 1393 1403.5 1414	1347 1351 1361.5 1372 1382.5 1393 1403.5 1414				

Piece 1395 White Clay

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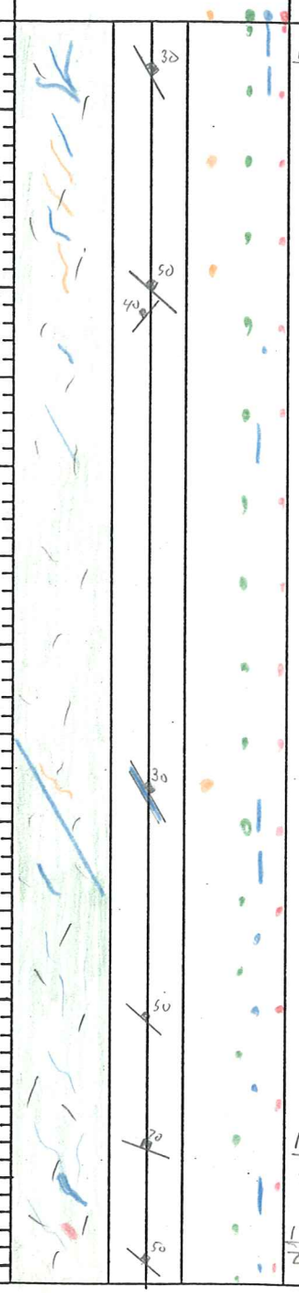
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
Td	R	1032.1-1557 DOZER Fine grained rykolite flow continue 1435-1445.5 Core was lost with only ≈2.5' of recovery loss appears mechanical, 1445.5-1449 core loss continues with all pieces redrilled	1410 1420 1430 1440 1450 1460 1470 1480		1390 General Fractures increase 1473 70° tca Fx with 100° tca 1481-1490 Fracture Zone	Pyrite continues at ≤1° 1454 1" calcite vein dipping 30° tca 1478 Pyrite agglomeration ≈ 1" in diameter

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1403.5	1414				
1414	1424.5				
1424.5	1435				
1435	1445.5				
1445.5	1449				
1449	1459.5				
1459.5	1470				
1470	1480.5				

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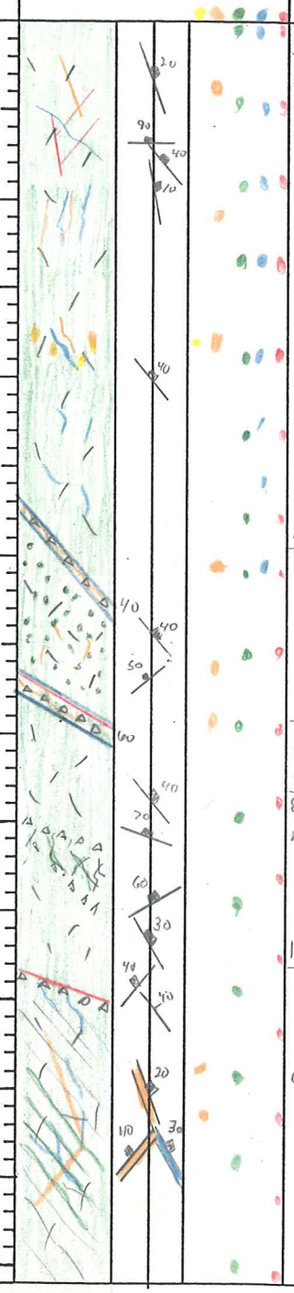
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
Td	R	1032.1-1557 DOZER Fine grain rhyolite continue zone of minimal alteration and fractureing continues 1510.4 – 1518 Vesicular rhyolite flow. Boundarys with surrounding flow are brecciated. Chlorite fills the vesicles 1525.5 – 1534.5 Narrow series of Crackle breccia and shears 1525.5 – 1525.9 crackle bxa 1528 – 1528.9 crackle bxa 1533.5 – 1534.5 crackle bxa sulfide on top of breccia	1480 1490 1500 1510 1520 1530 1540 1550		1481 – 1490 Fracture zone of low to moderate intensity (F.F.) 4 20° tca fx with oblique slip 60° tca. 90° tca oblique slips 90° tca. 40° tca oblique slips 10° tca 1509.6 – 1510.4 Mosaic fault breccia white clay on footwall surface 1518 – 1519.4 Lower flow breccia boundary 1/8" thick dark pyrite marcasite vein 1519.4 Increased fracturing begings with narrow crackle breccia zones	1480 – 1490 Dark py/marcasite sulfide coats fractures 1498.1 – 1501.5 Spotty traces of bleaching removed chlorite. Traces of silica in the bleached zone 1539 – 1541 High angle 20° tca white clay fracture 1542 30° tca a 1" calcite vein	1480.5 1491 1501.5 1509.6 1510.4 1518 1519.4 1525.5 1531.1 1534.5 1543	1491 1501.5 1509.6 1510.4 1518 1519.4 1525.5 1531.1 1534.5 1543 1548.2					

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
Td	R	1032.1-1557 DOZER			1545 30° tca ex with oblique slip at 300° tca	Calcite veins continue up to contact and calcite fragments in the fault breccia	1548.2	1553.5				
							1553.5	1556.6				
							1556.6	1557.6				
TCS		1557-1640.9 Tcs EPICLASTIC SANDSTONES SILTSTONES AND CONGLOMERATES A MIXED PACKAGE OF interbedded sediments of various grain sizes. Clast are predominately volcanically derived with rare ALS. shale clast. Color ranges from green gray to purple brown. Rock is weak to moderately calcareous. Hematitic alteration varies through the package 1615.5 -1632.5 Course conglomerate contains a higher percentage of ALS. shale than previously encountered	1550 1560 1570 1580 1590 1600 1610 1620		1557-1557.6 Fault. Contact between formation. Hanging wall surface is 30° tca and footwall surface is 500° tca with oblique slip of 60° tca 1580 30° tca fracture with oblique slips 1585 50° tca fx 60° oblique slips 1621 50° tca with 900° tca oblique slips	Sulfide content varies directly with intensity of hematite staining Pyrite in the tcs is generally restricted to more chloritically altered intervals and not in hematitic zone. Pyrite is ≤1%	1557.6	1564				
							1564	1574.5				
							1574.5	1585				
							1585	1591				
							1591	1601				
							1601	1611.5				
							1611.5	1622				

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LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION	ANALYTICAL DATA FROM	TO	W	Au	Ag	Au2
TCS. Epic. Seds	R	1557 – 1640.9 TCS. Epiclastic Siltstone Sandstone & Conglomerates Interbedded varible grain size sediment	1620, 1630, 1640		1639–1668 Generally higher fractures 1639–1641 20° tca fracture swarm 1640.9 Sharp flow contact at 60° tca	Pyrite levels continue <1% 1640.9 Hematite stained sediments end in pale gray	1622	1632.5				
							1632.5	1640.9				
T.C.S. Porphyritic Rhyolite Flow		1640.9 – 1655.5 TCS PORPHORITIC RHYOLITE FLOW Fine plagioclase phenocryst in a aphanitic matrix flow Argillization increase toward the base	1650			1640.9 – 1650.5 Calcite fracture filling with vein to 1" thick 1650.5 – 1668 white clay on fractures in broken zone	1640.9	1650.5				
					1655.5 Sharp contact at 80° tca		1650.5	1655.5				
		1655.5 – 1707.5 TCS Epiclastic Sandstone And Conglomerate medium to coarse sandstone with subangular to subrounded grains Minor thin siltstone inter beds. Sorting is moderate	1660				1655.5	1658				
						1664.5 – 1665 Calcite vein with Pyrite mass of ≈ ½" dia	1658	1663.5				
							1663.5	1668				
			1670				1668	1673				
		1688 – 1696.5 Pebble conglomerate Conglomerate and coarse sandstone is calcareous					1673	1678				
			1680				1678	1688				
			1690				1688	1697				

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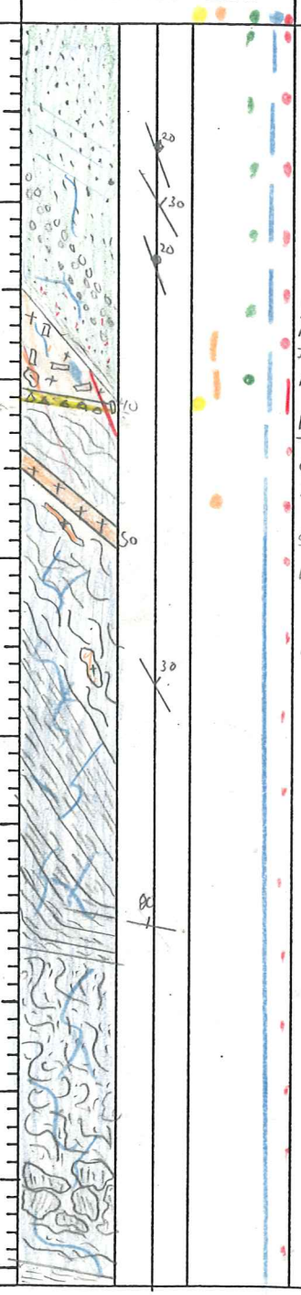
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
TCS Epiclastic	R	1655.5 - 1707.5 TCS Epiclastic Sandstone and conglomerate. Course sediment continue to 1706.2. Fine grained sediment continue to contact from 1706.2. Sandstone is calcareous up to contact.	1690 1700 1710 1720 1730 1740 1750 1760		1707.5-1711 Foliated and sheared Intrusive. clasts of ALS in Intrusive. 1711 contact is OFF set along a 20° tea fracture for 1". Shearing on contact between 1711 & 1711.8	1709 pyrrhotite replaces marcasite in white clay on fracture. 1711 Pyrite in ALS. is diagenetic/syngenetic at < 1%. Calcite veins present throughout core.
TCS Flow		1707.5-1711 Porphoritic Rhyolite flow. Plagioclase phenocrysts in aphanitic matrix				
ALS.	R	1711-1808 ALS. PHILLITIC SHALE AND SILTSTONE. Pirite 1709 white clay pyrrhotite. Fine grained dark gray to black sediments. Pale yellow gray intrusives. Contact is silicified for .8' below the contact. 1715.9 - 1717.2 Pale yellow gray aphanitic intrusive. Intrusive is argillized. 1717.6 1" thick intrusive "whisp" of intrusive along bedding				

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1688	1697				
1697	1706.2				
1706.2	1707.5				
1707.5	1711				
1711	1714				
1714	1719				
1719	1729.5				
1729.5	1733.5				
1733.5	1744				
1744	1752				
1752	1762				

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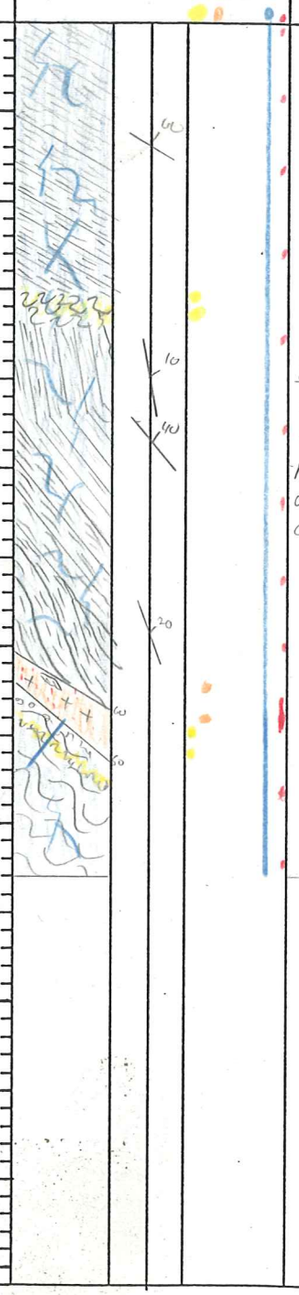
LITH.	OX/RED.	LITHOLOGY	FT	GRAPHIC LOG	STRUCTURE	ALTERATION AND MINERALIZATION
ALS.	R	1711-1808 ALS. Phillitic Shale and Siltstone Highly Folded phillitic Shale and siltstone beds with fine grained intrusive 1783.9-1784 Fine grained intrusive Concordant to bedding. 1797.3-1798.8 Fine grained intrusive with 5% pyrite cubes	1760 1770 1780 1790 1800 1810 1820 1830		1775.4 Bedding is Co-pletely disrupted Going from 60° to 10° to bedding on each side of Calcite/qtz vein swarm	1775.4-1777.4 Calcite/QTZ vein swarm that has silicified surrounding wall rock. 1798.8 ½" calcite vein is cut off by base of intrusive
		T.D. 1808				

ANALYTICAL DATA

FROM	TO	W	Au	Ag	Au2
1761	1771				
1771	1775.4				
1775.4	1780.5				
1780.5	1787.5				
1787.5	1793.5				
1793.5	1797.3				
1797.3	1799.5				
1799.5	1804				
1799.5	1808				

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-15-99 LOGGED BY: D.G. MacKerrow PAGE 1 OF 9

DRILL RUN		SOLID CORE	TOTAL CORE	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO	RECOVERY (%)	RECOVERY (%)		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)
1000	1001	50	100	0										
1001	1006.5	100	49	41										
1006.5	1010	17	106	14										
1010	1017	93	88	67										
1017	1026	64	107	62										
1026	1036.5	48	100	38										
1036.5	1047	100	100	93										
1047	1057.5	98	97	78										
1057.5	1068	96	103	60										
1068	1068.5	0	100	0										
1068.5	1079	88	100	51										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-15-99 LOGGED BY: D.G. MacHerron PAGE 2 OF 9

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)
1079	1089	79	102	59										
1089	1099.5	76	100	73										
1099.5	1110	97	100	73										
1110	1120.5	94	99	76										
1120.5	1131	100	100	73										
1131	1141.5	90	100	67										
1141.5	1152	100	101	95										
1152	1162.5	100	102	68										
1162.5	1173	98	100	66										
1173	1183	100	100	58										
1183	1193.5	100	100	86										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-5-99 10-15-99 LOGGED BY: D.G. Mackerow PAGE 3 OF

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)
1193.5	1204	90	100	74										
1204	1210.5	50	100	35										
1210.5	1220	89	101	50										
1220	1230	100	95	92										
1230	1240	100	102	89										
1240	1250	100	98	92										
1250	1260	71	76	92										
1260	1265.5	98	84	78										
1265.5	1275.5	71	103	80										
1275.5	1286	72	100	55										
1286	1296.5	54	100	52										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-15-99 LOGGED BY: D.G. MacKerron PAGE 4 OF 9

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)
1296.5	1307	94	100	88										
1307	1317.5	100	100	88										
1317.5	1328	99	100	74										
1328	1331	100	103	97										
1331	1340.5	92.4	100	56										
1340.5	1351	89	100	80										
1351	1361.5	100	100	88										
1361.5	1372	100	100	88										
1372	1382.5	100	100	93										
1382.5	1393	100	100	81										
1393	1403.5	100	100	91										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-17-99 LOGGED BY: D.G. Muckerrow PAGE 5 OF 9

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)
1403.5	1414	100	102	86										
1414	1424.5	100	100	66										
1424.5	1435	100	100	88										
1435	1445.5	0	24	0										
1445.5	1449	0	57	0										
1449	1459.5	100	100	92										
1459.5	1470	100	100	100										
1470	1480.5	100	99	90										
1480.5	1491	99	101	65										
1491	1501.5	100	100	96										
1501.5	1511.5	93	100	89										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-17-99 LOGGED BY: D.G. Macherron PAGE 6 OF 9

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)
1511.5	1522	93	102	64										
1522	1532.5	97	100	87										
1532.5	1543	100	100	67										
1543	1553.5	100	100	73										
1553.5	1564	93	99	60										
1564	1574.5	100	99	61										
1574.5	1585	100	95	62										
1585	1591	100	103	75										
1591	1601	100	100	85										
1601	1611.5	100	98	63										
1611.5	1622	106	98	92										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-475-99 DATE: 10-19-91 LOGGED BY: D.G. Mackerrow PAGE 7 OF 9

DRILL RUN		SOLID CORE	TOTAL CORE	RQD	ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
FROM	TO	RECOVERY (%)	RECOVERY (%)		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)
1622	1632.5	100	101	93										
1632.5	1640	88	100	69										
1640	1650.5	70	100	36										
1650.5	1658	66	100	17										
1658	1663.5	65	82	9										
1663.5	1668	0	55	29										
1668	1670	55	115	50										
1670	1677.5	100	100	64										
1677.5	1678	100	40	0										
1678	1688	100	90	86										
1688	1697	100	100	86										

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

LOGGED BY: D.G. MacMerrow PAGE 8 OF 9

ROCK STRENGTH		FRACTURE DATA				DENSITY DATA			
NHOLE DEPTH	PONT LOAD INDEX (psi)	FRACTURE DENSITY/FT.	AVG. ANGLE TO C.A.	ROUGHNESS	INFILL	DOWNHOLE DEPTH	SAMPLE WEIGHT (g)	DISPLACEMENT (cc)	DENSITY (g/cc)

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-476-99 DATE: 10/26/99 LOGGED BY: D.G. Mackerrow PAGE 9 OF 9

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)
1780.5	1787.5	96	100	10										
1787.5	1793.5	78	115	15										
1793.5	1800	81	100	25										
1800	1808	100	90	37										

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-476
PAGE 1 OF 10
DATE 9/24/99
LOGGED BY KAA
TOTAL DEPTH 1000' RVC Pre-Collar

LOCATION Rosebud
NORTHING
EASTING
ELEVATION
AZIMUTH S30E
INCLINATION -55

AREA North West Corridor
DRILLING CO. Eklund
RIG TYPE RD10
HOLE SIZE
DOWN HOLE SURVEY BY Welman

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 %	AG-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
5		Col	colluvium	MS	clastic																																				
10		Col																																							
15		Col																																							
20		Badger	Badger - Volcanic clasts w/ in a mud matrix - some kind of mass - wasting unit	MS-M	Clastic																																				
25																																									
30																																									
35																																									
40																																									
45		Clay		Soft	Lg clay																																				
50		TC Fe-Mag	Porphyritic unit w/ abundant Hematite replaced Hornblende. Phenocrysts of white clay altered Plagioclase are moderately rare.	M-MH	P																																				
55																																									
60																																									
65																																									
70																																									
75																																									
80																																									
85																																									
90																																									
95																																									
100																																									

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-476
PAGE 2 OF 10
DATE 9/24/99
LOGGED BY KAA
TOTAL DEPTH

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION																		MINERALIZATION									METALLURGY				ANALYTICAL DATA				
						SILICIFICATION					ARGILLIC				PROPYLITIC %				POTASSIC %	OXIDATION			VEINING			SULFIDES			PY	CPY	MAR	X-SUL	SULFATE	BARITE	OXIDE	SULF	CARBON	MOLYBDE	FROM	TO	W	AU	AG
						5%	15%	+25%	MAGS	QUARTS	5%	15%	+25%	TYPE	CHLORITE	CALCITE	K-SPAR	ALUNITE	5%	15%	+25%	%	TYPE	5%	15%	+25%	%	%	%	%	%	%										
105		TC FE-MAG	SAME AS ABOVE - MAY BE a slight increase in PHENOCRYSTS & SANADINE.	m-mlt	P																																					
110																																										
115																																										
120																																										
125																																										
130																																										
135																																										
140																																										
145																																										
150																																										
155																																										
160																																										
165																																										
170																																										
175																																										
180																																										
185																																										
190																																										
195																																										
200																																										

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-476
PAGE 3 OF 10
DATE 9/24/99
LOGGED BY KAD
TOTAL DEPTH

