60001151

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. RS-D354-99 |
| AUTHOR | D. Mackerrow; K. Allen; R. Vance |
| DATE OF DOC(S) | 1999 |
| 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.; Newmont Gold Co. |
| COMMODITY<br>If not obvious | gold; silver |
| NOTES | Drill log; geology; assay; photographs; total depth 1477'<br>receipt; handwritten notes; downhole camera images<br>down hole survey; geochemistry<br><br>154p. 7 down hole camera images |

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 5/13/08
Initials Date
DB: mcl
Initials Date
SCANNED: NB
Initials Date

Revised: 1/22/08

RS-D354-99

6000 1151 4010

354

6000 1151

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

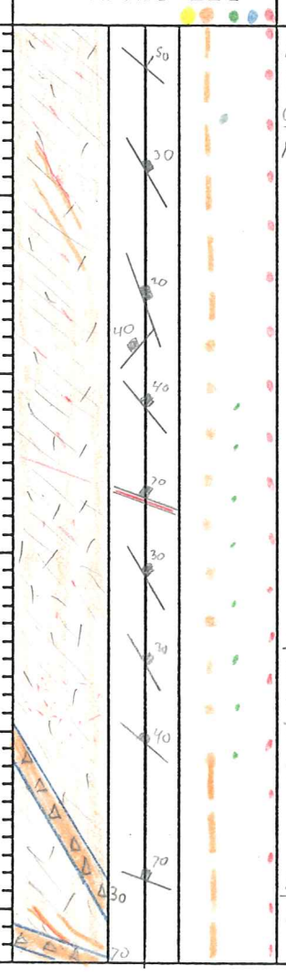
Barite Intensity

**Hecla** MINING COMPANY

# ROSEBUD PROJECT DIAMOND DRILL LOG

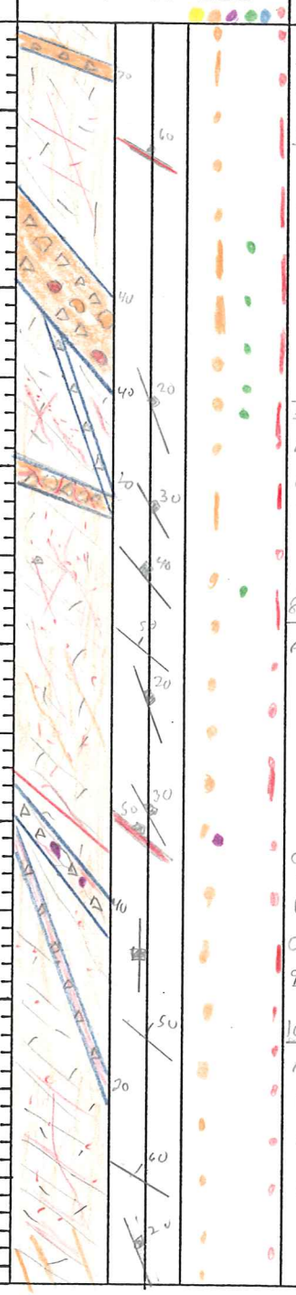
| | | | |
|---|---|---|---|
| HOLE NUMBER | RS-D354-99 | LOCATION | 2300 station |
| PAGE 1 OF 22 | | NORTHING | |
| DATE | 8-9-99 | EASTING | |
| LOGGED BY | D.G. Mackerrow | ELEVATION | |
| SCALE | 1" = 10' | AZIMUTH | N 50 W |
| TOTAL DEPTH | 1477 | INCLINATION | -40 |

REMARKS: Chimney root test

| LITH | OX/RE | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | 0-863.9 DOZER<br>Fine grained rhyolite flow. Phyrite and marcasite sulfides present as veinlets and dissemination. A general argillization has bleached core whitish gray in color. | 10, 20, 30, 40, 50 |  | Faint foliation can be seen in the core. 0-42 MODERATE fracturing.<br>42-52 Heavy fracture zone with fault breccia at 44-46. This rubble breccia is not healed.<br>51.5-52.5 Low angle breccia not healed | Pyrite and phyrite after marcasite dissemination through the core. Coatings on fracture surfaces of "shinny" pyrite.<br>7-17 white clay found on fractures<br>22-42 very faint chloritic stain remains in core but only at trace levels. Color is pale greenish gray |

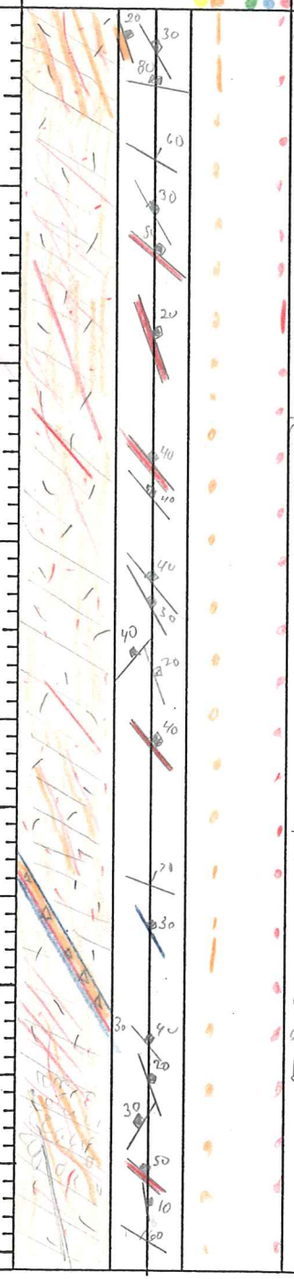
| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 0 | 4 | | | | | |
| 4 | 7 | | | | | |
| 7 | 12 | | | | | |
| 12 | 17 | | | | | |
| 17 | 22 | | | | | |
| 22 | 27 | | | | | |
| 27 | 32 | | | | | |
| 32 | 37 | | | | | |
| 37 | 42 | | | | | |
| 42 | 47 | | | | | |
| 47 | 52 | | | | | |

HOLE NUMBER RS-D354-99 PAGE 2 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | 0-863.9 DOZER<br>Fine grain laminated rhyolite<br>Locally in higher fractured areas core is slightly greener in color. This is faint residual chloritic alteration Pinno 72 white clay<br>102.2 - 103 High angle breccia with Black carbon in matrix. This looks similar to stope 12 but it does not have the black bladded marcasite<br>110 - 124 fractures with kaolinite and pyrite | 50<br>60<br>70<br>80<br>90<br>100<br>110<br>120 |  | 51-62 moderate fracturing<br>62.5 - 67.7 Variable intensity breccia healed partially by clay<br>75.5-77 CRACKLE BRECCIA with white clay on fractures<br>85.6 - 92 High angle fractures with white clay at 20°tca<br>94-96 Healed fracturing approaching crackle Bxx texture<br>96 - 98 MOSAIC Breccia<br>102.2-103 Healed rubble Bxx with subangular clast with sulfid rich matrix | 52-62 pyrite vein with marcasite<br>65 Pyrite agglomeration in fault zone<br>75.5-77 Pyrite with marcasite heal crackle bxx. Pyrite is partially covered with a silvery coating.<br>96.5 Barite crystals in open vug<br>102.2-103 sulfide/carbon breccia matrix<br>116 - 124.5 Thick coatings of kaolinite in fracture zone |

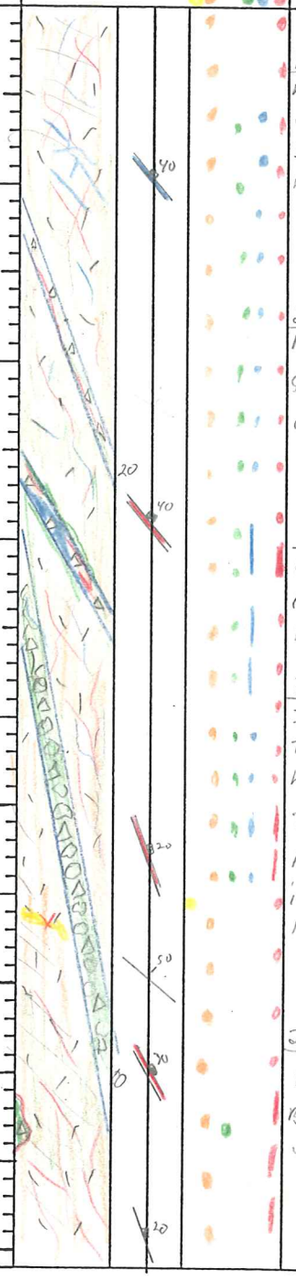
| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 52 | 57 | | | | | |
| 57 | 62.5 | | | | | |
| 62.5 | 67.7 | | | | | |
| 67.7 | 72 | | | | | |
| 72 | 75.5 | | | | | |
| 75.5 | 77 | | | | | |
| 77 | 82 | | | | | |
| 82 | 84 | | | | | |
| 84 | 85.6 | | | | | |
| 85.6 | 89 | | | | | |
| 89 | 92 | | | | | |
| 92 | 96 | | | | | |
| 96 | 98 | | | | | |
| 98 | 102 | | | | | |
| 102 | 103 | | | | | |
| 103 | 107 | | | | | |
| 107 | 112 | | | | | |
| 112 | 117 | | | | | |
| 117 | 120 | | | | | |

HOLE NUMBER RS-D354-99 PAGE 3 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | 0-863.9 DOZER<br>Pina 120.5 kaolinite<br>Fine grained rhyolite flow continues. General argillization continues. Color is pale gray with local trace chloritic green.<br>180-186 weak auto breccia texture | 120<br>130<br>140<br>150<br>160<br>170<br>180<br>190 |  | Moderate fracturing continues with local intense fractured faults. Foliation of flow 60° tca<br>116-124 Fracture swarm filled with kaolinite<br>155-162 High angle (20° tca) fracture zone<br>175-177 40° tca fracture zone.<br>172-173.5 Volcanic clay healed fault. Breccia clast are subrounded. Sulfides darken footwall surface | Pyrite and pyrite marcasite continues as disseminations and veinlets.<br>114-142 Pyrite in veinlets disseminate from the vein into surrounding rock<br>116-124 Marcasite blades in the white clay of fracture zone<br>142- sulfide content decrease slightly<br>175-177 Pyrite veins on fracture surface. |

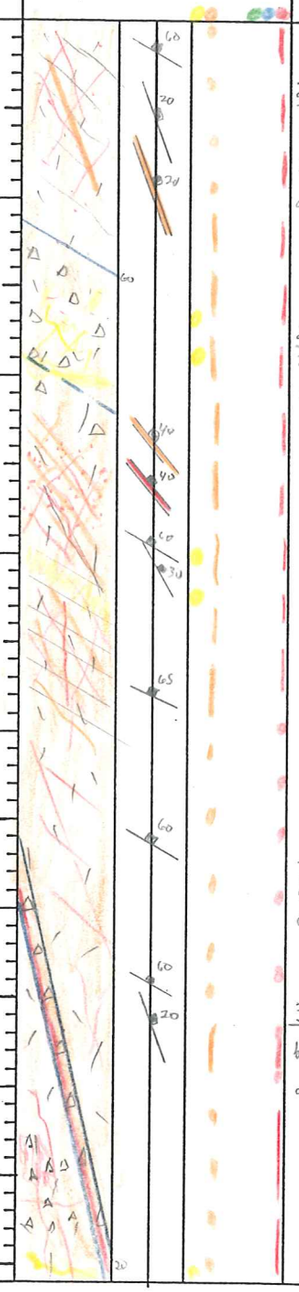
| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 120 | 124 | | | | | |
| 124 | 127 | | | | | |
| 127 | 132 | | | | | |
| 132 | 134.5 | | | | | |
| 134.5 | 137 | | | | | |
| 137 | 142 | | | | | |
| 142 | 147 | | | | | |
| 147 | 152 | | | | | |
| 152 | 157 | | | | | |
| 157 | 162 | | | | | |
| 162 | 167 | | | | | |
| 167 | 172 | | | | | |
| 172 | 173.5 | | | | | |
| 173.5 | 177 | | | | | |
| 177 | 182 | | | | | |
| 182 | 187 | | | | | |
| 187 | 192 | | | | | |

HOLE NUMBER RS-D354-99 PAGE 4 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| TD | R | 0-863.9 DOZER<br>Fine grained rhyolite continues. Weak internal foliation present as flow lamination.<br>200-240 Flow is generally massive in nature<br>242 Foliation of 50° tca below fracture zone<br>Pina 255 – white clay | 190<br>200<br>210<br>220<br>230<br>240<br>250<br>260 |  | 196.3 – 196.7 Narrow shear zone with dark fine sulfide in volcanic matrix.<br>207.9 – 209.5 High angle healed shear with mosaic and crackle Bxa<br>220 – 221.5 Calcite flooded fracture/crackle breccia zone<br>221.5 – 239 Increasing fracturing to the point of a healed crackle Breccia. There is a sharp fault plane at 239. This is a very steep shear at 10° tca<br>253 Core has a 1' zone of ⅓ breccia. Breccia has a sulfide vein boarder. | 196.8 calcite veins first appearance in the hole.<br>197-239 Chloritic alteration in the hanging wall of fault plane found at 239<br>215-220 Pyrite after marcasite in disseminate micro blebs<br>239 Calcite on fracture stops.<br>241.7 Bladded marcasite crystal on fracture surface, with traces of silica.<br>245-255 Traces of chlorite on fracture<br>254 – Sulfide veins increase to a moderate level with white clay associated with it |

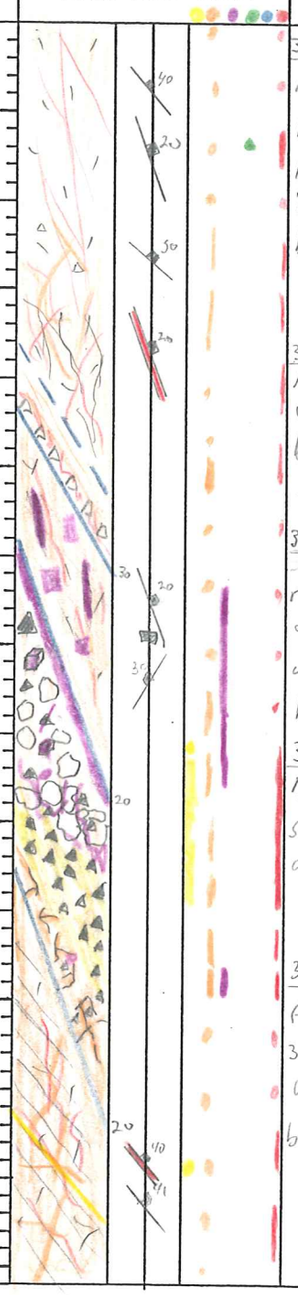
| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 192 | 197 | | | | | |
| 197 | 202 | | | | | |
| 202 | 207 | | | | | |
| 207 | 212 | | | | | |
| 212 | 217 | | | | | |
| 217 | 222 | | | | | |
| 222 | 227 | | | | | |
| 227 | 232 | | | | | |
| 232 | 237 | | | | | |
| 237 | 239 | | | | | |
| 239 | 242 | | | | | |
| 242 | 247 | | | | | |
| 247 | 252 | | | | | |
| 252 | 257 | | | | | |
| 257 | 262 | | | | | |

HOLE NUMBER RS-D354-99 PAGE 5 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | 0-863.9 **DOZER**<br>Flow banded fine grained rhyolite. Pyrite/marcasite veinlets at moderate levels. Kaolinite on fractures and open spaces.<br>Pin @ 278 white clay kaolinite<br>329 A low angle fracture pattern begins to dominate with higher levels of sulfide on this 10-200 tcu fracture | 260<br>270<br>280<br>290<br>300<br>310<br>320<br>330 |  | 272.8-280 combined breccia and fracture zone, Breccia may be a internal breccia.<br>284.1-286 Fracture zone with white clay coating<br>317-320 High angle breccia with pyrite on footwall 20°TCA<br>323.7 Breccia healed by pyrite/marcasite on irregular vein | 269 Bladed marcasite growing on quartz veins<br>272.8-279.7 Traces of silica form spotty silicification.<br>282-297 15% disseminated sulfide consisting of pyrite after marcasite<br>323.4-327 Pyrite veins up to 1/4" thick, open vugs increasing |

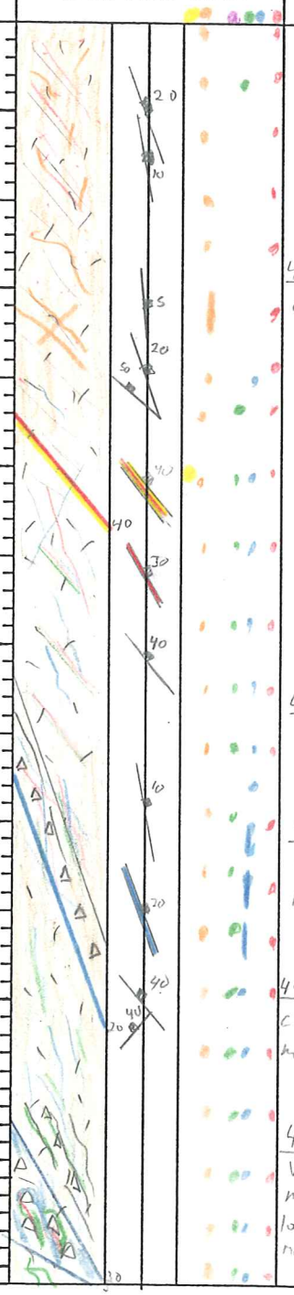
| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 262 | 264.4 | | | | | |
| 264.4 | 267 | | | | | |
| 267 | 267.1 | | | | | |
| 269.1 | 272.8 | | | | | |
| 272.8 | 277 | | | | | |
| 277 | 279.7 | | | | | |
| 279.7 | 284.1 | | | | | |
| 284.1 | 286 | | | | | |
| 286 | 288.5 | | | | | |
| 288.5 | 292 | | | | | |
| 292 | 297 | | | | | |
| 297 | 302 | | | | | |
| 302 | 307 | | | | | |
| 307 | 312 | | | | | |
| 312 | 317 | | | | | |
| 317 | 320.7 | | | | | |
| 320.7 | 323.4 | | | | | |
| 323.4 | 327 | | | | | |
| 327 | 331 | | | | | |

HOLE NUMBER RS-D354-99 PAGE 6 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | 0-363.7 DOZER<br>Fine grained rhyolite continued, Argillization varies across each lamination in the flow<br>337-387 Fracture zone with a core fault zone containing elevated sulfide, clay and barite.<br>366.5-384.7 Main fault zone is high angle at 20° tca. Barite and silicification prevalent.<br>Pine 375 white clay<br>394-395 Pyrite healed Breccia zone with veins of py and white clay 30° tca, main shear is 1" wide at 394.6 | 330<br>340<br>350<br>360<br>370<br>380<br>390<br>400 |  | 337 - INCREASING Fracturing in hanging wall of fault zone, Fracturing increases to crackle breccia intensity<br>352.5-356.2 Fault zone hanging wall is gradational but foot wall is sharp<br>363-366.5 core becomes rubble because of open vugs that are being fille by barite.<br>366.5-384.6 Fault Breccia healed with silica pyrite/marcasite and white clay<br>382-384 Crackle Breccia footwall<br>384-384.6 MOSAIC BXX with small amount of barite on fractures | 337.3 1/8" pyrite crystals on fractures with chlorite on the fractures<br>342.5 white clay increases to moderate levels filling even vugs along fractures<br>From 363 Barite crystals up to 1" in diameter<br>371-379.9 Silicification in the central core of fault zone is moderate to heavy<br>379 Fragments of chlorite veinlet in the breccia matrix<br>384.7-397 Pyrite disseminates out of veinlets and fractures up to 1/2" |

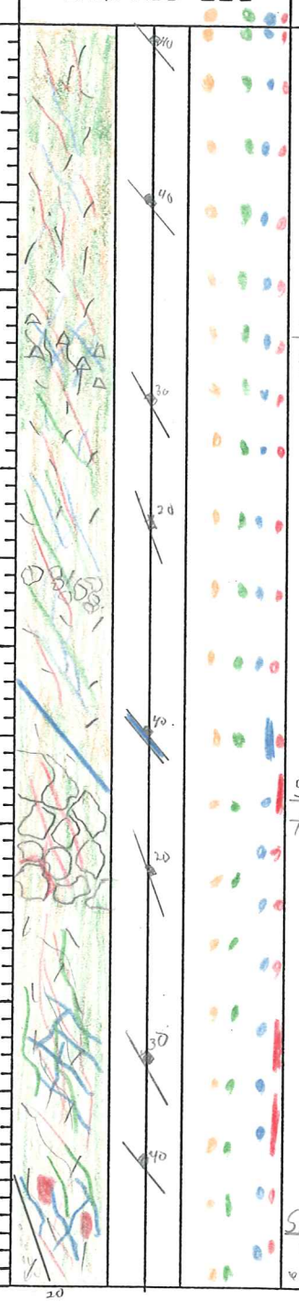
| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 331 | 334 | | | | | |
| 334 | 337 | | | | | |
| 337 | 342 | | | | | |
| 342 | 347 | | | | | |
| 347 | 352 | | | | | |
| 352 | 354.5 | | | | | |
| 354.5 | 356.2 | | | | | |
| 356.2 | 359 | | | | | |
| 359 | 362 | | | | | |
| 362 | 367 | | .019 | | | |
| 367 | 371 | | | | | |
| 374.5 | 374.5 | | | | | |
| 374.5 | 379.9 | | | | | |
| 379.9 | 384.7 | | | | | |
| 384.7 | 387 | | | | | |
| 387 | 392 | | | | | |
| 392 | 397 | | | | | |
| 397 | 402 | | | | | |

HOLE NUMBER RS-D354-99 PAGE 7 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | 0-863.9 DOZER<br><br>Fine grained rhyolite flow contact. Light to medium gray. Faint green tint present when chlorite and chloritic alteration is still present. Pink 416 white clay<br>Fine disseminate pyrite and pyrite after marcasite is present at 1-2% levels.<br><br>420 Flow looks more massive in nature. There is increased chloritic alteration staining the core faint green. | 400<br>410<br>420<br>430<br>440<br>450<br>460<br>470 |  | 409 Faint lamination at 40° tca<br><br>440 60° tca oblique slips on 10° tca fx<br><br>445 10° tca fracture with chlorite, pyrite and calcite<br><br>444 - 450 Variable crackle bxa and mosaic breccias.<br><br>464 - 470.5 Variable crackle to mosaic breccia. This look like a internal bxa mosaic bxa 466 | 402-407 Faint chlorite on fracture surfaces<br><br>400-422 Faint brown hematite stain disseminating for 10% of the fracture.<br>415 - Disseminated pyrite/marc <1%<br><br>416 Heavy white clay (kaolinite) on fracture zone<br><br>420 - chloritic alteration increases. from trace to low levels. Higher concentrations on this fracture. Calcite also begins to be found on fractures from 420<br><br>421 - 442 white clay decreases to trace levels at a maximum<br><br>425 1" pyrite and silica vein traces of calcite.<br><br>450 1" calcite vein @20° tca |

| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 402 | 407 | | | | | |
| 407 | 412 | | | | | |
| 412 | 417 | | | | | |
| 417 | 422 | | | | | |
| 422 | 427 | | | | | |
| 427 | 432 | | | | | |
| 432 | 437 | | | | | |
| 437 | 442 | | | | | |
| 442 | 447 | | | | | |
| 447 | 452 | | | | | |
| 452 | 457 | | | | | |
| 457 | 462 | | | | | |
| 462 | 467 | | | | | |
| 462 | 472 | | | | | |

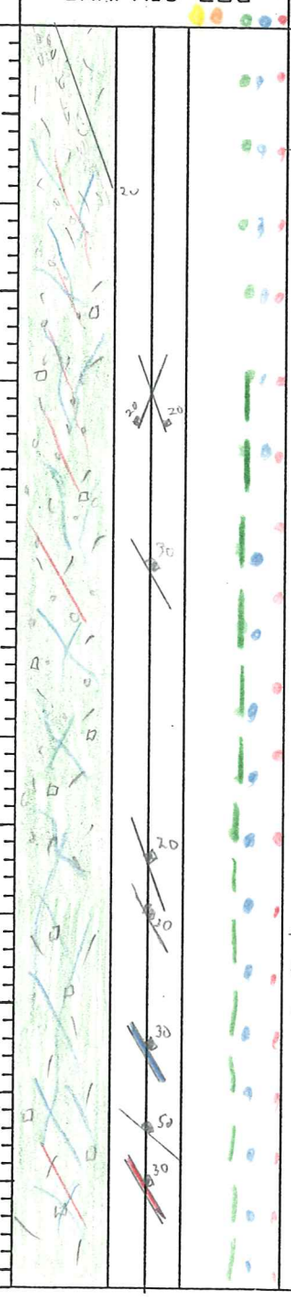
HOLE NUMBER RS-D354-99 PAGE 8 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | 0-863.9 DOZER<br>Fine grained rhyolite flow continues. Pale greenish/whitish gray in color<br>542 20° tca flow boundary<br>Vesicular flow grading into porphyry. | 470<br>480<br>490<br>500<br>510<br>520<br>530<br>540 |  | 487-489 Crackle Bxa<br>511-519 Auto breccia texture<br>540.5-542 Hi calcite content above flow boundary | 450 General increase in chloritic alt. Dark green chlorite of fracture surfaces. Argillic alteration decreases but remains at least at trace level<br>510 Large 2" calcite vein |

ANALYTICAL DATA

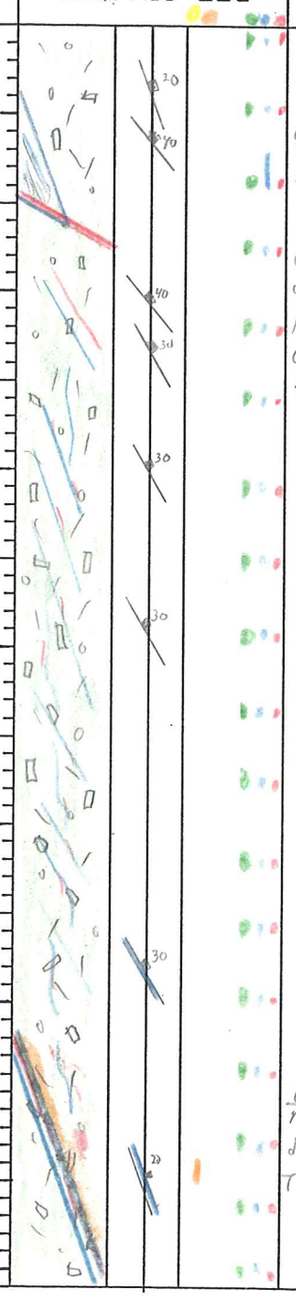
| FROM | TO | W | Au | Ag | Au2 | A |
|---|---|---|---|---|---|---|
| 472 | 477 | | | | | |
| 477 | 482 | | | | | |
| 482 | 487 | | | | | |
| 487 | 492 | | | | | |
| 492 | 497 | | | | | |
| 497 | 502 | | | | | |
| 502 | 507 | | | | | |
| 507 | 512 | | | | | |
| 512 | 517 | | | | | |
| 517 | 522 | | | | | |
| 522 | 527 | | | | | |
| 527 | 532 | | | | | |
| 532 | 537 | | | | | |
| 537 | 542 | | | | | |

HOLE NUMBER RS-0354-99 PAGE 9 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| TD | R | 0-863.9 DOZER<br>Pin 542 Boundary on contact<br>Fine grained rhyolite continues to 542.<br>542 Flow boundary with vesicular flow below boundary. Vesicals align in a general lamination. This flow could form leopard skin if altered. Chlorite has filled in vesicals. Core has darker mafic magma masses. Core becomes porphoritic. Portion of core have 15-20° fenocrysts. 542 was boundary of this porphoritic Dozer flow | 540<br>550<br>560<br>570<br>580<br>590<br>600<br>610 |  | 542 Oblique slips 5° tca<br>598 30° tca fracture filled with calcite. Oblique slips 70° tca | 542- Sulfide levels decrease and are restricted predominately to veinlets<br>560- Moderate levels of chlorite through the porphoritic flow |

| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 542 | 547 | | | | | |
| 547 | 552 | | | | | |
| 552 | 557 | | | | | |
| 557 | 562 | | | | | |
| 562 | 567 | | | | | |
| 567 | 572 | | | | | |
| 572 | 577 | | | | | |
| 577 | 582 | | | | | |
| 582 | 587 | | | | | |
| 587 | 592 | | | | | |
| 592 | 597 | | | | | |
| 597 | 602 | | | | | |
| 602 | 607 | | | | | |
| 607 | 612 | | | | | |

