60001199

Mining District File Summary Sheet

| | |
|---|---|
| DISTRICT | Rosebud |
| DIST_NO | 4010 |
| COUNTY<br>If different from written on document | Pershing |
| TITLE<br>If not obvious | Rosebud Drill Hole File - Hole No. B-298-98 |
| AUTHOR | S. King; K. Allen; D. Mackerrow |
| DATE OF DOC(S) | 1998 |
| MULTI_DIST Y / N?<br>Additional Dist_Nos: | |
| QUAD_NAME | Sulphur 7.5' |
| P_M_C_NAME<br>(mine, claim & company names) | Rosebud Mine; Rosebud Project; Rosebud Mining Co. LLC<br>Hecla Mining Co. |
| COMMODITY<br>If not obvious | gold; silver |
| NOTES | Drill log; geology; assay; photographs; total depth 399' receipt; handwritten notes.<br>46p. |

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 5/14/08
Initials Date

DB: mah
Initials Date

SCANNED: NVB
Initials Date

Revised: 1/22/08

D-298-98

60001199 4010

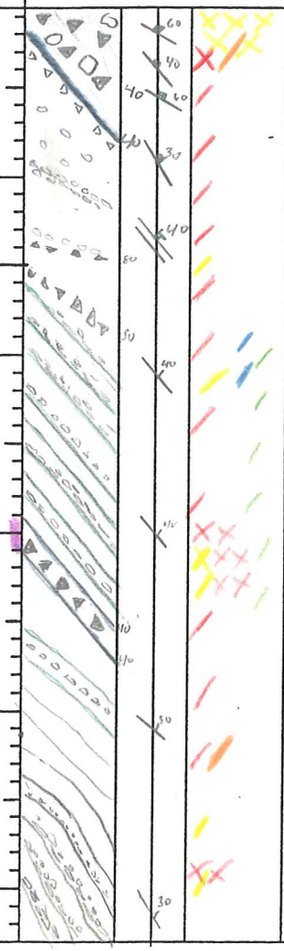
- quartz, chalcedony, silicification
- faults, fractures
- FeOx / Barite
- sulfide
- calcite, carbonate
- argillization, white clays
- propylitization
- potassic alteration
- chlorite, chloritic clays

6000 1199

**Hecla** MINING COMPANY

# ROSEBUD PROJECT
# DIAMOND DRILL LOG

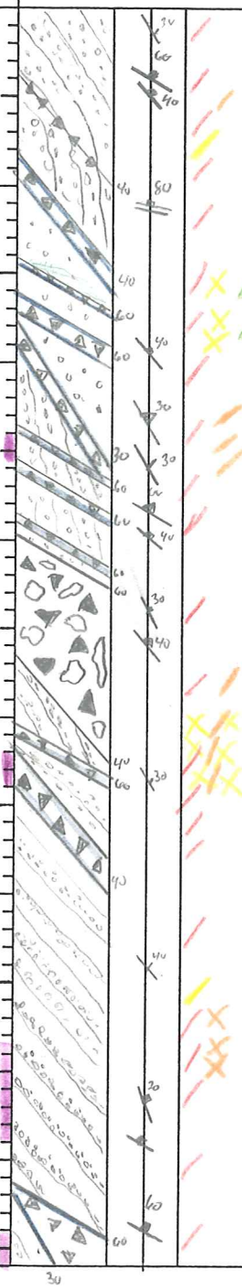
| | | | | | |
|---|---|---|---|---|---|
| HOLE NUMBER | D-298-98 | LOCATION | Stope 50 15 50 section | REMARKS | |
| PAGE 1 OF 6 | | NORTHING | | Completed 8/26/98 | |
| DATE | 10-13-98 | EASTING | | | |
| LOGGED BY | D. Mackerrow | ELEVATION | | | |
| SCALE | 1" = 10' | AZIMUTH | 125 | | |
| TOTAL DEPTH | | INCLINATION | 18 | | |

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| SPL. | Reduced | 0-149.9 SLIGHTLY PLANAR LAMINAR<br>Fine to medium texture flow. small vesiculs present in most of the flow. Vesicul are clay altered and filled. Kaolinite common on fractures Propylitic alteration has left chlorite on fracture surfaces Color is pale greenish gray.<br>Oriented vesicul along flow laminations become very strong between 36-54'<br>PIMA 44'<br>Vesicul size increases below 42'<br>Open vugs with QTZ Py and marcasite from 46.0 to 50.5 | 10<br>20<br>30<br>40<br>50 |  | Drill hole collared in Bxu. Silica healed rubble Bxu 0-2'<br>Subrounded to rounded clast. Dark gray clast of Possible A.I.S. from 7 to 5<br>At 13' there is a 3" mosaic Bxu healed by silica.<br>14-15' small clay filled crackle Bxu<br>29-31.1 marcasite and qtz flooded crackle Bxu<br>41.3 to 44 Vuggy zone with clay, marc, and Py in the opening | QTZ and marcasite on fracture and in open vugs. Marc. is bladed in vugs and clay filled fractures. Silicified Bxu 0-2'<br>Clays has soapy feeling on fracture surfaces<br>19-24 Calcite is on fracture and mixed with white clay. Veins of clay and calcite can be up to ½" thick. Marc. can be present in these mixed veins<br>Argillization increased from 41.3 to 44 |

## ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|
| 0 | 2.0 | | | | | |
| 2 | 5.0 | | | | | |
| 5.0 | 9.0 | | | | | |
| 9.0 | 14.0 | | | | | |
| 14.0 | 19.0 | | | | | |
| 19.0 | 24.0 | | | | | |
| 24.0 | 29.0 | | | | | |
| 29.0 | 31.1 | | | | | |
| 31.1 | 34.0 | | | | | |
| 34.0 | 39.0 | | | | | |
| 39.0 | 41.3 | | | | | |
| 41.3 | 46.0 | | | | | |
| 46.0 | 50.5 | | | | | |

HOLE NUMBER D-298-98 PAGE 2 OF 6

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| S.P.L. | | SLIGHTLY PLANAR LAMINAR<br>0-149.9<br>Vesicular planar Laminar continues<br>Vesicals increase in size below 60'. The orientation of vesical along planar lamination is lost between 62 to 74'. Bedding of vesical steeply to almost vertical from 50 to 58.5'<br>Greenish tint to core disseminate out from fractures from 59' to 77'. Vesical oriented at 30° TCA at 75'<br>Zone of autobreccia from 75.5 to 86.5 from 78.7 to 79.7 the zone is not Brecciated<br>Clast consist of vesicular planar laminar clast are subrounded. Fragments can be up to 2" in diameter. matrix is a fine grain brown clay derived from the surrounding rock. | 50<br>60<br>70<br>80<br>90<br>100<br>110<br>120 |  | Below 54' fracture increases but silica has healed most of the breaks<br>Short healed crackle BXx is common below 55'<br>Foliation of vesicals is steep at 30° TCA from 50.5'<br>Small silicified crackle BXx 62-62.4'<br>series of silicified BXx from 66 to 69'<br>Crackle BXx 71.5-72<br>Mosaic BXx from 75.5-76<br>open space vug and thicker sulfide veins increase below 106' | 58-59 Bleach crackle BXx zone healed by silica<br>60.5 3' vug with qtz and mucc, QTZ appears etched.<br>Py after mucc. is in some vugs below 44'<br>64-69' silicification after propylitic alteration<br>QTZ stockwork 67.5-68.8<br>90.2 2" Thick qtz vn in Brecciated zone<br>Calcedonic QTZ at 100.5-102 in stockwork |

| ANALYTICAL DATA | | | | | |
|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 |
| 50.5 | 54.0 | | | | |
| 54.0 | 59.0 | | | | |
| 59.0 | 64.0 | | | | |
| 64.0 | 69.0 | | | | |
| 69.0 | 74.0 | | | | |
| 74.0 | 75.5 | | | | |
| 75.5 | 79.5 | | | | |
| 79.5 | 84.0 | | | | |
| 84.0 | 86.5 | | | | |
| 86.5 | 90.2 | | | | |
| 90.2 | 91.8 | | | | |
| 91.8 | 94.0 | | | | |
| 94.0 | 99.0 | | | | |
| 99.0 | 104 | | | | |
| 104 | 108.4 | | | | |
| 108.4 | 111.8 | | | | |
| 111.8 | 114 | | | | |
| 114 | 119.2 | | | | |

HOLE NUMBER D-298-98 PAGE 3 OF 6

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| SPL ↓ | Red ↓ | 0 - 149.9 Slightly Planar Laminar<br>Vesicular flow with steeply oriented foliation continues as before.<br>Contact grades in to Fine grained massive | 120<br>130<br>140 | | Crackle bxa with Calcedonic qtz flooding 128.3 - 129.3 | Argillic alteration begins to increase at 142' |
| | | 149.9 - 166.5 FINE GRAINED MASSIVE<br>Pale greenish gray with leach surface. Raise relief of darker gray rock.<br>Contact is gradational with vitrophyre. Contact Plane at 40° orientation at silicification in breccia | 150<br>160 | | | FGM Highly argillized and bleached white clay on FGM fracture<br>Barite at 161' |
| | | 166.5 - 187.9 VITROPHYRE<br>Fine grained highly uniform flow<br>Highly altered and qtz flooded<br>Thick Py/Marc/qtz stockwork 167.9 173.2<br>Pale yellow green color<br>QTZ VN at lower contact dipping 40° to CA | 170<br>180 | | 40° Green brown contact<br>CALCADONIC QTZ 1" wid 187'<br>Crackly bxa 2" wide at 188 | Barite qtz more Py stockwork |
| | | 187.9 - 204 Fine Grained Massive 189 PIMA | 190 | | | |

ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 |
|---|---|---|---|---|---|
| 119.2 | 124.0 | | | | |
| 124.0 | 128.4 | | | | |
| 128.4 | 131.8 | | | | |
| 131.8 | 134 | | | | |
| 134 | 136.7 | | | | |
| 136.7 | 140.5 | | | | |
| 140.5 | 144.0 | | | | |
| 144 | 146.8 | | | | |
| 146.8 | 149.9 | | | | |
| 149.9 | 154 | | | | |
| 154 | 159.8 | | | | |
| 159.8 | 164 | | | | |
| 164 | 166.5 | | | | |
| 166.5 | 167.9 | | | | |
| 167.9 | 169.6 | | | | |
| 169.6 | 171.5 | | | | |
| 171.5 | 174 | | | | |
| 174 | 178.6 | | | | |
| 178.6 | 182.4 | | | | |
| 182.4 | 184 | | | | |
| 184 | 187.9 | | | | |
| 187.9 | 191.7 | | | | |

HOLE NUMBER D-298-98 PAGE 4 OF 6

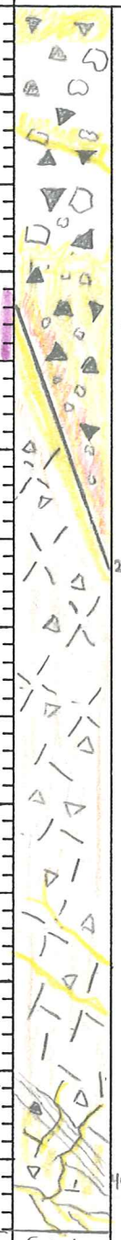
| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION | ANALYTICAL DATA FROM | TO | W | Au | Ag | Au2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FGm ↓ | Red ↓ | 187.9-204 FINE GRAINED MASSIVE<br>Fine grained flow bull QTZ vein at 192.7-193, and at 195.8 - 196.6 | 190<br>200 | | QTZ Healed Crackle Bxo 194-194.5<br>Trace of foliation at 192 dipping 40° | QTZ veins with Mrc. in FGm | 187.9<br>191.7<br>194<br>197.2<br>200.5 | 191.7<br>194<br>197.2<br>200.5<br>204 | | | | |
| P.L. ↓ | | 204-353.8 PLANAR LAMINATE<br>Fine to medium textured flow<br>Vesicules may show orientation<br>much heavier chlorite on fractures from 220 - 224.5 | 210<br>220 | | First foot of P.L. is highly vesicular<br>Thin crackle Bxo 208.8 209.4<br>2" crackle Bxo 214<br>Laminations at 45° TCA | 214-220 increased argillization<br>220-224.5 prophylitic zone | 204<br>208.8<br>214<br>218<br>220 | 208.8<br>214<br>218<br>220<br>224.5 | | | | |
| | | 226.8 - 260.5 Fault Zone CLAST Supported<br>Mosaic Bxo. white clay on fracture. clast up to 2"<br>This is either the S.RF. Hanging wall or a Fault that will intercept it<br>clast consist of Planar laminae with very well defined laminations<br>most of the matrix is white qtz and clay but in general this is a clast supported Bxo until 260.5<br>260.5 S.R.F. | 230<br>240<br>250<br>260 | | Fault Zone is monolithologic to 260.5<br>Silica is not the heavy flooding expected with the South Ridge Fault until 260.5<br>Silica flooding begins 260.5 | Barite in breccia of Fault Zone Crystals to ½"<br>Disseminated Py <1% sulfide ore veins and vugs | 224.5<br>226.8<br>229<br>234<br>239<br>244<br>246<br>249.7<br>253.3<br>258<br>260.5 | 226.8<br>229<br>234<br>239<br>244<br>246<br>249.7<br>253.3<br>258<br>260.5 | | | | |

HOLE NUMBER D-298-98 PAGE 5 OF 6

| ITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| P.L. 204-353.8 ↓ | Red ↓ | 204-353.8 PLANAR LAMINAR<br>Continued See Page 4 ..<br>260.5-353.8 South Ridge fault<br>Silica flooded Rubble Bxu<br>All clast milled to subrounded or rounded shape maximum clast size is 2", Bxu is Heterolithic with clast of vitrophyre and fine grained massive between 260.5 to 263.8.<br><br>301.4 - 323<br>Breccia has a coarser texture to the fragments, possibly lippilli tuff in origin. Pale green in color becoming bleached at 308' QTZ stockwork is heavy from 321.4 to 311 clast are partially absorbed.<br>Pyrite forms a matrix to the Bxu fragments at 302 - 302.5<br>Pinal 314 white clay | 260<br>270<br>280<br>290<br>300<br>310<br>320<br>330 | 10<br>20<br>70<br>10<br>10<br>30<br>30<br>30<br>50<br>30 | Large barite crystals on fractures 260.5 and 264.<br>More rock flour is mixed with QTZ matrix from 271'<br><br>269-282.8<br>Fracture zone with silica flooded foot wall shear, Very fine Pyrargyrite crystals sporatically on fracture surfaces<br><br>Stockwork white qtz. replaces fine Bxu matrix from 286-288<br>Numerous Bxu clast are not silicified from 286 to 298.3<br>High angle fracture with slicks at 300 with elevated silica from 298.3 to 301.4 10° TCA | Sulfide, as agglomerates in broken zones of fault disseminations of Py is <1% in fault matrix<br>Barite continues on broken open fractures stibnite on fractures 263.8!<br>281.8-282.8-<br>Black sulfide flooded Bxu with rounded absorbed fragments<br><br>From 305 to 321 Pyrargyrite on fractures with associated clay and Barite<br>Calcopyrite is present with the pyrargyrite<br>271-281.8 Decreased to absent silicification replaced by argillization<br><br>White clay (kaolinite) on fractures thicken between 310.6 to 321.1 then form coating forms 321.1 to 327.1 before thickening again |

| ANALYTICAL DATA | | | | | |
|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 |
| 260.5 | 263.8 | | | | |
| 263.8 | 268.0 | | | | |
| 268.0 | 272.0 | | | | |
| 272 | 277 | | | | |
| 277 | 281.8 | | | | |
| 281.8 | 282.8 | | | | |
| 282.8 | 286 | | | | |
| 286 | 291 | | | | |
| 291 | 294 | | | | |
| 294 | 298.3 | | | | |
| 298.3 | 301.4 | | | | |
| 301.4 | 304 | | | | |
| 304 | 307.8 | | | | |
| 307.8 | 310.6 | | | | |
| 310.6 | 314 | | | | |
| 314 | 316.4 | | | | |
| 316.4 | 319.3 | | | | |
| 319.3 | 321.1 | | | | |
| 321.1 | 324.9 | | | | |
| 324.9 | 327.1 | | | | |
| 327.1 | 330.8 | | | | |

HOLE NUMBER D-298-98 PAGE 6 OF 6

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| 204-353.8 PL ↓ | Red. ↓ | 204-353.8 Planar Laminar<br>260.5-353.8 South Ridge Fault Breccia continues<br>Breccia of rounded to subangular clast<br>Clast have been coarse textured from 301.4<br>340.7-353.8 silicification increases toward Bxu clast become fine grained and loose their Pale green color from 344'<br>Contact at 20° TCA | 330<br>340<br>350 |  | Marcasite crystals in very increased between 320-344<br>Core is fractured with clay filled open spaces from 346-353.8<br>STEEP foliation to flow of silica at 20° TCA which parallels the contact orientation<br>white clay and qtz vn 1" wide at 352'<br>white qtz stockwork 344.5-346 | 332 Very fine agglomeration of PY on fracture surfaces<br>Heavy white clay Development supporting Breccia clast 336-337.5 along a 40° TCA fracture Pattern<br>Silicification has been variable below 301.4<br>348 - silica with fine black disseminated PYRITE.<br>Core has been fractured and clay has filled the fractures.<br>Pyrite agglomeration on fractures from 350-353.8<br>Marcasite is on fractures and open spaces in the Dozer<br>Silicification around contact ends at 359<br>Spotty silicification from 387-394<br>Silicification increase with heavy stock work from 394-398 |
| 353.8-399 Dozer ↓ | | 353.8-399 DOZER FLOWS<br>Fine grained grayish white flow. Rock is argillized when it has not been silicified<br>Disseminated py is ≥1/2 2%<br>391-393 Portions of the flow have an apparent foliation of 40° TCA<br>Cores appearance is blotchy from breccia textures. Crackle to mosaic Bxu compose the majority of textures below 353.8<br>All this breccia is related to the S.R.F. | 360<br>370<br>380<br>390<br>EOH | | Dozer continues to Be brecciated to 398'. The magnitude of Brecciation varies.<br>Heavy qtz stockwork has taken place with very heavy zone at: 376-378, 381-384, 391-398<br>Clast are subrounded to rounded in a clay matrix of original Dozer rock<br>small black qtz veinlet with micro Bxu clast 392 in stock work zone | |

| ANALYTICAL DATA | | | | | |
|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 |
| 330.8 | 334 | | | | |
| 334 | 337.8 | | | | |
| 337.8 | 340.7 | | | | |
| 340.7 | 344 | | | | |
| 344 | 346 | | | | |
| 346 | 350 | | | | |
| 350 | 353.8 | | | | |
| 353.8 | 359 | | | | |
| 359 | 364 | | | | |
| 364 | 369 | | | | |
| 369 | 373.7 | | | | |
| 373.7 | 379 | | | | |
| 379 | 384.2 | | | | |
| 384.2 | 389 | | | | |
| 389 | 391 | | | | |
| 391 | 393 | | | | |
| 393 | 396 | | | | |
| 396 | 399 | | | | |