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION																	MINERALIZATION									METALLURGY				ANALYTICAL DATA				
						SILICIFICATION					ARGILLIC				PROPYLITIC %	POTASSIC %		OXIDATION			VIENING		SULFIDES			PY	CPY	MAR	AS-SUL	STIBNITE	BARITE	OXIDE	SULF	CARBON	MOLYBDE	FROM	TO	W	Au	Ag
						5%	15%	+25%	MASSIVE	QUARTZ	5%	15%	+25%	TYPE	CHLORITE	CALCITE	K-SPAR	HALLOYSITE	5%	15%	+25%	%	TYPE	5%	15%	+25%	%	%	%	%	%	%										
205		TC FEMAG	SAME AS ABOVE	MH-M	P																																				
210																																									
215																																									
220																																									
225																																									
230																																									
235																																									
240																																									
245																																									
250																																									
255																																									
260																																									
265																																									
270																																									
275																																									
280																																									
285																																									
290																																									
295																																									
300																																									

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-476
PAGE 4 OF 10
DATE 9/24/99
LOGGED BY KDA
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 MASS	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 %	AC-SUL %	SILBNITE %	BARITE %	METALLURGY: OXIDE	SULF	OXIDOX	MOCURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
305		TC FeMag	SAME AS ABOVE	M-MH	P																																				
310																																									
315																																									
320																						1	Pyrite	1			1														
325				MH							X				TR									TR			TR														
330				M-MH																																					
335																																									
340																																									
345																																									
350																																									
355																																									
360																																									
365																																									
370																																									
375																																									
380																																									
385																																									
390			Some plag phenos are chloritically alt (Pyritic)	MH		1					X				TR							TR	SUL	1			1														
395				M-MH																																					
400			Some of the plag are chloritically alt. (Pyritic) Possible stenotrace	M-MH		1					X				TR							TR	SUL	1			1														

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-476
PAGE 5 OF 10
DATE 9/24/99
LOGGED BY KAA
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 %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
405		TC Fe-Mag	Fe-Mag Flow - Same as above. plagioclase phenos are chloritically alt.	MH	P	X					X				TR							1		X																	
410			Pyrite replaces Hematite laths ± Marc. + White clay on fracture surfaces	MH		X					X				X							4%	Py		X				TR												
415				MH		X					X				TR							1		X																
420				M-MH	P																																			
425																																								
430																																								
435																																								
440																																								
445																																								
450																																								
455			Probably Alt Fe-Mag where the Hematite laths have been altered. Common white clay	MS-MH	P	X						X			TR							2	WHT CLAY	X																
460			x - one chip of calcos w/marcasite blades	MS-MH		X					X				TR							1	WHT CLAY	X					TR											
465				MS-MH		X					X				TR									X																
470				MH-M	P																																			
475																																								
480																																								
485																																								
490																																								
495																																								
500																																								

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-476
PAGE 6 OF 10
DATE 9/24/99
LOGGED BY KAO
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 MASSIVE %	SILICIFICATION CLASTIC %	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-SULF %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	OXIDE/SULF	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
505		TC Fe-Mag	SAME AS described ABOVE	M-MH	P																																				
510			altered chloritically - play phenos are chloritically alt.	M-MH	P	X					X				X	TR								X			X															
515						X					X				X	TR								X			X														
520						X					X				X	TR								X			X														
525						X					X				X	TR								X			X														
530						X					X				X	TR								X			X														
535						X					X				X	TR								X			X														
540						X					X				X	TR								X			X														
545						X					X				X	TR								X			X														
550				M-MH	P																																				
555				M-MH	P	X					X				X	TR								X			X														
560						X					X				X	TR								X			X														
565						X					X				X	TR								X			X														
570			Common WHITE clay	MS		X							X		X	TR								X			X														
575				M-MH		X					X				X	TR								X			X														
580						X					X				X	TR								X			X														
585						X					X				X	TR								X			X														
590			Back to unaltered Fenoy Flow		P																																				
595																																									
600																																									

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-476
PAGE 7 OF 10
DATE 9/24/99
LOGGED BY KBA
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 MASSIVE	SILICIFICATION QUARTZ	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CHLORITE	PROPYLITIC % CALCITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 5%	OXIDATION 15%	OXIDATION +25%	VEINING %	VEINING TYPE	MINERALIZATION: SULFIDES 5%	SULFIDES 15%	SULFIDES +25%	PY %	CPY %	MAR %	AC-SUL %	SULFATE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
605		TC Fa-Mag	This unit is propylitized or chloritized Fa-mag flow. w/ LT. to DARK green chloritically alt plag phenos ± sapponite	MS-HM	P	X					X				X									X			X															
610						X					X				X									X			X														
615						X					X				X									X			X														
620						X					X				X									X			X														
625						X					X				X									X			X														
630						X					X				X									X			X														
635						X					X				X									X			X														
640						X					X				X									X			X														
645						X					X				X									X			X														
650						X					X				X									X			X														
655						X					X				X									X			X														
660						X					X				X									X			X														
665			Trace Marcasite			X					X				X									X			X		X												
670						X					X				X									X			X														
675						X					X				X									X			X														
680						X					X				X									X			X														
685						X					X				X									X			X														
690						X					X				X									X			X														
695						X					X				X							10	Qtz	X			X														
700						X					X				X									X			X														

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-476
PAGE 8 OF 10
DATE 9/25/99
LOGGED BY CDA
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 MASSIVE	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	OXIDE	MIXTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
705		TC Fe-Mag	Fine-Grained, slightly porphyritic w/common lt to dark green chloritically altered plag phenos. Appears to be altered TC Fe-Mag flow.	M-H	P-SP	X					X				X									X			X														
710						X					X				X							1	qtz	X			X														
715						X					X				X									X			X														
720						X					X				X									X			X														
725						X					X				X									X			X														
730						X					X				X									X			X														
735						X					X				X									X			X														
740						X					X				X	TR						1	qtz	X			X														
745						X					X				X	X								X			X														
750						X					X				X	TR								X			X														
755						X					X				X									X			X														
760						X					X				X									X			X														
765						X					X				X									X			X														
770						X					X				X									X			X														
775						XX					X				X							2	qtz	X			X														
780						X					X				X									X			X														
785						X					X				X									X			X														
790						X					X				X									X			X														
795						X					X				X									X			X														
800						X					X				X									X			X														

Hecla MINING COMPANY

ROSEBUD PROJECT
DRILL LOG

HOLE NUMBER RS-476
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DATE 9/25/99
LOGGED BY KBA
TOTAL DEPTH 1000' RUC PRE-COLLAR

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 MASSIVE	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 %	AC-SUL %	STIBNITE %	BARITE %	METALLURGY: OXIDE	SULF	CARBON	MOISTURE	ANALYTICAL DATA: FROM	TO	W	Au	Ag
805		TC FeMag	Same As Above	MH	SP	X					X				X							1	Qtz Py	X			X														
810						X					X				X							1	Qtz Py	X			X														
815						X					X				X									X			X														
820						X					X				X									X			X														
825			Minor gray silica Hydrothermal w/ Emarca			X					X				X							2	Qtz Py	X			X		TR												
830						X					X				X							1		X			X														
835						X					X				X							1		X			X														
840						X					X				X									X			X														
845						X					X				X									X			X														
850			Pyrite seems to be Replacing the Hematite Replacing Hornblende?			X					X				X									X			X														
855						X					X				X									X			X														
860						X					X				X									X			X														
865						X					X				X									X			X														
870						X					X				X									X			X														
875						X					X				X									X			X														
880						X					X				X									X			X														
885						X					X				X									X			X														
890						X					X				X									X			X														
895						X					X				X									X			X														
900						X					X				X									X			X														

Hecla MINING COMPANY

ROSEBUD PROJECT DRILL LOG

HOLE NUMBER RS-476
PAGE 10 OF 10
DATE 9/25/99
LOGGED BY KDB
TOTAL DEPTH 1000' RVC Pre-Collar

LOCATION
NORTHING
EASTING
ELEVATION
AZIMUTH
INCLINATION

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

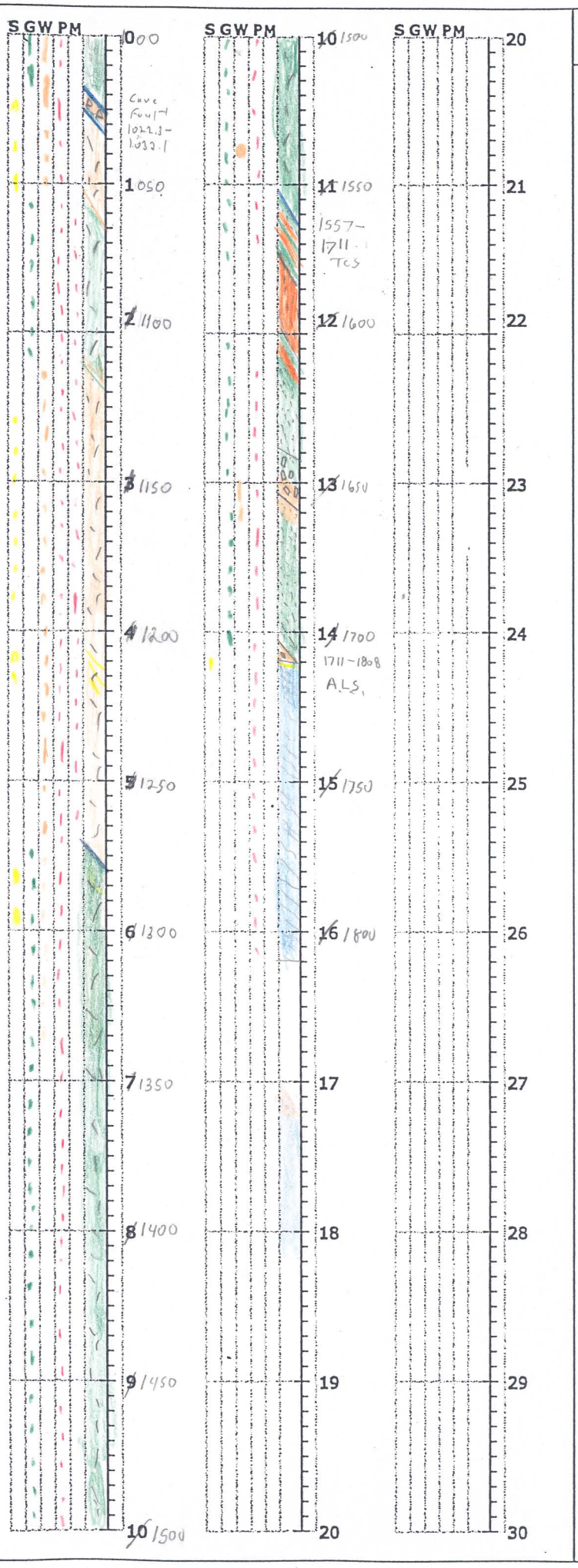
FEET	GRAPHIC	ROCK TYPE	LITHOLOGY	HARDNESS	TEXTURE	ALTERATION: SILICIFICATION 5%	SILICIFICATION 15%	SILICIFICATION +25%	SILICIFICATION MASSIVE	SILICIFICATION QUARTZ	ARGILLIC 5%	ARGILLIC 15%	ARGILLIC +25%	ARGILLIC TYPE	PROPYLITIC % CALCITE	PROPYLITIC % CHLORITE	POTASSIC % K-SPAR	POTASSIC % ALUNITE	OXIDATION 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
905		TC FeMag	Fg-Porphyritic Hematitic Fe-Mag Flow where Hematite has replaced the Hornblende microphenos	Mit	P																																				
910				Mit	P																																				
915		TC ? FeMag	Similar to Above only propylitized & chloritically alt. Some Quartz Phenos observed.	MH	P	X																																			
920				MH	P	X																																			
925		TC FeMag?	Slightly porphyritic unit w/ chloritically alt plagioclase. Alteration increases & Rock appears to become Auto Bx'd	MS-M			X	X				X			WHITE clay	X	Tr					1	WHITE clay Calcite	X			X		X												
930		Auto Bx.					X	X				X				X						1		X			X		X													
935			Disseminated & Calcite vein mass				X	X				X				X						1		X			X		X													
940							X					X				Tr						1		X			X		X													
945							X						X			-						1		X	X		X		X													
950							X						X			-						1		X	X		X		X													
955							X						X			-						1		X	X		X		X													
960							X						X			-								X	X		X		X													
965							X					X				Tr								X			X		X													
970							X					X				X								X			X															
975							X					X				X								X			X															
980		vitrophyric Auto Bx.	Appears to become vitrophyric w/Lt green clay alteration	MS									X			X																									
985													X			X																									
990													X			X																									
995													X			X																									
1000													X			X																									

ROSEBUD MINING COMPANY, LLC.

HOLE #	RS-476-99
START HOLE	
FINISH HOLE	
HOLE TYPE	Core
LOGGED BY	D.G. Macherrow
BEARING	S 300° E
ANGLE	-60°
T.D	1808
SURVEYED TO	1808
PAGE 1 OF	1
COLLAR COORDINATES	
NORTH	
EAST	
ELEV	
DRILLER	Martin Niemi
DRILLING CO.	Longyear

0-1032.1 Fe May Flow

1032.1-1557 Dozer



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

	Chloritic alt.
	Argillization
	Silicification
	Pyrite/marcasite
	Hematite
	Calcite vn/Calcareous

Newmont Gold Core Form

Hole# RS-476-99 **Az/Incl** S30E/-60 **Page** 1 of 5

Logged by D.G. Mackerron **Area** North West target **Total Depth** 1808

Date 10-16-99 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
1000			Chrcdn	Rhy	Grn									1000 – 1032.1 Fe Mag Flow	0	2	0	0	0	2	0	0	0	1	0	1	0
1020														1022.3 – 1032.1 Cave Fault	1	3											
									40																		
									40					1032.1 – 1557 DOZER	1	1				0					Tr		
1040																											
														1118.5 – 2" argillized shear with crushed bxx on down hole side													1
1060															0	Tr				1							0
														1166 20° tcu shear 1" thick													1
									20																		0
1080																											
1100																											1
																											0
																											1
																											0
1120																1									1		
															1												
																				Tr							1
1140																											
1160																											
1180																											
1200																					1 0						

Newmont Gold Core Form

Hole# RS-476-99
Logged by D.G. Mackerron
Date 10-17-99
Area North West Target
Coords
Az/Incl S30E/-60
Total Depth 1808
Contractor Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
1200			Td	Rhy	Dry Wh									1032.1 - 1557 DOZER		1	0	0	0	0	0	0	0	1	1	1/0	1
															0											b/1/6	1
															T												
1220														1215 - 1263 Silicification as 1/8" Bands parallel to foliation												T	
1240														1239.3 - 1241 Fracture Zone. with open vug with calcite and clay												0	
														1258.7 - 1260 Fracture with high angle white clay filled fracture and foliation												1	
1280					Grn Gray				40					1264.7 - 1276.5 Variable Fracture and crackle breccia Zone. Narrow rhyolite breccia from 1275.5-1276.5		0									Tr		
															0												
1300																											
1320																											
1340																											
1360																											
1380																											
1400																											1

Newmont Gold Core Form

Hole# RS-476-99 **Az/Incl** S30E/-60 **Page** 3 of 5

Logged by D. G. MacKeiron **Area** Northwest Target area **Total Depth** 1808

Date 10-17-99 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
1400			Ts	Rhy	Grn grey									1032.1-1557 Dozer	0	0	0	0	0	1	0	0	0	1	Tr	1	1
																											0
1420																											1
																											0
																											1
																											Tr
1440																											0
																											Tr
1460																											
1480																											1
																											Tr
1500																											
																											1
																1											
									40					1510.4-1518 vesicular rhyolite flow													
1520									60																		Tr
																1											
																											1
1540																											
1560			Tcs	Epi Seds	Grn hem brow				30					1557-1640.9 Tcs Epiclastic Sediments Sandstone, shale and conglomerate						0 1 0	1 0 1	1					0
1580																				1 0	0 1						
1600																											

Newmont Gold Core Form

Hole# RS-476-99 **Az/Incl** S30E/-60 **Page** 4 of 5

Logged by D.G. MacKerron **Area** Northwest target area **Total Depth** 1808

Date 10-20-99 **Coords** **Contractor** Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Alteration:	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
1600			Tcs	Epic Sedim	Grn & Dark Brown									1033.1-1555.7 Tcs Epiclastic Sediments Conglomerates, Sandstones and shales	0	0	0	0	0			1	1	0	1	0	1	0
1620																				1		0						
																				0		1						
1640				Rhy Porph. Flow	LT. Grey				60					1640.9-1655.5 Plagioclase porphyry								0	0				2	
1660				S.S.	Tuff grey grey				50					1655.5-1711 TCS. EPICLASTIC SANDSTONE		1				1							1	
																0							1					
1680																							2					
1700																							1					
				Rhy Porphy				+70+ 70	40					1707.5-1711 Porphyritic flow		1				0			0				2	
			ALS.											1711-1808 ALS. PHILLITIC SHALE and SILTSTONE	1 0	0											1	
1720																							2				3	
														Variable bedding orientation from folding														
														1709 traces of pyrrhotite													1	
1740														1715.9-1717.2 Intrusive														
1760																												
1780															1 0													
														1797.3-1798.8 Intrusive														
1800				TWT.																								

Newmont Gold Core Form

Hole# RS-476-99
Logged by D.G. Mackerron
Date 10-26-99
Area Northwest target area
Coords
Az/Incl S30E / -60
Total Depth 1808
Contractor Longyear

Footage	% Rec	RQD	Litho: Formation	Litho: Rock type	Litho: Color	Au oz/st	Ag oz/st	Graphic	Structure: Attitudes	Structure: fault	Structure: breccia	Structure: vein	Structure: gouge	Comments	Alteration: Silic	Alteration: argillic	Alteration: clay	Alteration: prop	Alteration: Sericite	Alteration: Chlorite	Met.: FEOX	Met.: CO3	Met.: Sulfide	Mineralogy: Pyrite	Mineralogy: Marcasite	Mineralogy: Calc/Dolo	Mineralogy: Clay
1800			ALS	Shale	Black									1711-1808 ALS.	0	0	0	0	0	0	0	2	0	1	0	1	0
														TD 1808													

SURFACE DRILLHOLES
1-10-00
DHSTAKE.RW5 01/10/00 14:10:02

JOB:Name: DHSTAKE	Date: 7-3-1991	Time: 22:31:10.95		
M Setup:North Azimuth	Units: Feet	Scale: 1.000000	Curvature: Off	Angle: Degrees
Store:Point: 1	North: 2,204,321.0430	East: 482,158.2690	Elev: 5,414.00	DOZER
Store:Point: 2	North: 2,203,661.3400	East: 479,120.5940	Elev: 5,132.70	94003
Store:Point: 3	North: 2,206,056.0830	East: 479,594.8790	Elev: 5,646.44	USMM207
Occupy:Occ: 2	North: 2,203,661.3400	East: 479,120.5940	Elev: 5,132.70	94003
Backst:Occ: 2	BS pt: 3	BS azm: 11°12'09"	BS crl: 0°00'00"	
HI/HR :H Inst: 5.06	H Rod: 6.00			
Sd Shot:2-8	Ang R: 345°35'39"	Zen: 81°16'03"	S Dst: 2,030.665	478
Sd Shot:2-9	Ang R: 359°55'08"	Zen: 78°49'34"	S Dst: 1,951.520	477
Sd Shot:2-10	Ang R: 358°25'43"	Zen: 81°17'07"	S Dst: 1,321.590	476

SURFACE DRILLHOLES
1-10-00
DHSTAKE.CR5 01/10/00 14:10:52

Point	Northing	Easting	Elevation	Description
1	2,204,321.0430	482,158.2690	5,414.00	DOZER
2	2,203,661.3400	479,120.5940	5,132.70	94003
3	2,206,056.0830	479,594.8790	5,646.44	USMM207
8	2,205,665.3295	479,008.4403	5,440.06	478
9	2,205,539.9121	479,489.8871	5,509.94	477
10	2,204,949.2595	479,339.1511	5,332.00	476

BARRINGER LABORATORIES, INC.