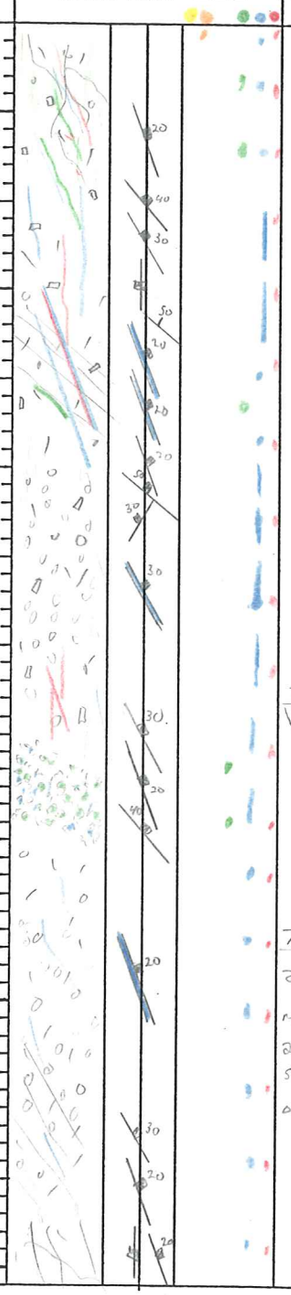
HOLE NUMBER RS-D354-99 PAGE 10 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | DOZER ?<br><br>Porphoritic flow. continues very distinctive mafic magma blobs.<br><br>605–652 Dark irregular blobs in flow up to 3 % | 610<br>620<br>630<br>640<br>650<br>660<br>670<br>680 |  | 620.7 – 621.5<br>Shear zone with hanging wall plane at 20° tcu. with oblique slip 40° tcu Footwall surface is 60° tcu with slips 20° tcu<br><br>673.5–674.9<br>Mosaic Breccia with dark sulfide on The footwall surface | 621.5 Foot wall surface has 1" of elevated dark fine pyrite. Shear zone is calcite cemented<br><br>646 Pyrite after marcasite in calcite Vein<br><br>666-667 pyrite after marcasite in calcite vein<br><br>616 – 637 Pyrrhotite on some fractures through is area. Heaviest concentration at 624<br><br>675.5 – Calcite vein 20° tcu |

ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 | |
|---|---|---|---|---|---|---|
| 612 | 617 | | | | | |
| 617 | 622 | | | | | |
| 622 | 627 | | | | | |
| 627 | 632 | | | | | |
| 632 | 637 | | | | | |
| 637 | 642 | | | | | |
| 642 | 647 | | | | | |
| 647 | 652 | | | | | |
| 652 | 657 | | | | | |
| 657 | 662 | | | | | |
| 662 | 667 | | | | | |
| 667 | 672 | | | | | |
| 672 | 677 | | | | | |
| 677 | 682 | | | | | |

HOLE NUMBER RS-D354-99 PAGE 11 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | DOZER?<br><br>From 682 phenocrysts are small but mafic blobs continue and can contain their own phenocrysts<br><br>696-697 Flow banding<br><br>705-760 Porphyry begin to be faintly calcareous with a slow increase in intensity Then decreases by 760<br><br>721.5 - 725 vesicular texture and porphritic texture to 732<br><br>732 - 786 mafic magma blob but with less phenocrysts Flow is much more fine grained<br><br>741 - 30° tcu flow banding<br><br>697 - 722 Fine grained flow with mafic magma blobs, seems like less phenocrysts<br><br>Pine Growsyck 750 | 680<br>690<br>700<br>710<br>720<br>730<br>740<br>750 |  | 718 off set fractures with pyrrhotite<br>sulfide<br>sulfide/calcite<br><br>745 - 757.5 Fracture zone with 30° tcu main orientation and 20° tcu. Surfaces show multiple slip orientations | 692 - 699.5 Series of calcite veins at 20° tcu with sulfide masses in the calcite. Pyrite after marcasite veins<br><br>678 - 680 slight bleaching from argillization<br><br>717 - 720 Pyrrhotite on fractures<br><br>739 - 741.5 pyrrhotite in veinlets. |

ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 | F |
|---|---|---|---|---|---|---|
| 682 | 687 | | | | | |
| 687 | 692 | | | | | |
| 692 | 697 | | | | | |
| 697 | 702 | | | | | |
| 702 | 707 | | | | | |
| 707 | 712 | | | | | |
| 712 | 717 | | | | | |
| 717 | 722 | | | | | |
| 722 | 727 | | | | | |
| 727 | 732 | | | | | |
| 732 | 737 | | | | | |
| 737 | 742 | | | | | |
| 742 | 747 | | | | | |
| 747 | 752 | | | | | |

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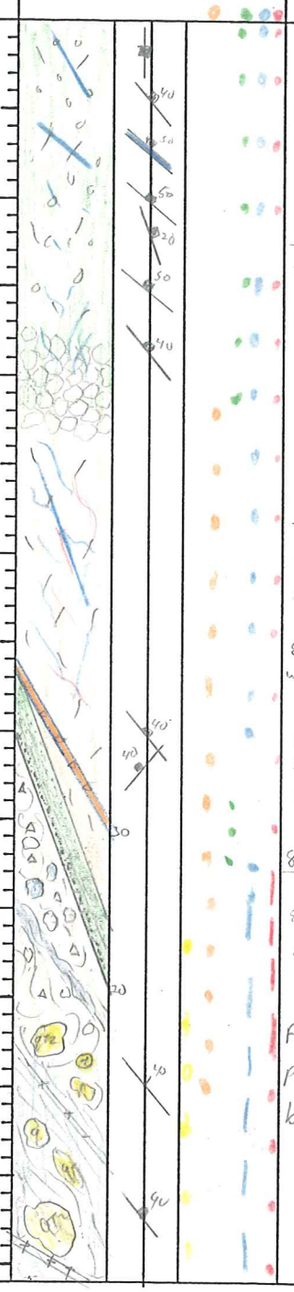
| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION | ANALYTICAL DATA FROM | TO | W | Au | Ag | Au2 | A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TH | R | 0-863.4 DOZER ? | | | | | | | | | | | |
| | | Porphoritic flow with mafic magma blobs up to 10% Locally short intervals of vesicles. | | | | 761-767 moderate chloritic alteration along high angle fracture | 752 | 757 | | | | | |
| | | | | | | | 757 | 762 | | | | | |
| | | | | | | 767- Argillization lightens core color to pale greenish white | 762 | 767 | | | | | |
| | | | | | | | 767 | 772 | | | | | |
| | | | | | | 773 pyrrhotite on fracture as small crystal masses | 772 | 777 | | | | | |
| | | | | | 782 weak flow banding | 776.5 Pyrrhotite on fracture | 777 | 782 | | | | | |
| | | 787-790 Auto breccia clast contain vesicules with chlorite fillings | | | | | 782 | 787 | | | | | |
| | | | | | 787-790 Auto brecciated texture | 797 pyrrhotite on fractures | 787 | 792 | | | | | |
| | | 795-801 vesicular texture | | | | | 792 | 797 | | | | | |
| | | 802.5-805 1-3mm phenocryst replaced by chlorite | | | | 816-818 pyrrhotite on fracture as individual crystals | 797 | 802 | | | | | |
| | | | | | | | 802 | 807 | | | | | |
| | | 812-832 vesicular texture | | | 818-824 moderate fractures | | 807 | 812 | | | | | |
| | | | | | 824-830 low level fracturing | | 812 | 817 | | | | | |
| | | | | | | | 817 | 822 | | | | | |

HOLE NUMBER RS-D354-99 PAGE 13 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| Td | R | 0-863.9 DOZER<br>Fine grained to porphyritic flow with mafic "magma blobs" continues.<br>837 - core becomes aphanitic<br>Faint autobreccia texture begins and continues to 843<br>860.7-861.3 shear zone where Dozer is highly argillized.<br>Pima 862.5 white clay | 820<br>830<br>840<br>850<br>860<br>870<br>880<br>890 |  | 837-843 Autobreccia texture<br>849 20° tca fracture with calcite on the surface<br>854 1.4 shear 60° tca with oblique slips 50° tca<br>860.7-861.3 SHEAR ZONE of Highly argillized Td<br>863.9 contact is 20° tca<br>867.8 contact with ALS. 20° tca<br>From 877 shale begins to Part on graphitic bedding surface | 840.5 Well defined blades of pyrite after marcasite in calcite vein<br>842-863.9 Light argillization bleaches the core very light greenish white.<br>842-863.9 Pyrite primarily restricted to veinlets<br>857 pyrrhotite crystal on fx. |
| TCS | | 863.9-867.8 T.C.S. EPICLASTIC MUDSTONE AND SANDSTONE<br>Course ss has ALS clast | | | | |
| ALS | | 867.8-1477 ALS. PHILLITIC SHALE AND SILTSTONE<br>Black and dark gray phillitic shale and siltstone. Bedding is brecciated and disrupted. Fragments of quartz vein and siltstone in shale matrix. Pyrite is up to 5% and is disseminated in the matrix<br>Traces of fine grained intrusive following bedding but only ½" thick at 860 | | | | 867.8-872 Argillized matrix with calcareous clast of siltstone and shale<br>871-895 Large clast of quartz/calcite masses in disrupted bedding |

ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 | F |
|---|---|---|---|---|---|---|
| 822 | 827 | | | | | |
| 827 | 832 | | | | | |
| 832 | 837 | | | | | |
| 837 | 842 | | | | | |
| 842 | 847 | | | | | |
| 847 | 852 | | | | | |
| 852 | 857 | | | | | |
| 857 | 860.5 | | | | | |
| 860.5 | 863.9 | | | | | |
| 863.9 | 867.8 | | | | | |
| 867.8 | 872 | | | | | |
| 872 | 877 | | | | | |
| 877 | 882 | | | | | |
| 882 | 887 | | | | | |
| 887 | 892 | | | | | |

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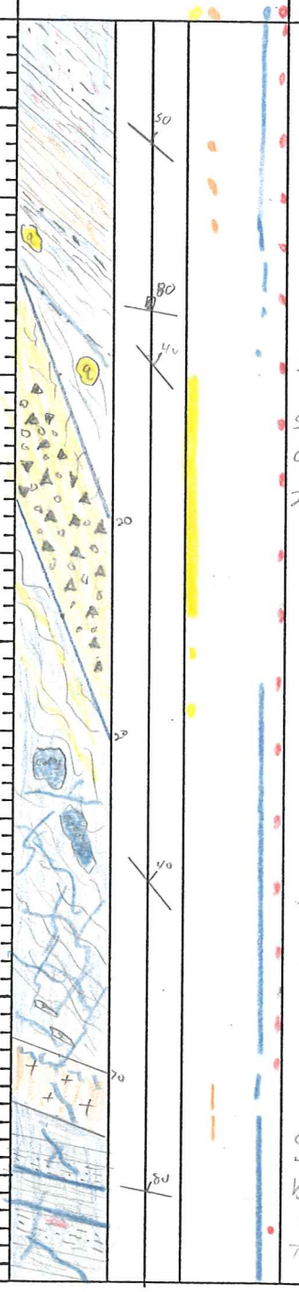
| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| ALS | R | 863.9-1477 ALS. PHILLITIC SHALE AND SILTSTONE<br><br>Phillitic shales continues. Shale is generally calcareous to 817 Ft. Core become calcareous again by 901.5<br><br>Silicification displaces carbonate at 909<br><br>910-923.7 Highly silicified breccia zone. White qtz supports Angular to sub rounded clast. Interval is highly solution channeled. This interval caused heavy mud lost during drilling. Channels are highly inter connected. Hanging wall grades into higher intensity breccia.<br><br>944-945.8 4 1-2" Intrusive intervals following bedding<br><br>948.4-951.8 Fine grained Intrusive weakly argillize Whitish Gray (DOZEN LARGER APPEARANCE)<br><br>Bedding lamination from 1-3 cm | 890<br>900<br>910<br>920<br>930<br>940<br>950<br>960 |  | 910-923.7 Fault Zone Solution Cavities Oriented 40° tca 20° tca<br><br>951.8 Bedding become highly regular and flat to core axis 80° | 897-901 core is argillized and is friable<br><br>910-923.7 Sulfide content is Pyrite and pyrite after marcasite. Sulfide content is not significantly elevated as expected no more than 1% present<br><br>948.4-951.8 Fine disseminated Pyrite ≤ .5%<br><br>951.8 Sulfide < 1% Sulfide is very fine and syngenetic in nature |

| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | F |
| 892 | 897 | | | | | |
| 897 | 902 | | | | | |
| 902 | 907 | | | | | |
| 907 | 910 | | | | | |
| 910 | 912 | | | | | |
| 912 | 917 | | | | | |
| 917 | 922 | | | | | |
| 922 | 923.7 | | | | | |
| 923.7 | 927 | | | | | |
| 927 | 932 | | | | | |
| 932 | 937 | | | | | |
| 937 | 942 | | | | | |
| 942 | 947 | | | | | |
| 947 | 948.4 | | | | | |
| 948.4 | 951.8 | | | | | |
| 951.8 | 957 | | | | | |
| 957 | 962 | | | | | |

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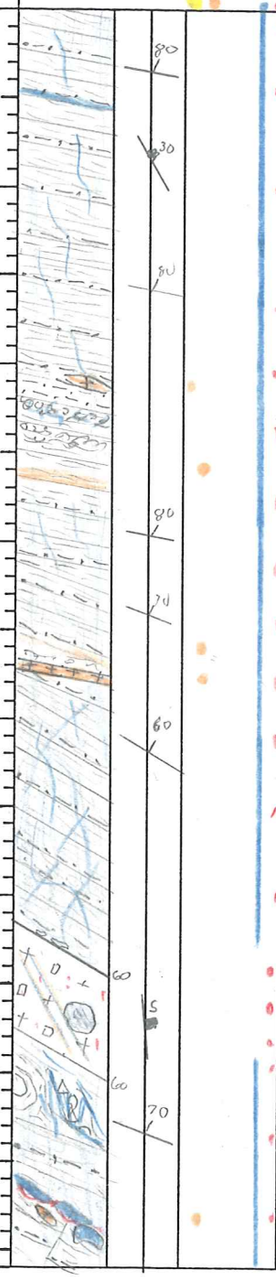
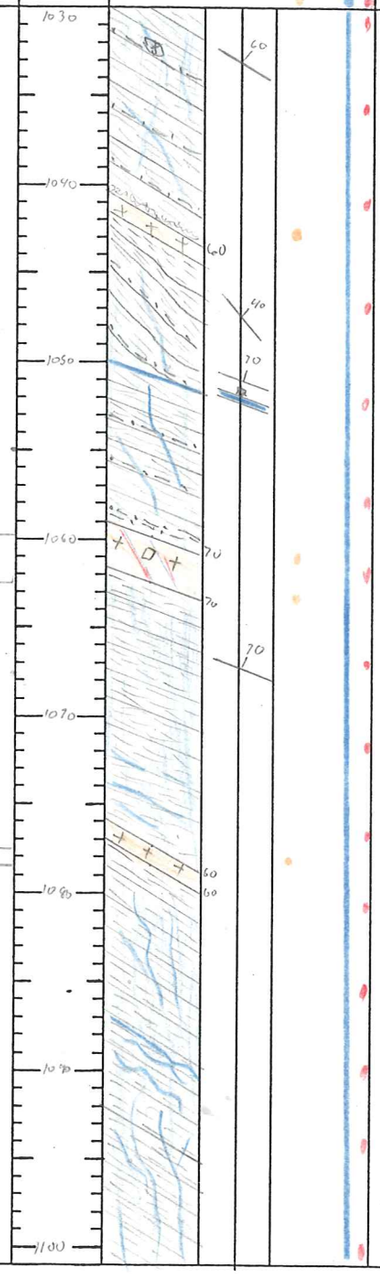
| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION | ANALYTICAL DATA FROM | TO | W | Au | Ag | Au2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALS. | R | 863.9-1477 A.L.S PHILLITIC SHALE AND SILTSTONE<br>Fine grained black shale continues. Interbbed medium gray siltstones derived from reworked tuffaceous material 1-2mm average bed thickness<br>Frequent of mafic fine grained intrusive cross cut bedding. Intrusive are gray white in color.<br>Bedding surfaces coated in graphite.<br>Very fine disseminated pyrite at <1% of shale. Pyrite appears syngenetic.<br>997.2 - 997.6 Greenish gray intrusive Fine grained and argillized<br>1013 - 1019 Porphoritic mafic Intrusive Euhedral phenocryst with occasional bladed phenos. Very weak bleaching gives the core a bluish coloring<br>1028.2-1028.3 Fine grine sheared intrusive | 960<br>970<br>980<br>990<br>1000<br>1010<br>1020<br>1030 |  | Bedding is uniform and perpendicular to core axis Soft sediment deformation<br>974 Deformed siltstone bed.<br>980 Intrusive 1" thick following bedding deformed along 30° to core fracture<br>1013-1019 Contact 60° to c.a. minor disruption of ALS. along the contact Lower contact at 60° to c.a. High angle fracture with white clay | Calcite veinlets are numerous. They are generally high angle to core axis. Calcite forms up to 3" thick masses<br>976 Crystalline calcite on surfaces of small vug.<br>986-987 moderate argillization<br>1027-1028 Partially decalcified shale with calcite masses surrounding leach rock pyrite ≈1% and concentrate along remenant bedding | 962 | 967 | | | | |
| | | | | | | | 967 | 972 | | | | |
| | | | | | | | 972 | 977 | | | | |
| | | | | | | | 977 | 982 | | | | |
| | | | | | | | 982 | 987 | | | | |
| | | | | | | | 987 | 992 | | | | |
| | | | | | | | 992 | 997 | | | | |
| | | | | | | | 997 | 1002 | | | | |
| | | | | | | | 1002 | 1007 | | | | |
| | | | | | | | 1007 | 1013 | | | | |
| | | | | | | | 1013 | 1017 | | | | |
| | | | | | | | 1017 | 1019 | | | | |
| | | | | | | | 1019 | 1022 | | | | |
| | | | | | | | 1022 | 1027 | | | | |
| | | | | | | | 1027 | 1032 | | | | |

HOLE NUMBER - RS-0354-99 PAGE 16 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| ALS | R | 863.9 - 1477 ALS. PHILLITIC SHALE AND SILSTONES. | | | | |
| | | ALS. continues as before | | | | |
| | | 1032 - 1032.2 F.G.I. | | | | |
| | | 1042 - 1043 F.G.I | | | | |
| | | | | | | 1050 1" Bedded calcite |
| | | 1059.9 - 1062.6 Porphoritic Intrusive | | | | |
| | | | | | | 1078.6 - 1092 Very heavy calcite veining |
| | | | | | | 1105 - 1108 Heavy calcite |
| | | 1077.6 - 1078.6 F.G.I. | | | | |




ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 |
|---|---|---|---|---|---|
| 1032 | 1037 | | | | |
| 1037 | 1042 | | | | |
| 1042 | 1047 | | | | |
| 1047 | 1052 | | | | |
| 1052 | 1057 | | | | |
| 1057 | 1059.9 | | | | |
| 1059.9 | 1062.6 | | | | |
| 1062.6 | 1067 | | | | |
| 1067 | 1068.5 | | | | |
| 1068.5 | 1070.2 | | | | |
| 1070.2 | 1074 | | | | |
| 1074 | 1077.6 | | | | |
| 1077.6 | 1078.6 | | | | |
| 1078.6 | 1082 | | | | |
| 1082 | 1087 | | | | |
| 1087 | 1092 | | | | |
| 1092 | 1097 | | | | |
| 1097 | 1102 | | | | |

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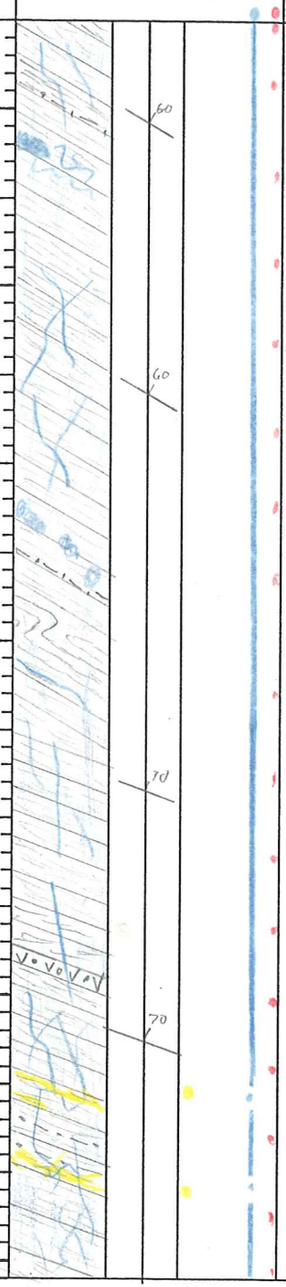
| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| ALS. | R | 863.9 – 1477 ALS PHILLITIC SHALE AND SILTSTONE<br><br>Calcareous shale and siltstone continues. Pyrite is generally only syngenetic.<br>Polished graphitic bedding Parting.<br><br>1153.2 – 1154.2 medium grained tuffaceous bed | 1100<br>1110<br>1120<br>1130<br>1140<br>1150<br>1160<br>1170 |  | Minimal fractureing Rock parts along bedding | Very minimal pyrite at <.5% and all syngenetic<br><br>1150 Large calcite vein with ¼" crystal on the open fracture<br><br>1162.5 – 1164.5 Calcite / qtz stockwork<br><br>1159.8 1164.8 QTZ veining and 1-2% disseminated pyrite |

| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 1102 | 1107 | | | | | |
| 1107 | 1112 | | | | | |
| 1112 | 1117 | | | | | |
| 1117 | 1122 | | | | | |
| 1122 | 1127 | | | | | |
| 1127 | 1132 | | | | | |
| 1132 | 1137 | | | | | |
| 1137 | 1142 | | | | | |
| 1142 | 1147 | | | | | |
| 1147 | 1152 | | | | | |
| 1152 | 1157 | | | | | |
| 1157 | 1159.8 | | | | | |
| 1159.8 | 1164.8 | | | | | |
| 1164.8 | 1167 | | | | | |
| 1167 | 1172 | | | | | |

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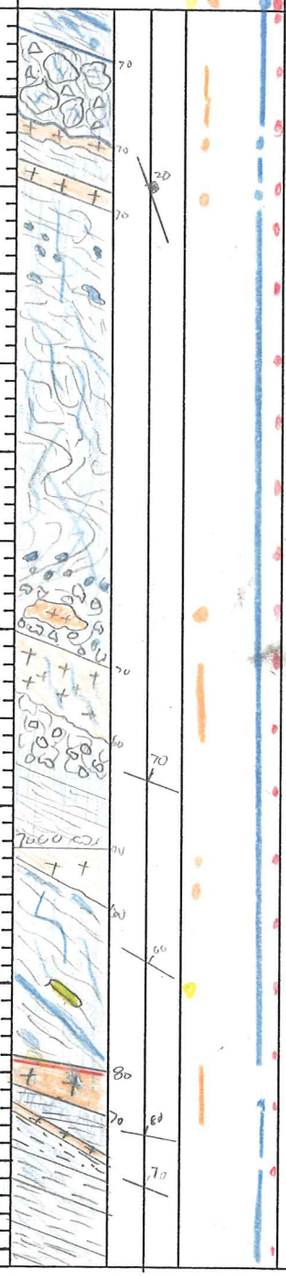
| LITH. | OX/RED. | | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|---|
| ALS | R | 863.9<br>1477 | ALS. PHILLITIC SHALES SILTSTONE AND TUFFS<br><br>Calcareous Phillitic fine grained Shale and siltstone continue Rare tuffaceous interbedds. Fine grained and porphoritic Intrusive Present<br><br>1206.2 - 1210.1 Fine grained Intrusive<br><br>1217.4 - 1219.2 Fine grained Intrusive<br><br>1229.5 - 1231.6 Moderately altered Fine grain Intrusive<br><br>1233 - 1233.6 F.G.I. | 1170<br>1180<br>1190<br>1200<br>1210<br>1220<br>1230<br>1240 |  | 1172 - 1176.5<br>Brecciated in hanging wall of intrusion Breccia is milled with high expansion and rotation<br><br>1180.6 - 1204.2<br>Bedding is moderately to highly disrupted between the two intrusion<br><br>1199 Nose of a fold with 1' axis | 1225 - 1226 Fragments of white qtz vein<br><br>1229.5 - 1231.6 Bleach and argillized Int Pyrite 1/4" thick at upper contact |

ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 |
|---|---|---|---|---|---|
| 1172 | 1176.5 | | | | |
| 1176.5 | 1180.6 | | | | |
| 1180.6 | 1182 | | | | |
| 1182 | 1187 | | | | |
| 1187 | 1192 | | | | |
| 1192 | 1197 | | | | |
| 1197 | 1202 | | | | |
| 1202 | 1204.2 | | | | |
| 1204.2 | 1206.2 | | | | |
| 1206.2 | 1210.1 | | | | |
| 1210.1 | 1212 | | | | |
| 1212 | 1217.4 | | | | |
| 1217.4 | 1219.2 | | | | |
| 1219.2 | 1222 | | | | |
| 1222 | 1227 | | | | |
| 1227 | 1229.5 | | | | |
| 1229.5 | 1231.6 | | | | |
| 1231.6 | 1237 | | | | |
| 1237 | 1242 | | | | |

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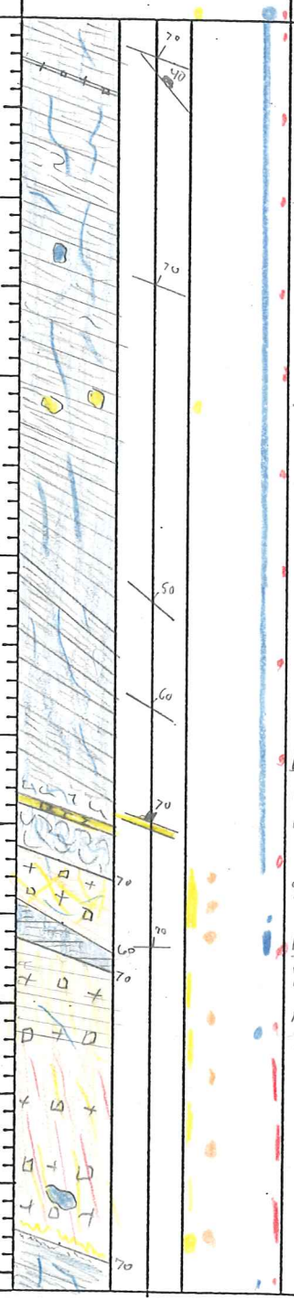
| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| ALS | R | 863.9-1477 ALS. ILLITIC SHALE AND SILTSTONES<br><br>Calcareous fine grained sediments continue. Variable graphitic coating on surfaces. Fine grained and porphoritic intrusive present. Intrusive may be partially argillize but surround sediment are generally not altered. Calcite veining is moderate to heavy in the ALS.<br><br>1287.1-1290.6 Porphoritic Intrusive Plag. Phenocryst minor Argillizat.<br><br>1292.2-1308.3 Porphoritic Intrusive<br><br>1292.2-1297 Intrusive has a planar foliation at 80° to c.a. Increased phenocryst below 1297<br><br>Quartz stock work for last 3" of Intrusive | 1240<br>1250<br>1260<br>1270<br>1280<br>1290<br>1300<br>1310 |  | Small displacements of calcite vein along bedding planes can be observed in the ALS. Sediment.<br><br>Occasional small scale folding in the ALS is present<br><br>1282-1287.1 Disrupted bedding with 1" of shearing at top contact with qtz vein<br><br>1287.1-1290.6 Stockwork is high angle in nature | 1259-1261 white qtz vein fragments<br><br>1284-1284.5 white qtz vein with calcite fracture coating<br><br>1282-1287.1 carbonate contact becomes<br><br>1287.1-1290.6 QTZ and Calcite stockwork in Intrusive.<br><br>1298-1302 Disseminate Pyrite 2-5%. High angle veins of pyrite and qtz. Pyrite after marcasite blades |

| ANALYTICAL DATA | | | | | |
|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 |
| 1242 | 1247 | | | | |
| 1247 | 1252 | | | | |
| 1252 | 1257 | | | | |
| 1257 | 1262 | | | | |
| 1262 | 1267 | | | | |
| 1267 | 1272 | | | | |
| 1272 | 1277 | | | | |
| 1277 | 1282 | | | | |
| 1282 | 1287.1 | | | | |
| 1287.1 | 1290.6 | | | | |
| 1290.6 | 1292.2 | | | | |
| 1292.2 | 1297 | | | | |
| 1297 | 1302 | | | | |
| 1302 | 1306.2 | | | | |
| 1306.2 | 1308.3 | | | | |
| 1308.3 | 1312.6 | | | | |

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| ITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION | ANALYTICAL DATA FROM | TO | W | Au | Ag | Au2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Td | R | 863.9 1477 A.L.S. Phillitic Shale and Siltstone<br>Calcareous fine grained Sediments continues, Fine grained to porphoritic intrusive present,<br>1338.5-1341.6 Porphoritic Intrusive white clay on 30° tca Fx<br>A.L.S. beds below the intrusive are very uniform Intrusive did not appear to cross cut bedding acting more like a sill<br>Pima 1371 wht. cly with caco3 | 1310<br>1320<br>1330<br>1340<br>1350<br>1360<br>1370<br>1380 | | 1313.7-1338.5 Bedding is variable in dip and disruption micro offsets on hair line fractures present<br>1349 1349.5 Calcite healed Breccia<br>1354-1363 Highangle 20° tca Fx breakup core.<br>1370-1374.7 Broken rubble zone with 0° tca Fx Shattering core, Are the Fx serpentenized | 1313.7-1338.5 Calcite veins are at moderate levels and highly disrupted<br>1338.5-1341.6 Calcite cont micro Fx in Int. Pyrite after mafic.<br>1354-1363 Large calcite veins (>1") increase in number | 1312.6<br>1313.7<br>1317<br>1322<br>1327<br>1332<br>1337<br>1338.5<br>1341.6<br>1347<br>1352<br>1357<br>1362<br>1367<br>1370<br>1374.7<br>1377 | 1313.7<br>1317<br>1322<br>1327<br>1332<br>1337<br>1338.5<br>1341.6<br>1347<br>1352<br>1357<br>1362<br>1367<br>1370<br>1374.7<br>1377<br>1382 | | | | | |