# HECLA MINING COMPANY – ROSEBUD PROJECT
## GEOTECHNICAL DRILL LOG

HOLE # D- 298 -98 DATE: 10-13-98 LOGGED BY: D.G. MacKerrow PAGE 1 OF 5

| 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) |
| 0 | 5.0 | 56 | 100 | 0 | | | | | | | | | | |
| 5.0 | 9.0 | 100 | 100 | 20 | | | | | | | | | | |
| 9.0 | 14.0 | 54 | 100 | 14 | | | | | | | | | | |
| 14.0 | 19.0 | 88 | 100 | 46 | | | | | | | | | | |
| 19.0 | 24.0 | 74 | 100 | 54 | | | | | | | | | | |
| 24.0 | 29.0 | 70 | 100 | 40 | | | | | | | | | | |
| 29.0 | 34.0 | 40 | 100 | 26 | | | | | | | | | | |
| 34.0 | 39.0 | 56 | 100 | 28 | | | | | | | | | | |
| 39.0 | 44.0 | 46 | 100 | 28 | | | | | | | | | | |
| 44.0 | 49.0 | 60 | 100 | 52 | | | | | | | | | | |
| 49.0 | 54.0 | 62 | 100 | 24 | | | | | | | | | | |

# HECLA MINING COMPANY – ROSEBUD PROJECT
## GEOTECHNICAL DRILL LOG

HOLE # D-298-97 DATE: 10-13-98 LOGGED BY: D. G. Muckerra PAGE 2 OF 5

| 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) |
| 54.0 | 59.0 | 100 | 100 | 66 | | | | | | | | | | |
| 59.0 | 64.0 | 64 | 100 | 78 | | | | | | | | | | |
| 64.0 | 69.0 | 100 | 100 | 66 | | | | | | | | | | |
| 69.0 | 74.0 | 90 | 100 | 74 | | | | | | | | | | |
| 74.0 | 79.0 | 68 | 100 | 74 | | | | | | | | | | |
| 79.0 | 84.0 | 76 | 100 | 32 | | | | | | | | | | |
| 84.0 | 89.0 | 100 | 100 | 68 | | | | | | | | | | |
| 89.0 | 94.0 | 72 | 100 | 38 | | | | | | | | | | |
| 94.0 | 104.0 | 100 | 100 | 63 | | | | | | | | | | |
| 104.0 | 114.0 | 90 | 100 | 78 | | | | | | | | | | |
| 114.0 | 124.0 | 100 | 100 | 39 | | | | | | | | | | |

# HECLA MINING COMPANY – ROSEBUD PROJECT
## GEOTECHNICAL DRILL LOG

HOLE # D-298-98 DATE: 10-13-98 LOGGED BY: D.G. Mackerrow PAGE 3 OF 5

| 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) |
| 124.0 | 134.0 | 84 | 100 | 31 | | | | | | | | | | |
| 134.0 | 144.0 | 100 | 100 | 74 | | | | | | | | | | |
| 144.0 | 154.0 | 95 | 100 | 70 | | | | | | | | | | |
| 154.0 | 164.0 | 100 | 100 | 70 | | | | | | | | | | |
| 164.0 | 174.0 | 100 | 100 | 85 | | | | | | | | | | |
| 174.0 | 184.0 | 100 | 100 | 84 | | | | | | | | | | |
| 184 | 194 | 96 | 100 | 67 | | | | | | | | | | |
| 194 | 204 | 99 | 100 | 73 | | | | | | | | | | |
| 204 | 214 | 92 | 100 | 53 | | | | | | | | | | |
| 214 | 220 | 16 | 100 | 10 | | | | | | | | | | |
| 220 | 229 | 58 | 100 | 35 | | | | | | | | | | |

# HECLA MINING COMPANY – ROSEBUD PROJECT
## GEOTECHNICAL DRILL LOG

HOLE # D-298-98 DATE: 10-14-98 LOGGED BY: D.G. MacKenzie PAGE 4 OF 5

| 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) |
| 229 | 239 | 98 | 100 | 73 | | | | | | | | | | |
| 239 | 249 | 97 | 100 | 78 | | | | | | | | | | |
| 249 | 258 | 98 | 100 | 65 | | | | | | | | | | |
| 258 | 268 | 67 | 100 | 56 | | | | | | | | | | |
| 268 | 272 | 30 | 100 | 26 | | | | | | | | | | |
| 272 | 277 | 22 | 100 | 0 | | | | | | | | | | |
| 277 | 284 | 20 | 85 | 38 | | | | | | | | | | |
| 284 | 294 | 78 | 100 | 69 | | | | | | | | | | |
| 294 | 304 | 76 | 100 | 70 | | | | | | | | | | |
| 304 | 314 | 66 | 100 | 54 | | | | | | | | | | |
| 314 | 320 | 47 | 100 | 25 | | | | | | | | | | |

# HECLA MINING COMPANY – ROSEBUD PROJECT
## GEOTECHNICAL DRILL LOG

HOLE # D-298-98 DATE: 10-19-98 LOGGED BY: D.G. Mutherrow PAGE 5 OF 5

| 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) |
| 320 | 324 | 42 | 100 | 70 | | | | | | | | | | |
| 324 | 334 | 80 | 100 | 70 | | | | | | | | | | |
| 334 | 344 | 80 | 100 | 65 | | | | | | | | | | |
| 344 | 346 | 82 | 100 | 84 | | | | | | | | | | |
| 346 | 350 | 80 | 100 | 42 | | | | | | | | | | |
| 350 | 351 | 0 | 100 | 0 | | | | | | | | | | |
| 351 | 359 | 77 | 100 | 50 | | | | | | | | | | |
| 359 | 369 | 80 | 100 | 59 | | | | | | | | | | |
| 369 | 379 | 92 | 100 | 88 | | | | | | | | | | |
| 379 | 389 | 75 | 100 | 72 | | | | | | | | | | |
| 389 | 399 | 87 | 100 | 70 | | | | | | | | | | |

AMERICAN ASSAY LABORATORIES

# PROVISIONAL REPORT SP051255

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

## HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

CLIENT REFERENCE No: D-298-98 RECEIVED : 23 OCT 1998

No. SAMPLES : 112 REPORTED : 24 NOV 1998

MAIN SAMPLE TYPE : DRILL CORE

NEVADA LEGISLATIVE DISCLAIMER :-
The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him and based on an evaluation of all engineering data which is available concerning any proposed project.

| ANALYSIS | ANALYTICAL METHOD | QUALITY PARAMETER | UNIT | DETECTION |
|---|---|---|---|---|
| Au(OZ) | FA30 | 15% | OPT | 0.001 |
| Au(RZ) | FA30 | 15% | OPT | 0.001 |
| AuGRAV | GRAV | 15% | OPT | 0.001 |
| Ag(OZ) | D210 | 10% | OPT | 0.02 |

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

# PROVISIONAL REPORT SP051255

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) | Au(RZ) | AuGRAV | Ag(OZ) |
|---|---|---|---|---|
| D-298-98 0-2 | 0.011 | | | 0.08 |
| D-298-98 2-5 | 0.048 | | | 0.21 |
| D-298-98 5-9 | 0.010 | | | 0.09 |
| D-298-98 9-14 | 0.004 | | | 0.05 |
| D-298-98 14-19 | 0.001 | | | 0.03 |
| D-298-98 19-24 | 0.049 | | | 0.09 |
| D-298-98 24-29 | 0.012 | | | 0.09 |
| D-298-98 29.0-31.1 | 0.216 | | 0.222 | 0.11 |
| D-298-98 31.1-34.0 | 0.002 | | | 0.02 |
| D-298-98 34-39 | 0.016 | | | 0.03 |
| D-298-98 39.0-41.3 | 0.019 | | | 0.08 |
| D-298-98 41.3-46.0 | 0.076 | | 0.050 | 0.20 |
| D-298-98 46.0-50.5 | 0.056 | | 0.065 | 0.24 |
| D-298-98 50.5-54.0 | 0.045 | | | 0.06 |
| D-298-98 54-59 | 0.017 | | | 0.05 |
| D-298-98 59-64 | 0.038 | 0.049 | | 0.09 |
| D-298-98 64-69 | 0.014 | | | 0.07 |
| D-298-98 69-74 | 0.026 | 0.062 | | 0.08 |
| D-298-98 74.0-75.5 | 0.144 | | 0.103 | 0.19 |
| D-298-98 75.5-79.5 | 0.045 | | | 0.10 |
| D-298-98 79.5-84.0 | 0.007 | | | 0.07 |
| D-298-98 84.0-86.5 | 0.003 | | | 0.05 |
| D-298-98 86.5-90.2 | 0.020 | | | 0.10 |
| D-298-98 90.2-91.8 | 0.124 | | 0.105 | 0.55 |
| D-298-98 91.8-94.0 | 0.441 | | 0.381 | 0.26 |