RENO, NEVADA, U.S.A., 5301 Longley Lane, Bldg. E, Reno, NV, 89511, TEL: 702-828-1158, FAX: 702-828-1263

BARRINGER LABORATORIOS de MEXICO, S.A.de C.V.
Carretera Panamericana, KM 10445
Durango, Durango, Mexico C.P. 34030
TEL/FAX (52)(18) 12-00-52

BARRINGER LABORATORIES del PERU S.A.
Avenida Domingo Orué 489
Surquillo, Lima 34, Peru
TEL (011-51-1) 222-2801
FAX (011-51-1) 442-7195

BARRINGER de COLOMBIA
Calle 80 Sur N. 47D-65, L-106
Sabaneta, Colombia
TEL (574) 301-0704

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Colonia La Manga
Hermosillo, Sonora, Mexico C.P. 83210
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BARRINGER LABORATORIES NICARAGUA
COMPLEJO OCAL
Km 7.5 Carretera Norte
Managua, Nicaragua
TEL (011-50-5) 883-0778

McCLELLAND/BARRINGER LABORATORIOS HONDURAS
Kilometro 5,
Boulevard Suyapa
Tegucigalpa, M.D.C., Honduras
TEL (011-50-4) 231-1841

Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped 10-6-99
Shipped Via _____
# of Cartons _____
# of Samples 15

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
Kurt Allen Rosebud Mining Co.	Kurt Allen
Fax # (775) -623-6967	Hecla Mining Co
	P.O. Box 2610
	Winnemucca NV 89446
	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
15	Core	RS-476-99	Au Ag Use Rosebud
		See attachment	Mine development Protocol
			NGC 30 element ICP
			Partial digestion
			Composite as shown on
			attachment

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:
- [ ] ppb
- [ ] PPM
- [x] oz/T
- [ ] grams/T

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

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

ADDITIONAL INSTRUCTIONS:
* Rush *

RS-476-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number
1209.5	1215	5.5	x	x			1
1215	1220	5	x	x			2
1220	1225	5	x	x			3
1225	1230	5	x	x			4
1230	1235	5	x	x			5
1235	1239.3	4.3	x	x			6
1239.3	1241	1.7	x	x			7
1241	1245	4	x	x			8
1245	1250	5	x	x			9
1250	1253.7	3.7	x	x			10
1253.7	1260	6.3	x	x			11
1260	1264.7	4.7	x	x			12
1264.7	1268.6	3.9	x	x			13
1268.6	1271.3	2.7	x	x			14
1271.3	1276.5	5.2	x	x	x	51.5	15

RMGN Job Number:_____

Date Received:_____

Rocky Mountain Geochemical of Nevada

840 GREG STREET

SPARKS, NEVADA 89431

Phone: (702) 359-6311, Fax: (702) 359-2944

SAMPLE SUBMITTAL SHEET

Address Report To: Kurt Allen Rosebud Mine

Phone/Fax: 775-623-6967

Send Invoice To: Kurt Allen Rosebud Mine
P.O. Box 2610
Winnemucca NV 89446

Client's Project No._____

Shipment No._____

Date Shipped: 10/28/99

No. of Cartons:_____

No. of Samples: 110

Copy of Report To:_____

List Sample Numbers	Material Description	List Elements To Be Determined	Indicate Method Fire/Grav.	Fire/AA	Geochem
RS-476-99 See attached Sheet	Core	Au, Ag Use Rosebud Mine development protocol		X	
		NGC 30 element ICP partial digestion Composite as shown on attachment			
1	Pulp	Rosebud production standard at end of hole			

NOT RESPONSIBLE FOR LOSS OF SAMPLES DUE TO FIRE OR THEFT.

Pulp & Reject Disposition: Pulps and Rejects will be discarded unless otherwise noted.

	Bulk Rejects	Pulp
Return at Customer's Expense	X	X
via:		
Store at $1.00 per 100 lbs/month		
Discard immediately		

White Copy: Send to RMGN
Yellow Copy: Customer's Copy
Pink Copy: Enclose with Samples

THE ABOVE WORK IS AUTHORIZED BY:_____ DATE:_____

RS-476-99

Depth From	To	Interval	Au	Ag	ICP	Composite Interval	Sample Number
1000	1006.5	6.5	x	x			1
1006.5	1010	3.5	x	x			2
1010	1017	7	x	x			3
1017	1022.3	5.3	x	x	x	22.3	4
1022.3	1026	3.7	x	x			5
1026	1028.7	2.7	x	x			6
1028.7	1032.1	3.4	x	x	x	9.8	7
1032.1	1036.5	4.4	x	x			8
1036.5	1041.9	5.4	x	x			9
1041.9	1047	5.1	x	x			10
1047	1053.8	6.8	x	x	x	21.7	11
1053.8	1058.3	4.5	x	x			12
1058.3	1068	9.7	x	x			13
1068	1072.2	4.2	x	x			14
1072.2	1079	6.8	x	x			15
1079	1089	10	x	x			16
1089	1097	8	x	x			17
1097	1103	6	x	x	x	49.2	18
1103	1110	7	x	x			19
1110	1118.5	8.5	x	x			20
1118.5	1121.3	2.8	x	x			21
1121.3	1130.2	8.9	x	x	x	27.2	22
1130.2	1133.3	3.1	x	x			23
1133.3	1141.5	8.2	x	x			24
1141.5	1151.4	9.9	x	x			25
1151.4	1158	6.6	x	x			26
1158	1165.5	7.5	x	x	x	35.3	27
1165.5	1167	1.5	x	x			28
1167	1173	6	x	x			29
1173	1183	10	x	x			30
1183	1193.5	10.5	x	x			31
1193.5	1199.3	5.8	x	x			32
1199.3	1204	4.7	x	x			33
1204	1209.5	5.5	x	x	x	44	34
Preciously Shipped							
1276.5	1280.3	3.8	x	x			35
1280.3	1287.5	7.2	x	x			36
1287.5	1289.1	1.6	x	x			37
1289.1	1296.5	7.4	x	x			38
1296.5	1307	10.5	x	x	x	30.5	39

1307	1317.5	10.5	x	x			40
1317.5	1328	10.5	x	x			41
1328	1333.2	5.2	x	x			42
1333.2	1338.4	5.2	x	x			43
1338.4	1341.5	3.1	x	x			44
1341.5	1347	5.5	x	x			45
1347	1351	4	x	x			46
1351	1361.5	10.5	x	x	x	54.5	47
1361.5	1372	10.5	x	x			48
1372	1382.5	10.5	x	x			49
1382.5	1393	10.5	x	x			50
1393	1403.5	10.5	x	x			51
1403.5	1414	10.5	x	x	x	52.5	52
1414	1424.5	10.5	x	x			53
1424.5	1435	10.5	x	x			54
1435	1445.5	10.5	x	x			55
1445.5	1449	3.5	x	x			56
1449	1459.5	10.5	x	x			57
1459.5	1470	10.5	x	x	x	56	58
1470	1480.5	10.5	x	x			59
1480.5	1491	10.5	x	x			60
1491	1501.5	10.5	x	x			61
1501.5	1509.6	8.1	x	x			62
1509.6	1510.4	0.8	x	x			63
1510.4	1518	7.6	x	x			64
1518	1519.4	1.4	x	x	x	49.4	65
1519.4	1525.5	6.1	x	x			66
1525.5	1531.1	5.6	x	x			67
1531.1	1534.5	3.4	x	x			68
1534.5	1543	8.5	x	x			69
1543	1548.2	5.2	x	x			70
1548.2	1553.5	5.3	x	x			71
1553.5	1556.6	3.1	x	x			72
1556.6	1557.6	1	x	x	x	38.2	73
1557.6	1564	6.4	x	x			74
1564	1574.5	10.5	x	x			75
1574.5	1585	10.5	x	x			76
1585	1591	6	x	x			77
1591	1601	10	x	x	x	43.4	78
1601	1611.5	10.5	x	x			79
1611.5	1622	10.5	x	x			80
1622	1632.5	10.5	x	x			81
1632.5	1640.9	8.4	x	x	x	39.9	82

1640.9	1650.5	9.6	x	x			83
1650.5	1655.5	5	x	x	x	14.6	84
1655.5	1658	2.5	x	x			85
1658	1663.5	5.5	x	x			86
1663.5	1668	4.5	x	x			87
1668	1673	5	x	x			88
1673	1678	5	x	x	x	22.5	89
1678	1688	10	x	x			90
1688	1697	9	x	x			91
1697	1706.2	9.2	x	x			92
1706.2	1707.5	1.3	x	x	x	29.5	93
1707.5	1711	3.5	x	x			94
1711	1714	3	x	x			95
1714	1719	5	x	x			96
1719	1729.5	10.5	x	x			97
1729.5	1733.5	4	x	x			98
1733.5	1744	10.5	x	x			99
1744	1752	8	x	x			100
1752	1762	10	x	x	x	54.5	101
1762	1771	9	x	x			102
1771	1775.4	4.4	x	x			103
1775.4	1780.5	5.1	x	x			104
1780.5	1787.5	7	x	x			105
1787.5	1793.5	6	x	x			106
1793.5	1797.3	3.8	x	x			107
1797.3	1799.5	2.2	x	x			108
1799.5	1804	4.5	x	x			109
1804	1808	4	x	x	x	46	110

BARRINGER LABORATORIES, INC.

RENO, NEVADA, U.S.A.
5301 Longley Lane, Bldg. E,
Reno, NV, 89511
702-828-1158, FAX 702-828-1263

BARRINGER LABORATORIOS
de MEXICO, S.A.de C.V.
20 De Noviembre #1920-5 Ote.
Durango, Durango, Mexico 34000
TEL (011-52) (18) 17-98-80

BARRINGER LABORATORIOS
de MEXICO, S.A. de C.V.
Blvd. García Morales 829-A, Bodega #2
Colonia La Manga
Hermosillo, Sonora, Mexico C.P. 83210
TEL/FAX (62) 61-04-15

BARRINGER LABORATORIES
del PERU S.A.
Avenida Jose Ramirez Gaston 242
Miraflores, Lima 18, Peru
TEL(01151) (14) 49-17-88

Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped 9/26/99
Shipped Via _____
# of Cartons _____
# of Samples 200 Samples

Geochemical Laboratory Instruction Sheet

Copy of Results:	Results And Invoice To:
FAX to Kurt D. Allen	Kurt D. Allen, Rosebud Mining Co
@ # 775-623-6967	P.O. Box 2610
	Winnemucca, NV 89446
	AUTHORITY:

No. of Samples	Sample Type	List of Sample Numbers	Elements Requested
200	RVC	RS-476 0-5 through 995-1000	Au/Ag
			use Rosebud Development
			Drilling Protocol
			NGC 30 Element ICP
			Total Digestion Composite
			As shown on Attachment
1	Pulp	Rosebud Production standard @ end of Hole	Au/Ag - No ICP

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:
- [ ] ppb
- [ ] PPM
- [x] oz/T
- [ ] grams/T

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

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

ADDITIONAL INSTRUCTIONS:
Results go only to Kurt Allen.

NOV96:PM5:RENO3:GEOCHEM

RS-476
REVERSE CIRCULATION DRILL SAMPLES

DEPTH FROM	TO	INTERVAL	Au	Ag	ICP	COMPOSITE INTERVAL
0	5	5	X	X		
5	10	5	X	X		
10	15	5	X	X	X	15
15	20	5	X	X		
20	25	5	X	X		
25	30	5	X	X		
30	35	5	X	X		
35	40	5	X	X		
40	45	5	X	X	X	30
45	50	5	X	X		
50	55	5	X	X		
55	60	5	X	X		
60	65	5	X	X		
65	70	5	X	X		
70	75	5	X	X		
75	80	5	X	X		
80	85	5	X	X		
85	90	5	X	X		
90	95	5	X	X	X	50
95	100	5	X	X		
100	105	5	X	X		
105	110	5	X	X		
110	115	5	X	X		
115	120	5	X	X		
120	125	5	X	X		
125	130	5	X	X		
130	135	5	X	X		
135	140	5	X	X		
140	145	5	X	X	X	50
145	150	5	X	X		
150	155	5	X	X		
155	160	5	X	X		
160	165	5	X	X		
165	170	5	X	X		
170	175	5	X	X		
175	180	5	X	X		
180	185	5	X	X		
185	190	5	X	X		
190	195	5	X	X	X	50
195	200	5	X	X		
200	205	5	X	X		
205	210	5	X	X		
210	215	5	X	X		
215	220	5	X	X		
220	225	5	X	X		
225	230	5	X	X		
230	235	5	X	X		
235	240	5	X	X		
240	245	5	X	X	X	50
245	250	5	X	X		
250	255	5	X	X		
255	260	5	X	X		
260	265	5	X	X		
265	270	5	X	X		
270	275	5	X	X		

RS-476
REVERSE CIRCULATION DRILL SAMPLES

DEPTH FROM	TO	INTERVAL	Au	Ag	ICP	COMPOSITE INTERVAL
275	280	5	X	X		
280	285	5	X	X		
285	290	5	X	X		
290	295	5	X	X	X	50
295	300	5	X	X		
300	305	5	X	X		
305	310	5	X	X		
310	315	5	X	X		
315	320	5	X	X	X	30
320	325	5	X	X	X	5
325	330	5	X	X		
330	335	5	X	X		
335	340	5	X	X		
340	345	5	X	X		
345	350	5	X	X		
350	355	5	X	X		
355	360	5	X	X		
360	365	5	X	X		
365	370	5	X	X		
370	375	5	X	X		
375	380	5	X	X		
380	385	5	X	X	X	60
385	390	5	X	X	X	5
390	395	5	X	X	X	5
395	400	5	X	X		
400	405	5	X	X		
405	410	5	X	X		
410	415	5	X	X	X	50
415	420	5	X	X		
420	425	5	X	X		
425	430	5	X	X		
430	435	5	X	X		
435	440	5	X	X		
440	445	5	X	X		
445	450	5	X	X	X	35
450	455	5	X	X		
455	460	5	X	X		
460	465	5	X	X	X	15
465	470	5	X	X		
470	475	5	X	X		
475	480	5	X	X		
480	485	5	X	X		
485	490	5	X	X		
490	495	5	X	X		
495	500	5	X	X		
500	505	5	X	X	X	40
505	510	5	X	X		
510	515	5	X	X		
515	520	5	X	X		
520	525	5	X	X		
525	530	5	X	X		
530	535	5	X	X		
535	540	5	X	X		
540	545	5	X	X	X	40
545	550	5	X	X	X	5
550	555	5	X	X		
555	560	5	X	X		
560	565	5	X	X		

RS-476
REVERSE CIRCULATION DRILL SAMPLES

DEPTH FROM	TO	INTERVAL	Au	Ag	ICP	COMPOSITE INTERVAL
565	570	5	X	X		
570	575	5	X	X		
575	580	5	X	X		
580	585	5	X	X	X	35
585	590	5	X	X		
590	595	5	X	X		
595	600	5	X	X	X	15
600	605	5	X	X		
605	610	5	X	X		
610	615	5	X	X		
615	620	5	X	X		
620	625	5	X	X		
625	630	5	X	X		
630	635	5	X	X		
635	640	5	X	X		
640	645	5	X	X		
645	650	5	X	X	X	50
650	655	5	X	X		
655	660	5	X	X		
660	665	5	X	X		
665	670	5	X	X		
670	675	5	X	X		
675	680	5	X	X		
680	685	5	X	X		
685	690	5	X	X		
690	695	5	X	X		
695	700	5	X	X	X	50
700	705	5	X	X		
705	710	5	X	X		
710	715	5	X	X		
715	720	5	X	X		
720	725	5	X	X		
725	730	5	X	X		
730	735	5	X	X		
735	740	5	X	X		
740	745	5	X	X		
745	750	5	X	X	X	50
750	755	5	X	X		
755	760	5	X	X		
760	765	5	X	X		
765	770	5	X	X		
770	775	5	X	X		
775	780	5	X	X		
780	785	5	X	X		
785	790	5	X	X		
790	795	5	X	X		
795	800	5	X	X	X	50
800	805	5	X	X		
805	810	5	X	X		
810	815	5	X	X		
815	820	5	X	X		
820	825	5	X	X		
825	830	5	X	X		
830	835	5	X	X		
835	840	5	X	X		
840	845	5	X	X		
845	850	5	X	X	X	50
850	855	5	X	X		
855	860	5	X	X		

RS-476
REVERSE CIRCULATION DRILL SAMPLES

DEPTH FROM	TO	INTERVAL	Au	Ag	ICP	COMPOSITE INTERVAL
860	865	5	X	X		
865	870	5	X	X		
870	875	5	X	X		
875	880	5	X	X		
880	885	5	X	X		
885	890	5	X	X		
890	895	5	X	X		
895	900	5	X	X	X	50
900	905	5	X	X		
905	910	5	X	X	X	10
910	915	5	X	X		
915	920	5	X	X	X	10
920	925	5	X	X		
925	930	5	X	X		
930	935	5	X	X	X	15
935	940	5	X	X		
940	945	5	X	X		
945	950	5	X	X		
950	955	5	X	X		
955	960	5	X	X	X	25
960	965	5	X	X		
965	970	5	X	X		
970	975	5	X	X	X	15
975	980	5	X	X		
980	985	5	X	X		
985	990	5	X	X		
990	995	5	X	X		
995	1000	5	X	X	X	25

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

5301 LONGLEY LANE
BUILDING E, SUITE 178
RENO, NEVADA 89511
PHONE: (775) 828-1158

15-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 27-Sep-99 10:18
Project: RS-476 0'-1000'
PO #:

Job: 993536R
Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 0-5	0.001	0.009
RS-476 5-10	0.007	0.126
RS-476 10-15	0.002	0.006
RS-476 15-20	0.000	0.003
RS-476 20-25	0.001	0.012
RS-476 25-30	0.001	0.003
RS-476 30-35	0.001	0.006
RS-476 35-40	0.002	0.023
RS-476 40-45	0.001	0.009
RS-476 45-50	0.004	0.012
RS-476 50-55	0.001	0.009
RS-476 55-60	0.001	0.003
RS-476 60-65	0.001	0.012
RS-476 65-70	0.000	0.003
RS-476 70-75	0.001	0.006
RS-476 75-80	0.000	0.003
RS-476 80-85	0.000	0.003
RS-476 85-90	0.000	0.003
RS-476 90-95	0.000	0.006
RS-476 95-100	0.000	0.003

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PO #:

Job: 993536R
Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 100-105	0.000	0.003
RS-476 105-110	0.001	0.006
RS-476 110-115	0.001	0.009
RS-476 115-120	0.002	0.006
RS-476 120-125	0.000	0.003
RS-476 125-130	0.000	0.006
RS-476 130-135	0.000	0.003
RS-476 135-140	0.001	0.020
RS-476 140-145	0.000	0.003
RS-476 145-150	0.000	0.003
RS-476 150-155	0.001	0.015
RS-476 155-160	0.000	0.003
RS-476 160-165	0.000	0.006
RS-476 165-170	0.001	0.003
RS-476 170-175	0.000	0.006
RS-476 175-180	0.000	0.006
RS-476 180-185	0.000	0.003
RS-476 185-190	0.000	0.003
RS-476 190-195	0.000	0.006
RS-476 195-200	0.000	0.006

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PO #:

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Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 200-205	0.001	0.006
RS-476 205-210	0.000	0.003
RS-476 210-215	0.000	0.006
RS-476 215-220	0.000	0.009
RS-476 220-225	0.000	0.006
RS-476 225-230	0.000	0.006
RS-476 230-235	0.000	0.009
RS-476 235-240	0.000	0.012
RS-476 240-245	0.000	0.012
RS-476 245-250	0.000	0.006
RS-476 250-255	0.000	0.009
RS-476 255-260	0.000	0.015
RS-476 260-265	0.000	0.015
RS-476 265-270	0.000	0.006
RS-476 270-275	0.000	0.009
RS-476 275-280	0.000	0.009
RS-476 280-285	0.000	0.009
RS-476 285-290	0.000	0.009
RS-476 290-295	0.000	0.012
RS-476 295-300	0.000	0.009