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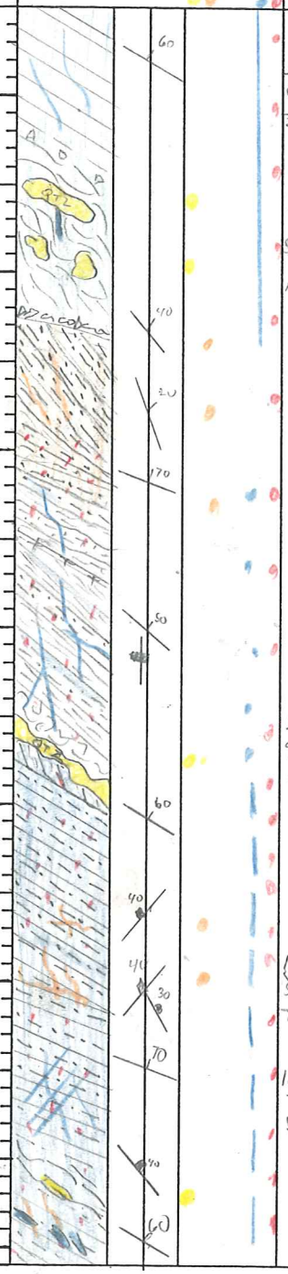
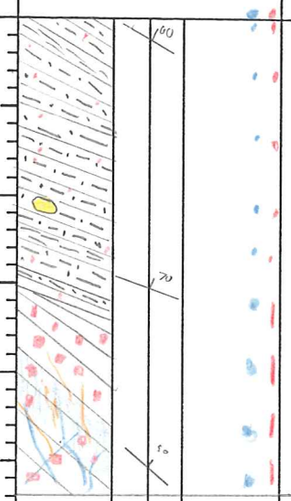
| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| ALS | R | 863.7-1477 ALS. Phillitic Shale and siltstone<br><br>Calcareous shale with interbedded siltstones. Graphite coats bedding surfaces<br><br>1398-1408 medium gray siltstone moderately fractured with white clay on fractures at 50° tca and cross cutting bedding<br>Pine 1402 white clay<br><br>From 1408 to 1477 Shale is replace by clay stone that is dark brown black.<br><br>1421.5-1467 Reworked Tuffaceous siltstone is 95% of lithologies<br><br>1412-1412.5 Fine grained Intrusion<br>Pine 1434.5 white clay<br><br>1406-1421.5 Increasing siltstone content | 1380<br>1390<br>1400<br>1410<br>1420<br>1430<br>1440<br>1450 |  | 1390.7-1391.5<br>Open fracture 0° tca ½" wide with calcite crystals<br>1390.1-1394<br>Sheared and fracture shales around metamorphic white qtz massel. Fracture planes are highly graphitic.<br><br>1421.5-1424 metamorphic qtz with steep footwall basis.<br><br>1422.8-1424.6<br>Steep medium grained tuff<br><br>1447 Polished waxy fracture surface | 1398-1408 Syngenetic pyrite crystals increase to ⅛" diameter.<br><br>Siltstone is argillized and most of the carbonate has been removed. |

| ANALYTICAL DATA | | | | | |
|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 |
| 1382 | 1386.8 | | | | |
| 1386.8 | 1390.1 | | | | |
| 1390.1 | 1394 | | | | |
| 1394 | 1398 | | | | |
| 1398 | 1401 | | | | |
| 1401 | 1406 | | | | |
| 1406 | 1411 | | | | |
| 1411 | 1416 | | | | |
| 1416 | 1421.5 | | | | |
| 1421.5 | 1426.8 | | | | |
| 1426.8 | 1432 | | | | |
| 1432 | 1437 | | | | |
| 1437 | 1442 | | | | |
| 1442 | 1447 | | | | |
| 1447 | 1452 | | | | |

HOLE NUMBER RS-D354-99 PAGE 22 OF 22

| LITH. | OX/RED. | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| ALS | R | 863.9-1477 ALS. SILTSTONE AND CLAYSTONE<br><br>ALS. Siltstone continues with minor claystone interbeds Locally siltstone is coarse<br><br>1466 -1477 Clay stone Dark brown black | 1450<br>1460<br>1470 |  | | 1466-1477 Large 1/4" pyrite crystal Syngenetic in origin |
| | | TD 1477 | 1480 | | | |

| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | A |
| 1452 | 1457 | | | | | |
| 1457 | 1462 | | | | | |
| 1462 | 1467 | | | | | |
| 1467 | 1472 | | | | | |
| 1472 | 1477 | | | | | |

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

HOLE # RS-D354-99 DATE: 8-9-99 LOGGED BY: D.G. Mulkerrow PAGE 1 OF 28

| 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 | 2 | 100 | 55 | 100 | | | | | | | | | | |
| 2 | 7 | 54 | 90 | 48 | | | | | | | | | | |
| 7 | 12 | 20 | 70 | 0 | | | | | | | | | | |
| 12 | 17 | 100 | 100 | 80 | | | | | | | | | | |
| 17 | 22 | 80 | 108 | 38 | | | | | | | | | | |
| 22 | 27 | 66 | 100 | 20 | | | | | | | | | | |
| 27 | 32 | 86 | 100 | 26 | | | | | | | | | | |
| 32 | 37 | 90 | 100 | 60 | | | | | | | | | | |
| 37 | 42 | 96 | 100 | 68 | | | | | | | | | | |
| 42 | 47 | 20 | 92 | 8 | | | | | | | | | | |
| 47 | 52 | 0 | 100 | 0 | | | | | | | | | | |

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

HOLE # RS-D 354-99 DATE: 8-9-99 LOGGED BY: D.G. MacHerrow PAGE 2 OF 28

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | 57 | 88 | 100 | 70 | | | | | | | | | | |
| 57 | 62 | 92 | 100 | 68 | | | | | | | | | | |
| 62 | 67 | 40 | 102 | 34 | | | | | | | | | | |
| 67 | 72 | 74 | 100 | 46 | | | | | | | | | | |
| 72 | 77 | 80 | 98 | 52 | | | | | | | | | | |
| 77 | 82 | 100 | 96 | 80 | | | | | | | | | | |
| 82 | 87 | 40 | 104 | 30 | | | | | | | | | | |
| 87 | 92 | 100 | 100 | 78 | | | | | | | | | | |
| 92 | 97 | 100 | 106 | 74 | | | | | | | | | | |
| 97 | 102 | 86 | 100 | 78 | | | | | | | | | | |
| 102 | 107 | 72 | 92 | 52 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D 354-99 DATE: 8-10-99 LOGGED BY: D.G. Mackerron PAGE 3 OF 28

| 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) |
| 107 | 112 | 100 | 104 | 90 | | | | | | | | | | |
| 112 | 117 | 100 | 102 | 96 | | | | | | | | | | |
| 117 | 122 | 74 | 100 | 32 | | | | | | | | | | |
| 122 | 127 | 70 | 100 | 22 | | | | | | | | | | |
| 127 | 132 | 100 | 106 | 58 | | | | | | | | | | |
| 132 | 134.5 | 100 | 100 | 0 | | | | | | | | | | |
| 134.5 | 137 | 100 | 100 | 0 | | | | | | | | | | |
| 137 | 142 | 86 | 100 | 22 | | | | | | | | | | |
| 142 | 147 | 98 | 98 | 40 | | | | | | | | | | |
| 147 | 152 | 98 | 100 | 48 | | | | | | | | | | |
| 152 | 157 | 66 | 100 | 14 | | | | | | | | | | |

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

HOLE # RS-D354-99 DATE: 8-10-99 LOGGED BY: D.G. Mackenzie PAGE 4 OF 28

| 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) |
| 157 | 162 | 36 | 100 | 22 | | | | | | | | | | |
| 162 | 167 | 94 | 100 | 76 | | | | | | | | | | |
| 167 | 172 | 100 | 106 | 78 | | | | | | | | | | |
| 172 | 177 | 100 | 102 | 74 | | | | | | | | | | |
| 177 | 182 | 100 | 100 | 80 | | | | | | | | | | |
| 182 | 187 | 100 | 100 | 92 | | | | | | | | | | |
| 187 | 192 | 100 | 100 | 66 | | | | | | | | | | |
| 192 | 197 | 100 | 100 | 60 | | | | | | | | | | |
| 197 | 202 | 100 | 100 | 86 | | | | | | | | | | |
| 202 | 207 | 100 | 96 | 92 | | | | | | | | | | |
| 207 | 212 | 100 | 102 | 90 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-11-99 LOGGED BY: D.G. Mackerrow PAGE 5 OF 28

| 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) |
| 212 | 217 | 100 | 88 | 64 | | | | | | | | | | |
| 217 | 222 | 100 | 112 | 44 | | | | | | | | | | |
| 222 | 227 | 100 | 100 | 76 | | | | | | | | | | |
| 227 | 232 | 100 | 100 | 96 | | | | | | | | | | |
| 232 | 237 | 100 | 102 | 90 | | | | | | | | | | |
| 237 | 242 | 80 | 94 | 48 | | | | | | | | | | |
| 242 | 247 | 98 | 108 | 66 | | | | | | | | | | |
| 247 | 252 | 96 | 100 | 52 | | | | | | | | | | |
| 252 | 257 | 62 | 110 | 40 | | | | | | | | | | |
| 257 | 262 | 100 | 100 | 64 | | | | | | | | | | |
| 262 | 267 | 81 | 100 | 72 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-11-99 LOGGED BY: D.G. Mackerrow. PAGE 6 OF 28

| 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 A/G. 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 267 | 272 | 96 | 100 | 80 | | | | | | | | | | |
| 272 | 277 | 96 | 100 | 82 | | | | | | | | | | |
| 277 | 282 | 100 | 100 | 78 | | | | | | | | | | |
| 282 | 287 | 92 | 100 | 58 | | | | | | | | | | |
| 287 | 292 | 100 | 100 | 88 | | | | | | | | | | |
| 292 | 297 | 100 | 100 | 88 | | | | | | | | | | |
| 297 | 302 | 100 | 100 | 72 | | | | | | | | | | |
| 302 | 307 | 100 | 100 | 96 | | | | | | | | | | |
| 307 | 312 | 100 | 100 | 58 | | | | | | | | | | |
| 312 | 317 | 100 | 102 | 81 | | | | | | | | | | |
| 317 | 322 | 100 | 102 | 78 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS- D354-99 DATE: 8-12-99 LOGGED BY: D. G. MacKerrow PAGE 7 OF 28

| DRILL RUN | | SOLID CORE RECOVERY (%) | TOTAL CORE RECOVERY (%) | RQD | ROCK STRENGTH | | FRACTURE DATA | | | | DENSITY DATA | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FROM | TO | | | | DOWNHOLE 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) |
| 322 | 327 | 100 | 102 | 82 | | | | | | | | | | |
| 327 | 332 | 26 | 100 | 78 | | | | | | | | | | |
| 332 | 337 | 100 | 102 | 82 | | | | | | | | | | |
| 337 | 342 | 60 | 100 | 52 | | | | | | | | | | |
| 342 | 347 | 100 | 100 | 70 | | | | | | | | | | |
| 347 | 352 | 76 | 96 | 48 | | | | | | | | | | |
| 352 | 357 | 100 | 102 | 70 | | | | | | | | | | |
| 357 | 362 | 24 | 100 | 24 | | | | | | | | | | |
| 362 | 367 | 60 | 100 | 28 | | | | | | | | | | |
| 367 | 372 | 28 | 102 | 28 | | | | | | | | | | |
| 372 | 377 | 100 | 100 | 100 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D 354-99 DATE: 8-12-99 LOGGED BY: D.G. Mackerrow PAGE 8 OF 28

| 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) |
| 377 | 382 | 98 | 100 | 100 | | | | | | | | | | |
| 382 | 387 | 100 | 100 | 74 | | | | | | | | | | |
| 387 | 392 | 96 | 100 | 80 | | | | | | | | | | |
| 392 | 397 | 92 | 100 | 72 | | | | | | | | | | |
| 397 | 402 | 74 | 100 | 80 | | | | | | | | | | |
| 402 | 407 | 98 | 100 | 80 | | | | | | | | | | |
| 407 | 412 | 28 | 100 | 40 | | | | | | | | | | |
| 412 | 417 | 48 | 102 | 50 | | | | | | | | | | |
| 417 | 422 | 61 | 100 | 23 | | | | | | | | | | |
| 422 | 427 | 100 | 100 | 84 | | | | | | | | | | |
| 427 | 432 | 100 | 92 | 68 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-14-99 LOGGED BY: D.G. Mulkern PAGE 9 OF 28

| 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) |
| 432 | 437 | 82 | 100 | 70 | | | | | | | | | | |
| 437 | 442 | 68 | 100 | 48 | | | | | | | | | | |
| 442 | 447 | 88 | 100 | 88 | | | | | | | | | | |
| 447 | 452 | 88 | 100 | 72 | | | | | | | | | | |
| 452 | 457 | 99 | 100 | 42 | | | | | | | | | | |
| 457 | 462 | 100 | 100 | 92 | | | | | | | | | | |
| 462 | 467 | 100 | 100 | 66 | | | | | | | | | | |
| 467 | 472 | 100 | 100 | 100 | | | | | | | | | | |
| 472 | 477 | 100 | 100 | 72 | | | | | | | | | | |
| 477 | 482 | 98 | 100 | 90 | | | | | | | | | | |
| 482 | 487 | 100 | 100 | 60 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-14-99 LOGGED BY: D.G. MacKenzie PAGE 10 OF 28

| 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) |
| 487 | 492 | 100 | 96 | 74 | | | | | | | | | | |
| 492 | 497 | 92 | 100 | 74 | | | | | | | | | | |
| 497 | 502 | 88 | 100 | 58 | | | | | | | | | | |
| 502 | 507 | 80 | 100 | 80 | | | | | | | | | | |
| 507 | 512 | 100 | 100 | 80 | | | | | | | | | | |
| 512 | 517 | 92 | 98 | 58 | | | | | | | | | | |
| 517 | 522 | 98 | 100 | 70 | | | | | | | | | | |
| 522 | 527 | 90 | 102 | 76 | | | | | | | | | | |
| 527 | 532 | 100 | 100 | 40 | | | | | | | | | | |
| 532 | 537 | 100 | 100 | 100 | | | | | | | | | | |
| 537 | 542 | 100 | 100 | 90 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-14-99 LOGGED BY: D.G. Muckerman PAGE 11 OF 28

| 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) |
| 542 | 547 | 100 | 102 | 86 | | | | | | | | | | |
| 547 | 552 | 100 | 100 | 84 | | | | | | | | | | |
| 552 | 557 | 100 | 102 | 80 | | | | | | | | | | |
| 557 | 562 | 100 | 98 | 50 | | | | | | | | | | |
| 562 | 567 | 20 | 100 | 16 | | | | | | | | | | |
| 567 | 572 | 92 | 100 | 82 | | | | | | | | | | |
| 572 | 577 | 100 | 100 | 62 | | | | | | | | | | |
| 577 | 582 | 100 | 96 | 68 | | | | | | | | | | |
| 582 | 587 | 100 | 92 | 84 | | | | | | | | | | |
| 587 | 592 | 88 | 110 | 74 | | | | | | | | | | |
| 592 | 597 | 100 | 100 | 88 | | | | | | | | | | |

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

HOLE # RS-D354-99 DATE: 8-15-99 LOGGED BY: D.G. Mackerrow PAGE 12 OF 28

| 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) |
| 597 | 602 | 100 | 100 | 96 | | | | | | | | | | |
| 602 | 607 | 84 | 100 | 80 | | | | | | | | | | |
| 607 | 612 | 100 | 100 | 100 | | | | | | | | | | |
| 612 | 617 | 100 | 104 | 66 | | | | | | | | | | |
| 617 | 622 | 100 | 100 | 61 | | | | | | | | | | |
| 622 | 627 | 100 | 100 | 74 | | | | | | | | | | |
| 627 | 632 | 100 | 90 | 50 | | | | | | | | | | |
| 632 | 637 | 100 | 100 | 70 | | | | | | | | | | |
| 637 | 642 | 100 | 104 | 94 | | | | | | | | | | |
| 642 | 647 | 100 | 104 | 100 | | | | | | | | | | |
| 647 | 652 | 100 | 104 | 80 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-15-99 LOGGED BY: D.G. MacKerrow PAGE 13 OF 28

| 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) |
| 652 | 657 | 100 | 100 | 100 | | | | | | | | | | |
| 657 | 662 | 100 | 100 | 81 | | | | | | | | | | |
| 662 | 667 | 100 | 102 | 82 | | | | | | | | | | |
| 667 | 672 | 100 | 100 | 100 | | | | | | | | | | |
| 672 | 677 | 90 | 100 | 56 | | | | | | | | | | |
| 677 | 682 | 92 | 100 | 81 | | | | | | | | | | |
| 682 | 687 | 100 | 102 | 92 | | | | | | | | | | |
| 687 | 692 | 100 | 100 | 81 | | | | | | | | | | |
| 692 | 697 | 100 | 100 | 86 | | | | | | | | | | |
| 697 | 702 | 100 | 100 | 100 | | | | | | | | | | |
| 702 | 707 | 100 | 100 | 78 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-15-99 LOGGED BY: D.G. MacHerron PAGE 14 OF 28

| 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) |
| 707 | 712 | 100 | 98 | 84 | | | | | | | | | | |
| 712 | 717 | 98 | 100 | 56 | | | | | | | | | | |
| 717 | 722 | 98 | 98 | 52 | | | | | | | | | | |
| 722 | 727 | 99 | 102 | 64 | | | | | | | | | | |
| 727 | 732 | 99 | 106 | 90 | | | | | | | | | | |
| 732 | 737 | 100 | 98 | 92 | | | | | | | | | | |
| 737 | 742 | 100 | 100 | 84 | | | | | | | | | | |
| 742 | 746 | 99 | 74 | 28 | | | | | | | | | | |
| 746 | 747 | 0 | 150 | 0 | | | | | | | | | | |
| 747 | 752 | 42 | 100 | 12 | | | | | | | | | | |
| 752 | 757 | 70 | 100 | 38 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-15-99 LOGGED BY: D.G. MacKerron PAGE 15 OF 28

| 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) |
| 757 | 762 | 96 | 100 | 94 | | | | | | | | | | |
| 762 | 767 | 100 | 100 | 100 | | | | | | | | | | |
| 767 | 772 | 100 | 102 | 98 | | | | | | | | | | |
| 772 | 777 | 100 | 100 | 96 | | | | | | | | | | |
| 777 | 782 | 100 | 100 | 100 | | | | | | | | | | |
| 782 | 787 | 100 | 100 | 96 | | | | | | | | | | |
| 787 | 792 | 100 | 100 | 100 | | | | | | | | | | |
| 792 | 797 | 100 | 100 | 96 | | | | | | | | | | |
| 797 | 802 | 98 | 100 | 62 | | | | | | | | | | |
| 802 | 807 | 98 | 104 | 78 | | | | | | | | | | |
| 807 | 812 | 100 | 100 | 76 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-16-99 LOGGED BY: D.G. Mackerron PAGE 16 OF 28

| 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) |
| 812 | 817 | 70 | 96 | 36 | | | | | | | | | | |
| 817 | 822 | 58 | 100 | 30 | | | | | | | | | | |
| 822 | 827 | 58 | 100 | 48 | | | | | | | | | | |
| 827 | 832 | 100 | 102 | 74 | | | | | | | | | | |
| 832 | 837 | 100 | 98 | 66 | | | | | | | | | | |
| 837 | 842 | 100 | 100 | 100 | | | | | | | | | | |
| 842 | 847 | 100 | 104 | 100 | | | | | | | | | | |
| 847 | 852 | 100 | 100 | 80 | | | | | | | | | | |
| 852 | 857 | 100 | 98 | 60 | | | | | | | | | | |
| 857 | 862 | 96 | 100 | 34 | | | | | | | | | | |
| 862 | 867 | 36 | 100 | 0 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-16-99 LOGGED BY: D.G. Mackerrow PAGE 17 OF 28

| 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) |
| 867 | 872 | 100 | 100 | 0 | | | | | | | | | | |
| 872 | 877 | 100 | 100 | 0 | | | | | | | | | | |
| 877 | 882 | 100 | 100 | 0 | | | | | | | | | | |
| 882 | 887 | 98 | 100 | 38 | | | | | | | | | | |
| 887 | 892 | 100 | 96 | 28 | | | | | | | | | | |
| 892 | 897 | 90 | 100 | 20 | | | | | | | | | | |
| 897 | 902 | 0 | 104 | 8 | | | | | | | | | | |
| 902 | 907 | 96 | 100 | 0 | | | | | | | | | | |
| 907 | 912 | 88 | 104 | 20 | | | | | | | | | | |
| 912 | 917 | 100 | 100 | 30 | | | | | | | | | | |
| 917 | 922 | 22 | 92 | 10 | | | | | | | | | | |

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

HOLE # RS-D354-99 DATE: 8-17-99 LOGGED BY: DG. Mackerrow PAGE 18 OF 28

| 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) |
| 922 | 927 | 30 | 100 | 10 | | | | | | | | | | |
| 927 | 932 | 98 | 100 | 28 | | | | | | | | | | |
| 932 | 937 | 100 | 104 | 28 | | | | | | | | | | |
| 937 | 942 | 100 | 100 | 24 | | | | | | | | | | |
| 942 | 947 | 100 | 100 | 90 | | | | | | | | | | |
| 947 | 952 | 94 | 90 | 66 | | | | | | | | | | |
| 952 | 957 | 100 | 104 | 38 | | | | | | | | | | |
| 957 | 962 | 100 | 100 | 66 | | | | | | | | | | |
| 962 | 967 | 100 | 98 | 12 | | | | | | | | | | |
| 967 | 972 | 100 | 100 | 28 | | | | | | | | | | |
| 972 | 977 | 100 | 102 | 36 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-26-99 LOGGED BY: D.G. MacKeyron PAGE 19 OF 28

| 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) |
| 977 | 982 | 100 | 100 | 100 | | | | | | | | | | |
| 982 | 987 | 90 | 100 | 28 | | | | | | | | | | |
| 987 | 992 | 58 | 100 | 0 | | | | | | | | | | |
| 992 | 997 | 100 | 100 | 8 | | | | | | | | | | |
| 997 | 1002 | 100 | 100 | 0 | | | | | | | | | | |
| 1002 | 1007 | 100 | 98 | 30 | | | | | | | | | | |
| 1007 | 1012 | 100 | 94 | 34 | | | | | | | | | | |
| 1012 | 1017 | 100 | 108 | 68 | | | | | | | | | | |
| 1017 | 1022 | 100 | 98 | 32 | | | | | | | | | | |
| 1022 | 1027 | 100 | 106 | 10 | | | | | | | | | | |
| 1027 | 1032 | 100 | 98 | 22 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-26-99 LOGGED BY: D.G. Mackerrow PAGE 20 OF 28

| 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) |
| 1032 | 1037 | 100 | 104 | 22 | | | | | | | | | | |
| 1037 | 1042 | 100 | 98 | 10 | | | | | | | | | | |
| 1042 | 1047 | 100 | 100 | 38 | | | | | | | | | | |
| 1047 | 1052 | 100 | 98 | 48 | | | | | | | | | | |
| 1052 | 1057 | 100 | 102 | 62 | | | | | | | | | | |
| 1057 | 1062 | 100 | 100 | 68 | | | | | | | | | | |
| 1062 | 1067 | 100 | 100 | 18 | | | | | | | | | | |
| 1067 | 1072 | 100 | 100 | 40 | | | | | | | | | | |
| 1072 | 1077 | 88 | 100 | 20 | | | | | | | | | | |
| 1077 | 1082 | 90 | 100 | 36 | | | | | | | | | | |
| 1082 | 1087 | 100 | 98 | 36 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-27-99 LOGGED BY: 8-27-99 PAGE 21 OF 28

| 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) |
| 1087 | 1092 | 100 | 102 | 0 | | | | | | | | | | |
| 1092 | 1097 | 100 | 100 | 38 | | | | | | | | | | |
| 1097 | 1102 | 100 | 100 | 68 | | | | | | | | | | |
| 1102 | 1107 | 100 | 100 | 70 | | | | | | | | | | |
| 1107 | 1112 | 100 | 100 | 0 | | | | | | | | | | |
| 1112 | 1117 | 100 | 102 | 46 | | | | | | | | | | |
| 1117 | 1122 | 100 | 92 | 36 | | | | | | | | | | |
| 1122 | 1127 | 100 | 102 | 90 | | | | | | | | | | |
| 1127 | 1132 | 100 | 104 | 40 | | | | | | | | | | |
| 1132 | 1137 | 100 | 100 | 16 | | | | | | | | | | |
| 1137 | 1142 | 100 | 92 | 10 | | | | | | | | | | |

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

HOLE # RS-D354-99 DATE: 8-29-99 LOGGED BY: DG MacKerrow. PAGE 22 OF 28

| 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) |
| 1142 | 1147 | 100 | 102 | 0 | | | | | | | | | | |
| 1147 | 1152 | 88 | 100 | 10 | | | | | | | | | | |
| 1152 | 1157 | 100 | 104 | 20 | | | | | | | | | | |
| 1157 | 1162 | 100 | 100 | 22 | | | | | | | | | | |
| 1162 | 1167 | 100 | 100 | 36 | | | | | | | | | | |
| 1167 | 1172 | 100 | 100 | 0 | | | | | | | | | | |
| 1172 | 1177 | 36 | 100 | 0 | | | | | | | | | | |
| 1177 | 1182 | 90 | 100 | 22 | | | | | | | | | | |
| 1182 | 1187 | 78 | 94 | 58 | | | | | | | | | | |
| 1187 | 1192 | 52 | 94 | 12 | | | | | | | | | | |
| 1192 | 1197 | 100 | 100 | 14 | | | | | | | | | | |

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

HOLE # RS-D354-99 DATE: 8-29-99 LOGGED BY: D.G. Mockerrow PAGE 23 OF 28

| 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) |
| 1197 | 1202 | 100 | 100 | 18 | | | | | | | | | | |
| 1202 | 1207 | 100 | 104 | 36 | | | | | | | | | | |
| 1207 | 1212 | 100 | 102 | 54 | | | | | | | | | | |
| 1212 | 1217 | 100 | 98 | 0 | | | | | | | | | | |
| 1217 | 1222 | 100 | 100 | 46 | | | | | | | | | | |
| 1222 | 1227 | 100 | 98 | 0 | | | | | | | | | | |
| 1227 | 1232 | 100 | 100 | 90 | | | | | | | | | | |
| 1232 | 1237 | 90 | 98 | 42 | | | | | | | | | | |
| 1237 | 1242 | 100 | 100 | 52 | | | | | | | | | | |
| 1242 | 1247 | 99 | 100 | 12 | | | | | | | | | | |
| 1247 | 1247.5 | 100 | 120 | 0 | | | | | | | | | | |

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

HOLE # RS-D354-99 DATE: 8-30-99 LOGGED BY: D.G. Macherrow PAGE 24 OF 28

| 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) |
| 1247.5 | 1252 | 100 | 98 | 31 | | | | | | | | | | |
| 1252 | 1257 | 100 | 98 | 42 | | | | | | | | | | |
| 1257 | 1262 | 100 | 100 | 18 | | | | | | | | | | |
| 1262 | 1267 | 99 | 100 | 28 | | | | | | | | | | |
| 1267 | 1272 | 100 | 100 | 12 | | | | | | | | | | |
| 1272 | 1277 | 99 | 100 | 62 | | | | | | | | | | |
| 1277 | 1282 | 100 | 98 | 46 | | | | | | | | | | |
| 1282 | 1287 | 96 | 100 | 24 | | | | | | | | | | |
| 1287 | 1292 | 100 | 100 | 56 | | | | | | | | | | |
| 1292 | 1297 | 100 | 100 | 58 | | | | | | | | | | |
| 1297 | 1302 | 100 | 104 | 94 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 8-30-99 LOGGED BY: D.G. MacKerrow PAGE 25 OF 28

| 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) |
| 1302 | 1307 | 100 | 104 | 68 | | | | | | | | | | |
| 1307 | 1312 | 96 | 98 | 58 | | | | | | | | | | |
| 1312 | 1317 | 100 | 100 | 44 | | | | | | | | | | |
| 1317 | 1322 | 100 | 98 | 26 | | | | | | | | | | |
| 1322 | 1327 | 100 | 100 | 78 | | | | | | | | | | |
| 1327 | 1332 | 100 | 100 | 68 | | | | | | | | | | |
| 1332 | 1337 | 100 | 100 | 60 | | | | | | | | | | |
| 1337 | 1342 | 98 | 98 | 40 | | | | | | | | | | |
| 1342 | 1347 | 100 | 100 | 50 | | | | | | | | | | |
| 1347 | 1352 | 100 | 102 | 42 | | | | | | | | | | |
| 1352 | 1357 | 100 | 102 | 74 | | | | | | | | | | |