AMERICAN ASSAY LABORATORIES

# PROVISIONAL REPORT SP051255

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | | Au(OZ) | Au(RZ) | AuGRAV | Ag(OZ) | |
|---|---|---|---|---|---|---|
| D-298-98 94-99 | | 0.008 | | | 0.07 | |
| D-298-98 99-104 | | 0.094 | | 0.086 | 0.08 | |
| D-298-98 104.0-108.4 | | 0.121 | | 0.112 | 0.14 | |
| D-298-98 108.4-111.8 | | 0.143 | | 0.134 | 0.33 | |
| D-298-98 111.8-114.0 | | 0.254 | | 0.161 | 0.19 | |
| D-298-98 114.0-119.2 | | 0.048 | | | 0.08 | |
| D-298-98 119.2-124.0 | | 0.211 | | 0.146 | 0.11 | |
| D-298-98 124.0-128.4 | | 0.011 | | | 0.08 | |
| D-298-98 128.4-131.8 | | 0.151 | | 0.170 | 0.30 | |
| D-298-98 131.8-134.0 | | 0.104 | | 0.239 | 0.15 | |
| D-298-98 134.0-136.7 | | 0.119 | | 0.101 | 0.82 | 140.5'-182.4' |
| D-298-98 136.7-140.5 | | 0.087 | | 0.100 | 0.12 | = 41.9' @ |
| D-298-98 140.5-144.0 | 3.5 | 1.226 | | 1.288 | 1.54 | |
| D-298-98 144.0-146.8 | 2.8 | 0.639 | | 0.651 | 0.67 | |
| D-298-98 146.8-149.9 | 3.1 | 0.148 | | 0.141 | 0.17 | 0.356 Au |
| D-298-98 149.9-154.0 | 4.1 | 0.396 | | 0.466 | 0.27 | 0.36 Ag |
| D-298-98 154.0-159.8 | 5.8 | 0.215 | | 0.259 | 0.17 | |
| D-298-98 159.8-164.0 | 4.2 | 0.165 | | 0.118 | 0.15 | |
| D-298-98 164.0-166.5 | 2.5 | 0.033 | | | 0.10 | |
| D-298-98 166.5-167.9 | 1.4 | 0.146 | | 0.164 | 0.34 | |
| D-298-98 167.9-169.6 | 1.7 | 0.642 | | 0.857 | 0.37 | |
| D-298-98 169.6-171.5 | 1.9 | 0.354 | | 0.328 | 0.43 | |
| D-298-98 171.5-174.0 | 2.5 | 0.627 | | 0.731 | 0.35 | |
| D-298-98 174.0-178.6 | 4.6 | 0.103 | | 0.129 | 0.14 | |
| D-298-98 178.6-182.4 | 3.8 | 0.189 | | 0.189 | 0.20 | |

AMERICAN ASSAY LABORATORIES

# PROVISIONAL REPORT SP051255

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) | Au(RZ) | AuGRAV | Ag(OZ) | |
|---|---|---|---|---|---|
| D-298-98 182.4-184.0 | 0.010 | | | 0.09 | |
| D-298-98 184.0-187.9 | 0.039 | | | 0.12 | |
| D-298-98 187.9-191.7 | 0.030 | | | 0.12 | |
| D-298-98 191.7-194.0 | 0.149 | | 0.101 | 0.19 | |
| D-298-98 194.0-197.2 | 0.046 | | | 0.87 | |
| D-298-98 197.2-200.5 | 0.052 | | 0.082 | 0.13 | |
| D-298-98 200.5-204.0 | 0.020 | | | 0.09 | |
| D-298-98 204.0-208.8 | 0.014 | | | 0.07 | |
| D-298-98 208.8-214.0 | 0.018 | | | 0.16 | |
| D-298-98 214-218 | 0.043 | | | 0.09 | |
| D-298-98 218-220 | 0.004 | | | 0.08 | |
| D-298-98 220.0-224.5 | 0.003 | | | 0.05 | |
| D-298-98 224.5-226.8 | 0.027 | | | 0.21 | 229-253.3' = |
| D-298-98 226.8-229.0 | 0.091 | | 0.078 | 0.26 | 24.3'@ |
| D-298-98 229-234 5 | 0.368 | | 0.439 | 0.33 | |
| D-298-98 234-239 5 | 0.204 | | 0.264 | 0.18 | 0.374 Au |
| D-298-98 239-244 5 | 0.433 | | 0.558 | 0.37 | 0.46 Ag |
| D-298-98 244-246 2 | 0.863 | | 0.930 | 1.67 | |
| D-298-98 246.0-249.7 3.7 | 0.398 | | 0.447 | 0.55 | |
| D-298-98 249.7-253.3 3.6 | 0.242 | | 0.255 | 0.40 | |
| D-298-98 253.3-258.0 | 0.097 | | 0.103 | 0.18 | |
| D-298-98 258.0-260.5 | 0.073 | | 0.068 | 0.15 | |
| D-298-98 260.5-263.8 | 0.018 | | | 0.25 | |
| D-298-98 263.8-268.0 | 0.017 | | | 0.13 | |
| D-298-98 268-272 | 0.071 | | 0.074 | 3.55 | |

AMERICAN ASSAY LABORATORIES

# PROVISIONAL REPORT SP051255

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | | Au(OZ) | Au(RZ) | AuGRAV | Ag(OZ) | |
|---|---|---|---|---|---|---|
| D-298-98 272-277 | | 0.031 | | | 0.14 | |
| D-298-98 277.0-281.8 | | 0.067 | | 0.065 | 0.40 | |
| D-298-98 281.8-282.8 | | 0.025 | | | 1.82 | |
| D-298-98 282.8-286.0 | | 0.032 | | | 0.80 | |
| D-298-98 286-291 | | 0.052 | | 0.123 | 0.31 | |
| D-298-98 291-294 | | 0.028 | | | 4.79 | |
| D-298-98 294.0-298.3 | | 0.022 | | | 0.61 | |
| D-298-98 298.3-301.4 | | 0.026 | | | 4.95 | 304-364= |
| D-298-98 301.4-304.0 | | 0.011 | | | 0.28 | 60' @ |
| D-298-98 304.0-307.8 | 3.8 | 0.044 | | | 104.49 | |
| D-298-98 307.8-310.6 | 2.8 | 0.005 | | | 0.58 | 0.045 Au |
| D-298-98 310.6-314.0 | 3.4 | 0.040 | | | 112.65 | 20.03 Ag |
| D-298-98 314.0-316.4 | 2.4 | 0.016 | | | 25.55 | |
| D-298-98 316.4-319.3 | 2.9 | 0.046 | | | 8.41 | |
| D-298-98 319.3-321.1 | 1.8 | 0.028 | | | 39.79 | |
| D-298-98 321.1-324.9 | 3.8 | 0.018 | | | 0.76 | |
| D-298-98 324.9-327.1 | 2.2 | 0.009 | | | 0.31 | |
| D-298-98 327.1-330.8 | 3.7 | 0.022 | | | 3.77 | |
| D-298-98 330.8-334.0 | 3.2 | 0.035 | | | 7.60 | |
| D-298-98 334.0-337.8 | 3.8 | 0.098 | | 0.105 | 17.79 | |
| D-298-98 337.8-340.7 | 2.9 | 0.033 | | | 7.76 | |
| D-298-98 340.7-344.0 | 3.3 | 0.070 | | 0.063 | 3.16 | |
| D-298-98 344-346 | 2 | 0.059 | | 0.053 | 3.78 | |
| D-298-98 346-350 | 4 | 0.162 | | 0.147 | 10.29 | |
| D-298-98 350.0-353.8 | 3.8 | 0.079 | | 0.080 | 6.04 | |

AMERICAN ASSAY LABORATORIES

# PROVISIONAL REPORT SP051255

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) | Au(RZ) | AuGRAV | Ag(OZ) |
|---|---|---|---|---|
| D-298-98 353.8-359.0 5.2 | 0.009 | | | 1.55 |
| D-298-98 359-364 5 | 0.012 | | | 8.07 |
| D-298-98 364-369 | 0.003 | | | 0.98 |
| D-298-98 369.0-373.7 | 0.003 | | | 0.93 |
| D-298-98 373.7-379.0 | 0.004 | | | 0.09 |
| D-298-98 379.0-384.2 | 0.002 | | | 0.10 |
| D-298-98 384.2-389.0 | 0.002 | | | 0.05 |
| D-298-98 389-391 | 0.003 | | | 0.07 |
| D-298-98 391-393 | 0.005 | | | 0.08 |
| D-298-98 393-396 | 0.006 | | | 0.28 |
| D-298-98 396-399 | 0.005 | | | 0.08 |
| 43572 | 0.113 | | | 2.99 |

**American Assay Laboratories**

# INVOICE

Remit To: P.O. Box11530
Reno, Nevada 89510
Phone NO.: 702-356-0606
Fax No.: 702-356-1413

AMERICAN ASSAY LABORATORIES
1500 GLENDALE AVE.
SPARKS, NV 89431-5902

(702) 356-0606

INVOICE NO: SP 0051255-IN
INVOICE DATE: 11/25/98

INVOICE TO:
THE ROSEBUD MINING CO., LLC
HECLA MINING COMPANY, OPERATOR
P.O. BOX 2610
WINNEMUCCA NV 89446

THE ROSEBUD MINING CO., LLC
HECLA MINING COMPANY, OPERATOR
P.O. BOX 2610
WINNEMUCCA NV 89446

| CUSTOMER P.O. | PROJECT | TERMS |
|---|---|---|
| D-298-98 | DEVELOPMENT | NET 30 - DUE IN U.S. DOLLARS |

| QUANTITY | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|
| 112 | SAMPLES RECEIVED | .00 | .00 |
| 111 | JAW CRUSHING CHARGE | 1.30 | 144.30 |
| 111 | COARSE MILLING CHARGE | 4.50 | 499.50 |
| 111 | SPLITTING CHARGE | 2.40 | 266.40 |
| 111 | RING MILLING CHARGE | 2.00 | 222.00 |
| 112 | Au (1 A.T. FIRE ASSAY) | 8.00 | 896.00 |
| 46 | Au ANALYSES/GRAVIMETRIC | 8.75 | 402.50 |
| 112 | HYDROCHLORIC/NITRIC DIGESTION | 2.00 | 224.00 |
| 112 | Ag ANALYSES | 1.00 | 112.00 |
| 21 | Ag (ore grade) ANALYSES | 5.00 | 105.00 |