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Attn: Kurt Allen
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PO #:

Job: 993536R
Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 300-305	0.001	0.003
RS-476 305-310	0.000	0.006
RS-476 310-315	0.001	0.006
RS-476 315-320	0.000	0.006
RS-476 320-325	0.000	0.006
RS-476 325-330	0.000	0.006
RS-476 330-335	0.000	0.009
RS-476 335-340	0.000	0.006
RS-476 340-345	0.001	0.006
RS-476 345-350	0.000	0.009
RS-476 350-355	0.000	0.006
RS-476 355-360	0.000	0.009
RS-476 360-365	0.000	0.006
RS-476 365-370	0.000	0.012
RS-476 370-375	0.000	0.006
RS-476 375-380	0.001	0.006
RS-476 380-385	0.000	0.006
RS-476 385-390	0.000	0.006
RS-476 390-395	0.000	0.006
RS-476 395-400	0.000	0.015

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PO #:

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Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 400-405	0.005	0.029
RS-476 405-410	0.001	0.067
RS-476 410-415	0.000	0.009
RS-476 415-420	0.000	0.006
RS-476 420-425	0.000	0.006
RS-476 425-430	0.000	0.006
RS-476 430-435	0.000	0.006
RS-476 435-440	0.001	0.032
RS-476 440-445	0.001	0.006
RS-476 445-450	0.000	0.003
RS-476 450-455	0.000	0.015
RS-476 455-460	0.001	0.018
RS-476 460-465	0.001	0.018
RS-476 465-470	0.000	0.012
RS-476 470-475	0.000	0.006
RS-476 475-480	0.000	0.006
RS-476 480-485	0.000	0.003
RS-476 485-490	0.001	0.006
RS-476 490-495	0.000	0.006
RS-476 495-500	0.000	0.006

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WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 27-Sep-99 10:18
Project: RS-476 0'-1000'
PO #:

Job: 993536R
Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 500-505	0.000	0.006
RS-476 505-510	0.000	0.006
RS-476 510-515	0.000	0.009
RS-476 515-520	0.000	0.006
RS-476 520-525	0.000	0.006
RS-476 525-530	0.000	0.009
RS-476 530-535	0.000	0.012
RS-476 535-540	0.001	0.006
RS-476 540-545	0.001	0.018
RS-476 545-550	0.000	0.009
RS-476 550-555	0.001	0.012
RS-476 555-560	0.000	0.018
RS-476 560-565	0.001	0.018
RS-476 565-570	0.001	0.012
RS-476 570-575	0.000	0.009
RS-476 575-580	0.001	0.003
RS-476 580-585	0.000	0.003
RS-476 585-590	0.001	0.009
RS-476 590-595	0.000	0.003
RS-476 595-600	0.000	0.003

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Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 600-605	0.002	0.012
RS-476 605-610	0.001	0.020
RS-476 610-615	0.003	0.026
RS-476 615-620	0.001	0.015
RS-476 620-625	0.000	0.012
RS-476 625-630	0.000	0.012
RS-476 630-635	0.000	0.009
RS-476 635-640	0.000	0.012
RS-476 640-645	0.002	0.029
RS-476 645-650	0.003	0.143
RS-476 650-655	0.001	0.053
RS-476 655-660	0.001	0.047
RS-476 660-665	0.002	0.055
RS-476 665-670	0.002	0.023
RS-476 670-675	0.006	0.061
RS-476 675-680	0.003	0.053
RS-476 680-685	0.008	0.050
RS-476 685-690	0.002	0.061
RS-476 690-695	0.004	0.061
RS-476 695-700	0.005	0.318

BARRINGER LABORATORIES INC.

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GOLDEN, COLORADO 80401
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5301 LONGLEY LANE
BUILDING E, SUITE 178
RENO, NEVADA 89511
PHONE: (775) 828-1158

15-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 27-Sep-99 10:18
Project: RS-476 0'-1000'
PO #:

Job: 993536R
Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 700-705	0.003	0.070
RS-476 705-710	0.004	0.053
RS-476 710-715	0.003	0.050
RS-476 715-720	0.003	0.026
RS-476 720-725	0.012	0.079
RS-476 725-730	0.001	0.035
RS-476 730-735	0.002	0.029
RS-476 735-740	0.002	0.035
RS-476 740-745	0.000	0.009
RS-476 745-750	0.001	0.026
RS-476 750-755	0.000	0.006
RS-476 755-760	0.001	0.018
RS-476 760-765	0.002	0.032
RS-476 765-770	0.003	0.044
RS-476 770-775	0.002	0.055
RS-476 775-780	0.002	0.044
RS-476 780-785	0.001	0.018
RS-476 785-790	0.001	0.032
RS-476 790-795	0.000	0.018
RS-476 795-800	0.001	0.012

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Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 800-805	0.002	0.076
RS-476 805-810	0.001	0.020
RS-476 810-815	0.002	0.029
RS-476 815-820	0.005	0.128
RS-476 820-825	0.007	0.073
RS-476 825-830	0.011	0.088
RS-476 830-835	0.005	0.105
RS-476 835-840	0.003	0.058
RS-476 840-845	0.010	0.339
RS-476 845-850	0.007	0.085
RS-476 850-855	0.002	0.044
RS-476 855-860	0.004	0.026
RS-476 860-865	0.001	0.029
RS-476 865-870	0.002	0.044
RS-476 870-875	0.002	0.038
RS-476 875-880	0.002	0.055
RS-476 880-885	0.007	0.058
RS-476 885-890	0.004	0.035
RS-476 890-895	0.001	0.020
RS-476 895-900	0.001	0.006

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Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 900-905	0.000	0.003
RS-476 905-910	0.000	0.006
RS-476 910-915	0.000	0.009
RS-476 915-920	0.001	0.050
RS-476 920-925	0.003	0.050
RS-476 925-930	0.007	0.061
RS-476 930-935	0.003	0.064
RS-476 935-940	0.004	0.067
RS-476 940-945	0.005	0.123
RS-476 945-950	0.010	0.222
RS-476 950-955	0.004	0.134
RS-476 955-960	0.005	0.312
RS-476 960-965	0.004	0.161
RS-476 965-970	0.002	0.032
RS-476 970-975	0.004	0.099
RS-476 975-980	0.003	0.120
RS-476 980-985	0.003	0.076
RS-476 985-990	0.003	0.041
RS-476 990-995	0.001	0.029
RS-476 995-1000	0.004	0.053

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Pulp

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
STD 70751	0.159	1.694

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Rock

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm	Cu ICP ppm
RS-476 0-15	0.1	0.48	2	23	96	<1	0.75	<0.5	1	10	8
RS-476 15-45	<0.1	0.60	<2	25	46	<1	0.54	0.7	1	14	10
RS-476 45-95	<0.1	0.52	2	21	52	<1	0.46	0.6	1	14	12
RS-476 95-145	<0.1	0.33	2	17	46	<1	0.31	0.5	<1	16	5
RS-476 145-195	<0.1	0.32	<2	19	33	<1	0.64	<0.5	1	22	3
RS-476 195-245	<0.1	0.28	2	23	51	<1	0.69	0.6	<1	12	5
RS-476 245-295	<0.1	0.22	12	22	42	<1	0.72	0.5	<1	2	6
RS-476 295-320	<0.1	0.23	5	21	43	<1	0.54	<0.5	<1	12	5
RS-476 320-325	<0.1	0.24	8	21	44	<1	0.53	0.5	<1	7	4
RS-476 325-385	<0.1	0.31	2	21	76	<1	1.02	0.5	<1	14	3
RS-476 385-390	<0.1	0.28	<2	29	27	<1	0.86	0.7	<1	13	3
RS-476 390-395	<0.1	0.43	<2	24	42	<1	0.67	0.6	<1	19	3
RS-476 395-415	0.6	0.34	12	31	25	<1	0.65	0.6	<1	19	3
RS-476 415-450	0.1	0.39	<2	21	63	<1	1.25	0.5	<1	17	3
RS-476 450-465	0.1	0.41	<2	26	81	<1	0.53	0.8	<1	18	4
RS-476 465-505	<0.1	0.37	<2	20	43	<1	1.28	0.5	<1	10	4
RS-476 505-545	<0.1	0.37	<2	24	27	<1	1.04	0.5	<1	11	4
RS-476 545-550	<0.1	0.32	<2	22	18	<1	1.29	0.5	<1	11	4
RS-476 550-585	0.1	0.42	8	27	38	<1	0.86	0.7	<1	15	6
RS-476 585-600	<0.1	0.27	<2	24	68	<1	1.58	0.8	<1	10	4

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Rock

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm	Cu ICP ppm
RS-476 600-650	0.6	0.51	21	26	27	<1	1.30	0.7	<1	15	6
RS-476 650-700	1.7	0.34	79	27	30	<1	0.31	0.6	1	22	6
RS-476 700-750	0.8	0.35	75	29	35	<1	0.68	0.9	1	19	6
RS-476 750-800	0.3	0.40	58	29	32	1	0.76	0.8	1	19	5
RS-476 800-850	2.3	0.35	66	32	41	<1	0.47	1.0	1	29	7
RS-476 850-900	0.6	0.32	63	28	28	<1	0.81	0.9	1	19	5
RS-476 900-910	<0.1	0.30	<2	20	29	<1	1.69	0.7	1	15	4
RS-476 910-920	0.4	0.44	23	27	56	<1	0.87	0.9	<1	13	5
RS-476 920-935	2.8	0.38	83	30	47	<1	0.41	0.9	<1	18	6
RS-476 935-960	4.3	0.32	63	33	34	<1	0.56	0.9	1	24	7
RS-476 960-975	2.5	0.47	62	31	33	<1	1.32	1.3	1	14	7
RS-476 975-1000	1.4	0.60	50	44	28	<1	2.10	1.3	6	10	11

Sample Id	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm	P ICP ppm	Pb ICP ppm
RS-476 0-15	1.52	44	0.28	17	0.08	150	<1	<0.01	1	112	25
RS-476 15-45	1.97	75	0.34	18	0.03	102	<1	<0.01	1	221	30
RS-476 45-95	1.54	82	0.32	25	0.02	209	<1	<0.01	1	155	33

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Rock

Sample Id	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm	P ICP ppm	Pb ICP ppm
RS-476 95-145	1.24	78	0.20	11	0.01	236	<1	<0.01	1	148	24
RS-476 145-195	1.42	85	0.24	20	0.01	272	<1	<0.01	1	209	23
RS-476 195-245	1.75	41	0.26	21	0.01	224	<1	<0.01	1	164	24
RS-476 245-295	1.72	41	0.23	20	0.01	286	<1	<0.01	1	164	22
RS-476 295-320	1.68	35	0.24	23	0.01	207	<1	<0.01	<1	203	26
RS-476 320-325	1.65	72	0.18	18	0.01	510	<1	<0.01	<1	197	25
RS-476 325-385	1.71	85	0.29	20	0.02	535	<1	<0.01	<1	218	25
RS-476 385-390	2.35	198	0.23	15	0.02	765	<1	<0.01	<1	223	29
RS-476 390-395	1.96	148	0.33	18	0.02	476	<1	<0.01	<1	243	28
RS-476 395-415	2.54	229	0.26	13	0.01	437	<1	<0.01	<1	241	30
RS-476 415-450	1.66	50	0.36	18	0.02	513	<1	<0.01	<1	212	26
RS-476 450-465	2.20	119	0.43	15	0.02	432	<1	3.14	1	264	28
RS-476 465-505	1.77	56	0.45	19	0.02	438	<1	0.26	<1	244	26
RS-476 505-545	2.20	100	0.35	13	0.02	655	<1	0.94	<1	235	28
RS-476 545-550	1.82	91	0.37	15	0.02	604	<1	1.71	<1	235	24
RS-476 550-585	2.23	104	0.46	14	0.02	476	1	2.70	<1	233	30
RS-476 585-600	2.03	113	0.35	15	0.02	595	<1	2.20	<1	245	25
RS-476 600-650	2.27	31	0.44	13	0.02	565	<1	3.12	<1	223	28
RS-476 650-700	2.20	28	0.44	11	0.02	77	1	4.44	1	227	30
RS-476 700-750	2.47	19	0.31	10	0.02	280	1	4.67	<1	231	29

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Attn: Kurt Allen
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Project: RS-476 0'-1000'
PO #:

Job: 993536R
Status: Final

Rock

Sample Id	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm	P ICP ppm	Pb ICP ppm
RS-476 750-800	2.62	38	0.33	10	0.03	332	1	5.24	1	243	32
RS-476 800-850	2.83	60	0.34	9	0.02	207	<1	4.84	1	224	30
RS-476 850-900	2.36	19	0.27	9	0.03	302	1	3.55	1	223	26
RS-476 900-910	1.64	22	0.37	15	0.03	589	<1	0.73	<1	234	24
RS-476 910-920	2.37	19	0.33	12	0.03	318	<1	3.42	<1	228	28
RS-476 920-935	2.48	47	0.39	10	0.02	69	<1	1.91	<1	245	34
RS-476 935-960	2.86	19	0.31	7	0.02	128	<1	2.80	1	220	38
RS-476 960-975	2.87	19	0.36	6	0.06	274	<1	2.92	<1	293	35
RS-476 975-1000	4.20	22	0.30	8	0.12	627	<1	3.64	1	605	38

Sample Id	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-476 0-15	<2	<1	97	0.01	<0.5	17	<1	18
RS-476 15-45	<2	<1	105	0.01	<0.5	19	<1	20
RS-476 45-95	<2	<1	81	0.01	<0.5	13	<1	31
RS-476 95-145	<2	<1	70	0.01	<0.5	4	<1	27
RS-476 145-195	<2	<1	68	0.01	<0.5	4	<1	27
RS-476 195-245	<2	<1	80	0.01	<0.5	11	<1	14
RS-476 245-295	<2	<1	88	0.01	<0.5	6	<1	14

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Rock

Sample Id	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-476 295-320	<2	<1	95	0.01	<0.5	4	<1	18
RS-476 320-325	<2	<1	112	<0.01	<0.5	3	<1	29
RS-476 325-385	<2	<1	124	0.01	<0.5	6	<1	32
RS-476 385-390	<2	<1	94	<0.01	<0.5	4	<1	34
RS-476 390-395	<2	<1	91	0.01	<0.5	4	<1	32
RS-476 395-415	4	<1	76	<0.01	<0.5	2	<1	33
RS-476 415-450	<2	<1	127	0.01	<0.5	4	<1	25
RS-476 450-465	<2	<1	117	<0.01	<0.5	3	<1	73
RS-476 465-505	<2	<1	143	0.02	<0.5	4	<1	41
RS-476 505-545	<2	<1	113	<0.01	<0.5	3	<1	49
RS-476 545-550	<2	<1	124	<0.01	<0.5	4	<1	54
RS-476 550-585	2	<1	113	<0.01	<0.5	3	<1	71
RS-476 585-600	<2	<1	152	0.01	<0.5	4	<1	61
RS-476 600-650	<2	<1	125	<0.01	<0.5	3	<1	71
RS-476 650-700	2	4	90	<0.01	<0.5	<2	<1	82
RS-476 700-750	<2	1	101	<0.01	<0.5	2	<1	95
RS-476 750-800	<2	<1	116	<0.01	<0.5	2	<1	96
RS-476 800-850	4	2	93	<0.01	<0.5	<2	<1	93
RS-476 850-900	<2	1	81	<0.01	<0.5	3	<1	78
RS-476 900-910	<2	<1	138	0.02	<0.5	5	<1	46

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Rock

Sample Id	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-476 910-920	<2	<1	86	<0.01	<0.5	4	<1	78
RS-476 920-935	2	4	78	<0.01	<0.5	<2	<1	53
RS-476 935-960	4	7	81	<0.01	<0.5	<2	<1	63
RS-476 960-975	2	2	130	<0.01	<0.5	2	<1	66
RS-476 975-1000	<2	1	168	<0.01	<0.5	6	<1	80

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Abbreviations:

Parameters:

Au	: Gold
Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead

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Sb	: Antimony
Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc

Methods:

FA/AA	: Fire Assay/Atomic Absorption Finish
AA	: Atomic Absorption
ICP	: Inductively Coupled Plasma
HYG	: Hydride Generation

Units:

oz/ton	: ounces per ton
ppm	: Parts per million
%	: percent
ppb	: Parts per billion

Quality codes:

<	: Less than

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WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 27-Sep-99 10:18
Project: RS-476 0'-1000'
PO #:

Job: 993536R
Status: Final

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 geologic 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.

Job approved by:

Signed: Richard A. Grondin
Rich Grondin

INSPECTORATE

INSPECTORATE AMERICA CORPORATION
840 Greg Street
Sparks, Nevada 89431
Tel:775-359-6311
Fax: 775-359-2944

21-Nov-99

ROSEBUD MINING COMPANY
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Certificate of Analysis

Attn: Kurt Allen
Received: 31-Oct-99 15:25
Project: RS-476-99
PO #: Ref:99-39-39

Job: 993714R
Status: Final

Drill Core

Sample Id	Au FA/AA/AAS oz/ton	Au FA oz/ton	Ag AA ppm	Ag AA oz/ton	Ag FA oz/ton
RS-476-99 1000-1006.5	0.002	NA	2.0	0.059	NA
RS-476-99 1006.5-1010	0.012	NA	2.8	0.083	NA
RS-476-99 1010-1017	0.009	NA	2.9	0.086	NA
RS-476-99 1017-1022.3	0.005	NA	2.5	0.072	NA
RS-476-99 1022.3-1026	0.002	NA	1.3	0.037	NA
RS-476-99 1026-1028.7	0.002	NA	0.9	0.027	NA
RS-476-99 1028.7-1032.1	0.001	NA	1.4	0.042	NA
RS-476-99 1032.1-1036.5	0.009	NA	4.0	0.117	NA
RS-476-99 1036.5-1041.9	0.004	NA	3.5	0.101	NA
RS-476-99 1041.9-1047	0.002	NA	2.0	0.057	NA
RS-476-99 1047-1053.8	0.001	NA	0.7	0.020	NA
RS-476-99 1053.8-1058.3	0.001	NA	1.0	0.028	NA
RS-476-99 1058.3-1068	0.000	NA	0.3	0.008	NA
RS-476-99 1068-1072.2	0.001	NA	0.5	0.015	NA
RS-476-99 1072.2-1079	0.000	NA	0.4	0.011	NA
RS-476-99 1079-1089	0.000	NA	0.9	0.025	NA
RS-476-99 1089-1097	0.000	NA	0.8	0.022	NA
RS-476-99 1097-1103	0.000	NA	0.5	0.014	NA
RS-476-99 1103-1110	0.000	NA	0.6	0.018	NA
RS-476-99 1110-1118.5	0.000	NA	0.7	0.021	NA

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RS-476-99 1118.5-1121.3	0.002	NA	1.9	0.055	NA
RS-476-99 1121.3-1130.2	0.002	NA	1.5	0.043	NA
RS-476-99 1130.2-1133.3	0.004	NA	1.8	0.052	NA
RS-476-99 1133.3-1141.5	0.002	NA	1.1	0.033	NA
RS-476-99 1141.5-1151.4	0.001	NA	1.2	0.035	NA
RS-476-99 1151.4-1158	0.002	NA	0.9	0.027	NA
RS-476-99 1158-1165.5	0.001	NA	0.3	0.008	NA
RS-476-99 1165.5-1167	0.002	NA	1.5	0.043	NA
RS-476-99 1167-1173	0.001	NA	0.9	0.026	NA
RS-476-99 1173-1183	0.014	NA	1.7	0.049	NA
RS-476-99 1183-1193.5	0.002	NA	0.7	0.020	NA
RS-476-99 1193.5-1199.3	0.001	NA	0.8	0.022	NA
RS-476-99 1199.3-1204	0.003	NA	0.8	0.022	NA
RS-476-99 1204-1209.5	0.001	NA	1.4	0.040	NA
RS-476-99 1276.5-1280.3	0.000	NA	0.3	0.009	NA
RS-476-99 1280.3-1287.5	0.000	NA	0.3	0.008	NA
RS-476-99 1287.5-1289.1	0.000	NA	0.2	0.005	NA
RS-476-99 1289.1-1296.5	0.000	NA	0.2	0.006	NA
RS-476-99 1296.5-1307	0.000	NA	0.3	0.009	NA
RS-476-99 1307-1317.5	0.000	NA	0.1	0.002	NA