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

HOLE # RS-D354-99 DATE: 8-3-99 LOGGED BY: D.G. Muckerrow PAGE 26 OF 28

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1357 | 1362 | 84 | 98 | 38 | | | | | | | | | | |
| 1362 | 1367 | 100 | 102 | 34 | | | | | | | | | | |
| 1367 | 1372 | 70 | 100 | 26 | | | | | | | | | | |
| 1372 | 1377 | 34 | 100 | 0 | | | | | | | | | | |
| 1377 | 1382 | 100 | 102 | 10 | | | | | | | | | | |
| 1382 | 1387 | 100 | 100 | 62 | | | | | | | | | | |
| 1387 | 1392 | 56 | 100 | 16 | | | | | | | | | | |
| 1392 | 1397 | 58 | 84 | 0 | | | | | | | | | | |
| 1397 | 1401 | 44 | 100 | 12 | | | | | | | | | | |
| 1401 | 1406 | 62 | 100 | 0 | | | | | | | | | | |
| 1406 | 1411 | 94 | 100 | 10 | | | | | | | | | | |

HECLA MINING COMPANY – ROSEBUD PROJECT
GEOTECHNICAL DRILL LOG

HOLE # RS-D354-99 DATE: 9-1-99 LOGGED BY: D.G. MacKerrow PAGE 27 OF 28

| 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) |
| 1411 | 1416 | 100 | 100 | 18 | | | | | | | | | | |
| 1416 | 1421.5 | 100 | 98 | 49 | | | | | | | | | | |
| 1421.5 | 1426.8 | 100 | 96 | 68 | | | | | | | | | | |
| 1426.8 | 1432 | 100 | 102 | 67 | | | | | | | | | | |
| 1432 | 1437 | 100 | 104 | 46 | | | | | | | | | | |
| 1437 | 1442 | 100 | 104 | 40 | | | | | | | | | | |
| 1442 | 1447 | 100 | 100 | 42 | | | | | | | | | | |
| 1447 | 1452 | 100 | 98 | 40 | | | | | | | | | | |
| 1452 | 1457 | 80 | 100 | 18 | | | | | | | | | | |
| 1457 | 1462 | 100 | 100 | 66 | | | | | | | | | | |
| 1462 | 1467 | 100 | 102 | 52 | | | | | | | | | | |

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

HOLE # RS-D354-99 DATE: 9-1-99 LOGGED BY: D.G. MacKerrow PAGE 28 OF 28

| 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) |
| 1467 | 1472 | 82 | 100 | 82 | | | | | | | | | | |
| 1472 | 1477 | 100 | 100 | 56 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
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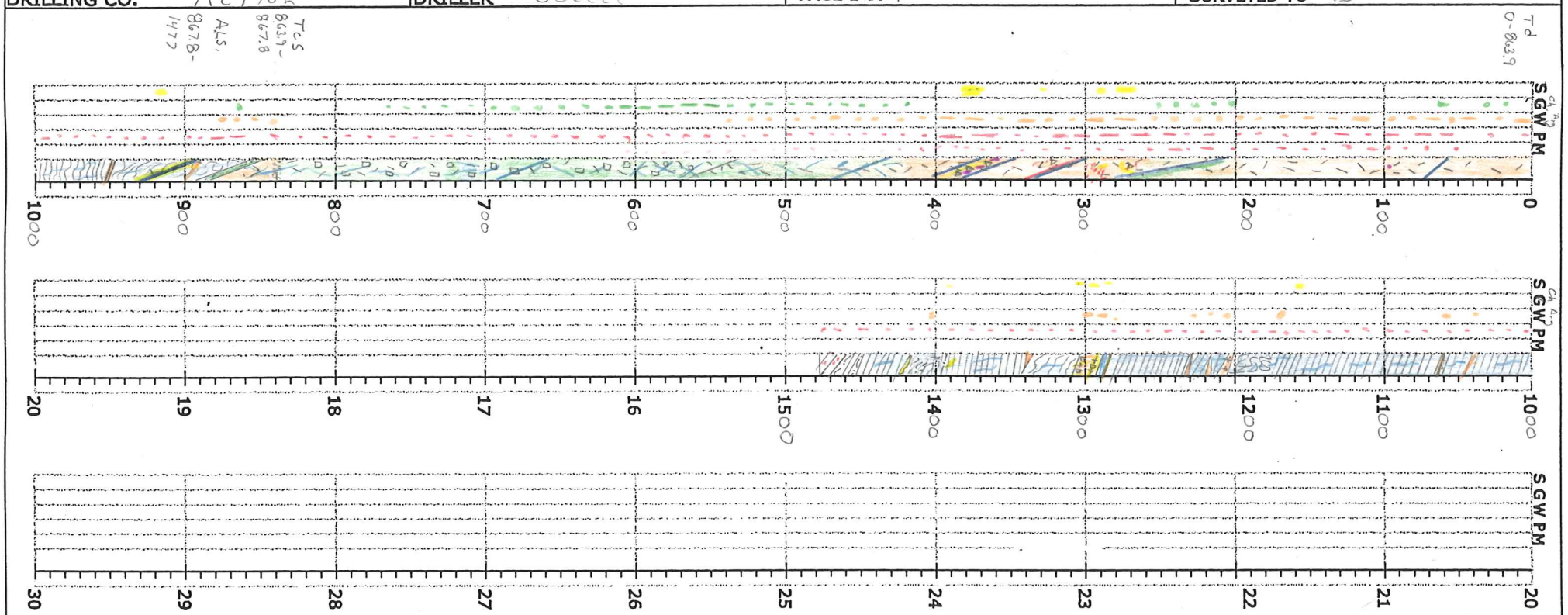
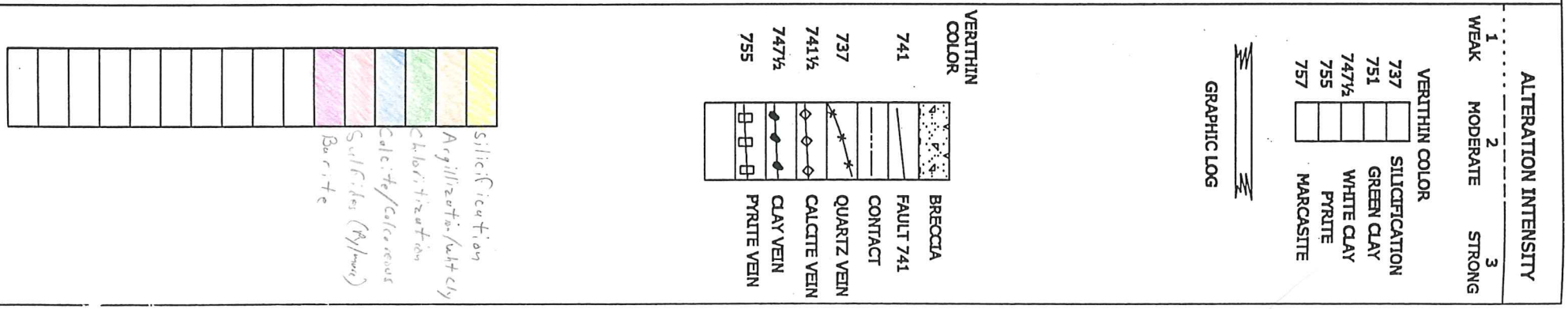
# ROSEBUD MINING COMPANY, LLC.

| | | | |
|---|---|---|---|
| START HOLE 7/30/99 | FINISH HOLE 8/13/99 | HOLE # RS-D354-99 | |
| COLLAR COORDINATES | HOLE TYPE Core | LOGGED BY D.G. Macherrow | |
| NORTH | BEARING N50°W | ANGLE -40 | T.D 1477 |
| EAST | | | |
| ELEV | PAGE 1 OF 1 | SURVEYED TO 1302 | |
| DRILLING CO. Action | DRILLER Gedder | | |



# Newmont Gold Core Form

**Hole#** RS-D354-99
**Logged by** D.G. MacKerron
**Date** 9-10-99
**Area** Zone Feeders From 2300
**Coords**
**Az/Incl** N50W/-40
**Total Depth** 1477
**Contractor** ACTEON



| 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 | Mineralogy: BaSO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Td | Rhy | white gray | | | | | | | | | 0- DOZER 863.9 | 0 | 1 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 1 | 1 | 0 | 0 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | 43-53 Fracture/Fault Zone | | | | | | 1 | | | | | | | | 1 | |
| | | | | | | | | | | | | | | | | | | | | 0 | | | | | | | | 0 | |
| 60 | | | | | | | | | | | | | | 62.5-67.4 Fracture/Fault Zone | | | | | | 1 | | | | | | | | | |
| | | | | | | | | | | | | | | 75.5-77 Crackle Bxx | | | | | | 0 | | | | | | | | 1 | |
| 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 96-98 MOSAIC BXX | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | 30 | | | | | 102-103 Carbon and Sulfide healed rubble Bxx | | | | | | | | | | | | | | | 1 0 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2 | | | |
| 120 | | | | | | | | | | | | | | 116-124 Fracture zone with Kaolinite | | | | | | | | | | | 1 | 1 | | 2 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2 | | 1 | |
| 140 | | | | | | | | | | | | | | | | | | | | | | | | | | | | Tr | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | |
| 160 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | Tr | |
| 180 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | |
| 200 | | | | | 67.5y | | | | | | | | | | | | | | | 1 | | | | | | | 1 | | |

**Hole#** RS-D354-99 **Newmont Gold Core Form** **Az/Incl** N50W/-40 **Page**

**Logged by** D.G. Mackerrow **Area** Zone Feeders Eron 2300 **Total Depth** 1477

**Date** 8-12-99 **Coords** **Contractor** Action

2 of 8

| 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 | Mineralogy: Bar/Ff |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 | | | Td | Rhy | Grn Gray | | | | | | | | | 0- DOZER 863.9 | 0 | 1 | 0 | 0 | 0 | 1 | | 0 | 0 | 0 | 1 | 0 | 1 | Tr | |
| 220 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | |
| 240 | | | | | Wh+ Gray | | | | | | | | | | | | | | | 0 | | | | | 2 | 2 1 | 0 | | |
| | | | | | | | | | 20 | | | | | | | | | | | 1 | | | | | | | | 1 | |
| 260 | | | | | | | | | | | | | | | | | | | | 0 | | | | | | | | | |
| 280 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| 300 | | | | | | | | | | | | | | 317- 320,7 High angle fault 20° tor | | | | | | | | | | | | | | | |
| 320 | | | | | | | | | 20 | | | | | 337-347 crushle brx have fx zone | | | | | | | | | | | 3 2 2 | | | 2 | |
| 340 | | | | | | | | | | | | | | 359 Begins rubble of fault zone 362 Heavy BaSO4 begins | | | | | | | | | | | | | | | |
| 360 | | | | | | | | | | | | | | 366,5-384,7 main fault zone, sharp Barite filled hanging wall. footwall Grades out from 381-384,7 more intense brx 384-384.7 | 2 | 1 | | | | | | | | 3 1 | | | | | 3 0 |
| 380 | | | | | | | | | 20 | | | | | | | | | | | | | | | | 1 | 1 | | 1 | 1 |
| 400 | | | | | | | | | 20 | | | | | | | | | | | | | | | | | 0 | | | |

RECORTSLD.DOC Revised 3/17/98

# Newmont Gold Core Form

**Hole#** RS-D354-99
**Logged by** DG. Mackenzie
**Date** 4-14-99
**Area** Zone Feeders from 2300
**Coords**
**Az/Incl** N50°W -40
**Total Depth** 1477
**Contractor** Action



| 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 | Mineralogy: Musc/Sery |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 400 | | | Td | Rhy | White Grey | | | | | | | | | 0- 863.9 DOZER | 0 | 1 | 0 | 0 | 0 | Tr | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| 420 | | | | | Grn Gray | | | | | | | | | | | | | | | 1 | | | | | | 1 | 1 | |
| 440 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | |
| | | | | | | | | | | | | | | | | Tr | | | | | | | | | | | 0 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| 460 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 480 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| 500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 2 | | 2 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| 520 | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| 540 | | | | | | | | | | | | | | 542 Flow Boundary to vesicular flow boundary and Phosphoritic flow | | | | | | | | | | | | | | |
| 560 | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | |
| 580 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# Newmont Gold Core Form

**Hole#** RS-D354-99
**Logged by** D.G. Macherron
**Date** 8-15-99
**Area** Zone feeders from 2300
**Coords**
**Az/Incl** N 50°W / -40
**Total Depth** 1477
**Contractor** Action



| 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 | Mineralogy: Biotite |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 600 | | | Td | Rhy | Gray | | | | | | | | | 0-863.9 DOZER | 0 | Tr | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| | | | | | | | | | | | | | | Porphoritic flow contacts | | | | | | 1 | | | | | | | | |
| | | | | | | | | | | | | | | 616-637 Pyrrhotite | | | | | | | | | | | | | | |
| 620 | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | |
| 640 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 660 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 680 | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | Tr | | | | | | 2 | | |
| 700 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| | | | | | | | | | | | | | | 712-720, 739-741.5, 797 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | Pyrrhotite | | | | | | | | | | | | | | |
| 720 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 740 | | | | | | | | | | | | | | | | T | | | | | | | | | | | | |
| 760 | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | 0 | | | | | | | | |
| 780 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# Newmont Gold Core Form

**Hole#** RS-D 354-99
**Logged by** D.G. Mackerron
**Date** 8-17-99
**Area** Zone Feeder Fan 2300
**Coords**
**Az/Incl** N 50°W / -40
**Total Depth** 1477
**Contractor** Action



| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 800 | | | Td | Rhy | Grey / Light Grey | | | | | | | | | 0-863.9 DOZER | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 820 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 840 | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | |
| 860 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | TCS | BRZ SCHI | Grn | | | | | | | | | 863.9-867.9 TCS SEDIMENTS | | | | | | 1 / 0 | | | | | | | |
| | | | | | | | | | | | | | | 867.9 - 1477 ALS | | | | | | | | 2 | | 2 / 1 | | | |
| | | | | | | | | | | | | | | BLACK phyllitic shale and siltstone | | | | | | | | | | | | | |
| 880 | | | | | | | | | | | | | | | | 0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | 872 shale is calcareous | | | | | | | | 3 | | | | 2 | |
| 900 | | | | | | | | | | | | | | | | 1 / 0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | 910-923.7 Fault Zone 20° to w with silicification low sulfid. | 2 | | | | | | | | | | | |
| 920 | | | | | | | | | | | | | | | | 1 / 0 | | | | | | | | | | | |
| | | | | | | | | | | | | | | 948.4-951.8 Intrusive | | | | | | | | | | | | | |
| 940 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 997.2-997.6 Intrusion | | 1 / 0 | | | | | | | | | | | |
| 960 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 980 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# Newmont Gold Core Form

**Hole#** RS-D354-99 **Az/Incl** N50°W / -40 **Page** 6 of 8

**Logged by** D.G. MacKerron **Area** Zone Feeder 2300 **Total Depth** 1477

**Date** 8-26-99 **Coords** **Contractor** Action

| 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 | | | ALS. | Shale Phyll. | Black | | | | | | | | | 867.9-1477 ALS Phillitic shale and siltstone | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 2 | 0 |
| | | | | | | | | | 60 60 | | | | | | | | | | | | | | | | | | |
| 1020 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 1013-1019 Porphoritic Intrusive | | | | | | | | | | | | | |
| 1040 | | | | | | | | | 60 | | | | | 1032-1032.2 F.G. I: | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 1042-1043 Fine grained Int | | | | | | | | | | | | | |
| 1060 | | | | | | | | | 80 80 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 60 | | | | | | | | | | | | | | | | | | |
| 1080 | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| 1100 | | | | | | | | | | | | | | 1059.9-1063.0 weak Porphoritic Intrusive | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 1068.5-1070.2 Porphoritic Intrusive | | | | | | | | | | | | 3 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| 1120 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| 1140 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 1172-1176.7 Rubble box. | | | | | | | | | | | | | |
| 1160 | | | | | | | | | | | | | | 1176.7-1180.6 Int. | | | | | | | | | | | | | |
| 1180 | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | |
| 1200 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# Newmont Gold Core Form

**Hole#** RS-D354-99
**Logged by** D.G. MacHerron
**Date** 8-26-91
**Area** Zone Feeder From 2300
**Coords**
**Az/Incl** N50W/-40
**Total Depth** 1477
**Contractor** Action



| 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 | | | ACC | Sl.wf. | Mod | | | | | | | | | ALS. PHYLLITIC SHALE AND SERITIC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 3 / 2 | 0 |
| | | | | | | | | | 60 / 60 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 1206.2 – 1210.1 FGI | | | | | | | | | | | | | |
| 1220 | | | | | | | | | | | | | | 1217.4 – 1219.2 FGT | | | | | | | | | | | | | |
| | | | | | | | | | 80 / 70 | | | | | 1229.5 – 1231.6 Porphoritic Intrusive | | 2 / 0 | | | | | | | | | 1 / 3 | 1 |
| 1240 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1260 | | | | | | | | | | | | | | 1259 – 1261 qtz vein Fragments upto 3" dia. | | | | | | | | | | | | | |
| 1280 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 70 / 60 | | | | | 1287.1 – 1290.6 Porphoritic Intrusive qtz stockwork | 1 | 1 | | | | | | 0 | | | | 1 | |
| 1300 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 / 0 |
| | | | | | | | | | 70 | | | | | | 0 | 0 | | | | | | 3 | | | | 3 | |
| 1320 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 1338.5 – 1341.6 Porphoritic Intrusive | | | | | | | | | | | | | |
| 1340 | | | | | | | | | 60 / 80 | | | | | | | 1 / 0 | | | | | | 0 / 3 | | | | 1 / 2 | 1 / 0 |
| 1360 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1380 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1400 | | | | | | | | | | | | | | | | 1 | | | | | | Tr | | | | | 1 |

# Newmont Gold Core Form

**Hole#** RS-D354-99
**Logged by** D. G. MacKerrow
**Date** 9-2-99
**Area** Zone Feeders Fan 2300
**Coords**
**Az/Incl** NSOW / -40°
**Total Depth** 1477
**Contractor** Action



| 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 | | | ALS | SHALE | Black | | | | | | | | | 867.9-1477 ALS. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 1420 | | | | | Gray | | | | | | | | | Metamorphic qtz<br>1422-1423<br>1445-1446<br>1460-1461 | | | | | | | | | | | | | |
| 1440 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 1453-1477<br>claystone dominates<br>lithology with 30% siltstone | | | | | | | | | | | | | |
| 1460 | | | | | Brn black | | | | | | | | | | | | | | | | | | | 2 | | | |
| 1480 | | | | | | | | | | | | | | TD 1477 | | | | | | | | | | | | | |
| 1500 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# 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

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Kurt Allen / Randy Vance
Received: 9-Sep-99 08:46
Project: RSD-354-99
PO #:

Job: 993434R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA/AAS ppb | Au FA/AA/AAS oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RSD-354-99-951.8-957 | 23 | 0.001 | 0.4 | 0.012 |
| RSD-354-99-957-962 | 39 | 0.001 | 0.7 | 0.020 |
| RSD-354-99-962-967 | 35 | 0.001 | 0.5 | 0.015 |
| RSD-354-99-967-972 | 26 | 0.001 | 0.4 | 0.012 |
| RSD-354-99-972-977 | 14 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-977-982 | 57 | 0.002 | 1.5 | 0.044 |
| RSD-354-99-982-987 | 31 | 0.001 | 1.3 | 0.038 |
| RSD-354-99-987-992 | 20 | 0.001 | 0.9 | 0.026 |
| RSD-354-99-992-997 | 25 | 0.001 | 1.0 | 0.029 |
| RSD-354-99-997-1002 | 32 | 0.001 | 1.2 | 0.035 |
| RSD-354-99-1002-1007 | 14 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1007-1013 | 24 | 0.001 | 0.9 | 0.026 |
| RSD-354-99-1013-1017 | 15 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1017-1019 | 19 | 0.001 | 0.5 | 0.015 |
| RSD-354-99-1019-1022 | 23 | 0.001 | 0.9 | 0.026 |
| RSD-354-99-1022-1027 | 22 | 0.001 | 0.9 | 0.026 |
| RSD-354-99-1027-1032 | 30 | 0.001 | 0.8 | 0.023 |
| RSD-354-99-1032-1037 | 14 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1037-1042 | 9 | 0.000 | 0.2 | 0.006 |
| RSD-354-99-1042-1047 | 8 | 0.000 | 0.3 | 0.009 |

# BARRINGER LABORATORIES INC.

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5301 LONGLEY LANE
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RENO, NEVADA 89511
PHONE: (775) 828-1158

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Kurt Allen / Randy Vance
Project: RSD-354-99
PO #:

Received: 9-Sep-99 08:46

Job: 993434R

Status: Final

**Drill Core**

| Sample Id | Au FA/AA/AAS ppb | Au FA/AA/AAS oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RSD-354-99-1047-1052 | 9 | 0.000 | 0.2 | 0.006 |
| RSD-354-99-1052-1057 | 38 | 0.001 | 0.1 | 0.003 |
| RSD-354-99-1057-1059.9 | 12 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1059.9-1062.6 | 40 | 0.001 | 0.3 | 0.009 |
| RSD-354-99-1062.6-1067 | 10 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1067-1068.5 | 67 | 0.002 | 1.3 | 0.038 |
| RSD-354-99-1068.5-1070.2 | 15 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1070.2-1074 | 15 | 0.000 | 0.6 | 0.018 |
| RSD-354-99-1074-1077.6 | 25 | 0.001 | 1.1 | 0.032 |
| RSD-354-99-1077.6-1078.6 | 21 | 0.001 | 2.2 | 0.064 |
| RSD-354-99-1078.6-1082 | 10 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1082-1087 | 14 | 0.000 | 0.7 | 0.020 |
| RSD-354-99-1087-1092 | 6 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1092-1097 | 8 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1097-1102 | 5 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1102-1107 | 7 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1107-1112 | 3 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1112-1117 | 5 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1117-1122 | 11 | 0.000 | 0.6 | 0.018 |
| RSD-354-99-1122-1127 | 8 | 0.000 | 0.4 | 0.012 |

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GOLDEN, COLORADO 80401
PHONE: (303) 277-1687

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

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Kurt Allen / Randy Vance
Received: 9-Sep-99 08:46
Project: RSD-354-99
PO #:

Job: 993434R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA/AAS ppb | Au FA/AA/AAS oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RSD-354-99-1127-1132 | 8 | 0.000 | 0.3 | 0.009 |
| **Pulp** | | | | |
| STD-1132.0B | 133 | 0.004 | NA | NA |
| **Drill Core** | | | | |
| RSD-354-99-1132-1137 | 13 | 0.000 | 0.7 | 0.020 |
| RSD-354-99-1137-1142 | 4 | 0.000 | 0.6 | 0.018 |
| RSD-354-99-1142-1147 | 4 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1147-1152 | 28 | 0.001 | 0.8 | 0.023 |
| RSD-354-99-1152-1157 | 10 | 0.000 | 0.7 | 0.020 |
| RSD-354-99-1157-1159.8 | 28 | 0.001 | 0.8 | 0.023 |
| RSD-354-99-1159.8-1164.8 | 11 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1164.8-1167 | 10 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1167-1172 | 12 | 0.000 | 1.2 | 0.035 |
| RSD-354-99-1172-1176.5 | 11 | 0.000 | 0.6 | 0.018 |
| RSD-354-99-1176.5-1180.6 | 6 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1180.6-1182 | 8 | 0.000 | 0.7 | 0.020 |

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Attn: Kurt Allen / Randy Vance
Project: RSD-354-99
PO #:

Received: 9-Sep-99 08:46

Job: 993434R

Status: Final

**Drill Core**

| Sample Id | Au FA/AA/AAS ppb | Au FA/AA/AAS oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RSD-354-99-1182-1187 | 9 | 0.000 | 0.6 | 0.018 |
| RSD-354-99-1187-1192 | 7 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1192-1197 | 7 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1197-1202 | 13 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1202-1204.2 | 6 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1204.2-1206.2 | 6 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1206.2-1210.1 | 10 | 0.000 | 0.2 | 0.006 |
| RSD-354-99-1210.1-1212 | 7 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1212-1217.4 | 14 | 0.000 | 0.2 | 0.006 |
| RSD-354-99-1217.4-1219.2 | 4 | 0.000 | 0.1 | 0.003 |
| RSD-354-99-1219.2-1222 | 16 | 0.000 | 0.2 | 0.006 |
| RSD-354-99-1222-1227 | 3 | 0.000 | 0.1 | 0.003 |
| RSD-354-99-1227-1229.5 | 48 | 0.001 | 1.4 | 0.041 |
| RSD-354-99-1229.5-1231.6 | 71 | 0.002 | 0.7 | 0.020 |
| RSD-354-99-1231.6-1237 | 11 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1237-1242 | 38 | 0.001 | 0.6 | 0.018 |
| RSD-354-99-1242-1247 | 6 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1247-1252 | 5 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1252-1257 | 11 | 0.000 | 0.9 | 0.026 |
| RSD-354-99-1257-1262 | 4 | 0.000 | 0.2 | 0.006 |

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Attn: Kurt Allen / Randy Vance
Project: RSD-354-99
PO #:

Received: 9-Sep-99 08:46

Job: 993434R

Status: Final

**Drill Core**

| Sample Id | Au FA/AA/AAS ppb | Au FA/AA/AAS oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RSD-354-99-1262-1267 | 17 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1267-1272 | 6 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1272-1277 | 4 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1277-1282 | 19 | 0.001 | 1.3 | 0.038 |
| RSD-354-99-1282-1287.1 | 5 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1287.1-1290.6 | 59 | 0.002 | 0.5 | 0.015 |
| RSD-354-99-1290.6-1292.2 | 7 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1292.2-1297 | 24 | 0.001 | 0.3 | 0.009 |
| RSD-354-99-1297-1302 | 390 | 0.011 | 1.3 | 0.038 |
| RSD-354-99-1302-1306.2 | 195 | 0.006 | 1.2 | 0.035 |
| RSD-354-99-1306.2-1308.3 | 338 | 0.010 | 1.4 | 0.041 |
| **Pulp** | | | | |
| STD-1308.3B | 1077 | 0.031 | NA | NA |
| **Drill Core** | | | | |
| RSD-354-99-1308.3-1312.6 | 33 | 0.001 | 0.6 | 0.018 |
| RSD-354-99-1312.6-1313.7 | 2 | 0.000 | 0.2 | 0.006 |

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Attn: Kurt Allen / Randy Vance
Project: RSD-354-99
PO #:

Received: 9-Sep-99 08:46

Job: 993434R

Status: Final

**Drill Core**

| Sample Id | Au FA/AA/AAS ppb | Au FA/AA/AAS oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RSD-354-99-1313.7-1317 | 5 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1317-1322 | 12 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1322-1327 | 3 | 0.000 | 0.1 | 0.003 |
| RSD-354-99-1327-1332 | 20 | 0.001 | 0.2 | 0.006 |
| RSD-354-99-1332-1337 | 13 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1337-1338.5 | 9 | 0.000 | 0.2 | 0.006 |
| RSD-354-99-1338.5-1341.6 | 134 | 0.004 | 0.5 | 0.015 |
| RSD-354-99-1341.6-1347 | 3 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1347-1352 | 2 | 0.000 | 0.1 | 0.003 |
| RSD-354-99-1352-1357 | <2 | 0.000 | 0.1 | 0.003 |
| RSD-354-99-1357-1362 | 11 | 0.000 | 0.2 | 0.006 |
| RSD-354-99-1362-1367 | 6 | 0.000 | <1.0 | 0.029 |
| RSD-354-99-1367-1370 | 6 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1370-1374.7 | 152 | 0.004 | 0.6 | 0.018 |
| RSD-354-99-1374.7-1377 | 7 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1377-1382 | 4 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1382-1386.8 | 3 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1386.8-1390.1 | 13 | 0.000 | 0.7 | 0.020 |
| RSD-354-99-1390.1-1394 | 6 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1394-1398 | 13 | 0.000 | 0.5 | 0.015 |

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Attn: Kurt Allen / Randy Vance
Received: 9-Sep-99 08:46
Project: RSD-354-99
PO #:

Job: 993434R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA/AAS ppb | Au FA/AA/AAS oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RSD-354-99-1398-1401 | 7 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1401-1406 | 8 | 0.000 | 0.4 | 0.012 |
| RSD-354-99-1406-1411 | 17 | 0.000 | 1.1 | 0.032 |
| RSD-354-99-1411-1416 | 18 | 0.001 | 0.5 | 0.015 |
| RSD-354-99-1416-1421.5 | 12 | 0.000 | 0.5 | 0.015 |
| RSD-354-99-1421.5-1426.8 | 8 | 0.000 | 0.2 | 0.006 |
| RSD-354-99-1426.8-1432 | 5 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1432-1437 | 4 | 0.000 | 0.2 | 0.006 |