86-5110-477

| | |
|---|---|
| NET INVOICE: | 2,871.70 |
| LESS DISCOUNT: | 574.34 |
| FREIGHT: | .00 |
| INVOICE TOTAL: | 2,297.36 |

xAMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

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

## HECLA MINING COMPANY

COPIES TO : KURT ALLEN

:

:

:

CLIENT REFERENCE No: D-298-98 RECEIVED : 23 OCT 1998

No. SAMPLES : 112 REPORTED : 24 NOV 1998

MAIN SAMPLE TYPE : DRILL CORE

NEVADA LEGISLATIVE DISCLAIMER :-
The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him and based on an evaluation of all engineering data which is available concerning any proposed project.

| ANALYSIS | ANALYTICAL METHOD | QUALITY PARAMETER | UNIT | DETECTION |
|---|---|---|---|---|
| Au(OZ) | FA30 | 15% | OPT | 0.001 |
| Au(RZ) | FA30 | 15% | OPT | 0.001 |
| AuGRAV | GRAV | 15% | OPT | 0.001 |
| Ag(OZ) | D210 | 10% | OPT | 0.02 |

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 0-2 | 0.011 | | | 0.08 |
| D-298-98 2-5 | 0.048 | | | 0.21 |
| D-298-98 5-9 | 0.010 | | | 0.09 |
| D-298-98 9-14 | 0.004 | | | 0.05 |
| D-298-98 14-19 | 0.001 | | | 0.03 |
| D-298-98 19-24 | 0.049 | | | 0.09 |
| D-298-98 24-29 | 0.012 | | | 0.09 |
| D-298-98 29.0-31.1 | 0.216 | | 0.222 | 0.11 |
| D-298-98 31.1-34.0 | 0.002 | | | 0.02 |
| D-298-98 34-39 | 0.016 | | | 0.03 |
| D-298-98 39.0-41.3 | 0.019 | | | 0.08 |
| D-298-98 41.3-46.0 | 0.076 | | 0.050 | 0.20 |
| D-298-98 46.0-50.5 | 0.056 | | 0.065 | 0.24 |
| D-298-98 50.5-54.0 | 0.045 | | | 0.06 |
| D-298-98 54-59 | 0.017 | | | 0.05 |
| D-298-98 59-64 | 0.038 | 0.049 | | 0.09 |
| D-298-98 64-69 | 0.014 | | | 0.07 |
| D-298-98 69-74 | 0.026 | 0.062 | | 0.08 |
| D-298-98 74.0-75.5 | 0.144 | | 0.103 | 0.19 |
| D-298-98 75.5-79.5 | 0.045 | | | 0.10 |
| D-298-98 79.5-84.0 | 0.007 | | | 0.07 |
| D-298-98 84.0-86.5 | 0.003 | | | 0.05 |
| D-298-98 86.5-90.2 | 0.020 | | | 0.10 |
| D-298-98 90.2-91.8 | 0.124 | | 0.105 | 0.55 |
| D-298-98 91.8-94.0 | 0.441 | | 0.381 | 0.26 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 94-99 | 0.008 | | | 0.07 |
| D-298-98 99-104 | 0.094 | | 0.086 | 0.08 |
| D-298-98 104.0-108.4 | 0.121 | | 0.112 | 0.14 |
| D-298-98 108.4-111.8 | 0.143 | | 0.134 | 0.33 |
| D-298-98 111.8-114.0 | 0.254 | | 0.161 | 0.19 |
| D-298-98 114.0-119.2 | 0.048 | | | 0.08 |
| D-298-98 119.2-124.0 | 0.211 | | 0.146 | 0.11 |
| D-298-98 124.0-128.4 | 0.011 | | | 0.08 |
| D-298-98 128.4-131.8 | 0.151 | | 0.170 | 0.30 |
| D-298-98 131.8-134.0 | 0.104 | | 0.239 | 0.15 |
| D-298-98 134.0-136.7 | 0.119 | | 0.101 | 0.82 |
| D-298-98 136.7-140.5 | 0.087 | | 0.100 | 0.12 |
| D-298-98 140.5-144.0 | 1.226 | | 1.288 | 1.54 |
| D-298-98 144.0-146.8 | 0.639 | | 0.651 | 0.67 |
| D-298-98 146.8-149.9 | 0.148 | | 0.141 | 0.17 |
| D-298-98 149.9-154.0 | 0.396 | | 0.466 | 0.27 |
| D-298-98 154.0-159.8 | 0.215 | | 0.259 | 0.17 |
| D-298-98 159.8-164.0 | 0.165 | | 0.118 | 0.15 |
| D-298-98 164.0-166.5 | 0.033 | | | 0.10 |
| D-298-98 166.5-167.9 | 0.146 | | 0.164 | 0.34 |
| D-298-98 167.9-169.6 | 0.642 | | 0.857 | 0.37 |
| D-298-98 169.6-171.5 | 0.354 | | 0.328 | 0.43 |
| D-298-98 171.5-174.0 | 0.627 | | 0.731 | 0.35 |
| D-298-98 174.0-178.6 | 0.103 | | 0.129 | 0.14 |
| D-298-98 178.6-182.4 | 0.189 | | 0.189 | 0.20 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 182.4-184.0 | 0.010 | | | 0.09 |
| D-298-98 184.0-187.9 | 0.039 | | | 0.12 |
| D-298-98 187.9-191.7 | 0.030 | | | 0.12 |
| D-298-98 191.7-194.0 | 0.149 | | 0.101 | 0.19 |
| D-298-98 194.0-197.2 | 0.046 | | | 0.87 |
| D-298-98 197.2-200.5 | 0.052 | | 0.082 | 0.13 |
| D-298-98 200.5-204.0 | 0.020 | | | 0.09 |
| D-298-98 204.0-208.8 | 0.014 | | | 0.07 |
| D-298-98 208.8-214.0 | 0.018 | | | 0.16 |
| D-298-98 214-218 | 0.043 | | | 0.09 |
| D-298-98 218-220 | 0.004 | | | 0.08 |
| D-298-98 220.0-224.5 | 0.003 | | | 0.05 |
| D-298-98 224.5-226.8 | 0.027 | | | 0.21 |
| D-298-98 226.8-229.0 | 0.091 | | 0.078 | 0.26 |
| D-298-98 229-234 | 0.368 | | 0.439 | 0.33 |
| D-298-98 234-239 | 0.204 | | 0.264 | 0.18 |
| D-298-98 239-244 | 0.433 | | 0.558 | 0.37 |
| D-298-98 244-246 | 0.863 | | 0.930 | 1.67 |
| D-298-98 246.0-249.7 | 0.398 | | 0.447 | 0.55 |
| D-298-98 249.7-253.3 | 0.242 | | 0.255 | 0.40 |
| D-298-98 253.3-258.0 | 0.097 | | 0.103 | 0.18 |
| D-298-98 258.0-260.5 | 0.073 | | 0.068 | 0.15 |
| D-298-98 260.5-263.8 | 0.018 | | | 0.25 |
| D-298-98 263.8-268.0 | 0.017 | | | 0.13 |
| D-298-98 268-272 | 0.071 | | 0.074 | 3.55 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 272-277 | 0.031 | | | 0.14 |
| D-298-98 277.0-281.8 | 0.067 | | 0.065 | 0.40 |
| D-298-98 281.8-282.8 | 0.025 | | | 1.82 |
| D-298-98 282.8-286.0 | 0.032 | | | 0.80 |
| D-298-98 286-291 | 0.052 | | 0.123 | 0.31 |
| D-298-98 291-294 | 0.028 | | | 4.79 |
| D-298-98 294.0-298.3 | 0.022 | | | 0.61 |
| D-298-98 298.3-301.4 | 0.026 | | | 4.95 |
| D-298-98 301.4-304.0 | 0.011 | | | 0.28 |
| D-298-98 304.0-307.8 | 0.044 | | | 104.49 |
| D-298-98 307.8-310.6 | 0.005 | | | 0.58 |
| D-298-98 310.6-314.0 | 0.040 | | | 112.65 |
| D-298-98 314.0-316.4 | 0.016 | | | 25.55 |
| D-298-98 316.4-319.3 | 0.046 | | | 8.41 |
| D-298-98 319.3-321.1 | 0.028 | | | 39.79 |
| D-298-98 321.1-324.9 | 0.018 | | | 0.76 |
| D-298-98 324.9-327.1 | 0.009 | | | 0.31 |
| D-298-98 327.1-330.8 | 0.022 | | | 3.77 |
| D-298-98 330.8-334.0 | 0.035 | | | 7.60 |
| D-298-98 334.0-337.8 | 0.098 | | 0.105 | 17.79 |
| D-298-98 337.8-340.7 | 0.033 | | | 7.76 |
| D-298-98 340.7-344.0 | 0.070 | | 0.063 | 3.16 |
| D-298-98 344-346 | 0.059 | | 0.053 | 3.78 |
| D-298-98 346-350 | 0.162 | | 0.147 | 10.29 |
| D-298-98 350.0-353.8 | 0.079 | | 0.080 | 6.04 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 353.8-359.0 | 0.009 | | | 1.55 |
| D-298-98 359-364 | 0.012 | | | 8.07 |
| D-298-98 364-369 | 0.003 | | | 0.98 |
| D-298-98 369.0-373.7 | 0.003 | | | 0.93 |
| D-298-98 373.7-379.0 | 0.004 | | | 0.09 |
| D-298-98 379.0-384.2 | 0.002 | | | 0.10 |
| D-298-98 384.2-389.0 | 0.002 | | | 0.05 |
| D-298-98 389-391 | 0.003 | | | 0.07 |
| D-298-98 391-393 | 0.005 | | | 0.08 |
| D-298-98 393-396 | 0.006 | | | 0.28 |
| D-298-98 396-399 | 0.005 | | | 0.08 |
| 43572 | 0.113 | | | 2.99 |

xAMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

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

## HECLA MINING COMPANY

COPIES TO : KURT ALLEN
:
:
:

CLIENT REFERENCE No: D-298-98 RECEIVED : 23 OCT 1998

No. SAMPLES : 112 REPORTED : 24 NOV 1998

MAIN SAMPLE TYPE : DRILL CORE

NEVADA LEGISLATIVE DISCLAIMER :-
The results of this assay were based solely upon the content of the sample submitted. Any decision to invest should be made only after the potential investment value of the claim or deposit has been determined based on the results of assays of multiple samples of geological materials collected by the prospective investor or by a qualified person selected by him and based on an evaluation of all engineering data which is available concerning any proposed project.

| ANALYSIS | ANALYTICAL METHOD | QUALITY PARAMETER | UNIT | DETECTION |
|---|---|---|---|---|
| Au(OZ) | FA30 | 15% | OPT | 0.001 |
| Au(RZ) | FA30 | 15% | OPT | 0.001 |
| AuGRAV | GRAV | 15% | OPT | 0.001 |
| Ag(OZ) | D210 | 10% | OPT | 0.02 |

SIGNATORY : Susan King M.S.

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 0-2 | 0.011 | | | 0.08 |
| D-298-98 2-5 | 0.048 | | | 0.21 |
| D-298-98 5-9 | 0.010 | | | 0.09 |
| D-298-98 9-14 | 0.004 | | | 0.05 |
| D-298-98 14-19 | 0.001 | | | 0.03 |
| D-298-98 19-24 | 0.049 | | | 0.09 |
| D-298-98 24-29 | 0.012 | | | 0.09 |
| D-298-98 29.0-31.1 | 0.216 | | 0.222 | 0.11 |
| D-298-98 31.1-34.0 | 0.002 | | | 0.02 |
| D-298-98 34-39 | 0.016 | | | 0.03 |
| D-298-98 39.0-41.3 | 0.019 | | | 0.08 |
| D-298-98 41.3-46.0 | 0.076 | | 0.050 | 0.20 |
| D-298-98 46.0-50.5 | 0.056 | | 0.065 | 0.24 |
| D-298-98 50.5-54.0 | 0.045 | | | 0.06 |
| D-298-98 54-59 | 0.017 | | | 0.05 |
| D-298-98 59-64 | 0.038 | 0.049 | | 0.09 |
| D-298-98 64-69 | 0.014 | | | 0.07 |
| D-298-98 69-74 | 0.026 | 0.062 | | 0.08 |
| D-298-98 74.0-75.5 | 0.144 | | 0.103 | 0.19 |
| D-298-98 75.5-79.5 | 0.045 | | | 0.10 |
| D-298-98 79.5-84.0 | 0.007 | | | 0.07 |
| D-298-98 84.0-86.5 | 0.003 | | | 0.05 |
| D-298-98 86.5-90.2 | 0.020 | | | 0.10 |
| D-298-98 90.2-91.8 | 0.124 | | 0.105 | 0.55 |
| D-298-98 91.8-94.0 | 0.441 | | 0.381 | 0.26 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 94-99 | 0.008 | | | 0.07 |
| D-298-98 99-104 | 0.094 | | 0.086 | 0.08 |
| D-298-98 104.0-108.4 | 0.121 | | 0.112 | 0.14 |
| D-298-98 108.4-111.8 | 0.143 | | 0.134 | 0.33 |
| D-298-98 111.8-114.0 | 0.254 | | 0.161 | 0.19 |
| D-298-98 114.0-119.2 | 0.048 | | | 0.08 |
| D-298-98 119.2-124.0 | 0.211 | | 0.146 | 0.11 |
| D-298-98 124.0-128.4 | 0.011 | | | 0.08 |
| D-298-98 128.4-131.8 | 0.151 | | 0.170 | 0.30 |
| D-298-98 131.8-134.0 | 0.104 | | 0.239 | 0.15 |
| D-298-98 134.0-136.7 | 0.119 | | 0.101 | 0.82 |
| D-298-98 136.7-140.5 | 0.087 | | 0.100 | 0.12 |
| D-298-98 140.5-144.0 | 1.226 | | 1.288 | 1.54 |
| D-298-98 144.0-146.8 | 0.639 | | 0.651 | 0.67 |
| D-298-98 146.8-149.9 | 0.148 | | 0.141 | 0.17 |
| D-298-98 149.9-154.0 | 0.396 | | 0.466 | 0.27 |
| D-298-98 154.0-159.8 | 0.215 | | 0.259 | 0.17 |
| D-298-98 159.8-164.0 | 0.165 | | 0.118 | 0.15 |
| D-298-98 164.0-166.5 | 0.033 | | | 0.10 |
| D-298-98 166.5-167.9 | 0.146 | | 0.164 | 0.34 |
| D-298-98 167.9-169.6 | 0.642 | | 0.857 | 0.37 |
| D-298-98 169.6-171.5 | 0.354 | | 0.328 | 0.43 |
| D-298-98 171.5-174.0 | 0.627 | | 0.731 | 0.35 |
| D-298-98 174.0-178.6 | 0.103 | | 0.129 | 0.14 |
| D-298-98 178.6-182.4 | 0.189 | | 0.189 | 0.20 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 182.4-184.0 | 0.010 | | | 0.09 |
| D-298-98 184.0-187.9 | 0.039 | | | 0.12 |
| D-298-98 187.9-191.7 | 0.030 | | | 0.12 |
| D-298-98 191.7-194.0 | 0.149 | | 0.101 | 0.19 |
| D-298-98 194.0-197.2 | 0.046 | | | 0.87 |
| D-298-98 197.2-200.5 | 0.052 | | 0.082 | 0.13 |
| D-298-98 200.5-204.0 | 0.020 | | | 0.09 |
| D-298-98 204.0-208.8 | 0.014 | | | 0.07 |
| D-298-98 208.8-214.0 | 0.018 | | | 0.16 |
| D-298-98 214-218 | 0.043 | | | 0.09 |
| D-298-98 218-220 | 0.004 | | | 0.08 |
| D-298-98 220.0-224.5 | 0.003 | | | 0.05 |
| D-298-98 224.5-226.8 | 0.027 | | | 0.21 |
| D-298-98 226.8-229.0 | 0.091 | | 0.078 | 0.26 |
| D-298-98 229-234 | 0.368 | | 0.439 | 0.33 |
| D-298-98 234-239 | 0.204 | | 0.264 | 0.18 |
| D-298-98 239-244 | 0.433 | | 0.558 | 0.37 |
| D-298-98 244-246 | 0.863 | | 0.930 | 1.67 |
| D-298-98 246.0-249.7 | 0.398 | | 0.447 | 0.55 |
| D-298-98 249.7-253.3 | 0.242 | | 0.255 | 0.40 |
| D-298-98 253.3-258.0 | 0.097 | | 0.103 | 0.18 |
| D-298-98 258.0-260.5 | 0.073 | | 0.068 | 0.15 |
| D-298-98 260.5-263.8 | 0.018 | | | 0.25 |
| D-298-98 263.8-268.0 | 0.017 | | | 0.13 |
| D-298-98 268-272 | 0.071 | | 0.074 | 3.55 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 272-277 | 0.031 | | | 0.14 |
| D-298-98 277.0-281.8 | 0.067 | | 0.065 | 0.40 |
| D-298-98 281.8-282.8 | 0.025 | | | 1.82 |
| D-298-98 282.8-286.0 | 0.032 | | | 0.80 |
| D-298-98 286-291 | 0.052 | | 0.123 | 0.31 |
| D-298-98 291-294 | 0.028 | | | 4.79 |
| D-298-98 294.0-298.3 | 0.022 | | | 0.61 |
| D-298-98 298.3-301.4 | 0.026 | | | 4.95 |
| D-298-98 301.4-304.0 | 0.011 | | | 0.28 |
| D-298-98 304.0-307.8 | 0.044 | | | 104.49 |
| D-298-98 307.8-310.6 | 0.005 | | | 0.58 |
| D-298-98 310.6-314.0 | 0.040 | | | 112.65 |
| D-298-98 314.0-316.4 | 0.016 | | | 25.55 |
| D-298-98 316.4-319.3 | 0.046 | | | 8.41 |
| D-298-98 319.3-321.1 | 0.028 | | | 39.79 |
| D-298-98 321.1-324.9 | 0.018 | | | 0.76 |
| D-298-98 324.9-327.1 | 0.009 | | | 0.31 |
| D-298-98 327.1-330.8 | 0.022 | | | 3.77 |
| D-298-98 330.8-334.0 | 0.035 | | | 7.60 |
| D-298-98 334.0-337.8 | 0.098 | | 0.105 | 17.79 |
| D-298-98 337.8-340.7 | 0.033 | | | 7.76 |
| D-298-98 340.7-344.0 | 0.070 | | 0.063 | 3.16 |
| D-298-98 344-346 | 0.059 | | 0.053 | 3.78 |
| D-298-98 346-350 | 0.162 | | 0.147 | 10.29 |
| D-298-98 350.0-353.8 | 0.079 | | 0.080 | 6.04 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT SP051255