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Sample Id	Au FA/AA/AAS oz/ton	Au FA oz/ton	Ag AA ppm	Ag AA oz/ton	Ag FA oz/ton
RS-476-99 1317.5-1328	0.000	NA	0.1	0.002	NA
RS-476-99 1328-1333.2	0.000	NA	0.1	0.002	NA
RS-476-99 1333.2-1338.4	0.000	NA	0.2	0.007	NA
RS-476-99 1338.4-1341.5	0.000	NA	0.2	0.006	NA
RS-476-99 1341.5-1347	0.000	NA	0.1	0.003	NA
RS-476-99 1347-1351	0.000	NA	0.6	0.017	NA
RS-476-99 1351-1361.5	0.000	NA	0.8	0.024	NA
RS-476-99 1361.5-1372	0.000	NA	0.0	<0.001	NA
RS-476-99 1372-1382.5	0.000	NA	0.6	0.017	NA
RS-476-99 1382.5-1393	0.000	NA	0.6	0.017	NA
RS-476-99 1393-1403.5	0.000	NA	0.3	0.008	NA
RS-476-99 1403.5-1414	0.001	NA	0.4	0.013	NA
RS-476-99 1414-1424.5	0.000	NA	0.1	0.004	NA
RS-476-99 1424.5-1435	0.000	NA	0.3	0.008	NA
RS-476-99 1435-1445.5	0.000	NA	0.5	0.015	NA
RS-476-99 1445.5-1449	0.000	NA	0.3	0.008	NA
RS-476-99 1449-1459.5	0.000	NA	0.3	0.008	NA
RS-476-99 1459.5-1470	0.000	NA	0.2	0.007	NA
RS-476-99 1470-1480.5	0.000	NA	0.3	0.010	NA
RS-476-99 1480.5-1491	0.000	NA	0.4	0.013	NA

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RS-476-99 1491-1501.5	0.000	NA	0.4	0.011	NA
RS-476-99 1501.5-1509.6	0.000	NA	0.2	0.007	NA
RS-476-99 1509.6-1510.4	0.000	NA	0.3	0.009	NA
RS-476-99 1510.4-1518	0.000	NA	0.4	0.011	NA
RS-476-99 1518-1519.4	0.000	NA	1.1	0.033	NA
RS-476-99 1519.4-1525.5	0.000	NA	0.5	0.014	NA
RS-476-99 1525.5-1531.1	0.000	NA	1.0	0.029	NA
RS-476-99 1531.1-1534.5	0.000	NA	0.2	0.006	NA
RS-476-99 1534.5-1543	0.000	NA	0.0	<0.001	NA
RS-476-99 1543-1548.2	0.000	NA	0.1	0.003	NA
RS-476-99 1548.2-1553.5	0.000	NA	0.1	0.004	NA
RS-476-99 1553.5-1556.6	0.000	NA	0.3	0.009	NA
RS-476-99 1556.6-1557.6	0.000	NA	0.1	0.003	NA
RS-476-99 1557.6-1564	0.000	NA	0.1	0.004	NA
RS-476-99 1564-1574.5	0.000	NA	0.2	0.005	NA
RS-476-99 1574.5-1585	0.000	NA	0.1	0.004	NA
RS-476-99 1585-1591	0.000	NA	0.2	0.006	NA
RS-476-99 1591-1601	0.000	NA	0.0	0.001	NA
RS-476-99 1601-1611.5	0.000	NA	0.3	0.009	NA
RS-476-99 1611.5-1622	0.000	NA	0.2	0.007	NA

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RS-476-99 1622-1632.5	0.000	NA	0.1	0.004	NA
RS-476-99 1632.5-1640.9	0.000	NA	0.2	0.006	NA
RS-476-99 1640.9-1650.5	0.000	NA	0.0	0.001	NA
RS-476-99 1650.5-1655.5	0.000	NA	0.3	0.008	NA
RS-476-99 1655.5-1658	0.000	NA	0.1	0.003	NA
RS-476-99 1658-1663.5	0.000	NA	0.5	0.016	NA
RS-476-99 1663.5-1668	0.000	NA	0.9	0.026	NA
RS-476-99 1668-1673	0.000	NA	0.6	0.017	NA
RS-476-99 1673-1678	0.000	NA	0.4	0.012	NA
RS-476-99 1678-1688	0.000	NA	0.7	0.019	NA
RS-476-99 1688-1697	0.000	NA	0.3	0.009	NA
RS-476-99 1697-1706.2	0.000	NA	0.4	0.012	NA
RS-476-99 1706.2-1707.5	0.000	NA	0.5	0.015	NA
RS-476-99 1707.5-1711	0.000	NA	0.5	0.016	NA
RS-476-99 1711-1714	0.000	NA	1.0	0.028	NA
RS-476-99 1714-1719	0.000	NA	1.4	0.040	NA
RS-476-99 1719-1729.5	0.000	NA	1.6	0.046	NA
RS-476-99 1729.5-1733.5	0.000	NA	0.9	0.025	NA
RS-476-99 1733.5-1744	0.000	NA	1.4	0.040	NA
RS-476-99 1744-1752	0.000	NA	0.4	0.012	NA

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Sample Id	Au FA/AA/AAS oz/ton	Au FA oz/ton	Ag AA ppm	Ag AA oz/ton	Ag FA oz/ton
RS-476-99 1752-1762	0.000	NA	1.6	0.046	NA
RS-476-99 1762-1771	0.000	NA	1.5	0.044	NA
RS-476-99 1771-1775.4	0.001	NA	0.5	0.016	NA
RS-476-99 1775.4-1780.5	0.000	NA	0.5	0.016	NA
RS-476-99 1780.5-1787.5	0.000	NA	0.3	0.010	NA
RS-476-99 1787.5-1793.5	0.000	NA	0.9	0.026	NA
RS-476-99 1793.5-1797.3	0.000	NA	0.4	0.012	NA
RS-476-99 1797.3-1799.5	0.000	NA	0.3	0.010	NA
RS-476-99 1799.5-1804	0.000	NA	0.1	0.004	NA
RS-476-99 1804-1808	0.000	NA	0.3	0.010	NA

Pulp

STD 75232	0.027	NA	4.2	0.124	NA

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Abbreviations:

Parameters:

Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead
Sb	: Antimony

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Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc
Au	: Gold

Methods:

ICP	: Inductively Coupled Plasma
HYG	: Hydride Generation
FA/AA/AAS	: Fire Assay/Atomic Absorption Finish
FA	: Fire Assay/Gravimetric Finish
AA	: Atomic Absorption

Units:

ppm	: Parts per million
%	: percent
ppb	: Parts per billion
oz/ton	: ounces per ton

Quality codes:

<	: Less than

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NA : Not Analyzed

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Job approved by:

Signed:

.....

Dave Francisco
Laboratory Manager

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Drill Core

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-476-99 1000-1022.3	1.2	0.79	36	42	33	1	0.85	1.5	9	13
RS-476-99 1022.3-1032.1	0.7	0.77	31	34	196	<1	1.87	1.7	6	16
RS-476-99 1032.1-1053.8	1.3	0.34	59	13	34	<1	0.40	<0.5	<1	35
RS-476-99 1053.8-1103	<0.1	0.53	26	24	39	<1	0.48	0.7	<1	25
RS-476-99 1103-1130.2	0.2	0.45	72	24	32	<1	0.53	0.7	<1	24
RS-476-99 1130.2-1165.5	0.4	0.50	62	26	31	<1	0.39	0.7	<1	33
RS-476-99 1165.5-1209.5	0.2	0.51	40	30	23	<1	0.26	0.9	<1	35
RS-476-99 1276.5-1307	<0.1	0.70	<2	29	20	<1	1.00	0.5	<1	27
RS-476-99 1307-1361.5	<0.1	0.59	9	24	35	<1	0.57	0.6	<1	19
RS-476-99 1361.5-1414	<0.1	0.55	9	26	18	<1	0.88	0.5	<1	16
RS-476-99 1414-1470	<0.1	0.58	<2	27	36	<1	0.69	<0.5	<1	21
RS-476-99 1470-1519.4	<0.1	0.63	3	29	304	<1	0.90	0.6	<1	15
RS-476-99 1519.4-1557.6	<0.1	0.61	<2	25	648	<1	1.21	0.6	1	12
RS-476-99 1557.6-1601	0.2	1.09	<2	58	259	<1	2.68	1.9	27	40
RS-476-99 1601-1640.9	<0.1	1.33	8	59	405	9	2.44	1.8	29	40
RS-476-99 1640.9-1655.5	<0.1	1.64	<2	54	208	1	1.99	1.1	22	48
RS-476-99 1655.5-1678	0.2	1.22	<2	56	254	3	2.99	1.4	22	29
RS-476-99 1678-1707.5	0.2	1.38	<2	54	222	8	2.96	1.6	20	24
RS-476-99 1707.5-1762	0.9	0.53	52	38	120	4	5.03	9.1	13	20
RS-476-99 1762-1808	1.2	0.28	41	31	226	<1	8.62	9.0	9	13

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RS-476-99 1000-1022.3	11	2.97	41	0.33	12	0.22	192	<1	0.70	6
RS-476-99 1022.3-1032.1	10	2.70	69	0.36	14	0.26	416	<1	0.80	4
RS-476-99 1032.1-1053.8	4	0.80	52	0.40	53	0.05	85	<1	0.34	2
RS-476-99 1053.8-1103	3	1.50	31	0.53	61	0.04	265	<1	0.57	2
RS-476-99 1103-1130.2	3	1.45	41	0.48	59	0.04	306	1	0.54	2
RS-476-99 1130.2-1165.5	4	1.81	38	0.50	54	0.03	269	1	0.70	1
RS-476-99 1165.5-1209.5	4	1.81	28	0.50	55	0.03	260	2	0.73	1
RS-476-99 1276.5-1307	3	1.85	35	0.55	59	0.05	543	3	0.66	1
RS-476-99 1307-1361.5	3	1.47	24	0.58	66	0.04	311	<1	0.49	1
RS-476-99 1361.5-1414	3	1.60	145	0.57	56	0.04	387	<1	0.53	1
RS-476-99 1414-1470	4	1.66	21	0.60	64	0.03	383	<1	0.57	1
RS-476-99 1470-1519.4	5	1.87	38	0.61	62	0.05	438	1	0.65	2
RS-476-99 1519.4-1557.6	5	1.80	35	0.49	54	0.09	457	<1	0.68	6
RS-476-99 1557.6-1601	57	4.56	52	0.30	19	0.66	830	<1	0.44	84
RS-476-99 1601-1640.9	57	4.66	55	0.25	16	0.72	497	<1	0.50	85
RS-476-99 1640.9-1655.5	56	4.23	45	0.28	21	0.87	332	<1	0.55	66
RS-476-99 1655.5-1678	33	4.30	38	0.25	10	0.64	380	<1	0.72	42
RS-476-99 1678-1707.5	35	4.28	38	0.16	5	0.63	413	<1	0.71	66
RS-476-99 1707.5-1762	51	2.95	79	0.21	4	0.55	230	48	7.68	83
RS-476-99 1762-1808	45	2.26	83	0.21	2	0.95	184	63	8.44	74

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Drill Core

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-476-99 1000-1022.3	1031	30	<2	0.6	135	<0.01	<0.5	6	<1	98
RS-476-99 1022.3-1032.1	689	32	<2	<0.5	201	<0.01	<0.5	5	<1	99
RS-476-99 1032.1-1053.8	90	26	<2	3.3	60	<0.01	<0.5	<2	<1	58
RS-476-99 1053.8-1103	96	31	<2	<0.5	62	<0.01	<0.5	<2	<1	88
RS-476-99 1103-1130.2	95	27	<2	2.5	64	<0.01	<0.5	<2	<1	86
RS-476-99 1130.2-1165.5	87	33	<2	4.7	68	<0.01	<0.5	<2	<1	105
RS-476-99 1165.5-1209.5	88	34	<2	<0.5	52	<0.01	<0.5	<2	<1	108
RS-476-99 1276.5-1307	91	29	<2	<0.5	97	<0.01	<0.5	<2	<1	101
RS-476-99 1307-1361.5	104	33	<2	<0.5	79	<0.01	<0.5	<2	<1	88
RS-476-99 1361.5-1414	91	31	<2	<0.5	106	<0.01	<0.5	<2	<1	86
RS-476-99 1414-1470	108	32	<2	<0.5	85	<0.01	<0.5	<2	<1	95
RS-476-99 1470-1519.4	107	33	<2	<0.5	136	<0.01	<0.5	<2	<1	98
RS-476-99 1519.4-1557.6	142	31	<2	<0.5	252	<0.01	<0.5	2	<1	96
RS-476-99 1557.6-1601	1066	31	<2	<0.5	497	0.02	<0.5	50	<1	84
RS-476-99 1601-1640.9	959	32	<2	<0.5	450	0.01	<0.5	50	<1	83
RS-476-99 1640.9-1655.5	1353	34	4	<0.5	473	<0.01	<0.5	45	<1	88
RS-476-99 1655.5-1678	736	27	<2	<0.5	456	<0.01	<0.5	37	<1	96
RS-476-99 1678-1707.5	831	29	2	<0.5	519	0.01	<0.5	48	<1	91
RS-476-99 1707.5-1762	1180	30	5	<0.5	705	<0.01	<0.5	22	<1	690
RS-476-99 1762-1808	905	22	7	3.3	917	<0.01	<0.5	23	<1	730

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

5301 LONGLEY LANE
BUILDING E, SUITE 178
RENO, NEVADA 89511
PHONE: (775) 828-1158

13-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476-99

PO #:

Received: 6-Oct-99 18:41

Job: 993616R

Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476-99 1209.5-1215	0.004	0.055
RS-476-99 1215-1220	0.006	0.134
RS-476-99 1220-1225	0.002	0.032
RS-476-99 1225-1230	0.005	0.096
RS-476-99 1230-1235	0.002	0.044
RS-476-99 1235-1239.3	0.002	0.026
RS-476-99 1239.3-1241	0.007	0.339
RS-476-99 1241-1245	0.006	0.023
RS-476-99 1245-1250 5	0.012	0.029
RS-476-99 1250-1253.7 3.7	0.012	0.023
RS-476-99 1253.7-1260 6.3	0.007	0.044
RS-476-99 1260-1264.7 4.7	0.019	0.058
RS-476-99 1264.7-1268.6 3.9	0.024	0.210
RS-476-99 1268.6-1271.3 2.7	0.011	0.029
RS-476-99 1271.3-1276.5 5.2	0.031	0.015

0.017 Au
0.06 Ag

31.5'

BARRINGER LABORATORIES INC.

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13-Oct-99

ROSEBUD MINING COMPANY LLC
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58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476-99
PO #:

Received: 6-Oct-99 18:41

Job: 993616R

Status: Final

Drill Core

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-476-99 1209.5-1225	1.9	0.44	40	21	38	<1	0.29	<0.5	<1	32
RS-476-99 1225-1276.5	0.7	0.41	31	18	37	<1	0.85	<0.5	<1	24

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-476-99 1209.5-1225	6	1.44	25	0.37	24	0.02	166	3	1.37	2
RS-476-99 1225-1276.5	5	1.45	22	0.35	26	0.02	327	1	1.93	1

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-476-99 1209.5-1225	33	26	<2	2	45	<0.01	<0.5	<2	<1	56
RS-476-99 1225-1276.5	29	23	<2	3	75	<0.01	<0.5	<2	<1	53

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ROSEBUD MINING COMPANY LLC
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58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 6-Oct-99 18:41
Project: RS-476-99
PO #:

Job: 993616R
Status: Final

Abbreviations:

Parameters:

Au	: Gold
Ag	: Silver
Al	: Aluminum
As	: Arsenic
B	: Boron
Ba	: Barium
Bi	: Bismuth
Ca	: Calcium
Cd	: Cadmium
Co	: Cobalt
Cr	: Chromium
Cu	: Copper
Fe	: Iron
Hg	: Mercury
K	: Potassium
La	: Lanthanum
Mg	: Magnesium
Mn	: Manganese
Mo	: Molybdenum
Na	: Sodium
Ni	: Nickel
P	: Phosporus
Pb	: Lead

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ROSEBUD MINING COMPANY LLC
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58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 6-Oct-99 18:41
Project: RS-476-99
PO #:

Job: 993616R
Status: Final

Sb	: Antimony
Se	: Selenium
Sr	: Strontium
Ti	: Titanium
Tl	: Thallium
V	: Vanadium
W	: Tungsten
Zn	: Zinc

Methods:

FA/AA	: Fire Assay/Atomic Absorption Finish
AA	: Atomic Absorption
ICP	: Inductively Coupled Plasma
HYG	: Hydride Generation

Units:

oz/ton	: ounces per ton
ppm	: Parts per million
%	: percent
ppb	: Parts per billion

Quality codes:

<	: Less than

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WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 6-Oct-99 18:41
Project: RS-476-99
PO #:

Job: 993616R
Status: Final

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 geologic 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.

Job approved by:

Signed: Richard A. Grondin
Rich Grondin

7-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Page: 1
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Set : 1

Attn: Kurt Allen
Project: RS-476-99

PO #:

Received: 6-Oct-99 18:41

Job: 993616R

Status: Preliminary

Drill Core

Sample Id	Au FA/AA oz/ton
RS-476-99 1209.5-1215	0.004
RS-476-99 1215-1220	0.006
RS-476-99 1220-1225	0.002
RS-476-99 1225-1230	0.005
RS-476-99 1230-1235	0.002
RS-476-99 1235-1239.3	0.002
RS-476-99 1239.3-1241	0.007
RS-476-99 1241-1245	0.006
RS-476-99 1245-1250	0.012
RS-476-99 1250-1253.7	0.012
RS-476-99 1253.7-1260	0.007
RS-476-99 1260-1264.7	0.019
RS-476-99 1264.7-1268.6	0.024
RS-476-99 1268.6-1271.3	0.011
RS-476-99 1271.3-1276.5	0.031

Pending analyses:

Ag AA oz/ton

BARRINGER LABORATORIES INC.

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15-Oct-99

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'
PO #:

Received: 27-Sep-99 10:18

Job: 993536R

Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 0-5	0.001	0.009
RS-476 5-10	0.007	0.126
RS-476 10-15	0.002	0.006
RS-476 15-20	0.000	0.003
RS-476 20-25	0.001	0.012
RS-476 25-30	0.001	0.003
RS-476 30-35	0.001	0.006
RS-476 35-40	0.002	0.023
RS-476 40-45	0.001	0.009
RS-476 45-50	0.004	0.012
RS-476 50-55	0.001	0.009
RS-476 55-60	0.001	0.003
RS-476 60-65	0.001	0.012
RS-476 65-70	0.000	0.003
RS-476 70-75	0.001	0.006
RS-476 75-80	0.000	0.003
RS-476 80-85	0.000	0.003
RS-476 85-90	0.000	0.003
RS-476 90-95	0.000	0.006
RS-476 95-100	0.000	0.003

MEETING THE ANALYTICAL CHALLENGES OF A CHANGING WORLD

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
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15-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Page: 2
Copy: 1 of 2
Set : 1

Attn: Kurt Allen
Project: RS-476 0'-1000'
PO #:

Received: 27-Sep-99 10:18

Job: 993536R

Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 100-105	0.000	0.003
RS-476 105-110	0.001	0.006
RS-476 110-115	0.001	0.009
RS-476 115-120	0.002	0.006
RS-476 120-125	0.000	0.003
RS-476 125-130	0.000	0.006
RS-476 130-135	0.000	0.003
RS-476 135-140	0.001	0.020
RS-476 140-145	0.000	0.003
RS-476 145-150	0.000	0.003
RS-476 150-155	0.001	0.015
RS-476 155-160	0.000	0.003
RS-476 160-165	0.000	0.006
RS-476 165-170	0.001	0.003
RS-476 170-175	0.000	0.006
RS-476 175-180	0.000	0.006
RS-476 180-185	0.000	0.003
RS-476 185-190	0.000	0.003
RS-476 190-195	0.000	0.006
RS-476 195-200	0.000	0.006

BARRINGER LABORATORIES INC.