**Pulp**

| | | | | |
|---|---|---|---|---|
| STD-1437.0B | 986 | 0.029 | NA | NA |

**Drill Core**

| | | | | |
|---|---|---|---|---|
| RSD-354-99-1437-1442 | 2 | 0.000 | 0.1 | 0.003 |
| RSD-354-99-1442-1447 | 125 | 0.004 | 0.3 | 0.009 |
| RSD-354-99-1447-1452 | 16 | 0.000 | 0.2 | 0.006 |
| RSD-354-99-1452-1457 | 4 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1457-1462 | 7 | 0.000 | 0.3 | 0.009 |

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Attn: Kurt Allen / Randy Vance
Received: 9-Sep-99 08:46
Project: RSD-354-99
PO #:

Job: 993434R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA/AAS ppb | Au FA/AA/AAS oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RSD-354-99-1462-1467 | 32 | 0.001 | 0.6 | 0.018 |
| RSD-354-99-1467-1472 | 6 | 0.000 | 0.3 | 0.009 |
| RSD-354-99-1472-1477 | 9 | 0.000 | 0.3 | 0.009 |

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Attn: Kurt Allen / Randy Vance
Project: RSD-354-99
PO #:

Received: 9-Sep-99 08:46

Job: 993434R

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| RSD-354-99-951.8-972 | 0.8 | 0.07 | 14 | 19 | 52 | 5 | 4.48 | 0.5 | 6 | 7 |
| RSD-354-99-972-992 | 1.4 | 0.06 | 14 | 15 | 51 | 2 | 5.56 | 0.7 | 6 | 5 |
| RSD-354-99-992-1013 | 1.1 | 0.07 | 31 | 13 | 71 | 3 | 5.34 | 3.8 | 4 | 6 |
| RSD-354-99-1013-1019 | 0.4 | 0.50 | 5 | 29 | 108 | 10 | 3.75 | 1.0 | 26 | 36 |
| RSD-354-99-1019-1042 | 0.9 | 0.06 | 18 | 12 | 63 | 3 | 4.53 | 1.9 | 4 | 8 |
| RSD-354-99-1042-1062.6 | 0.6 | 0.08 | 8 | 10 | 70 | 1 | 4.37 | 0.9 | 3 | 6 |
| RSD-354-99-1062.6-1087 | 0.9 | 0.19 | 32 | 14 | 62 | 6 | 4.19 | 2.9 | 7 | 15 |
| RSD-354-99-1087-1107 | 0.7 | 0.05 | 16 | 10 | 60 | 2 | 4.46 | 3.7 | 4 | 8 |
| RSD-354-99-1107-1132 | 0.8 | 0.08 | 24 | 15 | 71 | 5 | 4.64 | 5.5 | 5 | 8 |
| RSD-354-99-1132-1157 | 0.9 | 0.07 | 29 | 12 | 61 | 1 | 4.87 | 4.8 | 4 | 6 |
| RSD-354-99-1157-1172 | 0.8 | 0.11 | 39 | 13 | 64 | 1 | 3.51 | 6.5 | 4 | 13 |
| RSD-354-99-1172-1197 | 0.9 | 0.13 | 43 | 14 | 69 | 4 | 4.62 | 3.6 | 4 | 15 |
| RSD-354-99-1197-1217.4 | 0.7 | 0.21 | 43 | 18 | 110 | 1 | 5.05 | 2.2 | 4 | 22 |
| RSD-354-99-1217.4-1237 | 0.7 | 0.21 | 31 | 15 | 83 | 6 | 4.09 | 1.1 | 4 | 31 |
| RSD-354-99-1237-1257 | 0.7 | 0.08 | 18 | 11 | 66 | 2 | 4.68 | 3.0 | 3 | 12 |
| RSD-354-99-1257-1272 | 0.8 | 0.08 | 18 | 13 | 57 | 2 | 4.95 | 3.2 | 4 | 11 |
| RSD-354-99-1272-1287.1 | 1.0 | 0.06 | 25 | 11 | 73 | 1 | 5.22 | 3.2 | 3 | 10 |
| RSD-354-99-1287.1-1308.3 | 0.8 | 0.24 | 109 | 15 | 99 | <1 | 1.81 | 1.1 | 1 | 31 |
| RSD-354-99-1308.3-1332 | 0.8 | 0.20 | 35 | 20 | 101 | 3 | 5.63 | 3.0 | 5 | 14 |
| RSD-354-99-1332-1352 | 0.6 | 0.15 | 26 | 21 | 58 | 2 | 4.94 | 0.9 | 6 | 18 |

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Attn: Kurt Allen / Randy Vance
Project: RSD-354-99
PO #:

Received: 9-Sep-99 08:46

Job: 993434R

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| RSD-354-99-1352-1374.7 | 0.8 | 0.09 | 15 | 14 | 55 | 5 | 5.59 | 1.6 | 4 | 24 |
| RSD-354-99-1374.7-1398 | 0.7 | 0.06 | 29 | 10 | 58 | 3 | 4.41 | 2.2 | 4 | 20 |
| RSD-354-99-1398-1416 | 0.5 | 0.29 | 279 | 32 | 47 | 4 | 2.82 | 1.1 | 11 | 15 |
| RSD-354-99-1416-1437 | 0.3 | 0.73 | 8 | 26 | 43 | 4 | 2.65 | 0.9 | 8 | 13 |
| RSD-354-99-1437-1457 | 0.4 | 0.39 | 11 | 23 | 71 | 3 | 3.18 | 0.9 | 8 | 8 |
| RSD-354-99-1457-1477 | 0.4 | 0.28 | 28 | 27 | 84 | 5 | 2.95 | 1.0 | 9 | 11 |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| RSD-354-99-951.8-972 | 27 | 2.12 | 43 | 0.09 | <2 | 0.44 | 183 | 18 | <0.01 | 24 |
| RSD-354-99-972-992 | 21 | 1.83 | 34 | 0.08 | 2 | 0.54 | 169 | 24 | <0.01 | 26 |
| RSD-354-99-992-1013 | 28 | 1.58 | 31 | 0.10 | 2 | 0.37 | 169 | 28 | <0.01 | 40 |
| RSD-354-99-1013-1019 | 45 | 3.49 | 105 | 0.15 | 6 | 1.67 | 371 | <1 | <0.01 | 115 |
| RSD-354-99-1019-1042 | 20 | 1.48 | 31 | 0.09 | <2 | 0.40 | 177 | 23 | <0.01 | 27 |
| RSD-354-99-1042-1062.6 | 16 | 1.26 | 28 | 0.11 | <2 | 0.36 | 146 | 21 | <0.01 | 23 |
| RSD-354-99-1062.6-1087 | 33 | 1.90 | 40 | 0.10 | 2 | 0.63 | 216 | 18 | <0.01 | 50 |
| RSD-354-99-1087-1107 | 29 | 1.27 | 37 | 0.07 | <2 | 0.28 | 133 | 24 | <0.01 | 33 |
| RSD-354-99-1107-1132 | 38 | 1.78 | 43 | 0.11 | <2 | 0.21 | 169 | 34 | <0.01 | 42 |
| RSD-354-99-1132-1157 | 30 | 1.50 | 37 | 0.10 | 2 | 0.29 | 155 | 31 | <0.01 | 36 |

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27-Sep-99

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Attn: Kurt Allen / Randy Vance
Received: 9-Sep-99 08:46
Project: RSD-354-99
PO #:

Job: 993434R
Status: Final

**Drill Core**

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| RSD-354-99-1157-1172 | 36 | 1.66 | 31 | 0.13 | <2 | 0.26 | 196 | 24 | <0.01 | 28 |
| RSD-354-99-1172-1197 | 35 | 1.69 | 37 | 0.11 | <2 | 0.31 | 216 | 27 | <0.01 | 36 |
| RSD-354-99-1197-1217.4 | 32 | 2.10 | 52 | 0.14 | <2 | 0.46 | 267 | 26 | <0.01 | 30 |
| RSD-354-99-1217.4-1237 | 19 | 1.82 | 40 | 0.16 | 2 | 0.27 | 180 | 18 | <0.01 | 21 |
| RSD-354-99-1237-1257 | 25 | 1.32 | 28 | 0.11 | <2 | 0.33 | 136 | 23 | <0.01 | 32 |
| RSD-354-99-1257-1272 | 34 | 1.57 | 22 | 0.11 | <2 | 0.25 | 153 | 24 | <0.01 | 34 |
| RSD-354-99-1272-1287.1 | 23 | 1.34 | 25 | 0.10 | <2 | 0.44 | 173 | 26 | <0.01 | 31 |
| RSD-354-99-1287.1-1308.3 | 20 | 1.70 | 37 | 0.15 | 2 | 0.22 | 184 | 5 | <0.01 | 7 |
| RSD-354-99-1308.3-1332 | 35 | 2.32 | 49 | 0.17 | 2 | 0.49 | 223 | 25 | <0.01 | 36 |
| RSD-354-99-1332-1352 | 25 | 2.42 | 31 | 0.13 | 2 | 0.31 | 191 | 21 | <0.01 | 27 |
| RSD-354-99-1352-1374.7 | 28 | 2.07 | 25 | 0.14 | 2 | 0.41 | 173 | 25 | <0.01 | 28 |
| RSD-354-99-1374.7-1398 | 22 | 1.33 | 22 | 0.07 | <2 | 0.34 | 131 | 19 | <0.01 | 30 |
| RSD-354-99-1398-1416 | 53 | 3.79 | 22 | 0.11 | <2 | 0.92 | 406 | <1 | <0.01 | 12 |
| RSD-354-99-1416-1437 | 31 | 3.01 | 12 | 0.11 | 2 | 0.61 | 351 | <1 | <0.01 | 6 |
| RSD-354-99-1437-1457 | 28 | 3.05 | 15 | 0.13 | 2 | 0.76 | 365 | 1 | <0.01 | 7 |
| RSD-354-99-1457-1477 | 39 | 3.09 | 19 | 0.14 | <2 | 0.56 | 331 | 3 | <0.01 | 12 |

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Attn: Kurt Allen / Randy Vance
Project: RSD-354-99
PO #:

Received: 9-Sep-99 08:46

Job: 993434R

Status: Final

**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 |
|---|---|---|---|---|---|---|---|---|---|---|
| RSD-354-99-951.8-972 | 565 | 17 | 4 | <0.5 | 352 | <0.01 | <0.5 | 2 | <1 | 37 |
| RSD-354-99-972-992 | 555 | 14 | 4 | <0.5 | 423 | <0.01 | <0.5 | 2 | <1 | 62 |
| RSD-354-99-992-1013 | 548 | 15 | 5 | <0.5 | 464 | <0.01 | <0.5 | 6 | <1 | 288 |
| RSD-354-99-1013-1019 | 737 | 22 | 9 | <0.5 | 279 | <0.01 | <0.5 | 42 | <1 | 67 |
| RSD-354-99-1019-1042 | 444 | 12 | 3 | <0.5 | 369 | <0.01 | <0.5 | 4 | <1 | 142 |
| RSD-354-99-1042-1062.6 | 328 | 11 | <2 | <0.5 | 330 | <0.01 | <0.5 | 3 | <1 | 77 |
| RSD-354-99-1062.6-1087 | 485 | 15 | 3 | <0.5 | 348 | <0.01 | <0.5 | 13 | <1 | 199 |
| RSD-354-99-1087-1107 | 444 | 14 | 2 | <0.5 | 468 | <0.01 | <0.5 | 6 | <1 | 279 |
| RSD-354-99-1107-1132 | 506 | 17 | 4 | 0.7 | 478 | <0.01 | <0.5 | 8 | <1 | 463 |
| RSD-354-99-1132-1157 | 421 | 15 | 4 | <0.5 | 502 | <0.01 | <0.5 | 6 | <1 | 366 |
| RSD-354-99-1157-1172 | 373 | 19 | 2 | 3.4 | 331 | <0.01 | <0.5 | 5 | <1 | 410 |
| RSD-354-99-1172-1197 | 444 | 17 | 4 | <0.5 | 476 | <0.01 | <0.5 | 7 | <1 | 274 |
| RSD-354-99-1197-1217.4 | 502 | 17 | 2 | <0.5 | 0 | <0.01 | <0.5 | 7 | <1 | 176 |
| RSD-354-99-1217.4-1237 | 411 | 13 | <2 | <0.5 | 316 | <0.01 | <0.5 | 4 | <1 | 71 |
| RSD-354-99-1237-1257 | 454 | 13 | 3 | <0.5 | 424 | <0.01 | <0.5 | 7 | <1 | 230 |
| RSD-354-99-1257-1272 | 525 | 15 | 3 | <0.5 | 510 | <0.01 | <0.5 | 5 | <1 | 269 |
| RSD-354-99-1272-1287.1 | 401 | 11 | 4 | <0.5 | 497 | <0.01 | <0.5 | 7 | <1 | 247 |
| RSD-354-99-1287.1-1308.3 | 205 | 18 | <2 | 1.3 | 138 | <0.01 | <0.5 | 5 | <1 | 86 |
| RSD-354-99-1308.3-1332 | 605 | 19 | 2 | <0.5 | 597 | <0.01 | <0.5 | 8 | <1 | 238 |
| RSD-354-99-1332-1352 | 599 | 17 | 2 | <0.5 | 412 | <0.01 | <0.5 | 2 | <1 | 61 |

BARRINGER LABORATORIES INC.

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RENO, NEVADA 89511
PHONE: (775) 828-1158

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Kurt Allen / Randy Vance
Received: 9-Sep-99 08:46
Project: RSD-354-99
PO #:

Job: 993434R
Status: Final

**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 |
|---|---|---|---|---|---|---|---|---|---|---|
| RSD-354-99-1352-1374.7 | 446 | 13 | <2 | <0.5 | 480 | <0.01 | <0.5 | 3 | <1 | 124 |
| RSD-354-99-1374.7-1398 | 438 | 13 | 3 | <0.5 | 346 | <0.01 | <0.5 | 6 | <1 | 171 |
| RSD-354-99-1398-1416 | 455 | 23 | <2 | <0.5 | 187 | <0.01 | <0.5 | 5 | <1 | 50 |
| RSD-354-99-1416-1437 | 388 | 16 | <2 | <0.5 | 161 | <0.01 | <0.5 | 11 | <1 | 40 |
| RSD-354-99-1437-1457 | 395 | 17 | <2 | <0.5 | 207 | <0.01 | <0.5 | 6 | <1 | 43 |
| RSD-354-99-1457-1477 | 520 | 20 | <2 | <0.5 | 190 | <0.01 | <0.5 | 5 | <1 | 61 |

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

Units:

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

Quality codes:

| | |
|---|---|
| < | : Less than |

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P O BOX 2610
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Attn: Kurt Allen / Randy Vance
Received: 9-Sep-99 08:46
Project: RSD-354-99
PO #:

Job: 993434R
Status: Final

NA : Not Analyzed

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PO #:

Job: 993434R
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
Chuck Whipple
Richard Grondin

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27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 0-4 | 29 | 0.001 | 0.5 | 0.015 |
| RS-D354-99 4-7 | 120 | 0.004 | 0.6 | 0.018 |
| RS-D354-99 7-12 | 38 | 0.001 | 0.6 | 0.018 |
| RS-D354-99 12-17 | 27 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 17-22 | 31 | 0.001 | 0.5 | 0.015 |
| RS-D354-99 22-27 | 76 | 0.002 | 0.4 | 0.012 |
| RS-D354-99 27-32 | 17 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 32-37 | 13 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 37-42 | 14 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 42-47 | 118 | 0.003 | 0.3 | 0.009 |
| RS-D354-99 47-52 | 19 | 0.001 | 0.3 | 0.009 |
| RS-D354-99 52-57 | 19 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 57-62.5 | 18 | 0.001 | 0.5 | 0.015 |
| RS-D354-99 62.5-67.7 | 147 | 0.004 | 1.7 | 0.050 |
| RS-D354-99 67.7-72 | 138 | 0.004 | 1.2 | 0.035 |
| RS-D354-99 72-75.5 | 167 | 0.005 | 2.3 | 0.067 |
| RS-D354-99 75.5-77 | 368 | 0.011 | 10.6 | 0.310 |
| RS-D354-99 77-82 | 88 | 0.003 | 1.2 | 0.035 |
| RS-D354-99 82-84 | 127 | 0.004 | 1.6 | 0.047 |
| STD-82.0B | 137 | 0.004 | NA | 0.000 |

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WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 84-85.6 | 174 | 0.005 | 2.1 | 0.061 |
| RS-D354-99 85.6-89 | 303 | 0.009 | 1.2 | 0.035 |
| RS-D354-99 89-92 | 143 | 0.004 | 0.7 | 0.020 |
| RS-D354-99 92-96 | 151 | 0.004 | 1.9 | 0.055 |
| RS-D354-99 96-98 | 270 | 0.008 | 2.0 | 0.058 |
| RS-D354-99 98-102 | 144 | 0.004 | 1.6 | 0.047 |
| RS-D354-99 102-103 | 468 | 0.014 | 10.8 | 0.315 |
| RS-D354-99 103-107 | 182 | 0.005 | 1.3 | 0.038 |
| RS-D354-99 107-112 | 125 | 0.004 | 0.7 | 0.020 |
| RS-D354-99 112-117 | 180 | 0.005 | 1.0 | 0.029 |
| RS-D354-99 117-120 | 110 | 0.003 | 0.9 | 0.026 |
| RS-D354-99 120-124 | 372 | 0.011 | 1.7 | 0.050 |
| RS-D354-99 124-127 | 160 | 0.005 | 0.9 | 0.026 |
| RS-D354-99 127-132 | 80 | 0.002 | 0.6 | 0.018 |
| RS-D354-99 132-134.5 | 25 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 134.5-137 | 15 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 137-142 | 12 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 142-147 | 18 | 0.001 | 0.3 | 0.009 |
| RS-D354-99 147-152 | 6 | 0.000 | 0.1 | 0.003 |
| RS-D354-99 152-157 | 5 | 0.000 | 0.1 | 0.003 |

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P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Project: RS-D354-99
PO #:

Received: 22-Aug-99 23:05

Job: 993295R

Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 157-162 | 7 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 162-167 | 11 | 0.000 | 0.1 | 0.003 |
| RS-D354-99 167-172 | 30 | 0.001 | 0.3 | 0.009 |
| RS-D354-99 172-173.5 | 48 | 0.001 | 0.7 | 0.020 |
| RS-D354-99 173.5-177 | 107 | 0.003 | 0.4 | 0.012 |
| RS-D354-99 177-182 | 516 | 0.015 | 0.5 | 0.015 |
| RS-D354-99 182-187 | 54 | 0.002 | 0.3 | 0.009 |
| RS-D354-99 187-192 | 10 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 192-197 | 8 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 197-202 | 12 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 202-207 | 25 | 0.001 | 0.3 | 0.009 |
| RS-D354-99 207-212 | 34 | 0.001 | 0.8 | 0.023 |
| RS-D354-99 212-217 | 18 | 0.001 | 0.3 | 0.009 |
| RS-D354-99 217-222 | 26 | 0.001 | 0.9 | 0.026 |
| RS-D354-99 222-227 | 17 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 227-232 | 18 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 232-237 | 10 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 237-239 | 84 | 0.002 | 0.6 | 0.018 |
| RS-D354-99 239-242 | 72 | 0.002 | 0.9 | 0.026 |
| RS-D354-99 242-247 | 46 | 0.001 | 0.7 | 0.020 |

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P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 247-252 | 16 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 252-257 | 69 | 0.002 | 1.0 | 0.029 |
| RS-D354-99 257-262 | 128 | 0.004 | 1.7 | 0.050 |
| RS-D354-99 262-264.2 | 86 | 0.003 | 1.0 | 0.029 |
| RS-D354-99 264.2-267 | 138 | 0.004 | 2.1 | 0.061 |
| RS-D354-99 267-269.1 | 164 | 0.005 | 2.0 | 0.058 |
| RS-D354-99 269.1-272.8 | 161 | 0.005 | 0.8 | 0.023 |
| RS-D354-99 272.8-277 | 138 | 0.004 | 2.3 | 0.067 |
| RS-D354-99 277-279.7 | 178 | 0.005 | 2.9 | 0.085 |
| RS-D354-99 279.7-284.1 | 164 | 0.005 | 1.7 | 0.050 |
| RS-D354-99 284.1-286 | 254 | 0.007 | 3.7 | 0.108 |
| RS-D354-99 286-288.5 | 164 | 0.005 | 1.9 | 0.055 |
| RS-D354-99 288.5-292 | 128 | 0.004 | 8.3 | 0.242 |
| RS-D354-99 292-297 | 75 | 0.002 | 0.9 | 0.026 |
| RS-D354-99 297-302 | 99 | 0.003 | 1.1 | 0.032 |
| RS-D354-99 302-307 | 92 | 0.003 | 0.7 | 0.020 |
| RS-D354-99 307-312 | 94 | 0.003 | 0.8 | 0.023 |
| RS-D354-99 312-317 | 42 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 317-320.7 | 65 | 0.002 | 0.8 | 0.023 |
| RS-D354-99 320.7-323.4 | 40 | 0.001 | 0.7 | 0.020 |

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WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 323.4-327 | 131 | 0.004 | 1.7 | 0.050 |
| RS-D354-99 327-331 | 94 | 0.003 | 0.5 | 0.015 |
| RS-D354-99 331-334 | 128 | 0.004 | 1.4 | 0.041 |
| RS-D354-99 334-337 | 148 | 0.004 | 1.6 | 0.047 |
| RS-D354-99 337-342 | 43 | 0.001 | 0.3 | 0.009 |
| RS-D354-99 342-347 | 109 | 0.003 | 1.9 | 0.055 |
| RS-D354-99 347-352 | 48 | 0.001 | 1.0 | 0.029 |
| RS-D354-99 352-354.5 | 51 | 0.001 | 1.9 | 0.055 |
| RS-D354-99 354.5-356.2 | 37 | 0.001 | 1.9 | 0.055 |
| RS-D354-99 356.2-359 | 41 | 0.001 | 1.2 | 0.035 |
| RS-D354-99 359-362 | 46 | 0.001 | 2.2 | 0.064 |
| RS-D354-99 362-367 | 234 | 0.007 | 0.9 | 0.026 |
| RS-D354-99 367-371 | 628 | 0.018 | 2.3 | 0.067 |
| RS-D354-99 371-374.5 | 319 | 0.009 | 2.1 | 0.061 |
| RS-D354-99 374.5-379.9 | 308 | 0.009 | 3.6 | 0.105 |
| RS-D354-99 379.9-384.7 | 129 | 0.004 | 2.1 | 0.061 |
| STD-384.7B | 6980 | 0.204 | NA | 0.000 |
| RS-D354-99 384.7-387 | 112 | 0.003 | 1.3 | 0.038 |
| RS-D354-99 387-392 | 89 | 0.003 | 1.0 | 0.029 |
| RS-D354-99 392-397 | 73 | 0.002 | 0.8 | 0.023 |

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P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Project: RS-D354-99
PO #:

Received: 22-Aug-99 23:05

Job: 993295R

Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 397-402 | 86 | 0.003 | 1.1 | 0.032 |
| RS-D354-99 402-407 | 103 | 0.003 | 1.1 | 0.032 |
| RS-D354-99 407-412 | 101 | 0.003 | 0.7 | 0.020 |
| RS-D354-99 412-417 | 60 | 0.002 | 1.2 | 0.035 |
| RS-D354-99 417-422 | 36 | 0.001 | 1.6 | 0.047 |
| RS-D354-99 422-427 | 64 | 0.002 | 2.6 | 0.076 |
| RS-D354-99 427-432 | 85 | 0.002 | 0.8 | 0.023 |
| RS-D354-99 432-437 | 50 | 0.001 | 0.6 | 0.018 |
| RS-D354-99 437-442 | 15 | 0.000 | 0.5 | 0.015 |
| RS-D354-99 442-447 | 64 | 0.002 | 1.0 | 0.029 |
| RS-D354-99 447-452 | 50 | 0.001 | 1.0 | 0.029 |
| RS-D354-99 452-457 | 24 | 0.001 | 0.7 | 0.020 |
| RS-D354-99 457-462 | 36 | 0.001 | 0.8 | 0.023 |
| RS-D354-99 462-467 | 244 | 0.007 | 1.2 | 0.035 |
| RS-D354-99 467-472 | 13 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 472-477 | 18 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 477-482 | 30 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 482-487 | 5 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 487-492 | 12 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 492-497 | 14 | 0.000 | 0.4 | 0.012 |

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P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 497-502 | 21 | 0.001 | 0.3 | 0.009 |
| RS-D354-99 502-507 | 15 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 507-512 | 47 | 0.001 | 0.3 | 0.009 |
| RS-D354-99 512-517 | 124 | 0.004 | 0.4 | 0.012 |
| RS-D354-99 517-522 | 56 | 0.002 | 0.2 | 0.006 |
| RS-D354-99 522-527 | 41 | 0.001 | 0.2 | 0.006 |
| RS-D354-99 527-532 | 102 | 0.003 | 0.4 | 0.012 |
| RS-D354-99 532-537 | 232 | 0.007 | 1.0 | 0.029 |
| RS-D354-99 537-542 | 31 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 542-547 | 14 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 547-552 | 22 | 0.001 | 0.3 | 0.009 |
| RS-D354-99 552-557 | 13 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 557-562 | 11 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 562-567 | 17 | 0.000 | 0.5 | 0.015 |
| RS-D354-99 567-572 | 23 | 0.001 | 0.5 | 0.015 |
| RS-D354-99 572-577 | 13 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 577-582 | 13 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 582-587 | 6 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 587-592 | 8 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 592-597 | 8 | 0.000 | 0.4 | 0.012 |

# 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

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Project: RS-D354-99
PO #:

Received: 22-Aug-99 23:05

Job: 993295R

Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 597-602 | 18 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 602-607 | 17 | 0.000 | 0.7 | 0.020 |
| STD-607.0B | 990 | 0.029 | NA | 0.000 |
| RS-D354-99 607-612 | 7 | 0.000 | 0.5 | 0.015 |
| RS-D354-99 612-617 | 5 | 0.000 | 0.5 | 0.015 |
| RS-D354-99 617-622 | 16 | 0.000 | 1.3 | 0.038 |
| RS-D354-99 622-627 | 23 | 0.001 | 1.5 | 0.044 |
| RS-D354-99 627-632 | 10 | 0.000 | 0.6 | 0.018 |
| RS-D354-99 632-637 | 57 | 0.002 | 0.5 | 0.015 |
| RS-D354-99 637-642 | 8 | 0.000 | 0.5 | 0.015 |
| RS-D354-99 642-647 | 19 | 0.001 | 1.1 | 0.032 |
| RS-D354-99 647-652 | 8 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 652-657 | 30 | 0.001 | 0.6 | 0.018 |
| RS-D354-99 657-662 | 16 | 0.000 | 0.5 | 0.015 |
| RS-D354-99 662-667 | 51 | 0.001 | 0.6 | 0.018 |
| RS-D354-99 667-672 | 12 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 672-677 | 91 | 0.003 | 1.0 | 0.029 |
| RS-D354-99 677-682 | 50 | 0.001 | 0.6 | 0.018 |
| RS-D354-99 682-687 | 7 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 687-692 | 4 | 0.000 | 0.3 | 0.009 |

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27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 692-697 | 21 | 0.001 | 0.7 | 0.020 |
| RS-D354-99 697-702 | 106 | 0.003 | 0.8 | 0.023 |
| RS-D354-99 702-707 | 3 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 707-712 | <2 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 712-717 | 6 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 717-722 | 3 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 722-727 | <2 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 727-732 | 60 | 0.002 | 0.3 | 0.009 |
| RS-D354-99 732-737 | 4 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 737-742 | 9 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 742-747 | 8 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 747-752 | 6 | 0.000 | 0.4 | 0.012 |
| RS-D354-99 752-757 | 46 | 0.001 | 0.5 | 0.015 |
| RS-D354-99 757-762 | 3 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 762-767 | 12 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 767-772 | 9 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 772-777 | 104 | 0.003 | 0.3 | 0.009 |
| RS-D354-99 777-782 | 6 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 782-787 | 4 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 787-792 | <2 | 0.000 | 0.2 | 0.006 |

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27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Project: RS-D354-99
PO #:

Received: 22-Aug-99 23:05

Job: 993295R

Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 792-797 | 5 | 0.000 | 0.1 | 0.003 |
| RS-D354-99 797-802 | 13 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 802-807 | 12 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 807-812 | 4 | 0.000 | 0.1 | 0.003 |
| RS-D354-99 812-817 | 12 | 0.000 | 0.1 | 0.003 |
| RS-D354-99 817-822 | 2 | 0.000 | 0.6 | 0.018 |
| RS-D354-99 822-827 | <2 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 827-832 | 2 | 0.000 | 0.1 | 0.003 |
| RS-D354-99 832-837 | <2 | 0.000 | <0.1 | 0.003 |
| RS-D354-99 837-842 | <2 | 0.000 | 0.1 | 0.003 |
| RS-D354-99 842-847 | 5 | 0.000 | 0.3 | 0.009 |
| RS-D354-99 847-852 | <2 | 0.000 | 0.1 | 0.003 |
| RS-D354-99 852-857 | <2 | 0.000 | 0.1 | 0.003 |
| RS-D354-99 857-860.5 | 6 | 0.000 | 0.2 | 0.006 |
| RS-D354-99 860.5-863.9 | 21 | 0.001 | 0.4 | 0.012 |
| RS-D354-99 863.9-867.8 | 35 | 0.001 | 0.2 | 0.006 |
| RS-D354-99 867.8-872 | 24 | 0.001 | 1.8 | 0.053 |
| RS-D354-99 872-877 | 16 | 0.000 | 1.5 | 0.044 |
| RS-D354-99 877-882 | 18 | 0.001 | 1.4 | 0.041 |
| RS-D354-99 882-887 | 32 | 0.001 | 1.1 | 0.032 |