American Assay Laboratories

CLIENT : HECLA MINING COMPANY
PROJECT : ROSEBUD DEVELOPMENT
REFERENCE : D-298-98

REPORTED : 24 NOV 1998

| SAMPLES | Au(OZ) FA30 OPT | Au(RZ) FA30 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-298-98 353.8-359.0 | 0.009 | | | 1.55 |
| D-298-98 359-364 | 0.012 | | | 8.07 |
| D-298-98 364-369 | 0.003 | | | 0.98 |
| D-298-98 369.0-373.7 | 0.003 | | | 0.93 |
| D-298-98 373.7-379.0 | 0.004 | | | 0.09 |
| D-298-98 379.0-384.2 | 0.002 | | | 0.10 |
| D-298-98 384.2-389.0 | 0.002 | | | 0.05 |
| D-298-98 389-391 | 0.003 | | | 0.07 |
| D-298-98 391-393 | 0.005 | | | 0.08 |
| D-298-98 393-396 | 0.006 | | | 0.28 |
| D-298-98 396-399 | 0.005 | | | 0.08 |
| 43572 | 0.113 | | | 2.99 |

SP

# SUBMITTAL FORM


**American Assay Laboratories**

**Geochemical • Environmental • Metallurgical**

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

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

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

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

Other Offices
Lima, Peru
Santiago, Chile
Mendoza, Argentina


Company: Rosebud Mining LLC

Address: P.O. Box 2610

City Winnemucca State NV Zip 89445

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

Project Name: Development Purchase Order Number:

Date Submitted: 10/21/98 Number of Samples: 111

Au Ag according to Rosebud Mine Protocol

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

| D-298-98 SAMPLE IDENTIFICATION | TYPE | ELEMENTS REQUIRED |
|---|---|---|
| 0-2 59-64 114-119.2 167.9-169.6 | | 218-220 272-277 321.1-324.9 |
| 2-5 64-69 119.2-124 169.6-171.5 | | 220-224.5 277-281.8 324.9-327.1 |
| 5-9 69-74 124-128.4 171.5-174 | | 224.5-226.8 281.8-282.8 327.1-330.8 |
| 9-14 74-75.5 128.4-131.8 174-178.6 | | 226.8-229 282.8-286 330.8-334 |
| 14-19 75.5-79.5 131.8-134 178.6-182.4 | | 229-234 286-291 334-337.8 |
| 19-24 79.5-84 134-136.7 182.4-184 | | 234-239 291-294 337.8-340.7 |
| 24-29 84-86.5 136.7-140.5 184-187.9 | | 239-244 294-298.3 340.7-344 379-384.2 |
| 29-31.1 86.5-90.2 140.5-144 187.9-191.7 | | 244-246 298.3-301.4 344-346 384.2-389 |
| 31.1-34 90.2-91.8 144-146.8 191.7-194 | | 246-249.7 301.4-304 346-350 389-391 |
| 34-39 91.8-94 146.8-149.9 194-197.2 | | 249.7-253.3 304-307.8 350-353.8 391-393 |
| 39-41.3 94-99 149.9-154 197.2-200.5 | | 253.3-258 307.8-310.6 353.8-359 393-396 |
| 41.3-46 99-104 154-159.8 200.5-204 | | 258-260.5 310.6-314 359-364 396-399 TD |
| 46-50.5 104-108.4 159.8-164 204-208.8 | | 260.5-263.8 314-316.4 364-369 |
| 50.5-54 108.4-111.8 164-166.5 208.8-214 | | 263.8-268 316.4-319.3 369-373.7 |
| 54-59 111.8-114 166.5-167.9 214-218 | | 268-272 319.3-321.1 373.7-379 |

**COARSE REJECTS (Normally Discarded After 60 Days)**

[ ] Return COD after analysis complete

**PULPS (Normally Stored Free For One Month)**

[ ] Discard after one month

[ ] Return COD after one month

**RESULTS AND INVOICES TO BE SENT TO:**

Invoice to:

Kurt Allen

Results to:

Kurt Allen

**Comments:**

CLIENT FILE COPY

| | | | |
|---|---|---|---|
| D-298-98 | 35 | 18 | 125.7 |
| | 170 | 17 | 125.2 |
| | 340 | 16.5 | 125.7 |

D-298-98 BOX 2
DEPTH 9 - 18

0.0
BOX REVERSED DIRECTION
D-298-98 BOX 1
DEPTH 0 - 9

D-298-98 BOX 3
DEPTH 18 - 27

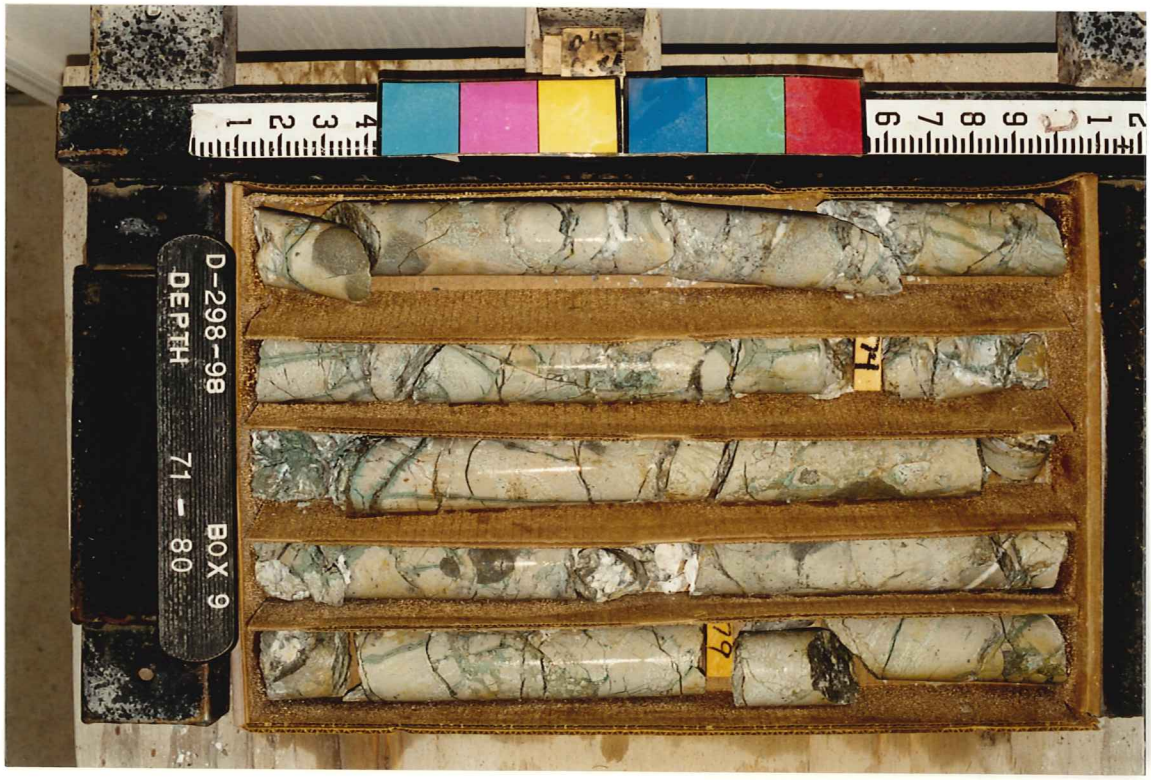
D-298-98 BOX 5
DEPTH 35 - 44_5
39
44

D-298-98 BOX 4
DEPTH 27 - 35
29
34

D-298-98 BOX 6
DEPTH 44_5 - 53_5
49

D-298-98
BOX 8
DEPTH 62 - 71

D-298-98
BOX 7
DEPTH 53_5 - 62


D-298-98
BOX 9
DEPTH 71 - 80

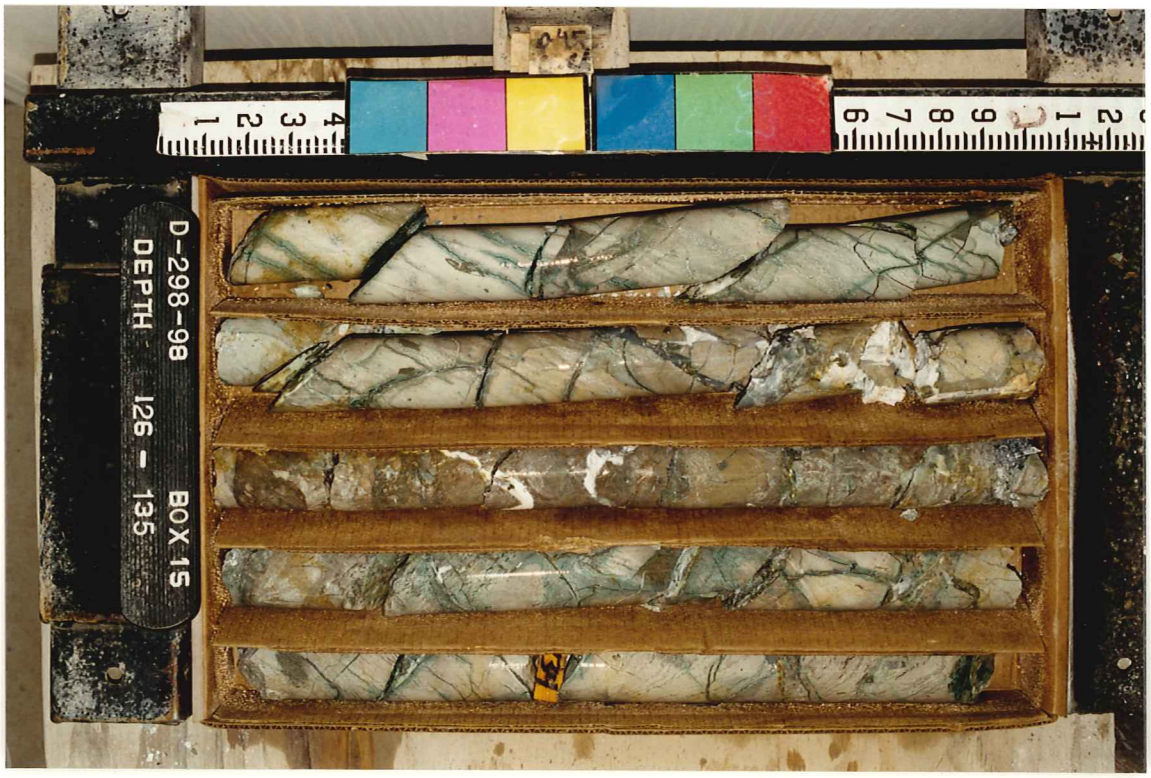
D-298-98
BOX 11
DEPTH 88.5 - 98

D-298-98
BOX 10
DEPTH 80 - 88.5

D-298-98
BOX 12
DEPTH 98 - 107

D-298-98
BOX 14
DEPTH 116.5 - 126

D-298-98
BOX 13
DEPTH 107 - 116.5


D-298-98
BOX 15
DEPTH 126 - 135

D-298-98
BOX 17
DEPTH 144_5 - 154

144
D-298-98
BOX 16
DEPTH 135 - 144_5

154
D-298-98
BOX 18
DEPTH 154 - 162

174
D-298-98 BOX 20
DEPTH 171 - 180

164
D-298-98 BOX 19
DEPTH 162 - 171

184
D-298-98 BOX 21
DEPTH 180 - 189.5

D-298-98
BOX 23
DEPTH 199 - 208
204

D-298-98
BOX 22
DEPTH 189_5 - 199
194

D-298-98
BOX 24
DEPTH 208 - 218
214

D-298-98
BOX 26
DEPTH 226 - 235

D-298-98
BOX 25
DEPTH 218 - 226

D-298-98
BOX 27
DEPTH 235 - 244

258
D-298-98 BOX 29
DEPTH 254 - 263

249
D-298-98 BOX 28
DEPTH 244 - 254

D-298-98 BOX 30
DEPTH 263 - 273
268
272

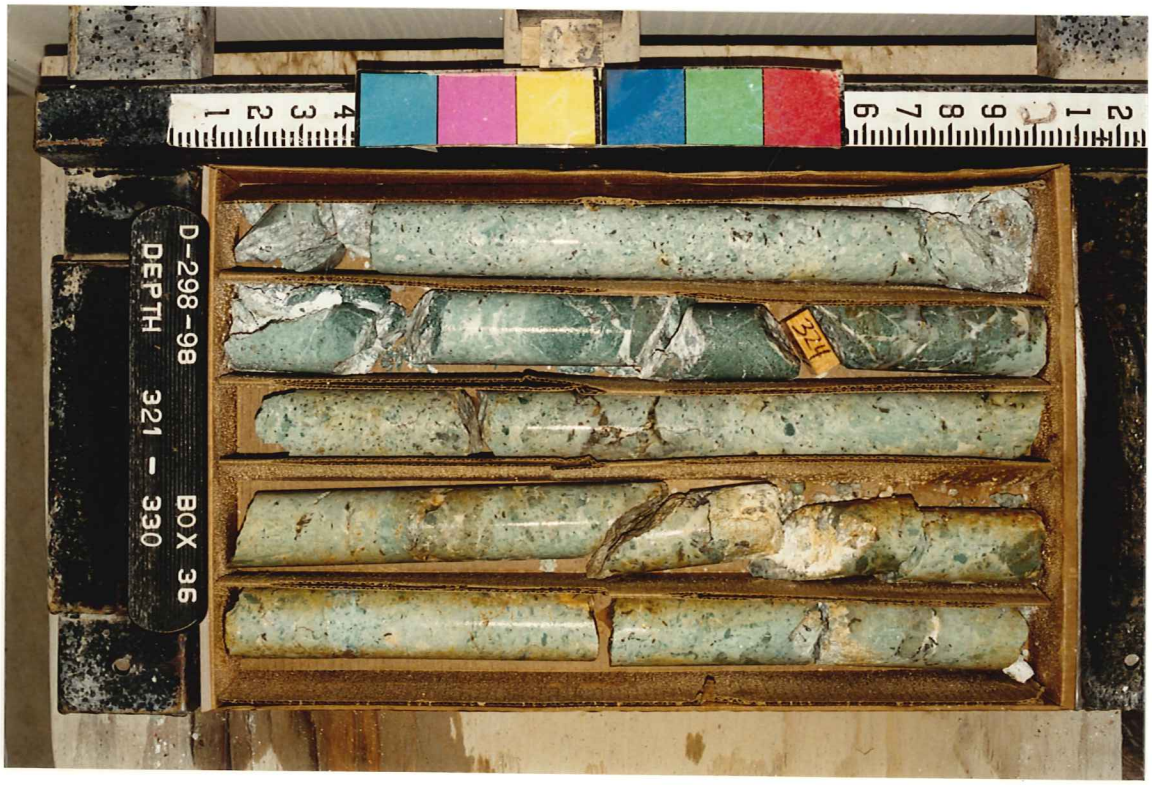
D-298-98
BOX 32
DEPTH 284 - 293_5

277
284
D-298-98
BOX 31
DEPTH 273 - 284

D-298-98
BOX 33
DEPTH 293_5 - 302_5
294

D-298-98 BOX 35
DEPTH 312 - 321
34
320

D-298-98 BOX 34
DEPTH 302_5 - 312
304


D-298-98 BOX 36
DEPTH 321 - 330
324

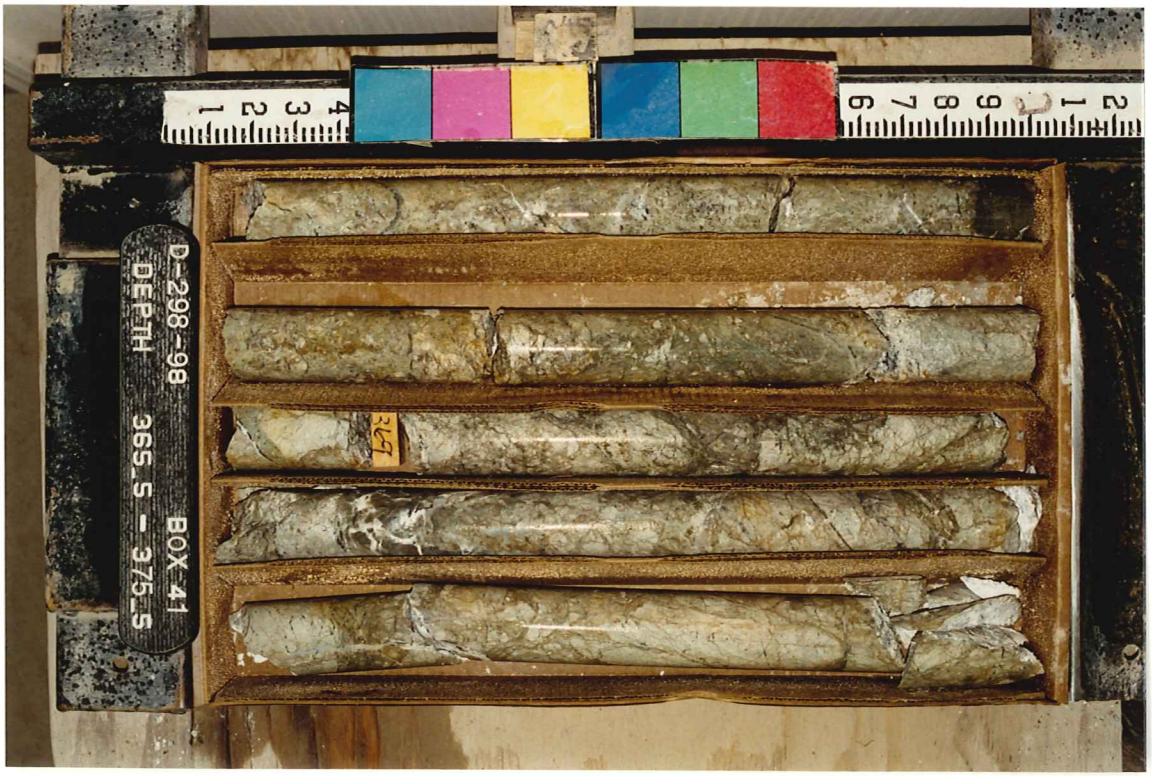
D-298-98
BOX 38
DEPTH 339_5 - 346

D-298-98
BOX 37
DEPTH 330 - 339_5

D-298-98
BOX 38
DEPTH 355_5 - 365_5

359
D-298-98 BOX 40
DEPTH 355_5 - 365_5

351
350
D-298-98 REENTER BOX 38
DEPTH 346 - 355_5


D-298-98 BOX 41
DEPTH 365_5 - 375_5

389
D-298-98
BOX 43
DEPTH 384 - 393

379
D-298-98
BOX 42
DEPTH 375.5 - 384

D-298-98
BOX 44
DEPTH 393 - 396 TD
TD
396