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15-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Page: 3
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Attn: Kurt Allen
Project: RS-476 0'-1000'

Received: 27-Sep-99 10:18
PO #:

Job: 993536R

Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 200-205	0.001	0.006
RS-476 205-210	0.000	0.003
RS-476 210-215	0.000	0.006
RS-476 215-220	0.000	0.009
RS-476 220-225	0.000	0.006
RS-476 225-230	0.000	0.006
RS-476 230-235	0.000	0.009
RS-476 235-240	0.000	0.012
RS-476 240-245	0.000	0.012
RS-476 245-250	0.000	0.006
RS-476 250-255	0.000	0.009
RS-476 255-260	0.000	0.015
RS-476 260-265	0.000	0.015
RS-476 265-270	0.000	0.006
RS-476 270-275	0.000	0.009
RS-476 275-280	0.000	0.009
RS-476 280-285	0.000	0.009
RS-476 285-290	0.000	0.009
RS-476 290-295	0.000	0.012
RS-476 295-300	0.000	0.009

MEETING THE ANALYTICAL CHALLENGES OF A CHANGING WORLD

BARRINGER LABORATORIES INC.

15000 W 6TH AVE. SUITE 300
GOLDEN COLORADO 80401
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15-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Page: 4
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Attn: Kurt Allen
Project: RS-476 0'-1000'
PO #:

Received: 27-Sep-99 10:18

Job: 993536R

Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 300-305	0.001	0.003
RS-476 305-310	0.000	0.006
RS-476 310-315	0.001	0.006
RS-476 315-320	0.000	0.006
RS-476 320-325	0.000	0.006
RS-476 325-330	0.000	0.006
RS-476 330-335	0.000	0.009
RS-476 335-340	0.000	0.006
RS-476 340-345	0.001	0.006
RS-476 345-350	0.000	0.009
RS-476 350-355	0.000	0.006
RS-476 355-360	0.000	0.009
RS-476 360-365	0.000	0.006
RS-476 365-370	0.000	0.012
RS-476 370-375	0.000	0.006
RS-476 375-380	0.001	0.006
RS-476 380-385	0.000	0.006
RS-476 385-390	0.000	0.006
RS-476 390-395	0.000	0.006
RS-476 395-400	0.000	0.015

MEETING THE ANALYTICAL CHALLENGES OF A CHANGING WORLD

BARRINGER LABORATORIES INC.

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'
PO #:

Received: 27-Sep-99 10:18

Job: 993536R

Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 400-405	0.005	0.029
RS-476 405-410	0.001	0.067
RS-476 410-415	0.000	0.009
RS-476 415-420	0.000	0.006
RS-476 420-425	0.000	0.006
RS-476 425-430	0.000	0.006
RS-476 430-435	0.000	0.006
RS-476 435-440	0.001	0.032
RS-476 440-445	0.001	0.006
RS-476 445-450	0.000	0.003
RS-476 450-455	0.000	0.015
RS-476 455-460	0.001	0.018
RS-476 460-465	0.001	0.018
RS-476 465-470	0.000	0.012
RS-476 470-475	0.000	0.006
RS-476 475-480	0.000	0.006
RS-476 480-485	0.000	0.003
RS-476 485-490	0.001	0.006
RS-476 490-495	0.000	0.006
RS-476 495-500	0.000	0.006

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'

Received: 27-Sep-99 10:18

PO #:

Job: 993536R

Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 500-505	0.000	0.006
RS-476 505-510	0.000	0.006
RS-476 510-515	0.000	0.009
RS-476 515-520	0.000	0.006
RS-476 520-525	0.000	0.006
RS-476 525-530	0.000	0.009
RS-476 530-535	0.000	0.012
RS-476 535-540	0.001	0.006
RS-476 540-545	0.001	0.018
RS-476 545-550	0.000	0.009
RS-476 550-555	0.001	0.012
RS-476 555-560	0.000	0.018
RS-476 560-565	0.001	0.018
RS-476 565-570	0.001	0.012
RS-476 570-575	0.000	0.009
RS-476 575-580	0.001	0.003
RS-476 580-585	0.000	0.003
RS-476 585-590	0.001	0.009
RS-476 590-595	0.000	0.003
RS-476 595-600	0.000	0.003

MEETING THE ANALYTICAL CHALLENGES OF A CHANGING WORLD

BARRINGER LABORATORIES INC.

16000 W. 8TH AVE. SUITE 300
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15-Oct-99

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'

Received: 27-Sep-99 10:18
PO #:

Job: 993536R

Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 600-605	0.002	0.012
RS-476 605-610	0.001	0.020
RS-476 610-615	0.003	0.026
RS-476 615-620	0.001	0.015
RS-476 620-625	0.000	0.012
RS-476 625-630	0.000	0.012
RS-476 630-635	0.000	0.009
RS-476 635-640	0.000	0.012
RS-476 640-645	0.002	0.029
RS-476 645-650	0.003	0.143
RS-476 650-655	0.001	0.053
RS-476 655-660	0.001	0.047
RS-476 660-665	0.002	0.055
RS-476 665-670	0.002	0.023
RS-476 670-675	0.006	0.061
RS-476 675-680	0.003	0.053
RS-476 680-685	0.008	0.050
RS-476 685-690	0.002	0.061
RS-476 690-695	0.004	0.061
RS-476 695-700	0.005	0.318

MEETING THE ANALYTICAL CHALLENGES OF A CHANGING WORLD

BARRINGER LABORATORIES INC.

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15-Oct-99

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Received: 27-Sep-99 10:18
Project: RS-476 0'-1000'
PO #:

Job: 993536R
Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 700-705	0.003	0.070
RS-476 705-710	0.004	0.053
RS-476 710-715	0.003	0.050
RS-476 715-720	0.003	0.026
RS-476 720-725	0.012	0.079
RS-476 725-730	0.001	0.035
RS-476 730-735	0.002	0.029
RS-476 735-740	0.002	0.035
RS-476 740-745	0.000	0.009
RS-476 745-750	0.001	0.026
RS-476 750-755	0.000	0.006
RS-476 755-760	0.001	0.018
RS-476 760-765	0.002	0.032
RS-476 765-770	0.003	0.044
RS-476 770-775	0.002	0.055
RS-476 775-780	0.002	0.044
RS-476 780-785	0.001	0.018
RS-476 785-790	0.001	0.032
RS-476 790-795	0.000	0.018
RS-476 795-800	0.001	0.012

BARRINGER LABORATORIES INC.

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ROSEBUD MINING COMPANY LLC
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58 MILES WEST OF
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Attn: Kurt Allen
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Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 800-805	0.002	0.076
RS-476 805-810	0.001	0.020
RS-476 810-815	0.002	0.029
RS-476 815-820	0.005	0.128
RS-476 820-825	0.007	0.073
RS-476 825-830	0.011	0.088
RS-476 830-835	0.005	0.105
RS-476 835-840	0.003	0.058
RS-476 840-845	0.010	0.339
RS-476 845-850	0.007	0.085
RS-476 850-855	0.002	0.044
RS-476 855-860	0.004	0.026
RS-476 860-865	0.001	0.029
RS-476 865-870	0.002	0.044
RS-476 870-875	0.002	0.038
RS-476 875-880	0.002	0.055
RS-476 880-885	0.007	0.058
RS-476 885-890	0.004	0.035
RS-476 890-895	0.001	0.020
RS-476 895-900	0.001	0.006

BARRINGER LABORATORIES INC.

15500 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
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3301 LONGLEY LANE
BUILDING E SUITE 178
RENO, NEVADA 89511
PHONE: (775) 826-1158

15-Oct-99

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'

Received: 27-Sep-99 10:18

PO #:

Job: 993536R

Status: Final

Rock

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476 900-905	0.000	0.003
RS-476 905-910	0.000	0.006
RS-476 910-915	0.000	0.009
RS-476 915-920	0.001	0.050
RS-476 920-925	0.003	0.050
RS-476 925-930	0.007	0.061
RS-476 930-935	0.003	0.064
RS-476 935-940	0.004	0.067
RS-476 940-945	0.005	0.123
RS-476 945-950	0.010	0.222
RS-476 950-955	0.004	0.134
RS-476 955-960	0.005	0.312
RS-476 960-965	0.004	0.161
RS-476 965-970	0.002	0.032
RS-476 970-975	0.004	0.099
RS-476 975-980	0.003	0.120
RS-476 980-985	0.003	0.076
RS-476 985-990	0.003	0.041
RS-476 990-995	0.001	0.029
RS-476 995-1000	0.004	0.053

BARRINGER LABORATORIES INC.

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15-Oct-99

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'

PO #:

Received: 27-Sep-99 10:18

Job: 993536R

Status: Final

Pulp

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
STD 70751	0.159	1.694

BARRINGER LABORATORIES INC.

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15-Oct-99

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'

Received: 27-Sep-99 10:18

PO #:

Job: 993536R

Status: Final

Rock

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm	Cu ICP ppm
RS-476 0-15	0.1	0.48	2	23	96	<1	0.75	<0.5	1	10	8
RS-476 15-45	<0.1	0.60	<2	25	46	<1	0.54	0.7	1	14	10
RS-476 45-95	<0.1	0.52	2	21	52	<1	0.46	0.6	1	14	12
RS-476 95-145	<0.1	0.33	2	17	46	<1	0.31	0.5	<1	16	5
RS-476 145-195	<0.1	0.32	<2	19	33	<1	0.64	<0.5	1	22	3
RS-476 195-245	<0.1	0.28	2	23	51	<1	0.69	0.6	<1	12	5
RS-476 245-295	<0.1	0.22	12	22	42	<1	0.72	0.5	<1	2	6
RS-476 295-320	<0.1	0.23	5	21	43	<1	0.54	<0.5	<1	12	5
RS-476 320-325	<0.1	0.24	8	21	44	<1	0.53	0.5	<1	7	4
RS-476 325-385	<0.1	0.31	2	21	76	<1	1.02	0.5	<1	14	3
RS-476 385-390	<0.1	0.28	<2	29	27	<1	0.86	0.7	<1	13	3
RS-476 390-395	<0.1	0.43	<2	24	42	<1	0.67	0.6	<1	19	3
RS-476 395-415	0.6	0.34	12	31	25	<1	0.65	0.6	<1	19	3
RS-476 415-450	0.1	0.39	<2	21	63	<1	1.25	0.5	<1	17	3
RS-476 450-465	0.1	0.41	<2	26	81	<1	0.53	0.8	<1	18	4
RS-476 465-505	<0.1	0.37	<2	20	43	<1	1.28	0.5	<1	10	4
RS-476 505-545	<0.1	0.37	<2	24	27	<1	1.04	0.5	<1	11	4
RS-476 545-550	<0.1	0.32	<2	22	18	<1	1.29	0.5	<1	11	4
RS-476 550-585	0.1	0.42	8	27	38	<1	0.86	0.7	<1	15	6
RS-476 585-600	<0.1	0.27	<2	24	68	<1	1.58	0.8	<1	10	4

BARRINGER LABORATORIES INC.

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15-Oct-99

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'

Received: 27-Sep-99 10:18

PO #:

Job: 993536R

Status: Final

Rock

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm	Cu ICP ppm
RS-476 600-650	0.6	0.51	21	26	27	<1	1.30	0.7	<1	15	6
RS-476 650-700	1.7	0.34	79	27	30	<1	0.31	0.6	1	22	6
RS-476 700-750	0.8	0.35	75	29	35	<1	0.68	0.9	1	19	6
RS-476 750-800	0.3	0.40	58	29	32	1	0.76	0.8	1	19	5
RS-476 800-850	2.3	0.35	66	32	41	<1	0.47	1.0	1	29	7
RS-476 850-900	0.6	0.32	63	28	28	<1	0.81	0.9	1	19	5
RS-476 900-910	<0.1	0.30	<2	20	29	<1	1.69	0.7	1	15	4
RS-476 910-920	0.4	0.44	23	27	56	<1	0.87	0.9	<1	13	5
RS-476 920-935	2.8	0.38	83	30	47	<1	0.41	0.9	<1	18	6
RS-476 935-960	4.3	0.32	63	33	34	<1	0.56	0.9	1	24	7
RS-476 960-975	2.5	0.47	62	31	33	<1	1.32	1.3	1	14	7
RS-476 975-1000	1.4	0.60	50	44	28	<1	2.10	1.3	6	10	11

Sample Id	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm	P ICP ppm	Pb ICP ppm
RS-476 0-15	1.52	44	0.28	17	0.08	150	<1	<0.01	1	112	25
RS-476 15-45	1.97	75	0.34	18	0.03	102	<1	<0.01	1	221	30
RS-476 45-95	1.54	82	0.32	25	0.02	209	<1	<0.01	1	155	33

BARRINGER LABORATORIES INC.

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RENO, NEVADA 89511
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15-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'
PO #:

Received: 27-Sep-99 10:18

Job: 993536R

Status: Final

Rock

Sample Id	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm	P ICP ppm	Pb ICP ppm
RS-476 95-145	1.24	78	0.20	11	0.01	236	<1	<0.01	1	148	24
RS-476 145-195	1.42	85	0.24	20	0.01	272	<1	<0.01	1	209	23
RS-476 195-245	1.75	41	0.26	21	0.01	224	<1	<0.01	1	164	24
RS-476 245-295	1.72	41	0.23	20	0.01	286	<1	<0.01	1	164	22
RS-476 295-320	1.68	35	0.24	23	0.01	207	<1	<0.01	<1	203	26
RS-476 320-325	1.65	72	0.18	18	0.01	510	<1	<0.01	<1	197	25
RS-476 325-385	1.71	85	0.29	20	0.02	535	<1	<0.01	<1	218	25
RS-476 385-390	2.35	198	0.23	15	0.02	765	<1	<0.01	<1	223	29
RS-476 390-395	1.96	148	0.33	18	0.02	476	<1	<0.01	<1	243	28
RS-476 395-415	2.54	229	0.26	13	0.01	437	<1	<0.01	<1	241	30
RS-476 415-450	1.66	50	0.36	18	0.02	513	<1	<0.01	<1	212	26
RS-476 450-465	2.20	119	0.43	15	0.02	432	<1	3.14	1	264	28
RS-476 465-505	1.77	56	0.45	19	0.02	438	<1	0.26	<1	244	26
RS-476 505-545	2.20	100	0.35	13	0.02	655	<1	0.94	<1	235	28
RS-476 545-550	1.82	91	0.37	15	0.02	604	<1	1.71	<1	235	24
RS-476 550-585	2.23	104	0.46	14	0.02	476	1	2.70	<1	233	30
RS-476 585-600	2.03	113	0.35	15	0.02	595	<1	2.20	<1	245	25
RS-476 600-650	2.27	31	0.44	13	0.02	565	<1	3.12	<1	223	28
RS-476 650-700	2.20	28	0.44	11	0.02	77	1	4.44	1	227	30
RS-476 700-750	2.47	19	0.31	10	0.02	280	1	4.67	<1	231	29

BARRINGER LABORATORIES INC.

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RENO NEVADA 89511
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15-Oct-99

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'

Received: 27-Sep-99 10:18

PO #:

Job: 993536R

Status: Final

Rock

Sample Id	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm	P ICP ppm	Pb ICP ppm
RS-476 750-800	2.62	38	0.33	10	0.03	332	1	5.24	1	243	32
RS-476 800-850	2.83	60	0.34	9	0.02	207	<1	4.84	1	224	30
RS-476 850-900	2.36	19	0.27	9	0.03	302	1	3.55	1	223	26
RS-476 900-910	1.64	22	0.37	15	0.03	589	<1	0.73	<1	234	24
RS-476 910-920	2.37	19	0.33	12	0.03	318	<1	3.42	<1	228	28
RS-476 920-935	2.48	47	0.39	10	0.02	69	<1	1.91	<1	245	34
RS-476 935-960	2.86	19	0.31	7	0.02	128	<1	2.80	1	220	38
RS-476 960-975	2.87	19	0.36	6	0.06	274	<1	2.92	<1	293	35
RS-476 975-1000	4.20	22	0.30	8	0.12	627	<1	3.64	1	605	38

Sample Id	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-476 0-15	<2	<1	97	0.01	<0.5	17	<1	18
RS-476 15-45	<2	<1	105	0.01	<0.5	19	<1	20
RS-476 45-95	<2	<1	81	0.01	<0.5	13	<1	31
RS-476 95-145	<2	<1	70	0.01	<0.5	4	<1	27
RS-476 145-195	<2	<1	68	0.01	<0.5	4	<1	27
RS-476 195-245	<2	<1	80	0.01	<0.5	11	<1	14
RS-476 245-295	<2	<1	88	0.01	<0.5	6	<1	14

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
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RENO, NEVADA 89511
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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'

Received: 27-Sep-99 10:18

PO #:

Job: 993536R

Status: Final

Rock

Sample Id	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-476 295-320	<2	<1	95	0.01	<0.5	4	<1	18
RS-476 320-325	<2	<1	112	<0.01	<0.5	3	<1	29
RS-476 325-385	<2	<1	124	0.01	<0.5	6	<1	32
RS-476 385-390	<2	<1	94	<0.01	<0.5	4	<1	34
RS-476 390-395	<2	<1	91	0.01	<0.5	4	<1	32
RS-476 395-415	4	<1	76	<0.01	<0.5	2	<1	33
RS-476 415-450	<2	<1	127	0.01	<0.5	4	<1	25
RS-476 450-465	<2	<1	117	<0.01	<0.5	3	<1	73
RS-476 465-505	<2	<1	143	0.02	<0.5	4	<1	41
RS-476 505-545	<2	<1	113	<0.01	<0.5	3	<1	49
RS-476 545-550	<2	<1	124	<0.01	<0.5	4	<1	54
RS-476 550-585	2	<1	113	<0.01	<0.5	3	<1	71
RS-476 585-600	<2	<1	152	0.01	<0.5	4	<1	61
RS-476 600-650	<2	<1	125	<0.01	<0.5	3	<1	71
RS-476 650-700	2	4	90	<0.01	<0.5	<2	<1	82
RS-476 700-750	<2	1	101	<0.01	<0.5	2	<1	95
RS-476 750-800	<2	<1	116	<0.01	<0.5	2	<1	96
RS-476 800-850	4	2	93	<0.01	<0.5	<2	<1	93
RS-476 850-900	<2	1	81	<0.01	<0.5	3	<1	78
RS-476 900-910	<2	<1	138	0.02	<0.5	5	<1	46

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ROSEBUD MINING COMPANY LLC
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WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476 0'-1000'

Received: 27-Sep-99 10:18

PO #:

Job: 993536R

Status: Final

Rock

Sample Id	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-476 910-920	<2	<1	86	<0.01	<0.5	4	<1	78
RS-476 920-935	2	4	78	<0.01	<0.5	<2	<1	53
RS-476 935-960	4	7	81	<0.01	<0.5	<2	<1	63
RS-476 960-975	2	2	130	<0.01	<0.5	2	<1	66
RS-476 975-1000	<2	1	168	<0.01	<0.5	6	<1	80

10/15 '99 13:57 NO.995 02/06
8281263
BARRINGER LABS

BARRINGER LABORATORIES INC.