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27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**Drill Core**

| Sample Id | Au FA/AA ppb | Au FA/AA oz/ton | Ag AA ppm | Ag AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 887-892 | 130 | 0.004 | 1.0 | 0.029 |
| RS-D354-99 892-897 | 36 | 0.001 | 1.3 | 0.038 |
| RS-D354-99 897-902 | 82 | 0.002 | 2.1 | 0.061 |
| RS-D354-99 902-907 | 140 | 0.004 | 2.0 | 0.058 |
| RS-D354-99 907-910 | 76 | 0.002 | 3.4 | 0.099 |
| RS-D354-99 910-912 | 162 | 0.005 | 2.3 | 0.067 |
| RS-D354-99 912-917 | 144 | 0.004 | 2.0 | 0.058 |
| RS-D354-99 917-922 | 153 | 0.004 | 2.1 | 0.061 |
| RS-D354-99 922-923.7 | 218 | 0.006 | 2.2 | 0.064 |
| RS-D354-99 923.7-927 | 123 | 0.004 | 2.7 | 0.079 |
| STD-927.0B | 6700 | 0.196 | NA | 0.000 |
| RS-D354-99 927-932 | 36 | 0.001 | 1.8 | 0.053 |
| RS-D354-99 932-937 | 19 | 0.001 | 1.7 | 0.050 |
| RS-D354-99 937-942 | 28 | 0.001 | 1.5 | 0.044 |
| RS-D354-99 942-947 | 20 | 0.001 | 1.0 | 0.029 |
| RS-D354-99 947-948.4 | 14 | 0.000 | 1.1 | 0.032 |
| RS-D354-99 948.4-951.8 | 76 | 0.002 | 0.2 | 0.006 |

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27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Project: RS-D354-99
PO #:

Received: 22-Aug-99 23:05

Job: 993295R

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-D354-99 0-22 | <0.1 | 0.19 | 31 | 10 | 19 | <1 | 0.06 | <0.5 | <1 | 7 |
| RS-D354-99 22-42 | <0.1 | 0.30 | 17 | 17 | 12 | <1 | 0.08 | 0.1 | <1 | 8 |
| RS-D354-99 42-62.5 | <0.1 | 0.21 | 45 | 14 | 11 | 3 | 0.08 | <0.5 | <1 | 12 |
| RS-D354-99 62.5-82 | 2.1 | 0.23 | 174 | 23 | 10 | <1 | 0.07 | 0.6 | <1 | 31 |
| RS-D354-99 82-102 | 0.6 | 0.15 | 186 | 25 | 50 | <1 | 0.07 | 0.5 | <1 | 22 |
| RS-D354-99 102-124 | 1.4 | 0.17 | 105 | 19 | 67 | <1 | 0.05 | <0.5 | <1 | 22 |
| RS-D354-99 124-147 | <0.1 | 0.18 | 15 | 19 | 11 | <1 | 0.09 | <0.5 | <1 | 18 |
| RS-D354-99 147-167 | <0.1 | 0.25 | 9 | 15 | 13 | <1 | 0.07 | <0.5 | <1 | 21 |
| RS-D354-99 167-187 | <0.1 | 0.19 | 50 | 20 | 18 | 4 | 0.06 | 0.5 | <1 | 24 |
| RS-D354-99 187-207 | <0.1 | 0.21 | 25 | 13 | 19 | <1 | 0.59 | <0.5 | <1 | 22 |
| RS-D354-99 207-227 | 0.3 | 0.29 | 24 | 15 | 23 | 5 | 0.99 | <0.5 | <1 | 31 |
| RS-D354-99 227-247 | 0.3 | 0.17 | 34 | 15 | 11 | <1 | 0.55 | <0.5 | <1 | 19 |
| RS-D354-99 247-267 | 0.7 | 0.12 | 22 | 15 | 79 | <1 | 0.14 | <0.5 | <1 | 19 |
| RS-D354-99 267-288.5 | 1.1 | 0.15 | 35 | 14 | 75 | <1 | 0.04 | <0.5 | <1 | 25 |
| RS-D354-99 288.5-312 | 0.5 | 0.14 | 37 | 15 | 85 | <1 | 0.05 | <0.5 | <1 | 27 |
| RS-D354-99 312-331 | 0.2 | 0.12 | 19 | 17 | 31 | <1 | 0.09 | 0.6 | <1 | 21 |
| RS-D354-99 331-352 | 0.6 | 0.15 | 25 | 13 | 25 | <1 | 0.06 | <0.5 | <1 | 26 |
| RS-D354-99 352-371 | 0.9 | 0.11 | 70 | 11 | 95 | <1 | 0.06 | <0.5 | <1 | 24 |
| RS-D354-99 371-384.7 | 1.3 | 0.09 | 68 | 19 | 35 | 1 | 0.05 | 0.5 | <1 | 28 |
| RS-D354-99 384.7-407 | 0.4 | 0.13 | 28 | 14 | 66 | <1 | 0.06 | <0.5 | <1 | 23 |

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27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
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-D354-99 407-427 | 1.0 | 0.12 | 28 | 11 | 46 | <1 | 0.26 | <0.5 | <1 | 17 |
| RS-D354-99 427-447 | 0.4 | 0.16 | 11 | 11 | 137 | <1 | 0.88 | <0.5 | <1 | 17 |
| RS-D354-99 447-467 | 0.7 | 0.15 | 36 | 14 | 37 | <1 | 1.40 | <0.5 | <1 | 20 |
| RS-D354-99 467-487 | 0.2 | 0.18 | 16 | 14 | 12 | 2 | 0.88 | <0.5 | <1 | 20 |
| RS-D354-99 487-507 | <0.1 | 0.22 | 17 | 12 | 18 | <1 | 0.53 | <0.5 | <1 | 20 |
| RS-D354-99 507-527 | 0.4 | 0.13 | 56 | 10 | 14 | <1 | 1.91 | <0.5 | <1 | 16 |
| RS-D354-99 527-547 | 0.3 | 0.15 | 138 | 24 | 24 | 2 | 1.08 | 0.5 | <1 | 19 |
| RS-D354-99 547-567 | <0.1 | 0.33 | 21 | 15 | 14 | <1 | 0.71 | <0.5 | 1 | 14 |
| RS-D354-99 567-587 | <0.1 | 0.34 | 16 | 18 | 25 | <1 | 0.72 | 0.5 | 1 | 11 |
| RS-D354-99 587-607 | 0.1 | 0.44 | 5 | 19 | 16 | 2 | 1.00 | 0.5 | 2 | 13 |
| RS-D354-99 607-627 | 0.3 | 0.48 | 5 | 22 | 33 | 5 | 0.75 | 0.7 | 4 | 12 |
| RS-D354-99 627-647 | 0.2 | 0.51 | 4 | 24 | 28 | 2 | 0.87 | 0.7 | 3 | 12 |
| RS-D354-99 647-667 | 0.2 | 0.45 | 12 | 21 | 22 | 1 | 0.83 | 0.6 | 2 | 13 |
| RS-D354-99 667-687 | 1.0 | 0.39 | 30 | 19 | 39 | 1 | 1.20 | 0.6 | 1 | 10 |
| RS-D354-99 687-707 | 0.2 | 0.45 | 2 | 18 | 16 | <1 | 1.27 | <0.5 | 3 | 11 |
| RS-D354-99 707-727 | <0.1 | 0.54 | 2 | 22 | 57 | 1 | 1.28 | 0.6 | 3 | 9 |
| RS-D354-99 727-747 | 0.1 | 0.55 | <2 | 20 | 50 | <1 | 1.26 | 0.8 | 3 | 9 |
| RS-D354-99 747-767 | 0.2 | 0.47 | <2 | 19 | 95 | <1 | 1.76 | <0.5 | 3 | 7 |
| RS-D354-99 767-787 | <0.1 | 0.47 | <2 | 19 | 22 | 3 | 0.75 | <0.5 | 3 | 9 |
| RS-D354-99 787-807 | <0.1 | 0.40 | <2 | 14 | 20 | <1 | 0.87 | <0.5 | 2 | 6 |

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27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
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-D354-99 807-827 | <0.1 | 0.41 | 2 | 14 | 151 | 3 | 0.93 | 0.6 | <1 | 6 |
| RS-D354-99 827-847 | <0.1 | 0.29 | 2 | 8 | 55 | <1 | 1.01 | <0.5 | <1 | 5 |
| RS-D354-99 847-863.9 | <0.1 | 0.22 | 7 | 4 | 257 | 4 | 0.86 | <0.5 | 1 | 7 |
| RS-D354-99 863.9-867.8 | <0.1 | 0.21 | 8 | 5 | 18 | 1 | 0.19 | <0.5 | 3 | 8 |
| RS-D354-99 867.8-887 | 1.0 | 0.22 | 60 | 22 | 42 | 2 | 1.66 | 8.2 | 7 | 27 |
| RS-D354-99 887-910 | 1.7 | 0.15 | 85 | 24 | 60 | 2 | 2.42 | 6.9 | 6 | 23 |
| RS-D354-99 910-927 | 1.6 | 0.11 | 45 | 16 | 51 | 1 | 0.69 | 2.2 | 4 | 79 |
| RS-D354-99 927-948.4 | 1.4 | 0.11 | 24 | 13 | 72 | 2 | 4.56 | 3.8 | 4 | 21 |
| RS-D354-99 948.4-951.8 | 0.3 | 0.51 | 3 | 19 | 312 | 1 | 1.88 | 0.6 | <1 | 16 |

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27-Sep-99

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WINNEMUCCA NV 89446



Attn: Randy Vance
Project: RS-D354-99
PO #:

Received: 22-Aug-99 23:05

Job: 993295R

Status: Final

**Drill Core**

| 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-D354-99 0-22 | 10 | 0.52 | 25 | 0.35 | 26 | 0.01 | 46 | 1 | <0.01 | 1 |
| RS-D354-99 22-42 | 10 | 1.20 | 34 | 0.43 | 29 | 0.03 | 93 | <1 | <0.01 | <1 |
| RS-D354-99 42-62.5 | 9 | 0.93 | 37 | 0.41 | 28 | 0.02 | 141 | 1 | <0.01 | <1 |
| RS-D354-99 62.5-82 | 88 | 1.80 | 531 | 0.47 | 23 | 0.01 | 12 | 271 | <0.01 | 1 |
| RS-D354-99 82-102 | 20 | 1.96 | 373 | 0.43 | 26 | 0.01 | 8 | 50 | <0.01 | 1 |
| RS-D354-99 102-124 | 28 | 1.41 | 444 | 0.42 | 29 | <0.01 | 8 | 581 | <0.01 | 2 |
| RS-D354-99 124-147 | 7 | 1.43 | 157 | 0.42 | 27 | 0.01 | 28 | 4 | <0.01 | 1 |
| RS-D354-99 147-167 | 9 | 1.10 | 52 | 0.47 | 32 | 0.01 | 203 | 2 | <0.01 | <1 |
| RS-D354-99 167-187 | 24 | 1.58 | 68 | 0.49 | 32 | 0.01 | 33 | 1 | <0.01 | 1 |
| RS-D354-99 187-207 | 7 | 0.94 | 40 | 0.46 | 30 | 0.01 | 511 | 8 | <0.01 | 1 |
| RS-D354-99 207-227 | 16 | 1.11 | 37 | 0.42 | 21 | 0.02 | 682 | 21 | <0.01 | 1 |
| RS-D354-99 227-247 | 8 | 1.22 | 56 | 0.40 | 21 | 0.01 | 590 | 6 | <0.01 | 1 |
| RS-D354-99 247-267 | 6 | 1.04 | 59 | 0.35 | 21 | <0.01 | 235 | 10 | <0.01 | <1 |
| RS-D354-99 267-288.5 | 10 | 1.14 | 71 | 0.33 | 23 | <0.01 | 17 | 2 | <0.01 | 1 |
| RS-D354-99 288.5-312 | 8 | 1.13 | 71 | 0.34 | 23 | <0.01 | 94 | 2 | <0.01 | 1 |
| RS-D354-99 312-331 | 5 | 1.37 | 111 | 0.31 | 18 | 0.01 | 78 | <1 | <0.01 | <1 |
| RS-D354-99 331-352 | 7 | 0.94 | 80 | 0.33 | 20 | <0.01 | 40 | 1 | <0.01 | 1 |
| RS-D354-99 352-371 | 6 | 0.81 | 108 | 0.29 | 19 | <0.01 | 30 | <1 | <0.01 | 1 |
| RS-D354-99 371-384.7 | 8 | 1.59 | 305 | 0.20 | 11 | <0.01 | 12 | <1 | <0.01 | 1 |
| RS-D354-99 384.7-407 | 4 | 1.13 | 111 | 0.30 | 20 | <0.01 | 12 | <1 | <0.01 | 1 |

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27-Sep-99

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Attn: Randy Vance
Project: RS-D354-99
PO #:

Received: 22-Aug-99 23:05

Job: 993295R

Status: Final

**Drill Core**

| 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-D354-99 407-427 | 3 | 0.82 | 86 | 0.30 | 20 | 0.01 | 156 | 1 | <0.01 | <1 |
| RS-D354-99 427-447 | 4 | 0.82 | 25 | 0.32 | 20 | 0.01 | 325 | <1 | <0.01 | 1 |
| RS-D354-99 447-467 | 5 | 1.26 | 31 | 0.27 | 12 | 0.01 | 504 | <1 | <0.01 | 1 |
| RS-D354-99 467-487 | 8 | 1.08 | 49 | 0.30 | 18 | 0.02 | 261 | <1 | <0.01 | <1 |
| RS-D354-99 487-507 | 7 | 0.87 | 52 | 0.36 | 24 | 0.02 | 215 | <1 | <0.01 | <1 |
| RS-D354-99 507-527 | 3 | 0.90 | 86 | 0.28 | 14 | 0.01 | 664 | <1 | <0.01 | <1 |
| RS-D354-99 527-547 | 7 | 2.11 | 136 | 0.31 | 15 | 0.01 | 473 | <1 | <0.01 | <1 |
| RS-D354-99 547-567 | 6 | 1.40 | 28 | 0.41 | 23 | 0.05 | 287 | <1 | <0.01 | 1 |
| RS-D354-99 567-587 | 5 | 1.58 | 22 | 0.42 | 24 | 0.05 | 305 | <1 | <0.01 | 1 |
| RS-D354-99 587-607 | 21 | 1.81 | 31 | 0.39 | 27 | 0.05 | 589 | <1 | <0.01 | 1 |
| RS-D354-99 607-627 | 26 | 2.18 | 49 | 0.33 | 19 | 0.06 | 375 | 8 | <0.01 | 1 |
| RS-D354-99 627-647 | 7 | 2.27 | 52 | 0.31 | 19 | 0.06 | 662 | 3 | <0.01 | 1 |
| RS-D354-99 647-667 | 13 | 2.02 | 52 | 0.39 | 23 | 0.05 | 864 | 3 | <0.01 | 1 |
| RS-D354-99 667-687 | 5 | 1.80 | 62 | 0.39 | 17 | 0.05 | 673 | 10 | <0.01 | 1 |
| RS-D354-99 687-707 | 11 | 1.66 | 31 | 0.42 | 24 | 0.05 | 848 | 12 | <0.01 | 1 |
| RS-D354-99 707-727 | 9 | 2.16 | 31 | 0.44 | 24 | 0.06 | 815 | <1 | <0.01 | 1 |
| RS-D354-99 727-747 | 7 | 2.08 | 43 | 0.42 | 22 | 0.06 | 761 | <1 | <0.01 | 1 |
| RS-D354-99 747-767 | 6 | 1.99 | 22 | 0.43 | 19 | 0.05 | 578 | <1 | <0.01 | 1 |
| RS-D354-99 767-787 | 8 | 1.79 | 19 | 0.45 | 22 | 0.05 | 350 | <1 | <0.01 | 1 |
| RS-D354-99 787-807 | 9 | 1.49 | 22 | 0.45 | 25 | 0.05 | 360 | <1 | <0.01 | 1 |

# 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

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**Drill Core**

| 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-D354-99 807-827 | 16 | 1.55 | 15 | 0.51 | 28 | 0.05 | 502 | <1 | <0.01 | <1 |
| RS-D354-99 827-847 | 3 | 0.86 | 37 | 0.47 | 31 | 0.05 | 295 | <1 | <0.01 | <1 |
| RS-D354-99 847-863.9 | 4 | 0.42 | 37 | 0.43 | 24 | 0.04 | 194 | <1 | <0.01 | 6 |
| RS-D354-99 863.9-867.8 | 17 | 0.50 | 49 | 0.25 | 5 | 0.06 | 29 | <1 | <0.01 | 11 |
| RS-D354-99 867.8-887 | 58 | 2.42 | 62 | 0.17 | 2 | 0.09 | 266 | 19 | <0.01 | 25 |
| RS-D354-99 887-910 | 59 | 2.45 | 52 | 0.15 | 2 | 0.13 | 325 | 23 | <0.01 | 32 |
| RS-D354-99 910-927 | 65 | 1.46 | 59 | 0.11 | <2 | 0.02 | 94 | 20 | <0.01 | 24 |
| RS-D354-99 927-948.4 | 35 | 1.59 | 49 | 0.15 | 2 | 0.14 | 190 | 25 | <0.01 | 33 |
| RS-D354-99 948.4-951.8 | 16 | 2.08 | 71 | 0.14 | 2 | 0.18 | 240 | 2 | <0.01 | 2 |

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PHONE: (775) 828-1158

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Project: RS-D354-99
PO #:

Received: 22-Aug-99 23:05

Job: 993295R

Status: Final

**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-D354-99 0-22 | 36 | 13 | <2 | 2.4 | 8 | <0.01 | <0.5 | <2 | <1 | 59 |
| RS-D354-99 22-42 | 48 | 18 | <2 | <0.5 | 9 | <0.01 | <0.5 | <2 | <1 | 100 |
| RS-D354-99 42-62.5 | 47 | 15 | <2 | <0.5 | 10 | <0.01 | <0.5 | <2 | <1 | 76 |
| RS-D354-99 62.5-82 | 29 | 45 | 12 | 5.4 | 8 | <0.01 | <0.5 | <2 | <1 | 83 |
| RS-D354-99 82-102 | 37 | 24 | 6 | 9.3 | 9 | <0.01 | <0.5 | <2 | <1 | 60 |
| RS-D354-99 102-124 | 24 | 33 | 8 | 4.8 | 7 | <0.01 | 2.7 | <2 | <1 | 86 |
| RS-D354-99 124-147 | 48 | 21 | 2 | <0.5 | 11 | <0.01 | <0.5 | <2 | <1 | 74 |
| RS-D354-99 147-167 | 45 | 19 | <2 | <0.5 | 8 | <0.01 | <0.5 | <2 | <1 | 74 |
| RS-D354-99 167-187 | 49 | 22 | 8 | <0.5 | 7 | <0.01 | <0.5 | <2 | <1 | 52 |
| RS-D354-99 187-207 | 37 | 17 | 2 | <0.5 | 33 | <0.01 | <0.5 | <2 | <1 | 54 |
| RS-D354-99 207-227 | 32 | 20 | 2 | <0.5 | 60 | <0.01 | <0.5 | <2 | <1 | 55 |
| RS-D354-99 227-247 | 29 | 19 | 4 | <0.5 | 30 | <0.01 | <0.5 | <2 | <1 | 50 |
| RS-D354-99 247-267 | 38 | 16 | 9 | 1.8 | 11 | <0.01 | <0.5 | <2 | <1 | 50 |
| RS-D354-99 267-288.5 | 34 | 17 | 10 | 6.4 | 6 | <0.01 | <0.5 | <2 | <1 | 54 |
| RS-D354-99 288.5-312 | 37 | 18 | 23 | 2.8 | 7 | <0.01 | <0.5 | <2 | <1 | 51 |
| RS-D354-99 312-331 | 37 | 18 | 6 | 1.5 | 10 | <0.01 | <0.5 | <2 | <1 | 46 |
| RS-D354-99 331-352 | 39 | 16 | 4 | 4.7 | 8 | <0.01 | <0.5 | <2 | <1 | 51 |
| RS-D354-99 352-371 | 30 | 14 | 7 | 4.8 | 13 | <0.01 | <0.5 | <2 | <1 | 39 |
| RS-D354-99 371-384.7 | 22 | 16 | 10 | 6.6 | 9 | <0.01 | <0.5 | <2 | <1 | 42 |
| RS-D354-99 384.7-407 | 42 | 17 | 7 | 1.1 | 8 | <0.01 | <0.5 | <2 | <1 | 46 |

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RENO, NEVADA 89511
PHONE: (775) 828-1158

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**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-D354-99 407-427 | 51 | 15 | 4 | 4.3 | 23 | <0.01 | <0.5 | <2 | <1 | 48 |
| RS-D354-99 427-447 | 48 | 15 | <2 | <0.5 | 66 | <0.01 | <0.5 | <2 | <1 | 37 |
| RS-D354-99 447-467 | 21 | 14 | 2 | <0.5 | 83 | <0.01 | <0.5 | <2 | <1 | 38 |
| RS-D354-99 467-487 | 41 | 15 | <2 | <0.5 | 51 | <0.01 | <0.5 | <2 | <1 | 41 |
| RS-D354-99 487-507 | 47 | 15 | <2 | <0.5 | 42 | <0.01 | <0.5 | <2 | <1 | 47 |
| RS-D354-99 507-527 | 28 | 13 | <2 | <0.5 | 126 | <0.01 | <0.5 | <2 | <1 | 38 |
| RS-D354-99 527-547 | 29 | 24 | <2 | <0.5 | 98 | <0.01 | <0.5 | <2 | <1 | 57 |
| RS-D354-99 547-567 | 87 | 15 | <2 | <0.5 | 51 | <0.01 | <0.5 | 2 | <1 | 57 |
| RS-D354-99 567-587 | 118 | 16 | <2 | <0.5 | 65 | <0.01 | <0.5 | 2 | <1 | 49 |
| RS-D354-99 587-607 | 127 | 22 | <2 | <0.5 | 63 | <0.01 | <0.5 | 4 | <1 | 51 |
| RS-D354-99 607-627 | 219 | 22 | <2 | <0.5 | 44 | <0.01 | <0.5 | 15 | <1 | 57 |
| RS-D354-99 627-647 | 185 | 17 | <2 | <0.5 | 37 | <0.01 | <0.5 | 15 | <1 | 56 |
| RS-D354-99 647-667 | 129 | 19 | <2 | <0.5 | 63 | <0.01 | <0.5 | 5 | <1 | 50 |
| RS-D354-99 667-687 | 103 | 18 | <2 | <0.5 | 98 | <0.01 | <0.5 | 2 | <1 | 50 |
| RS-D354-99 687-707 | 159 | 19 | <2 | <0.5 | 96 | <0.01 | <0.5 | 6 | <1 | 54 |
| RS-D354-99 707-727 | 170 | 17 | <2 | <0.5 | 100 | <0.01 | <0.5 | 9 | <1 | 60 |
| RS-D354-99 727-747 | 196 | 16 | <2 | <0.5 | 112 | <0.01 | <0.5 | 8 | <1 | 54 |
| RS-D354-99 747-767 | 197 | 18 | <2 | <0.5 | 164 | <0.01 | <0.5 | 6 | <1 | 41 |
| RS-D354-99 767-787 | 200 | 16 | <2 | <0.5 | 78 | <0.01 | <0.5 | 6 | <1 | 49 |
| RS-D354-99 787-807 | 142 | 16 | <2 | <0.5 | 87 | <0.01 | <0.5 | 3 | <1 | 46 |

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PHONE: (775) 828-1158

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

**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-D354-99 807-827 | 61 | 19 | <2 | <0.5 | 108 | <0.01 | <0.5 | <2 | <1 | 46 |
| RS-D354-99 827-847 | 37 | 15 | <2 | <0.5 | 123 | <0.01 | <0.5 | <2 | <1 | 40 |
| RS-D354-99 847-863.9 | 41 | 11 | <2 | 1.3 | 101 | <0.01 | <0.5 | <2 | <1 | 33 |
| RS-D354-99 863.9-867.8 | 117 | 12 | <2 | 0.7 | 51 | <0.01 | <0.5 | <2 | <1 | 38 |
| RS-D354-99 867.8-887 | 461 | 23 | 5 | <0.5 | 143 | <0.01 | <0.5 | 8 | <1 | 558 |
| RS-D354-99 887-910 | 493 | 22 | 9 | 3.7 | 241 | <0.01 | <0.5 | 8 | <1 | 475 |
| RS-D354-99 910-927 | 293 | 22 | 7 | <0.5 | 44 | <0.01 | <0.5 | 5 | <1 | 159 |
| RS-D354-99 927-948.4 | 415 | 15 | 6 | <0.5 | 605 | <0.01 | <0.5 | 6 | <1 | 293 |
| RS-D354-99 948.4-951.8 | 89 | 18 | <2 | <0.5 | 181 | <0.01 | <0.5 | <2 | <1 | 53 |

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27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
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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KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
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:

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

Quality codes:

| | |
|---|---|
| < | : Less than |

# BARRINGER LABORATORIES INC.

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PHONE: (775) 828-1158

27-Sep-99

KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446



Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
Status: Final

NA : Not Analyzed

# BARRINGER LABORATORIES INC.

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

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27-Sep-99



KURT ALLEN
HECLA MINING COMPANY - ROSEBUD MINE
P O BOX 2610
WINNEMUCCA NV 89446

Attn: Randy Vance
Received: 22-Aug-99 23:05
Project: RS-D354-99
PO #:

Job: 993295R
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
Chuck Whipple
Richard Grondin