15000 W. 6TH AVE., SUITE 300
GOLDEN, COLORADO 80401
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5301 LONGLEY LANE
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PHONE: (775) 826-1158

13-Oct-99

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ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Attn: Kurt Allen
Project: RS-476-99
PO #:

Received: 6-Oct-99 18:41

Job: 993616R

Status: Final

Drill Core

Sample Id	Au FA/AA oz/ton	Ag AA oz/ton
RS-476-99 1209.5-1215	0.004	0.055
RS-476-99 1215-1220	0.006	0.134
RS-476-99 1220-1225	0.002	0.032
RS-476-99 1225-1230	0.005	0.096
RS-476-99 1230-1235	0.002	0.044
RS-476-99 1235-1239.3	0.002	0.026
RS-476-99 1239.3-1241	0.007	0.339
RS-476-99 1241-1245	0.006	0.023
RS-476-99 1245-1250	0.012	0.029
RS-476-99 1250-1253.7	0.012	0.023
RS-476-99 1253.7-1260	0.007	0.044
RS-476-99 1260-1264.7	0.019	0.058
RS-476-99 1264.7-1268.6	0.024	0.210
RS-476-99 1268.6-1271.3	0.011	0.029
RS-476-99 1271.3-1276.5	0.031	0.015

10/15 '99 13:58 NO.995 03/06

8281263

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13-Oct-99

ROSEBUD MINING COMPANY LLC
P.O. BOX 2610
58 MILES WEST OF
WINNEMUCCA, NV 89446

Page: 2
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Set : 2

Attn: Kurt Allen
Project: RS-476-99
PO #:

Received: 6-Oct-99 18:41

Job: 993616R

Status: Final

Drill Core

Sample Id	Ag ICP ppm	Al ICP %	As ICP ppm	B ICP ppm	Ba ICP ppm	Bi ICP ppm	Ca ICP %	Cd ICP ppm	Co ICP ppm	Cr ICP ppm
RS-476-99 1209.5-1225	1.9	0.44	40	21	38	<1	0.29	<0.5	<1	32
RS-476-99 1225-1276.5	0.7	0.41	31	18	37	<1	0.85	<0.5	<1	24

Sample Id	Cu ICP ppm	Fe ICP %	Hg HYG ppb	K ICP %	La ICP ppm	Mg ICP %	Mn ICP ppm	Mo ICP ppm	Na ICP %	Ni ICP ppm
RS-476-99 1209.5-1225	6	1.44	25	0.37	24	0.02	166	3	1.37	2
RS-476-99 1225-1276.5	5	1.45	22	0.35	26	0.02	327	1	1.93	1

Sample Id	P ICP ppm	Pb ICP ppm	Sb ICP ppm	Se ICP ppm	Sr ICP ppm	Ti ICP %	Tl ICP ppm	V ICP ppm	W ICP ppm	Zn ICP ppm
RS-476-99 1209.5-1225	33	26	<2	2	45	<0.01	<0.5	<2	<1	56
RS-476-99 1225-1276.5	29	23	<2	3	75	<0.01	<0.5	<2	<1	53

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0588-311 WELL NAME: RS-476 / 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 DISPLACEMENT DISP.	DIRECTION	TEMP. DEG F
0.0	0.00	0.00	0.000	-55.46	150.25	0.00 N	0.00 E	0.00		0.00	AT 000.00	
50.0	41.25	25.57	12.032	-55.70	150.14	24.52 S	14.05 E	0.50	0.25	28.26	AT 150.20	077.91
100.0	82.77	50.75	23.958	-56.58	150.56	48.73 S	27.83 E	1.82	0.91	56.12	AT 150.27	077.58
150.0	124.63	75.42	35.744	-57.12	150.51	72.54 S	41.28 E	1.08	0.54	83.46	AT 150.36	077.29
200.0	166.88	99.55	47.238	-58.25	150.43	95.80 S	54.45 E	2.26	1.13	110.19	AT 150.38	076.86
250.0	209.52	123.10	58.539	-58.77	150.85	118.56 S	67.26 E	1.13	0.56	136.31	AT 150.43	076.54
300.0	252.33	146.35	69.809	-59.00	150.87	141.13 S	79.84 E	0.46	0.23	162.14	AT 150.50	076.35
350.0	295.38	169.27	80.815	-59.86	150.42	163.29 S	92.30 E	1.78	0.89	187.57	AT 150.52	075.75
400.0	338.64	191.96	91.463	-59.97	149.86	185.03 S	104.78 E	0.60	0.30	212.64	AT 150.48	075.53
450.0	382.02	214.54	101.881	-60.38	149.67	206.51 S	117.31 E	0.84	0.42	237.50	AT 150.40	075.21
500.0	425.60	236.84	112.039	-60.94	149.32	227.62 S	129.74 E	1.17	0.59	262.00	AT 150.32	069.52
550.0	469.41	258.79	121.981	-61.42	149.40	248.36 S	142.03 E	0.96	0.48	286.10	AT 150.24	070.07
600.0	513.36	280.52	131.822	-61.60	149.34	268.88 S	154.18 E	0.36	0.18	309.95	AT 150.17	070.47
650.0	557.34	302.16	141.660	-61.63	149.56	289.35 S	166.26 E	0.22	0.11	333.71	AT 150.12	071.15
700.0	601.35	323.73	151.565	-61.69	149.77	309.84 S	178.25 E	0.23	0.12	357.45	AT 150.09	071.60
750.0	645.33	345.27	161.664	-61.47	150.45	330.47 S	190.10 E	0.78	0.39	381.25	AT 150.09	071.73
800.0	689.31	366.71	171.925	-61.76	150.70	351.17 S	201.78 E	0.63	0.31	405.01	AT 150.12	072.07
850.0	733.42	387.90	182.207	-62.03	151.07	371.75 S	213.24 E	0.64	0.32	428.57	AT 150.16	072.37
900.0	777.63	408.86	192.541	-62.26	151.44	392.23 S	224.48 E	0.58	0.29	451.92	AT 150.22	072.56
950.0	822.00	429.43	202.907	-62.86	152.04	412.52 S	235.39 E	1.32	0.66	474.96	AT 150.29	072.66
1000.0	866.47	449.81	213.267	-62.72	151.85	432.70 S	246.14 E	0.33	0.16	497.81	AT 150.37	072.96

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*  1000.0 FEET EQUALS    497.81    FEET AT   150.37         *
*                          ********                         *
*************************************************************
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WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

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

JOB NUMBER: 29-0588-311

WELL NAME: RS-476 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 09/25/99

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: 125.00
WATER CONTACT= 471'

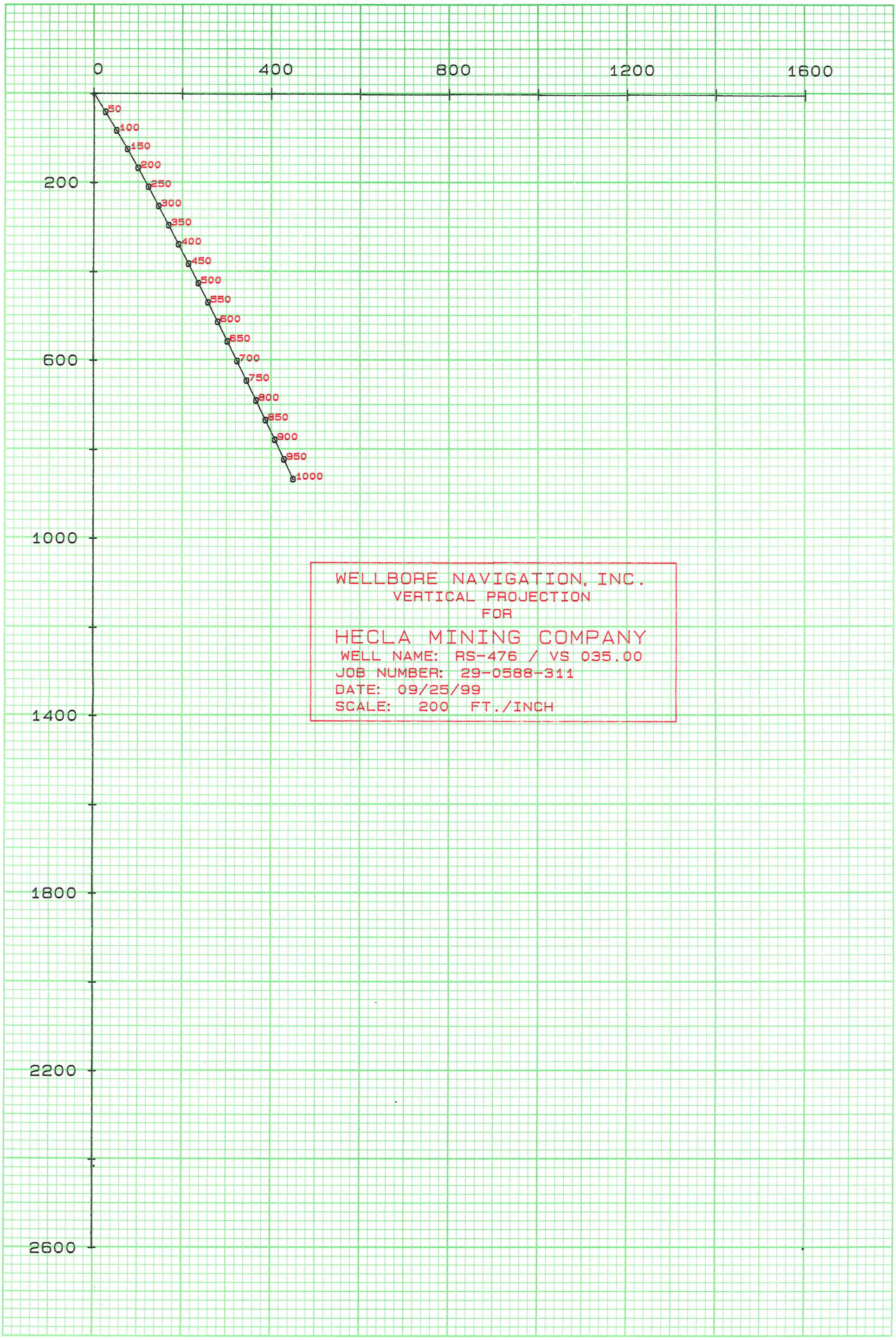
****
****** DEPTH MEASURED IN FEET *******
****

COMMENTS: ***** EKLUND *****
** GREG SECRIST **

PROJECTED F/960' T/1000'.

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

STARLIGHT PRINTING (801) 467-2841



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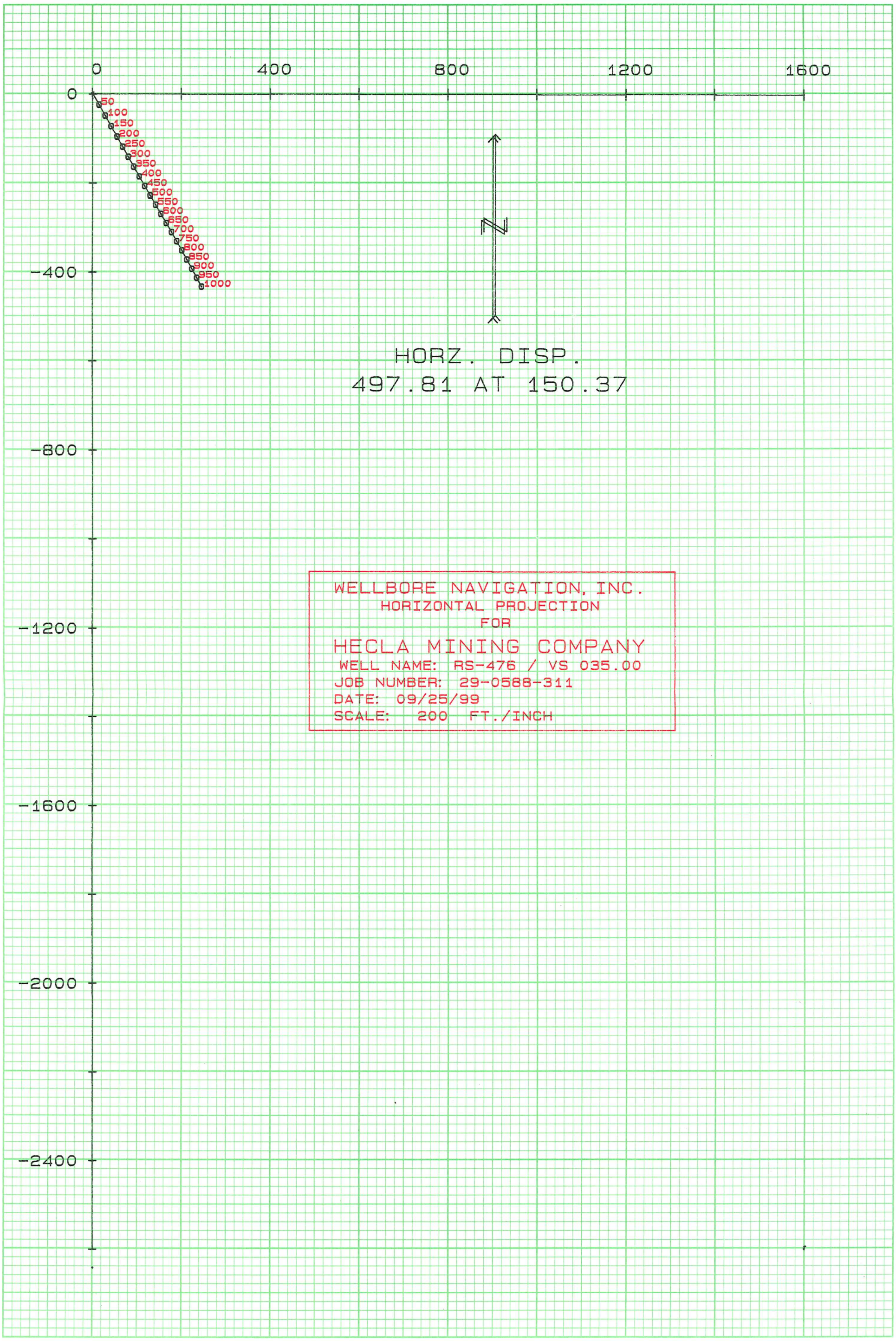

WELLBORE NAVIGATION,INC.
ELKO,NV.

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* HECLA *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-476

LOCATION: ROSEBUD MINE

SURVEY DATE: SEPTEMBER 24,1999

SURVEY ENGINEER: THORSEN

GYRO REFERENCE BEARING: TRUE NORTH

TIE-ON COORDINATES AT: 0 M.D.
TAKEN FROM: COLLAR
WATER CONTACT= 406

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

COMMENTS: EKLUND
GRB 149

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

WELLBORE NAVIGATION, INC.
ELKO, NV.

JOB NUMBER: 29-0588-311

WELL NAME: RS-476

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
0.0	0.00	0.00	0.000	-55.58	149.55	0.00 N	0.00 E	0.00		0.00	AT 000.00	
50.0	41.24	28.27	0.301	-55.54	151.33	24.59 S	13.95 E	2.01	1.01	28.27	AT 150.44	073.81
100.0	82.68	56.24	0.855	-56.42	150.59	49.05 S	27.53 E	1.95	0.97	56.25	AT 150.70	072.88
150.0	124.45	83.72	1.131	-56.91	150.22	72.94 S	41.09 E	1.06	0.53	83.72	AT 150.60	072.33
200.0	166.53	110.72	1.189	-57.72	149.68	96.32 S	54.61 E	1.72	0.86	110.72	AT 150.45	071.24
250.0	208.95	137.19	1.021	-58.33	149.25	119.12 S	68.07 E	1.30	0.65	137.20	AT 150.26	070.10
300.0	251.64	163.22	0.774	-58.92	149.32	141.50 S	81.36 E	1.18	0.59	163.23	AT 150.10	069.08
350.0	294.59	188.82	0.521	-59.50	149.21	163.50 S	94.44 E	1.17	0.58	188.82	AT 149.99	068.27
400.0	337.78	214.01	0.207	-59.99	149.02	185.12 S	107.37 E	1.00	0.50	214.01	AT 149.89	067.64
440.0	372.45	233.95	0.005	-60.18	149.48	202.27 S	117.57 E	0.74	0.30	233.95	AT 149.83	061.51

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*************************************************************
*                         ********                          *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                         ********                          *
*   440.0 FEET EQUALS    233.95    FEET AT   149.83         *
*                         ********                          *
*************************************************************
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WELL NAV

WELLBORE NAVIGATION,INC.
ELKO,NV.

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

****
* HECLA *
****

JOB NUMBER: 29-0588-311

WELL NAME: RS-476

LOCATION: ROSEBUD MINE

SURVEY DATE: SEPTEMBER 24,1999

SURVEY ENGINEER: THORSEN

GYRO REFERENCE BEARING: TRUE NORTH

TIE-ON COORDINATES AT: 0 M.D.
TAKEN FROM: COLLAR
WATER CONTACT= 406

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

COMMENTS: EKLUND
GRB 149

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

WELLBORE NAVIGATION, INC.
ELKO, NV.

JOB NUMBER: 29-0588-311

WELL NAME: RS-476

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
0.0	0.00	0.00	0.000	-55.58	149.55	0.00 N	0.00 E	0.00		0.00	AT 000.00	
50.0	41.24	28.27	0.301	-55.54	151.33	24.59 S	13.95 E	2.01	1.01	28.27	AT 150.44	073.81
100.0	82.68	56.24	0.855	-56.42	150.59	49.05 S	27.53 E	1.95	0.97	56.25	AT 150.70	072.88
150.0	124.45	83.72	1.131	-56.91	150.22	72.94 S	41.09 E	1.06	0.53	83.72	AT 150.60	072.33
200.0	166.53	110.72	1.189	-57.72	149.68	96.32 S	54.61 E	1.72	0.86	110.72	AT 150.45	071.24
250.0	208.95	137.19	1.021	-58.33	149.25	119.12 S	68.07 E	1.30	0.65	137.20	AT 150.26	070.10
300.0	251.64	163.22	0.774	-58.92	149.32	141.50 S	81.36 E	1.18	0.59	163.23	AT 150.10	069.08
350.0	294.59	188.82	0.521	-59.50	149.21	163.50 S	94.44 E	1.17	0.58	188.82	AT 149.99	068.27
400.0	337.78	214.01	0.207	-59.99	149.02	185.12 S	107.37 E	1.00	0.50	214.01	AT 149.89	067.64
440.0	372.45	233.95	0.005	-60.18	149.48	202.27 S	117.57 E	0.74	0.30	233.95	AT 149.83	061.51

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*************************************************************
*                         ********                          *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                         ********                          *
*   440.0 FEET EQUALS    233.95    FEET AT   149.83         *
*                         ********                          *
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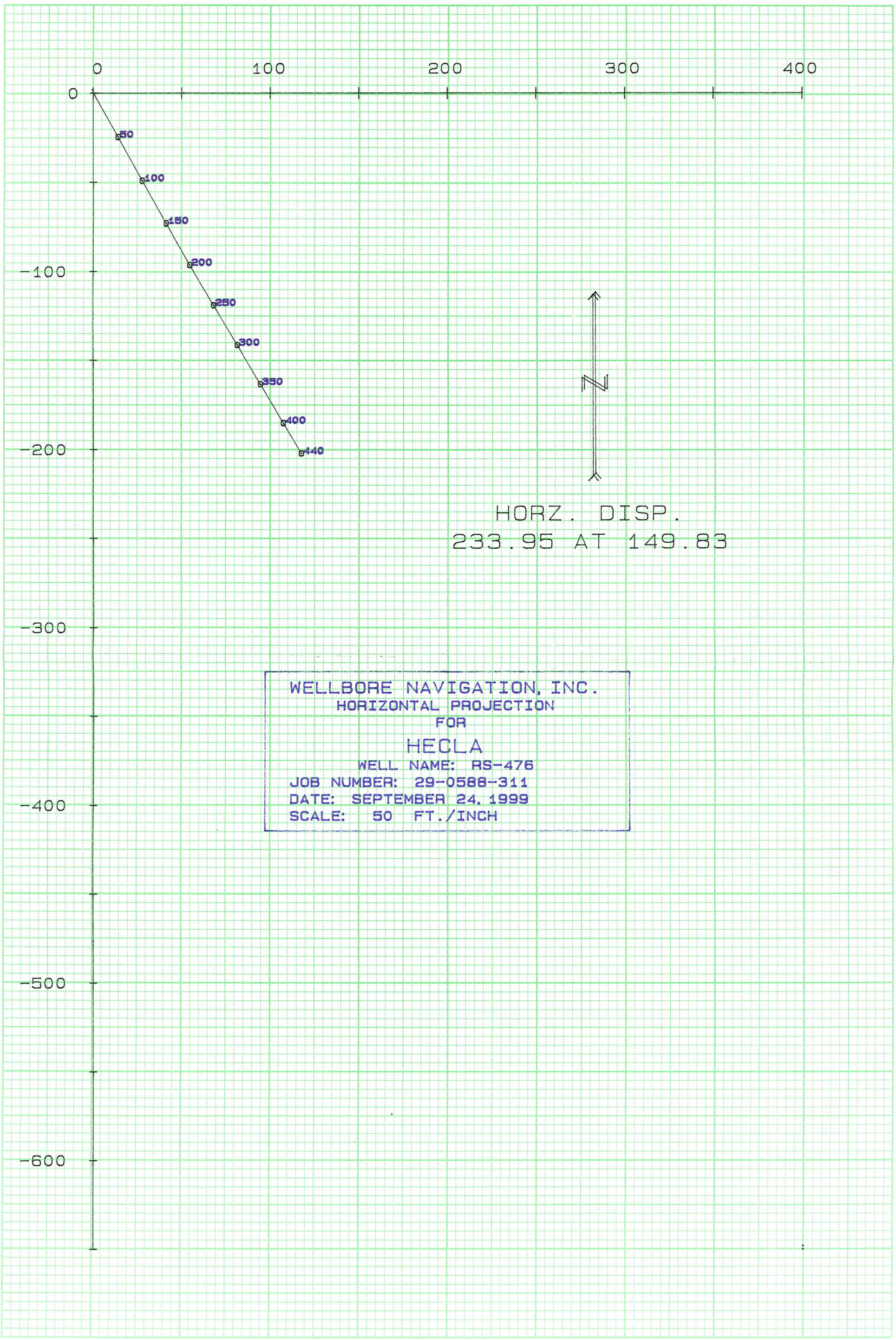

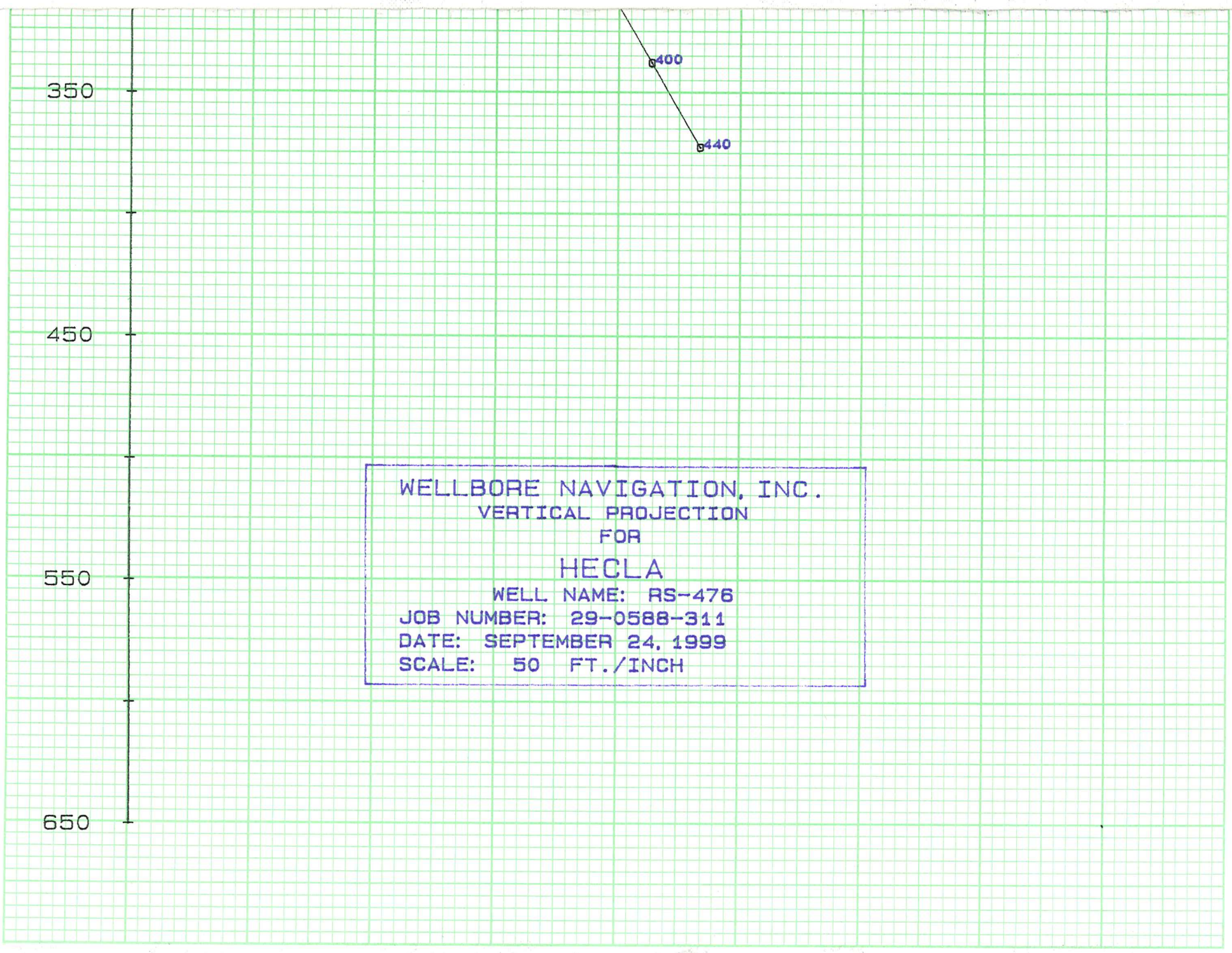
400
440
350
450
550
650
WELLBORE NAVIGATION, INC.
VERTICAL PROJECTION
FOR
HECLA
WELL NAME: RS-476
JOB NUMBER: 29-0588-311
DATE: SEPTEMBER 24, 1999
SCALE: 50 FT./INCH

PUSH CAT DAILY HOURS

Road work

$100.00/hr

DATE	START	STOP	HR'S
9-20-99	8:00	2:00	6
9-21-99	7:30	6:00	10.5
9-22-99	8:00	11:00	3
9-23-99	7:00	1:30	6.5
9-24-99	7:00	4:00	9
9-27-99	1230p	130p	1

Hole 476

477

BACKHOE (LONGBAR)

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

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

JOB NUMBER: 29-0588-311

WELL NAME: RS-476 / VS 035.00

LOCATION: ROSEBUD MINE

SURVEY DATE: 10/07/99

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: 125.00
WATER CONTACT= 78'

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

COMMENTS: ** BOART LONGYEAR **
*** MARTIN NIEMI ***

PROJECTED F/1660' T/1750'.

*** 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-476 / 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
0.0	0.00	0.00	0.000	-55.46	150.25	0.00 N	0.00 E	0.00		0.00	AT 000.00
50.0	41.25	25.57	12.032	-55.70	150.14	24.52 S	14.05 E	0.50	0.25	28.26	AT 150.20
100.0	82.77	50.75	23.958	-56.58	150.56	48.73 S	27.83 E	1.82	0.91	56.12	AT 150.27
150.0	124.63	75.42	35.744	-57.12	150.51	72.54 S	41.28 E	1.08	0.54	83.46	AT 150.36
200.0	166.88	99.55	47.238	-58.25	150.43	95.80 S	54.45 E	2.26	1.13	110.19	AT 150.38
250.0	209.52	123.10	58.539	-58.77	150.85	118.56 S	67.26 E	1.13	0.56	136.31	AT 150.43
300.0	252.33	146.35	69.809	-59.00	150.87	141.13 S	79.84 E	0.46	0.23	162.14	AT 150.50
350.0	295.38	169.27	80.815	-59.86	150.42	163.29 S	92.30 E	1.78	0.89	187.57	AT 150.52
400.0	338.64	191.96	91.463	-59.97	149.86	185.03 S	104.78 E	0.60	0.30	212.64	AT 150.48
450.0	382.02	214.54	101.881	-60.38	149.67	206.51 S	117.31 E	0.84	0.42	237.50	AT 150.40
500.0	425.60	236.84	112.039	-60.94	149.32	227.62 S	129.74 E	1.17	0.59	262.00	AT 150.32
550.0	469.41	258.79	121.981	-61.42	149.40	248.36 S	142.03 E	0.96	0.48	286.10	AT 150.24
600.0	513.36	280.52	131.822	-61.60	149.34	268.88 S	154.18 E	0.36	0.18	309.95	AT 150.17
650.0	557.34	302.16	141.660	-61.63	149.56	289.35 S	166.26 E	0.22	0.11	333.71	AT 150.12
700.0	601.35	323.73	151.565	-61.69	149.77	309.84 S	178.25 E	0.23	0.12	357.45	AT 150.09
750.0	645.33	345.27	161.664	-61.47	150.45	330.47 S	190.10 E	0.78	0.39	381.25	AT 150.09
800.0	689.31	366.71	171.925	-61.76	150.70	351.17 S	201.78 E	0.63	0.31	405.01	AT 150.12
850.0	733.42	387.90	182.207	-62.03	151.07	371.75 S	213.24 E	0.64	0.32	428.57	AT 150.16
900.0	777.63	408.86	192.541	-62.26	151.44	392.23 S	224.48 E	0.58	0.29	451.92	AT 150.22
950.0	822.00	429.43	202.907	-62.86	152.04	412.52 S	235.39 E	1.32	0.66	474.96	AT 150.29
1000.0	866.55	449.62	213.300	-63.13	152.45	432.62 S	245.96 E	0.66	0.33	497.65	AT 150.38
1050.0	911.11	469.70	223.819	-62.94	152.83	452.75 S	256.38 E	0.51	0.26	520.30	AT 150.48
1100.0	955.73	489.66	234.361	-63.38	152.85	472.84 S	266.69 E	0.88	0.44	542.86	AT 150.58
1150.0	1000.44	509.57	244.577	-63.45	151.48	492.62 S	277.13 E	1.23	0.62	565.23	AT 150.64
1200.0	1045.23	529.55	254.337	-63.75	150.60	512.08 S	287.90 E	0.99	0.49	587.46	AT 150.65
1250.0	1090.11	549.39	263.905	-63.96	150.88	531.30 S	298.67 E	0.49	0.24	609.49	AT 150.66
1300.0	1135.09	569.07	273.370	-64.24	150.48	550.34 S	309.36 E	0.66	0.33	631.33	AT 150.66
1350.0	1180.12	588.72	282.626	-64.27	149.97	569.19 S	320.14 E	0.45	0.22	653.05	AT 150.64
1400.0	1225.08	608.65	291.676	-63.80	148.88	588.04 S	331.28 E	1.34	0.67	674.93	AT 150.60
1450.0	1269.97	628.86	300.395	-63.97	147.80	606.77 S	342.83 E	1.01	0.50	696.92	AT 150.53
1500.0	1314.93	649.11	308.718	-64.10	146.89	625.20 S	354.64 E	0.84	0.42	718.78	AT 150.44
1550.0	1359.87	669.49	316.741	-63.93	146.08	643.46 S	366.74 E	0.79	0.39	740.64	AT 150.32
1600.0	1404.74	690.08	324.678	-63.69	146.08	661.77 S	379.05 E	0.48	0.24	762.65	AT 150.20
1650.0	1449.55	710.78	332.626	-63.66	145.93	680.16 S	391.45 E	0.15	0.07	784.76	AT 150.08
1700.0	1494.33	731.53	340.675	-63.49	146.48	698.65 S	403.83 E	0.60	0.30	806.96	AT 149.97

WELLBORE NAVIGATION, INC.
WINNEMUCCA, NEVADA

JOB NUMBER: 29-0588-311 WELL NAME: RS-476 / 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
1750.0	1539.08	752.28	348.836	-63.53	146.45	717.24 S	416.15 E	0.08	0.04	829.22	AT 149.88

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*************************************************************
*                          ********                         *
*      THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF          *
*                          ********                         *
*  1750.0 FEET EQUALS   829.22   FEET AT  149.88            *
*                          ********                         *
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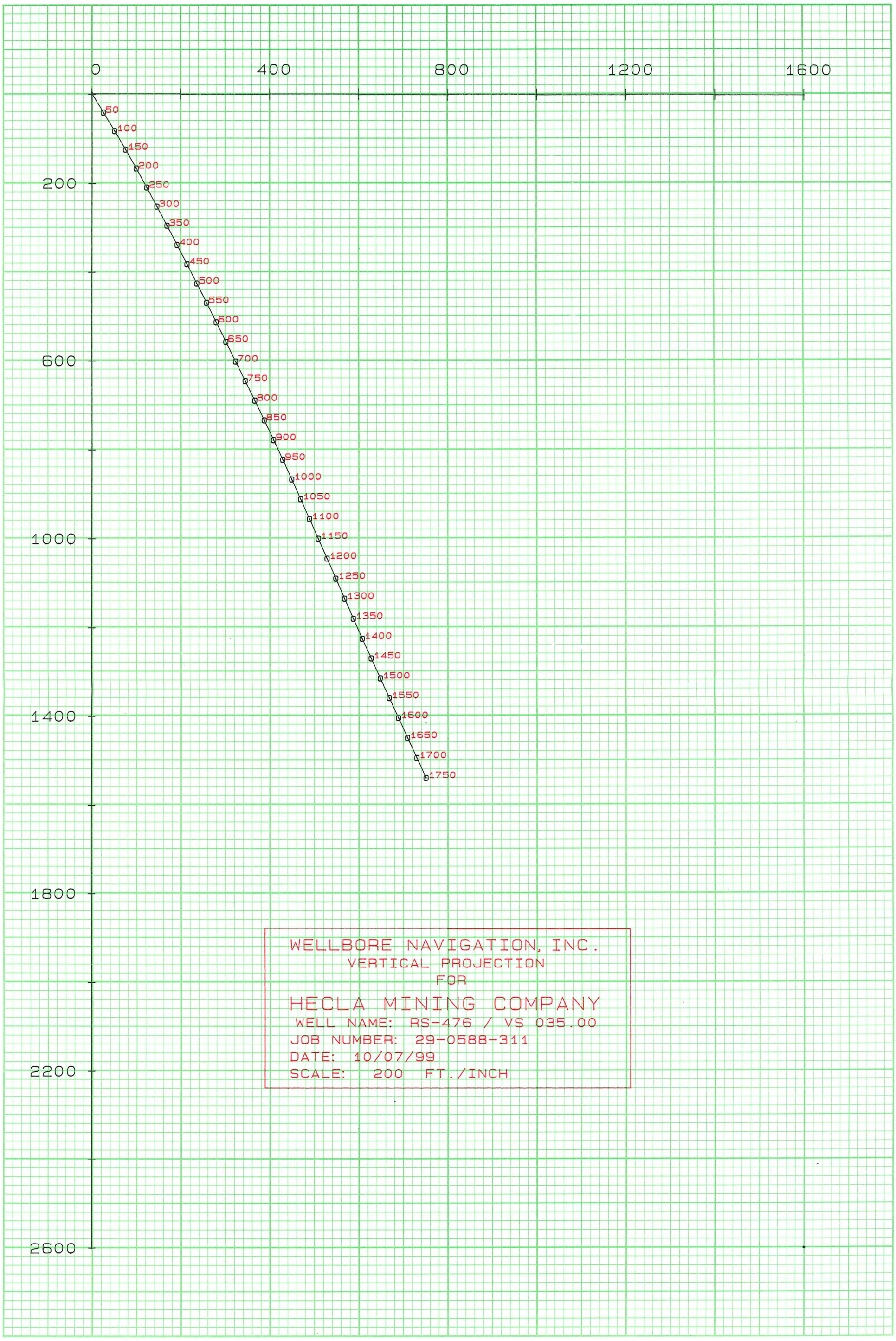
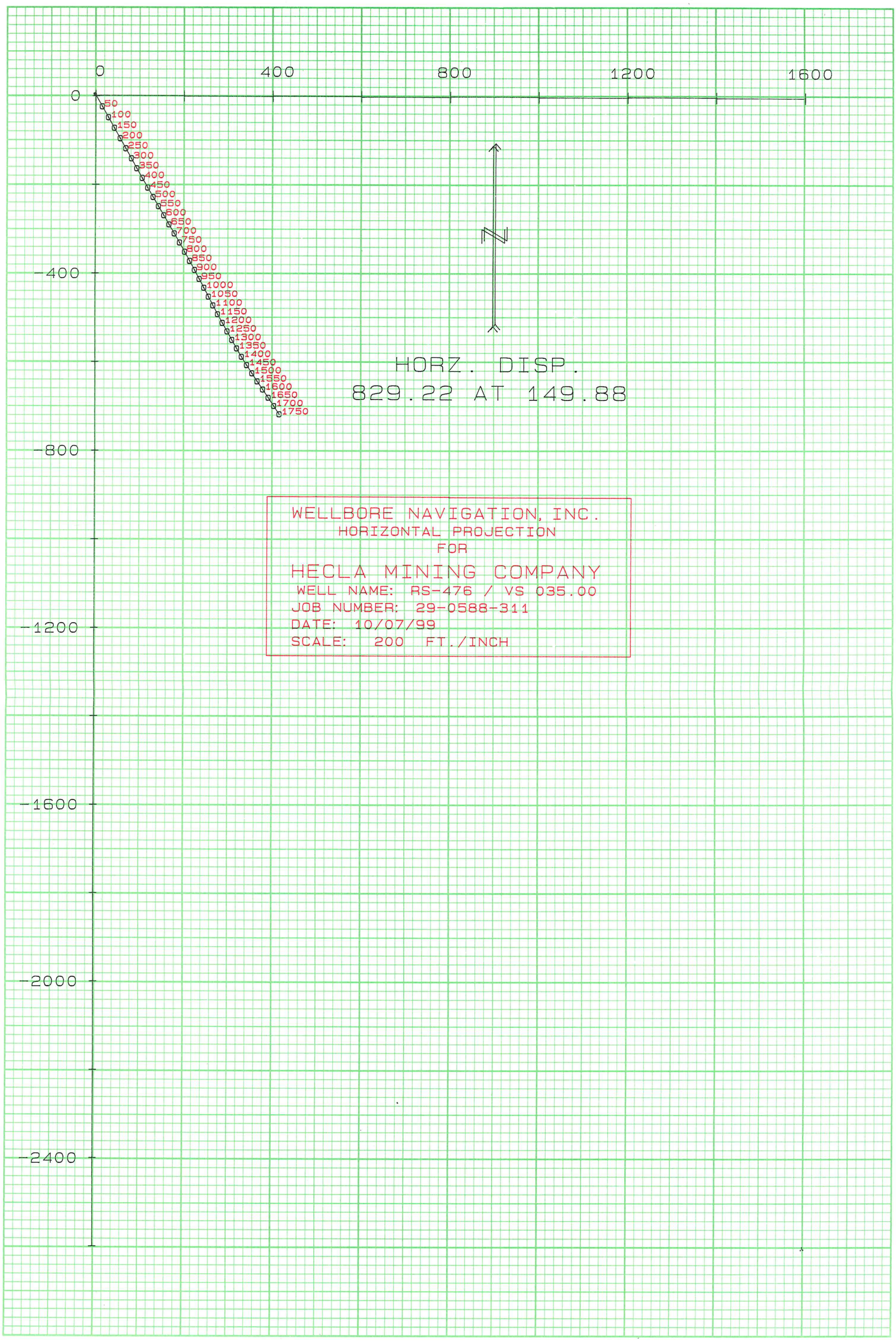
WELNAV

STARLIGHT PRINTING (801) 467-2841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