NSI

Job: 993295

| Sample | From | To | Au FA/AA ppb | Au FA/AA oz/ton |
|---|---|---|---|---|
| RS-D354-99 | 0 | 4 | 48 | 0.001 |
| RS-D354-99 | 4 | 7 | 198 | 0.006 |
| RS-D354-99 | 7 | 12 | 38 | 0.001 |
| RS-D354-99 | 12 | 17 | 27 | 0.001 |
| RS-D354-99 | 17 | 22 | 31 | 0.001 |
| RS-D354-99 | 22 | 27 | 76 | 0.002 |
| RS-D354-99 | 27 | 32 | 17 | 0.000 |
| RS-D354-99 | 32 | 37 | 13 | 0.000 |
| RS-D354-99 | 37 | 42 | 14 | 0.000 |
| RS-D354-99 | 42 | 47 | 118 | 0.003 |
| RS-D354-99 | 47 | 52 | 19 | 0.001 |
| RS-D354-99 | 52 | 57 | 19 | 0.001 |
| RS-D354-99 | 57 | 62.5 | 18 | 0.001 |
| RS-D354-99 | 62.5 | 67.7 | 147 | 0.004 |
| RS-D354-99 | 67.7 | 72 | 138 | 0.004 |
| RS-D354-99 | 72 | 75.5 | 167 | 0.005 |
| RS-D354-99 | 75.5 | 77 | 368 | 0.011 |
| RS-D354-99 | 77 | 82 | 88 | 0.003 |
| RS-D354-99 | 82 | 84 | 127 | 0.004 |
| RS-D354-99 | 84 | 85.6 | 174 | 0.005 |
| RS-D354-99 | 85.6 | 89 | 303 | 0.009 |
| RS-D354-99 | 89 | 92 | 143 | 0.004 |
| RS-D354-99 | 92 | 96 | 151 | 0.004 |
| RS-D354-99 | 96 | 98 | 270 | 0.008 |
| RS-D354-99 | 98 | 102 | 144 | 0.004 |
| RS-D354-99 | 102 | 103 | 468 | 0.014 |
| RS-D354-99 | 103 | 107 | 182 | 0.005 |
| RS-D354-99 | 107 | 112 | 125 | 0.004 |
| RS-D354-99 | 112 | 117 | 180 | 0.005 |
| RS-D354-99 | 117 | 120 | 110 | 0.003 |
| RS-D354-99 | 120 | 124 | 372 | 0.011 |
| RS-D354-99 | 124 | 127 | 160 | 0.005 |
| RS-D354-99 | 127 | 132 | 80 | 0.002 |
| RS-D354-99 | 132 | 134.5 | 25 | 0.001 |
| RS-D354-99 | 134.5 | 137 | 15 | 0.000 |
| RS-D354-99 | 137 | 142 | 12 | 0.000 |
| RS-D354-99 | 142 | 147 | 18 | 0.001 |
| RS-D354-99 | 147 | 152 | 6 | 0.000 |
| RS-D354-99 | 152 | 157 | 5 | 0.000 |
| RS-D354-99 | 157 | 162 | 7 | 0.000 |
| RS-D354-99 | 162 | 167 | 11 | 0.000 |
| RS-D354-99 | 167 | 172 | 30 | 0.001 |
| RS-D354-99 | 172 | 173.5 | 48 | 0.001 |
| RS-D354-99 | 173.5 | 177 | 107 | 0.003 |
| RS-D354-99 | 177 | 182 | 78 | 0.002 |
| RS-D354-99 | 182 | 187 | 54 | 0.002 |
| RS-D354-99 | 187 | 192 | 10 | 0.000 |
| RS-D354-99 | 192 | 197 | 8 | 0.000 |
| RS-D354-99 | 197 | 202 | 12 | 0.000 |
| RS-D354-99 | 202 | 207 | 25 | 0.001 |

| | | | | | |
|---|---|---|---|---|---|
| RS-D354-99 | 207 | 212 | 34 | 0.001 | |
| RS-D354-99 | 212 | 217 | 18 | 0.001 | |
| RS-D354-99 | 217 | 222 | 26 | 0.001 | |
| RS-D354-99 | 222 | 227 | 17 | 0.000 | |
| RS-D354-99 | 227 | 232 | 18 | 0.001 | |
| RS-D354-99 | 232 | 237 | 698 | 0.020 | |
| RS-D354-99 | 237 | 239 | 84 | 0.002 | |
| RS-D354-99 | 239 | 242 | 72 | 0.002 | |
| RS-D354-99 | 242 | 247 | 46 | 0.001 | |
| RS-D354-99 | 247 | 252 | 16 | 0.000 | |
| RS-D354-99 | 252 | 257 | 69 | 0.002 | |
| RS-D354-99 | 257 | 262 | 128 | 0.004 | |
| RS-D354-99 | 262 | 264.2 | 86 | 0.003 | |
| RS-D354-99 | 264.2 | 267 | 138 | 0.004 | |
| RS-D354-99 | 267 | 269.1 | 164 | 0.005 | |
| RS-D354-99 | 269.1 | 272.8 | 161 | 0.005 | |
| RS-D354-99 | 272.8 | 277 | 138 | 0.004 | |
| RS-D354-99 | 277 | 279.7 | 178 | 0.005 | |
| RS-D354-99 | 279.7 | 284.1 | 164 | 0.005 | |
| RS-D354-99 | 284.1 | 286 | 254 | 0.007 | |
| RS-D354-99 | 286 | 288.5 | 164 | 0.005 | |
| RS-D354-99 | 288.5 | 292 | 128 | 0.004 | |
| RS-D354-99 | 292 | 297 | 75 | 0.002 | |
| RS-D354-99 | 297 | 302 | 99 | 0.003 | |
| RS-D354-99 | 302 | 307 | 92 | 0.003 | |
| RS-D354-99 | 307 | 312 | 94 | 0.003 | |
| RS-D354-99 | 312 | 317 | 42 | 0.001 | |
| RS-D354-99 | 317 | 320.7 | 65 | 0.002 | |
| RS-D354-99 | 320.7 | 323.4 | 40 | 0.001 | |
| RS-D354-99 | 323.4 | 327 | 131 | 0.004 | |
| RS-D354-99 | 327 | 331 | 94 | 0.003 | |
| RS-D354-99 | 331 | 334 | 128 | 0.004 | |
| RS-D354-99 | 334 | 337 | 148 | 0.004 | |
| RS-D354-99 | 337 | 342 | 43 | 0.001 | |
| RS-D354-99 | 342 | 347 | 109 | 0.003 | |
| RS-D354-99 | 347 | 352 | 48 | 0.001 | |
| RS-D354-99 | 352 | 354.5 | 51 | 0.001 | |
| RS-D354-99 | 354.5 | 356.2 | 37 | 0.001 | |
| RS-D354-99 | 356.2 | 359 | 41 | 0.001 | |
| RS-D354-99 | 359 | 362 | 46 | 0.001 | |
| RS-D354-99 | 362 | 367 | 665 | 0.019 | Fault zone with barite ts; |
| RS-D354-99 | 367 | 371 | 201 | 0.006 | |
| RS-D354-99 | 371 | 374.5 | 319 | 0.009 | |
| RS-D354-99 | 374.5 | 379.9 | 308 | 0.009 | |
| RS-D354-99 | 379.9 | 384.7 | 129 | 0.004 | |
| RS-D354-99 | 384.7 | 387 | 112 | 0.003 | |
| RS-D354-99 | 387 | 392 | 89 | 0.003 | |
| RS-D354-99 | 392 | 397 | 73 | 0.002 | |
| RS-D354-99 | 397 | 402 | 86 | 0.003 | |
| RS-D354-99 | 402 | 407 | 103 | 0.003 | |
| RS-D354-99 | 407 | 412 | 101 | 0.003 | |
| RS-D354-99 | 412 | 417 | 60 | 0.002 | |
| RS-D354-99 | 417 | 422 | 36 | 0.001 | |
| RS-D354-99 | 422 | 427 | 64 | 0.002 | |
| RS-D354-99 | 427 | 432 | 85 | 0.002 | |
| RS-D354-99 | 432 | 437 | 50 | 0.001 | |

| | | | | |
|---|---|---|---|---|
| RS-D354-99 | 437 | 442 | 15 | 0.000 |
| RS-D354-99 | 442 | 447 | 64 | 0.002 |
| RS-D354-99 | 447 | 452 | 50 | 0.001 |
| RS-D354-99 | 452 | 457 | 24 | 0.001 |
| RS-D354-99 | 457 | 462 | 36 | 0.001 |
| RS-D354-99 | 462 | 467 | 174 | 0.005 |
| RS-D354-99 | 467 | 472 | 13 | 0.000 |
| RS-D354-99 | 472 | 477 | 18 | 0.001 |
| RS-D354-99 | 477 | 482 | 30 | 0.001 |
| RS-D354-99 | 482 | 487 | 5 | 0.000 |
| RS-D354-99 | 487 | 492 | 12 | 0.000 |
| RS-D354-99 | 492 | 497 | 14 | 0.000 |
| RS-D354-99 | 497 | 502 | 21 | 0.001 |
| RS-D354-99 | 502 | 507 | 15 | 0.000 |
| RS-D354-99 | 507 | 512 | 47 | 0.001 |
| RS-D354-99 | 512 | 517 | 124 | 0.004 |
| RS-D354-99 | 517 | 522 | 56 | 0.002 |
| RS-D354-99 | 522 | 527 | 41 | 0.001 |
| RS-D354-99 | 527 | 532 | 102 | 0.003 |
| RS-D354-99 | 532 | 537 | 232 | 0.007 |
| RS-D354-99 | 537 | 542 | 31 | 0.001 |
| RS-D354-99 | 542 | 547 | 14 | 0.000 |
| RS-D354-99 | 547 | 552 | 22 | 0.001 |
| RS-D354-99 | 552 | 557 | 13 | 0.000 |
| RS-D354-99 | 557 | 562 | 11 | 0.000 |
| RS-D354-99 | 562 | 567 | 17 | 0.000 |
| RS-D354-99 | 567 | 572 | 23 | 0.001 |
| RS-D354-99 | 572 | 577 | 13 | 0.000 |
| RS-D354-99 | 577 | 582 | 13 | 0.000 |
| RS-D354-99 | 582 | 587 | 6 | 0.000 |
| RS-D354-99 | 587 | 592 | 8 | 0.000 |
| RS-D354-99 | 592 | 597 | 8 | 0.000 |
| RS-D354-99 | 597 | 602 | 18 | 0.001 |
| RS-D354-99 | 602 | 607 | 17 | 0.000 |
| RS-D354-99 | 607 | 612 | 7 | 0.000 |
| RS-D354-99 | 612 | 617 | 5 | 0.000 |
| RS-D354-99 | 617 | 622 | 16 | 0.000 |
| RS-D354-99 | 622 | 627 | 23 | 0.001 |
| RS-D354-99 | 627 | 632 | 10 | 0.000 |
| RS-D354-99 | 632 | 637 | 57 | 0.002 |
| RS-D354-99 | 637 | 642 | 8 | 0.000 |
| RS-D354-99 | 642 | 647 | 19 | 0.001 |
| RS-D354-99 | 647 | 652 | 8 | 0.000 |
| RS-D354-99 | 652 | 657 | 30 | 0.001 |
| RS-D354-99 | 657 | 662 | 16 | 0.000 |
| RS-D354-99 | 662 | 667 | 51 | 0.001 |
| RS-D354-99 | 667 | 672 | 12 | 0.000 |
| RS-D354-99 | 672 | 677 | 91 | 0.003 |
| RS-D354-99 | 677 | 682 | 50 | 0.001 |
| RS-D354-99 | 682 | 687 | 7 | 0.000 |
| RS-D354-99 | 687 | 692 | 4 | 0.000 |
| RS-D354-99 | 692 | 697 | 21 | 0.001 |
| RS-D354-99 | 697 | 702 | 748 | 0.022 |
| RS-D354-99 | 702 | 707 | 3 | 0.000 |
| RS-D354-99 | 707 | 712 | -2 | 0.000 |
| RS-D354-99 | 712 | 717 | 6 | 0.000 |

| | | | | |
|---|---|---|---|---|
| RS-D354-99 | 717 | 722 | 3 | 0.000 |
| RS-D354-99 | 722 | 727 | -2 | 0.000 |
| RS-D354-99 | 727 | 732 | 60 | 0.002 |
| RS-D354-99 | 732 | 737 | 4 | 0.000 |
| RS-D354-99 | 737 | 742 | 9 | 0.000 |
| RS-D354-99 | 742 | 747 | 8 | 0.000 |
| RS-D354-99 | 747 | 752 | 6 | 0.000 |
| RS-D354-99 | 752 | 757 | 46 | 0.001 |
| RS-D354-99 | 757 | 762 | 3 | 0.000 |
| RS-D354-99 | 762 | 767 | 12 | 0.000 |
| RS-D354-99 | 767 | 772 | 9 | 0.000 |
| RS-D354-99 | 772 | 777 | 104 | 0.003 |
| RS-D354-99 | 777 | 782 | 6 | 0.000 |
| RS-D354-99 | 782 | 787 | 4 | 0.000 |
| RS-D354-99 | 787 | 792 | -2 | 0.000 |
| RS-D354-99 | 792 | 797 | 5 | 0.000 |
| RS-D354-99 | 797 | 802 | 13 | 0.000 |
| RS-D354-99 | 802 | 807 | 12 | 0.000 |
| RS-D354-99 | 807 | 812 | 4 | 0.000 |
| RS-D354-99 | 812 | 817 | 12 | 0.000 |
| RS-D354-99 | 817 | 822 | 2 | 0.000 |
| RS-D354-99 | 822 | 827 | -2 | 0.000 |
| RS-D354-99 | 827 | 832 | 2 | 0.000 |
| RS-D354-99 | 832 | 837 | -2 | 0.000 |
| RS-D354-99 | 837 | 842 | -2 | 0.000 |
| RS-D354-99 | 842 | 847 | 5 | 0.000 |
| RS-D354-99 | 847 | 852 | -2 | 0.000 |
| RS-D354-99 | 852 | 857 | -2 | 0.000 |
| RS-D354-99 | 857 | 860.5 | 6 | 0.000 |
| RS-D354-99 | 860.5 | 863.9 | 21 | 0.001 |
| RS-D354-99 | 863.9 | 867.8 | 35 | 0.001 |
| RS-D354-99 | 867.8 | 872 | 24 | 0.001 |
| RS-D354-99 | 872 | 877 | 16 | 0.000 |
| RS-D354-99 | 877 | 882 | 18 | 0.001 |
| RS-D354-99 | 882 | 887 | 32 | 0.001 |
| RS-D354-99 | 887 | 892 | 130 | 0.004 |
| RS-D354-99 | 892 | 897 | 36 | 0.001 |
| RS-D354-99 | 897 | 902 | 82 | 0.002 |
| RS-D354-99 | 902 | 907 | 140 | 0.004 |
| RS-D354-99 | 907 | 910 | 76 | 0.002 |
| RS-D354-99 | 910 | 912 | 162 | 0.005 |
| RS-D354-99 | 912 | 917 | 144 | 0.004 |
| RS-D354-99 | 917 | 922 | 153 | 0.004 |
| RS-D354-99 | 922 | 923.7 | 218 | 0.006 |
| RS-D354-99 | 923.7 | 927 | 123 | 0.004 |
| RS-D354-99 | 927 | 932 | 36 | 0.001 |
| RS-D354-99 | 932 | 937 | 19 | 0.001 |
| RS-D354-99 | 937 | 942 | 28 | 0.001 |
| RS-D354-99 | 942 | 947 | 20 | 0.001 |
| RS-D354-99 | 947 | 948.4 | 14 | 0.000 |
| RS-D354-99 | 948.4 | 951.8 | 76 | 0.002 |

# BARRINGER LABORATORIES, INC.

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-7195

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Hermosillo, Sonora,
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Managua, Nicaragua
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Tegucigalpa, M.D.C., Honduras
TEL (011-50-4) 231-1841

PEEL HERE
RS-D354-99
G 0 3 - 176
G 0 3 - 176
9270.B

Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped _____
Shipped Via 8-21-99
# of Cartons _____
# of Samples _____

## Geochemical Laboratory Instruction Sheet

| Copy of Results: | Results And Invoice To: |
|---|---|
| Hurt Allen Rosebud Mine | Charlotte Bullen |
| Fax 775 623 6967 | Newmont Gold |
| Randy Vance Newmont Gold | 861 W 6th St. Winnemucca NV |
| 861 W 6th St. | 89445 |
| Winnemucca NV 89445 | AUTHORITY: |

| No. of Samples | Sample Type | List of Sample Numbers | Elements Requested |
|---|---|---|---|
| 213 | core | RS-D354-99 | Au, Ag: Use Rosebud |
| | | See attachment for Samples | Mine development Protocol |
| | | | |
| | | | Ag: 30 element ICP |
| | | | Total Digestion |
| | | | Composite as shown on |
| | | | attachment |
| 4 | Pulps | Standards: | Au: 1 AT FA/AA No Ag No ICP |
| | | | |
| | | | |
| | | | |

RS-D354-99
MS-3
(RMG1)
607.0B

RS-D354-99
MS-2
(RMG1)
82.0B

PEEL HERE
RS-D354-99
G 0 3 - 176
G 0 3 - 176
384.7B

**COARSE REJECT (Free storage for 30 days)**
- ☐ 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)**
- ☒ 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**
- ☒ Fire Assay/A.A.
- ☐ Fire Assay/Gravimetric
- ☐ NaCN/A.A.

RESULTS REPORTED IN:
- ☐ ppb ☐ PPM
- ☒ oz/T ☐ grams/T

**TRACE ELEMENT METHOD**
- ☐ Wet Chem./A.A.
- ☐ Wet Chem./ICP

RESULTS REPORTED IN:
- ☐ ppm ☐ Percent %
- ☐ oz/T ☐ grams/T

ADDITIONAL INSTRUCTIONS: _____

**RS-D354-99**

| Depth From | To | Interval | Au | Ag | ICP | Composite Interval | Sample Number | Pulps |
|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 4 | x | x | | | 1 | |
| 4 | 7 | 3 | x | x | | | 2 | |
| 7 | 12 | 5 | x | x | | | 3 | |
| 12 | 17 | 5 | x | x | | | 4 | |
| 17 | 22 | 5 | x | x | x | 22 | 5 | |
| 22 | 27 | 5 | x | x | | | 6 | |
| 27 | 32 | 5 | x | x | | | 7 | |
| 32 | 37 | 5 | x | x | | | 8 | |
| 37 | 42 | 5 | x | x | x | 20 | 9 | |
| 42 | 47 | 5 | x | x | | | 10 | |
| 47 | 52 | 5 | x | x | | | 11 | |
| 52 | 57 | 5 | x | x | | | 12 | |
| 57 | 62.5 | 5.5 | x | x | x | 20.5 | 13 | |
| 62.5 | 67.7 | 5.2 | x | x | | | 14 | |
| 67.7 | 72 | 4.3 | x | x | | | 15 | |
| 72 | 75.5 | 3.5 | x | x | | | 16 | |
| 75.5 | 77 | 1.5 | x | x | | | 17 | |
| 77 | 82 | 5 | x | x | x | 19.5 | 18 | 82.0B |
| 82 | 84 | 2 | x | x | | | 19 | |
| 84 | 85.6 | 1.6 | x | x | | | 20 | |
| 85.6 | 89 | 3.4 | x | x | | | 21 | |
| 89 | 92 | 3 | x | x | | | 22 | |
| 92 | 96 | 4 | x | x | | | 23 | |
| 96 | 98 | 2 | x | x | | | 24 | |
| 98 | 102 | 4 | x | x | x | 20 | 25 | |
| 102 | 103 | 1 | x | x | | | 26 | |
| 103 | 107 | 4 | x | x | | | 27 | |
| 107 | 112 | 5 | x | x | | | 28 | |
| 112 | 117 | 5 | x | x | | | 29 | |
| 117 | 120 | 3 | x | x | | | 30 | |
| 120 | 124 | 4 | x | x | x | 22 | 31 | |
| 124 | 127 | 3 | x | x | | | 32 | |
| 127 | 132 | 5 | x | x | | | 33 | |
| 132 | 134.5 | 2.5 | x | x | | | 34 | |
| 134.5 | 137 | 2.5 | x | x | | | 35 | |
| 137 | 142 | 5 | x | x | | | 36 | |
| 142 | 147 | 5 | x | x | x | 23 | 37 | |
| 147 | 152 | 5 | x | x | | | 38 | |
| 152 | 157 | 5 | x | x | | | 39 | |
| 157 | 162 | 5 | x | x | | | 40 | |
| 162 | 167 | 5 | x | x | x | 20 | 41 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 167 | 172 | 5 | x | x | | | 42 |
| 172 | 173.5 | 1.5 | x | x | | | 43 |
| 173.5 | 177 | 3.5 | x | x | | | 44 |
| 177 | 182 | 5 | x | x | | | 45 |
| 182 | 187 | 5 | x | x | x | 20 | 46 |
| 187 | 192 | 5 | x | x | | | 47 |
| 192 | 197 | 5 | x | x | | | 48 |
| 197 | 202 | 5 | x | x | | | 49 |
| 202 | 207 | 5 | x | x | x | 20 | 50 |
| 207 | 212 | 5 | x | x | | | 51 |
| 212 | 217 | 5 | x | x | | | 52 |
| 217 | 222 | 5 | x | x | | | 53 |
| 222 | 227 | 5 | x | x | x | 20 | 54 |
| 227 | 232 | 5 | x | x | | | 55 |
| 232 | 237 | 5 | x | x | | | 56 |
| 237 | 239 | 2 | x | x | | | 57 |
| 239 | 242 | 3 | x | x | | | 58 |
| 242 | 247 | 5 | x | x | x | 20 | 59 |
| 247 | 252 | 5 | x | x | | | 60 |
| 252 | 257 | 5 | x | x | | | 61 |
| 257 | 262 | 5 | x | x | | | 62 |
| 262 | 264.2 | 2.2 | x | x | | | 63 |
| 264.2 | 267 | 2.8 | x | x | x | 20 | 64 |
| 267 | 269.1 | 2.1 | x | x | | | 65 |
| 269.1 | 272.8 | 3.7 | x | x | | | 66 |
| 272.8 | 277 | 4.2 | x | x | | | 67 |
| 277 | 279.7 | 2.7 | x | x | | | 68 |
| 279.7 | 284.1 | 4.4 | x | x | | | 69 |
| 284.1 | 286 | 1.9 | x | x | | | 70 |
| 286 | 288.5 | 2.5 | x | x | x | 21.5 | 71 |
| 288.5 | 292 | 3.5 | x | x | | | 72 |
| 292 | 297 | 5 | x | x | | | 73 |
| 297 | 302 | 5 | x | x | | | 74 |
| 302 | 307 | 5 | x | x | | | 75 |
| 307 | 312 | 5 | x | x | x | 23.5 | 76 |
| 312 | 317 | 5 | x | x | | | 77 |
| 317 | 320.7 | 3.7 | x | x | | | 78 |
| 320.7 | 323.4 | 2.7 | x | x | | | 79 |
| 323.4 | 327 | 3.6 | x | x | | | 80 |
| 327 | 331 | 4 | x | x | x | 19 | 81 |
| 331 | 334 | 3 | x | x | | | 82 |
| 334 | 337 | 3 | x | x | | | 83 |
| 337 | 342 | 5 | x | x | | | 84 |
| 342 | 347 | 5 | x | x | | | 85 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 347 | 352 | 5 | x | x | x | 21 | 86 | |
| 352 | 354.5 | 2.5 | x | x | | | 87 | |
| 354.5 | 356.2 | 1.7 | x | x | | | 88 | |
| 356.2 | 359 | 2.8 | x | x | | | 89 | |
| 359 | 362 | 3 | x | x | | | 90 | |
| 362 | 367 | 5 | x | x | | | 91 | |
| 367 | 371 | 4 | x | x | x | 19 | 92 | |
| 371 | 374.5 | 3.5 | x | x | x | | 93 | |
| 374.5 | 379.9 | 5.4 | x | x | | | 94 | |
| 379.9 | 384.7 | 4.8 | x | x | x | 13.7 | 95 | 384.7B |
| 384.7 | 387 | 2.3 | x | x | | | 96 | |
| 387 | 392 | 5 | x | x | | | 97 | |
| 392 | 397 | 5 | x | x | | | 98 | |
| 397 | 402 | 5 | x | x | | | 99 | |
| 402 | 407 | 5 | x | x | x | 22.3 | 100 | |
| 407 | 412 | 5 | x | x | | | 101 | |
| 412 | 417 | 5 | x | x | | | 102 | |
| 417 | 422 | 5 | x | x | | | 103 | |
| 422 | 427 | 5 | x | x | x | 20 | 104 | |
| 427 | 432 | 5 | x | x | | | 105 | |
| 432 | 437 | 5 | x | x | | | 106 | |
| 437 | 442 | 5 | x | x | | | 107 | |
| 442 | 447 | 5 | x | x | x | 20 | 108 | |
| 447 | 452 | 5 | x | x | | | 109 | |
| 452 | 457 | 5 | x | x | | | 110 | |
| 457 | 462 | 5 | x | x | | | 111 | |
| 462 | 467 | 5 | x | x | x | 20 | 112 | |
| 467 | 472 | 5 | x | x | | | 113 | |
| 472 | 477 | 5 | x | x | | | 114 | |
| 477 | 482 | 5 | x | x | | | 115 | |
| 482 | 487 | 5 | x | x | x | 20 | 116 | |
| 487 | 492 | 5 | x | x | | | 117 | |
| 492 | 497 | 5 | x | x | | | 118 | |
| 497 | 502 | 5 | x | x | | | 119 | |
| 502 | 507 | 5 | x | x | x | 20 | 120 | |
| 507 | 512 | 5 | x | x | | | 121 | |
| 512 | 517 | 5 | x | x | | | 122 | |
| 517 | 522 | 5 | x | x | | | 123 | |
| 522 | 527 | 5 | x | x | x | 20 | 124 | |
| 527 | 532 | 5 | x | x | | | 125 | |
| 532 | 537 | 5 | x | x | | | 126 | |
| 537 | 542 | 5 | x | x | | | 127 | |
| 542 | 547 | 5 | x | x | x | 20 | 128 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 547 | 552 | 5 | x | x | | | 129 | |
| 552 | 557 | 5 | x | x | | | 130 | |
| 557 | 562 | 5 | x | x | | | 131 | |
| 562 | 567 | 5 | x | x | x | 20 | 132 | |
| 567 | 572 | 5 | x | x | | | 133 | |
| 572 | 577 | 5 | x | x | | | 134 | |
| 577 | 582 | 5 | x | x | | | 135 | |
| 582 | 587 | 5 | x | x | x | 20 | 136 | |
| 587 | 592 | 5 | x | x | | | 137 | |
| 592 | 597 | 5 | x | x | | | 138 | |
| 597 | 602 | 5 | x | x | | | 139 | |
| 602 | 607 | 5 | x | x | x | 20 | 140 | 607.0B |
| 607 | 612 | 5 | x | x | | | 141 | |
| 612 | 617 | 5 | x | x | | | 142 | |
| 617 | 622 | 5 | x | x | | | 143 | |
| 622 | 627 | 5 | x | x | x | 20 | 144 | |
| 627 | 632 | 5 | x | x | | | 145 | |
| 632 | 637 | 5 | x | x | | | 146 | |
| 637 | 642 | 5 | x | x | | | 147 | |
| 642 | 647 | 5 | x | x | x | 20 | 148 | |
| 647 | 652 | 5 | x | x | | | 149 | |
| 652 | 657 | 5 | x | x | | | 150 | |
| 657 | 662 | 5 | x | x | | | 151 | |
| 662 | 667 | 5 | x | x | x | 20 | 152 | |
| 667 | 672 | 5 | x | x | | | 153 | |
| 672 | 677 | 5 | x | x | | | 154 | |
| 677 | 682 | 5 | x | x | | | 155 | |
| 682 | 687 | 5 | x | x | x | 20 | 156 | |
| 687 | 692 | 5 | x | x | | | 157 | |
| 692 | 697 | 5 | x | x | | | 158 | |
| 697 | 702 | 5 | x | x | | | 159 | |
| 702 | 707 | 5 | x | x | x | 20 | 160 | |
| 707 | 712 | 5 | x | x | | | 161 | |
| 712 | 717 | 5 | x | x | | | 162 | |
| 717 | 722 | 5 | x | x | | | 163 | |
| 722 | 727 | 5 | x | x | x | 20 | 164 | |
| 727 | 732 | 5 | x | x | | | 165 | |
| 732 | 737 | 5 | x | x | | | 166 | |
| 737 | 742 | 5 | x | x | | | 167 | |
| 742 | 747 | 5 | x | x | x | 20 | 168 | |
| 747 | 752 | 5 | x | x | | | 169 | |
| 752 | 757 | 5 | x | x | | | 170 | |
| 757 | 762 | 5 | x | x | | | 171 | |
| 762 | 767 | 5 | x | x | x | 20 | 172 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 767 | 772 | 5 | x | x | | | 173 | |
| 772 | 777 | 5 | x | x | | | 174 | |
| 777 | 782 | 5 | x | x | | | 175 | |
| 782 | 787 | 5 | x | x | x | 20 | 176 | |
| 787 | 792 | 5 | x | x | | | 177 | |
| 792 | 797 | 5 | x | x | | | 178 | |
| 797 | 802 | 5 | x | x | | | 179 | |
| 802 | 807 | 5 | x | x | x | 20 | 180 | |
| 807 | 812 | 5 | x | x | | | 181 | |
| 812 | 817 | 5 | x | x | | | 182 | |
| 817 | 822 | 5 | x | x | | | 183 | |
| 822 | 827 | 5 | x | x | x | 20 | 184 | |
| 827 | 832 | 5 | x | x | | | 185 | |
| 832 | 837 | 5 | x | x | | | 186 | |
| 837 | 842 | 5 | x | x | | | 187 | |
| 842 | 847 | 5 | x | x | x | 20 | 188 | |
| 847 | 852 | 5 | x | x | | | 189 | |
| 852 | 857 | 5 | x | x | | | 190 | |
| 857 | 860.5 | 3.5 | x | x | | | 191 | |
| 860.5 | 863.9 | 3.4 | x | x | x | 16.9 | 192 | |
| 863.9 | 867.8 | 3.9 | x | x | x | 3.9 | 193 | |
| 867.8 | 872 | 4.2 | x | x | | | 194 | |
| 872 | 877 | 5 | x | x | | | 195 | |
| 877 | 882 | 5 | x | x | | | 196 | |
| 882 | 887 | 5 | x | x | x | 19.2 | 197 | |
| 887 | 892 | 5 | x | x | | | 198 | |
| 892 | 897 | 5 | x | x | | | 199 | |
| 897 | 902 | 5 | x | x | | | 200 | |
| 902 | 907 | 5 | x | x | | | 201 | |
| 907 | 910 | 3 | x | x | x | 23 | 202 | |
| 910 | 912 | 2 | x | x | | | 203 | |
| 912 | 917 | 5 | x | x | | | 204 | |
| 917 | 922 | 5 | x | x | | | 205 | |
| 922 | 923.7 | 1.7 | x | x | | | 206 | |
| 923.7 | 927 | 3.3 | x | x | x | 17 | 207 | 927.0B |
| 927 | 932 | 5 | x | x | | | 208 | |
| 932 | 937 | 5 | x | x | | | 209 | |
| 937 | 942 | 5 | x | x | | | 210 | |
| 942 | 947 | 5 | x | x | | | 211 | |
| 947 | 948.4 | 1.4 | x | x | x | 21.4 | 212 | |
| 948.4 | 951.8 | 3.4 | x | x | x | 3.4 | 213 | |

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Tegucigalpa, M.D.C., Honduras
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Work Order # _____
Date Received _____
Purchase Order # _____
Project # _____
Date Shipped _____
Shipped Via _____
# of Cartons _____
# of Samples _____

## Geochemical Laboratory Instruction Sheet

| Copy of Results: | Results And Invoice To: |
|---|---|
| E-Mail Kurt Allen, Rosebud Mine | Charlotte Bullen |
| | Newmont Gold |
| E-Mail Randy Vance, Newmont Gold | 861 W 6th St, Winnemucca NV |
| | 89445 |
| | AUTHORITY: |

| No. of Samples | Sample Type | List of Sample Numbers | Elements Requested |
|---|---|---|---|
| 122 | core | RS-D354-99 | Au, Ag, Use Rosebud Mine |
| | | See attachment for Samples | development Protocol |
| | | | NGC 30 element ICP |
| | | | total Digestion |
| | | | Composite as shown on attachment |
| 3 | Pulps | Standards: 1132.0B, 1308.3B, 1437.0B | Au: 1 AT FA/AA NV Ag |
| | | | ICP |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

PEEL HERE
MS-2
(RMG1)
RSD354-99
1132.0B

RS-D354-99
MS-3
(RMG1)
1308.3B

PEEL HERE
RS-D354-99
MS-3
(RMG1)
1437.0B

**COARSE REJECT (Free storage for 30 days)**
- ☐ 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)**
- ☒ 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**
- ☒ Fire Assay/A.A.
- ☐ Fire Assay/Gravimetric
- ☐ NaCN/A.A.

RESULTS REPORTED IN:
- ☐ ppb ☐ PPM
- ☒ oz/T ☐ grams/T

**TRACE ELEMENT METHOD**
- ☐ Wet Chem./A.A.
- ☐ Wet Chem./ICP

RESULTS REPORTED IN:
- ☐ ppm ☐ Percent %
- ☐ oz/T ☐ grams/T

ADDITIONAL INSTRUCTIONS: _____

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

# Geochemical Laboratory Instruction Sheet

| Copy of Results: | Results And Invoice To: |
|---|---|
| E-Mail Kurt Allen, Rosebud Mine | Charlotte Bullen |
| | Newmont Gold |
| E-Mail Randy Vance, Newmont Gold | 861 W 6th St, Winnemucca NV |
| | 89445 |
| | AUTHORITY: |

| No. of Samples | Sample Type | List of Sample Numbers | Elements Requested |
|---|---|---|---|
| 122 | core | RS-D354-99 | Au, Ag, Use Rosebud Mine |
| | | See attachment for Samples | development Protocol |
| | | | NOC 30 element ICP |
| | | | total Digestion |
| | | | Composite as shown on attachment |
| 3 | Pulps | Standards 1132.0B, 1308.3B, 1437.0B | Au: 1 AT FA/AA NO Ag |
| PEEL HERE | MS-2 (RMG1) RSD354-99 1132.0B | RS-D354-99 — MS-3 (RMG1) 1308.3B | PEEL HERE RS-D354-99 MS-3 (RMG1) 1437.0B — ICP |

**COARSE REJECT (Free storage for 30 days)**
- ☐ 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)**
- ☒ 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**
- ☒ Fire Assay/A.A.
- ☐ Fire Assay/Gravimetric
- ☐ NaCN/A.A.

RESULTS REPORTED IN:
☐ ppb ☐ PPM
☒ oz/T ☐ grams/T

**TRACE ELEMENT METHOD**
- ☐ Wet Chem./A.A.
- ☐ Wet Chem./ICP

RESULTS REPORTED IN:
☐ ppm ☐ Percent %
☐ oz/T ☐ grams/T

ADDITIONAL INSTRUCTIONS: _____

**RS-D354-99**

| Depth From | To | Interval | Au | Ag | ICP | Composite Interval | Sample Number | Pulps |
|---|---|---|---|---|---|---|---|---|
| 951.8 | 957 | 5.2 | x | x | | | 1 | |
| 957 | 962 | 5 | x | x | | | 2 | |
| 962 | 967 | 5 | x | x | | | 3 | |
| 967 | 972 | 5 | x | x | x | 20.2 | 4 | |
| 972 | 977 | 5 | x | x | | | 5 | |
| 977 | 982 | 5 | x | x | | | 6 | |
| 982 | 987 | 5 | x | x | | | 7 | |
| 987 | 992 | 5 | x | x | x | 20 | 8 | |
| 992 | 997 | 5 | x | x | | | 9 | |
| 997 | 1002 | 5 | x | x | | | 10 | |
| 1002 | 1007 | 5 | x | x | | | 11 | |
| 1007 | 1013 | 6 | x | x | x | 21 | 12 | |
| 1013 | 1017 | 4 | x | x | | | 13 | |
| 1017 | 1019 | 2 | x | x | x | 6 | 14 | |
| 1019 | 1022 | 3 | x | x | | | 15 | |
| 1022 | 1027 | 5 | x | x | | | 16 | |
| 1027 | 1032 | 5 | x | x | | | 17 | |
| 1032 | 1037 | 5 | x | x | | | 18 | |
| 1037 | 1042 | 5 | x | x | x | 23 | 19 | |
| 1042 | 1047 | 5 | x | x | | | 20 | |
| 1047 | 1052 | 5 | x | x | | | 21 | |
| 1052 | 1057 | 5 | x | x | | | 22 | |
| 1057 | 1059.9 | 2.9 | x | x | | | 23 | |
| 1059.9 | 1062.6 | 2.7 | x | x | x | 20.6 | 24 | |
| 1062.6 | 1067 | 4.4 | x | x | | | 25 | |
| 1067 | 1068.5 | 1.5 | x | x | | | 26 | |
| 1068.5 | 1070.2 | 1.7 | x | x | | | 27 | |
| 1070.2 | 1074 | 3.8 | x | x | | | 28 | |
| 1074 | 1077.6 | 3.6 | x | x | | | 29 | |
| 1077.6 | 1078.6 | 1 | x | x | | | 30 | |
| 1078.6 | 1082 | 3.4 | x | x | | | 31 | |
| 1082 | 1087 | 5 | x | x | | 21 | 32 | |
| 1087 | 1092 | 5 | x | x | | | 33 | |
| 1092 | 1097 | 5 | x | x | | | 34 | |
| 1097 | 1102 | 5 | x | x | | | 35 | |
| 1102 | 1107 | 5 | x | x | x | 20 | 36 | |
| 1107 | 1112 | 5 | x | x | | | 37 | |
| 1112 | 1117 | 5 | x | x | | | 38 | |
| 1117 | 1122 | 5 | x | x | | | 39 | |
| 1122 | 1127 | 5 | x | x | | | 40 | |
| 1127 | 1132 | 5 | x | x | x | 25 | 41 | 1132.0B |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1132 | 1137 | 5 | x | x | | | 42 | |
| 1137 | 1142 | 5 | x | x | | | 43 | |
| 1142 | 1147 | 5 | x | x | | | 44 | |
| 1147 | 1152 | 5 | x | x | | | 45 | |
| 1152 | 1157 | 5 | x | x | x | 25 | 46 | |
| 1157 | 1159.8 | 2.8 | x | x | | | 47 | |
| 1159.8 | 1164.8 | 5 | x | x | | | 48 | |
| 1164.8 | 1167 | 2.2 | x | x | | | 49 | |
| 1167 | 1172 | 5 | x | x | x | 15 | 50 | |
| 1172 | 1176.5 | 4.5 | x | x | | | 51 | |
| 1176.5 | 1180.6 | 4.1 | x | x | | | 52 | |
| 1180.6 | 1182 | 1.4 | x | x | | | 53 | |
| 1182 | 1187 | 5 | x | x | | | 54 | |
| 1187 | 1192 | 5 | x | x | | | 55 | |
| 1192 | 1197 | 5 | x | x | x | 25 | 56 | |
| 1197 | 1202 | 5 | x | x | | | 57 | |
| 1202 | 1204.2 | 2.2 | x | x | | | 58 | |
| 1204.2 | 1206.2 | 2 | x | x | | | 59 | |
| 1206.2 | 1210.1 | 3.9 | x | x | | | 60 | |
| 1210.1 | 1212 | 1.9 | x | x | | | 61 | |
| 1212 | 1217.4 | 5.4 | x | x | x | 20.4 | 62 | |
| 1217.4 | 1219.2 | 1.8 | x | x | | | 63 | |
| 1219.2 | 1222 | 2.8 | x | x | | | 64 | |
| 1222 | 1227 | 5 | x | x | | | 65 | |
| 1227 | 1229.5 | 2.5 | x | x | | | 66 | |
| 1229.5 | 1231.6 | 2.1 | x | x | | | 67 | |
| 1231.6 | 1237 | 5.4 | x | x | x | 19.6 | 68 | |
| 1237 | 1242 | 5 | x | x | | | 69 | |
| 1242 | 1247 | 5 | x | x | | | 70 | |
| 1247 | 1252 | 5 | x | x | | | 71 | |
| 1252 | 1257 | 5 | x | x | x | 20 | 72 | |
| 1257 | 1262 | 5 | x | x | | | 73 | |
| 1262 | 1267 | 5 | x | x | | | 74 | |
| 1267 | 1272 | 5 | x | x | x | 15 | 75 | |
| 1272 | 1277 | 5 | x | x | | | 76 | |
| 1277 | 1282 | 5 | x | x | | | 77 | |
| 1282 | 1287.1 | 5.1 | x | x | x | 15.1 | 78 | |
| 1287.1 | 1290.6 | 3.5 | x | x | | | 79 | |
| 1290.6 | 1292.2 | 1.6 | x | x | | | 80 | |
| 1292.2 | 1297 | 4.8 | x | x | | | 81 | |
| 1297 | 1302 | 5 | x | x | | | 82 | |
| 1302 | 1306.2 | 4.2 | x | x | | | 83 | |
| 1306.2 | 1308.3 | 2.1 | x | x | x | 21.2 | 84 | 1308.3B |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1308.3 | 1312.6 | 4.3 | x | x | | | 85 | |
| 1312.6 | 1313.7 | 1.1 | x | x | | | 86 | |
| 1313.7 | 1317 | 3.3 | x | x | | | 87 | |
| 1317 | 1322 | 5 | x | x | | | 88 | |
| 1322 | 1327 | 5 | x | x | | | 89 | |
| 1327 | 1332 | 5 | x | x | x | 23.7 | 90 | |
| 1332 | 1337 | 5 | x | x | | | 91 | |
| 1337 | 1338.5 | 1.5 | x | x | | | 92 | |
| 1338.5 | 1341.6 | 3.1 | x | x | | | 93 | |
| 1341.6 | 1347 | 5.4 | x | x | | | 94 | |
| 1347 | 1352 | 5 | x | x | x | 20 | 95 | |
| 1352 | 1357 | 5 | x | x | | | 96 | |
| 1357 | 1362 | 5 | x | x | | | 97 | |
| 1362 | 1367 | 5 | x | x | | | 98 | |
| 1367 | 1370 | 3 | x | x | | | 99 | |
| 1370 | 1374.7 | 4.7 | x | x | x | 22.7 | 100 | |
| 1374.7 | 1377 | 2.3 | x | x | | | 101 | |
| 1377 | 1382 | 5 | x | x | | | 102 | |
| 1382 | 1386.8 | 4.8 | x | x | | | 103 | |
| 1386.8 | 1390.1 | 3.3 | x | x | | | 104 | |
| 1390.1 | 1394 | 3.9 | x | x | | | 105 | |
| 1394 | 1398 | 4 | x | x | x | 23.3 | 106 | |
| 1398 | 1401 | 3 | x | x | | | 107 | |
| 1401 | 1406 | 5 | x | x | | | 108 | |
| 1406 | 1411 | 5 | x | x | | | 109 | |
| 1411 | 1416 | 5 | x | x | x | 18 | 110 | |
| 1416 | 1421.5 | 5.5 | x | x | | | 111 | |
| 1421.5 | 1426.8 | 5.3 | x | x | | | 112 | |
| 1426.8 | 1432 | 5.2 | x | x | | | 113 | |
| 1432 | 1437 | 5 | x | x | x | 21 | 114 | 1437.0B |
| 1437 | 1442 | 5 | x | x | | | 115 | |
| 1442 | 1447 | 5 | x | x | | | 116 | |
| 1447 | 1452 | 5 | x | x | | | 117 | |
| 1452 | 1457 | 5 | x | x | x | 20 | 118 | |
| 1457 | 1462 | 5 | x | x | | | 119 | |
| 1462 | 1467 | 5 | x | x | | | 120 | |
| 1467 | 1472 | 5 | x | x | | | 121 | |
| 1472 | 1477 | 5 | x | x | x | 20 | 122 | |

**RS-D354-99**

| Depth From | To | Interval | Au | Ag | ICP | Composite Interval | Sample Number | Pulps |
|---|---|---|---|---|---|---|---|---|
| 0 | 4 | 4 | x | x | | | 1 | |
| 4 | 7 | 3 | x | x | | | 2 | |
| 7 | 12 | 5 | x | x | | | 3 | |
| 12 | 17 | 5 | x | x | | | 4 | |
| 17 | 22 | 5 | x | x | x | 22 | 5 | |
| 22 | 27 | 5 | x | x | | | 6 | |
| 27 | 32 | 5 | x | x | | | 7 | |
| 32 | 37 | 5 | x | x | | | 8 | |
| 37 | 42 | 5 | x | x | x | 20 | 9 | |
| 42 | 47 | 5 | x | x | | | 10 | |
| 47 | 52 | 5 | x | x | | | 11 | |
| 52 | 57 | 5 | x | x | | | 12 | |
| 57 | 62.5 | 5.5 | x | x | x | 20.5 | 13 | |
| 62.5 | 67.7 | 5.2 | x | x | | | 14 | |
| 67.7 | 72 | 4.3 | x | x | | | 15 | |
| 72 | 75.5 | 3.5 | x | x | | | 16 | |
| 75.5 | 77 | 1.5 | x | x | | | 17 | |
| 77 | 82 | 5 | x | x | x | 19.5 | 18 | 82.0B |
| 82 | 84 | 2 | x | x | | | 19 | |
| 84 | 85.6 | 1.6 | x | x | | | 20 | |
| 85.6 | 89 | 3.4 | x | x | | | 21 | |
| 89 | 92 | 3 | x | x | | | 22 | |
| 92 | 96 | 4 | x | x | | | 23 | |
| 96 | 98 | 2 | x | x | | | 24 | |
| 98 | 102 | 4 | x | x | x | 20 | 25 | |
| 102 | 103 | 1 | x | x | | | 26 | |
| 103 | 107 | 4 | x | x | | | 27 | |
| 107 | 112 | 5 | x | x | | | 28 | |
| 112 | 117 | 5 | x | x | | | 29 | |
| 117 | 120 | 3 | x | x | | | 30 | |
| 120 | 124 | 4 | x | x | x | 22 | 31 | |
| 124 | 127 | 3 | x | x | | | 32 | |
| 127 | 132 | 5 | x | x | | | 33 | |
| 132 | 134.5 | 2.5 | x | x | | | 34 | |
| 134.5 | 137 | 2.5 | x | x | | | 35 | |
| 137 | 142 | 5 | x | x | | | 36 | |
| 142 | 147 | 5 | x | x | x | 23 | 37 | |
| 147 | 152 | 5 | x | x | | | 38 | |
| 152 | 157 | 5 | x | x | | | 39 | |
| 157 | 162 | 5 | x | x | | | 40 | |
| 162 | 167 | 5 | x | x | x | 20 | 41 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 167 | 172 | 5 | x | x | | | 42 |
| 172 | 173.5 | 1.5 | x | x | | | 43 |
| 173.5 | 177 | 3.5 | x | x | | | 44 |
| 177 | 182 | 5 | x | x | | | 45 |
| 182 | 187 | 5 | x | x | x | 20 | 46 |
| 187 | 192 | 5 | x | x | | | 47 |
| 192 | 197 | 5 | x | x | | | 48 |
| 197 | 202 | 5 | x | x | | | 49 |
| 202 | 207 | 5 | x | x | x | 20 | 50 |
| 207 | 212 | 5 | x | x | | | 51 |
| 212 | 217 | 5 | x | x | | | 52 |
| 217 | 222 | 5 | x | x | | | 53 |
| 222 | 227 | 5 | x | x | x | 20 | 54 |
| 227 | 232 | 5 | x | x | | | 55 |
| 232 | 237 | 5 | x | x | | | 56 |
| 237 | 239 | 2 | x | x | | | 57 |
| 239 | 242 | 3 | x | x | | | 58 |
| 242 | 247 | 5 | x | x | x | 20 | 59 |
| 247 | 252 | 5 | x | x | | | 60 |
| 252 | 257 | 5 | x | x | | | 61 |
| 257 | 262 | 5 | x | x | | | 62 |
| 262 | 264.2 | 2.2 | x | x | | | 63 |
| 264.2 | 267 | 2.8 | x | x | x | 20 | 64 |
| 267 | 269.1 | 2.1 | x | x | | | 65 |
| 269.1 | 272.8 | 3.7 | x | x | | | 66 |
| 272.8 | 277 | 4.2 | x | x | | | 67 |
| 277 | 279.7 | 2.7 | x | x | | | 68 |
| 279.7 | 284.1 | 4.4 | x | x | | | 69 |
| 284.1 | 286 | 1.9 | x | x | | | 70 |
| 286 | 288.5 | 2.5 | x | x | x | 21.5 | 71 |
| 288.5 | 292 | 3.5 | x | x | | | 72 |
| 292 | 297 | 5 | x | x | | | 73 |
| 297 | 302 | 5 | x | x | | | 74 |
| 302 | 307 | 5 | x | x | | | 75 |
| 307 | 312 | 5 | x | x | x | 23.5 | 76 |
| 312 | 317 | 5 | x | x | | | 77 |
| 317 | 320.7 | 3.7 | x | x | | | 78 |
| 320.7 | 323.4 | 2.7 | x | x | | | 79 |
| 323.4 | 327 | 3.6 | x | x | | | 80 |
| 327 | 331 | 4 | x | x | x | 19 | 81 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 331 | 334 | 3 | x | x | | | 82 | |
| 334 | 337 | 3 | x | x | | | 83 | |
| 337 | 342 | 5 | x | x | | | 84 | |
| 342 | 347 | 5 | x | x | | | 85 | |
| 347 | 352 | 5 | x | x | x | 21 | 86 | |
| 352 | 354.5 | 2.5 | x | x | | | 87 | |
| 354.5 | 356.2 | 1.7 | x | x | | | 88 | |
| 356.2 | 359 | 2.8 | x | x | | | 89 | |
| 359 | 362 | 3 | x | x | | | 90 | |
| 362 | 367 | 5 | x | x | | | 91 | |
| 367 | 371 | 4 | x | x | x | 19 | 92 | |
| 371 | 374.5 | 3.5 | x | x | x | | 93 | |
| 374.5 | 379.9 | 5.4 | x | x | | | 94 | |
| 379.9 | 384.7 | 4.8 | x | x | x | 13.7 | 95 | 384.7B |
| 384.7 | 387 | 2.3 | x | x | | | 96 | |
| 387 | 392 | 5 | x | x | | | 97 | |
| 392 | 397 | 5 | x | x | | | 98 | |
| 397 | 402 | 5 | x | x | | | 99 | |
| 402 | 407 | 5 | x | x | x | 22.3 | 100 | |
| 407 | 412 | 5 | x | x | | | 101 | |
| 412 | 417 | 5 | x | x | | | 102 | |
| 417 | 422 | 5 | x | x | | | 103 | |
| 422 | 427 | 5 | x | x | x | 20 | 104 | |
| 427 | 432 | 5 | x | x | | | 105 | |
| 432 | 437 | 5 | x | x | | | 106 | |
| 437 | 442 | 5 | x | x | | | 107 | |
| 442 | 447 | 5 | x | x | x | 20 | 108 | |
| 447 | 452 | 5 | x | x | | | 109 | |
| 452 | 457 | 5 | x | x | | | 110 | |
| 457 | 462 | 5 | x | x | | | 111 | |
| 462 | 467 | 5 | x | x | x | 20 | 112 | |
| 467 | 472 | 5 | x | x | | | 113 | |
| 472 | 477 | 5 | x | x | | | 114 | |
| 477 | 482 | 5 | x | x | | | 115 | |
| 482 | 487 | 5 | x | x | x | 20 | 116 | |
| 487 | 492 | 5 | x | x | | | 117 | |
| 492 | 497 | 5 | x | x | | | 118 | |
| 497 | 502 | 5 | x | x | | | 119 | |
| 502 | 507 | 5 | x | x | x | 20 | 120 | |
| 507 | 512 | 5 | x | x | | | 121 | |
| 512 | 517 | 5 | x | x | | | 122 | |
| 517 | 522 | 5 | x | x | | | 123 | |
| 522 | 527 | 5 | x | x | x | 20 | 124 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 527 | 532 | 5 | x | x | | | 125 | |
| 532 | 537 | 5 | x | x | | | 126 | |
| 537 | 542 | 5 | x | x | | | 127 | |
| 542 | 547 | 5 | x | x | x | 20 | 128 | |
| 547 | 552 | 5 | x | x | | | 129 | |
| 552 | 557 | 5 | x | x | | | 130 | |
| 557 | 562 | 5 | x | x | | | 131 | |
| 562 | 567 | 5 | x | x | x | 20 | 132 | |
| 567 | 572 | 5 | x | x | | | 133 | |
| 572 | 577 | 5 | x | x | | | 134 | |
| 577 | 582 | 5 | x | x | | | 135 | |
| 582 | 587 | 5 | x | x | x | 20 | 136 | |
| 587 | 592 | 5 | x | x | | | 137 | |
| 592 | 597 | 5 | x | x | | | 138 | |
| 597 | 602 | 5 | x | x | | | 139 | |
| 602 | 607 | 5 | x | x | x | 20 | 140 | 607.0B |
| 607 | 612 | 5 | x | x | | | 141 | |
| 612 | 617 | 5 | x | x | | | 142 | |
| 617 | 622 | 5 | x | x | | | 143 | |
| 622 | 627 | 5 | x | x | x | 20 | 144 | |
| 627 | 632 | 5 | x | x | | | 145 | |
| 632 | 637 | 5 | x | x | | | 146 | |
| 637 | 642 | 5 | x | x | | | 147 | |
| 642 | 647 | 5 | x | x | x | 20 | 148 | |
| 647 | 652 | 5 | x | x | | | 149 | |
| 652 | 657 | 5 | x | x | | | 150 | |
| 657 | 662 | 5 | x | x | | | 151 | |
| 662 | 667 | 5 | x | x | x | 20 | 152 | |
| 667 | 672 | 5 | x | x | | | 153 | |
| 672 | 677 | 5 | x | x | | | 154 | |
| 677 | 682 | 5 | x | x | | | 155 | |
| 682 | 687 | 5 | x | x | x | 20 | 156 | |
| 687 | 692 | 5 | x | x | | | 157 | |
| 692 | 697 | 5 | x | x | | | 158 | |
| 697 | 702 | 5 | x | x | | | 159 | |
| 702 | 707 | 5 | x | x | x | 20 | 160 | |
| 707 | 712 | 5 | x | x | | | 161 | |
| 712 | 717 | 5 | x | x | | | 162 | |
| 717 | 722 | 5 | x | x | | | 163 | |
| 722 | 727 | 5 | x | x | x | 20 | 164 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 727 | 732 | 5 | x | x | | | 165 | |
| 732 | 737 | 5 | x | x | | | 166 | |
| 737 | 742 | 5 | x | x | | | 167 | |
| 742 | 747 | 5 | x | x | x | 20 | 168 | |
| 747 | 752 | 5 | x | x | | | 169 | |
| 752 | 757 | 5 | x | x | | | 170 | |
| 757 | 762 | 5 | x | x | | | 171 | |
| 762 | 767 | 5 | x | x | x | 20 | 172 | |
| 767 | 772 | 5 | x | x | | | 173 | |
| 772 | 777 | 5 | x | x | | | 174 | |
| 777 | 782 | 5 | x | x | | | 175 | |
| 782 | 787 | 5 | x | x | x | 20 | 176 | |
| 787 | 792 | 5 | x | x | | | 177 | |
| 792 | 797 | 5 | x | x | | | 178 | |
| 797 | 802 | 5 | x | x | | | 179 | |
| 802 | 807 | 5 | x | x | x | 20 | 180 | |
| 807 | 812 | 5 | x | x | | | 181 | |
| 812 | 817 | 5 | x | x | | | 182 | |
| 817 | 822 | 5 | x | x | | | 183 | |
| 822 | 827 | 5 | x | x | x | 20 | 184 | |
| 827 | 832 | 5 | x | x | | | 185 | |
| 832 | 837 | 5 | x | x | | | 186 | |
| 837 | 842 | 5 | x | x | | | 187 | |
| 842 | 847 | 5 | x | x | x | 20 | 188 | |
| 847 | 852 | 5 | x | x | | | 189 | |
| 852 | 857 | 5 | x | x | | | 190 | |
| 857 | 860.5 | 3.5 | x | x | | | 191 | |
| 860.5 | 863.9 | 3.4 | x | x | x | 16.9 | 192 | |
| 863.9 | 867.8 | 3.9 | x | x | x | 3.9 | 193 | |
| 867.8 | 872 | 4.2 | x | x | | | 194 | |
| 872 | 877 | 5 | x | x | | | 195 | |
| 877 | 882 | 5 | x | x | | | 196 | |
| 882 | 887 | 5 | x | x | x | 19.2 | 197 | |
| 887 | 892 | 5 | x | x | | | 198 | |
| 892 | 897 | 5 | x | x | | | 199 | |
| 897 | 902 | 5 | x | x | | | 200 | |
| 902 | 907 | 5 | x | x | | | 201 | |
| 907 | 910 | 3 | x | x | x | 23 | 202 | |
| 910 | 912 | 2 | x | x | | | 203 | |
| 912 | 917 | 5 | x | x | | | 204 | |
| 917 | 922 | 5 | x | x | | | 205 | |
| 922 | 923.7 | 1.7 | x | x | | | 206 | |
| 923.7 | 927 | 3.3 | x | x | x | 17 | 207 | 927.0B |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 927 | 932 | 5 | x | x | | | 208 |
| 932 | 937 | 5 | x | x | | | 209 |
| 937 | 942 | 5 | x | x | | | 210 |
| 942 | 947 | 5 | x | x | | | 211 |
| 947 | 948.4 | 1.4 | x | x | x | 21.4 | 212 |
| 948.4 | 951.8 | 3.4 | x | x | x | 3.4 | 213 |
| 951.8 | 957 | 5.2 | x | x | | | 214 |
| 957 | 962 | 5 | x | x | | | 215 |
| 962 | 967 | 5 | x | x | | | 216 |
| 967 | 972 | 5 | x | x | x | 20.2 | 217 |
| 972 | 977 | 5 | x | x | | | 218 |
| 977 | 982 | 5 | x | x | | | 219 |
| 982 | 987 | 5 | x | x | | | 220 |
| 987 | 992 | 5 | x | x | x | 20 | 221 |
| 992 | 997 | 5 | x | x | | | 222 |
| 997 | 1002 | 5 | x | x | | | 223 |
| 1002 | 1007 | 5 | x | x | | | 224 |
| 1007 | 1013 | 6 | x | x | x | 21 | 225 |
| 1013 | 1017 | 4 | x | x | | | 226 |
| 1017 | 1019 | 2 | x | x | x | 6 | 227 |
| 1019 | 1022 | 3 | x | x | | | 228 |
| 1022 | 1027 | 5 | x | x | | | 229 |
| 1027 | 1032 | 5 | x | x | | | 230 |
| 1032 | 1037 | 5 | x | x | | | 231 |
| 1037 | 1042 | 5 | x | x | x | 23 | 232 |
| 1042 | 1047 | 5 | x | x | | | 233 |
| 1047 | 1052 | 5 | x | x | | | 234 |
| 1052 | 1057 | 5 | x | x | | | 235 |
| 1057 | 1059.9 | 2.9 | x | x | | | 236 |
| 1059.9 | 1062.6 | 2.7 | x | x | x | 20.6 | 237 |
| 1062.6 | 1067 | 4.4 | x | x | | | 238 |
| 1067 | 1068.5 | 1.5 | x | x | | | 239 |
| 1068.5 | 1070.2 | 1.7 | x | x | | | 240 |
| 1070.2 | 1074 | 3.8 | x | x | | | 241 |
| 1074 | 1077.6 | 3.6 | x | x | | | 242 |
| 1077.6 | 1078.6 | 1 | x | x | | | 243 |
| 1078.6 | 1082 | 3.4 | x | x | | | 244 |
| 1082 | 1087 | 5 | x | x | | 21 | 245 |
| 1087 | 1092 | 5 | x | x | | | 246 |
| 1092 | 1097 | 5 | x | x | | | 247 |
| 1097 | 1102 | 5 | x | x | | | 248 |
| 1102 | 1107 | 5 | x | x | x | 20 | 249 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1107 | 1112 | 5 | x | x | | | 250 | |
| 1112 | 1117 | 5 | x | x | | | 251 | |
| 1117 | 1122 | 5 | x | x | | | 252 | |
| 1122 | 1127 | 5 | x | x | | | 253 | |
| 1127 | 1132 | 5 | x | x | x | 25 | 254 | 1132.0B |
| 1132 | 1137 | 5 | x | x | | | 255 | |
| 1137 | 1142 | 5 | x | x | | | 256 | |
| 1142 | 1147 | 5 | x | x | | | 257 | |
| 1147 | 1152 | 5 | x | x | | | 258 | |
| 1152 | 1157 | 5 | x | x | x | 25 | 259 | |
| 1157 | 1159.8 | 2.8 | x | x | | | 260 | |
| 1159.8 | 1164.8 | 5 | x | x | | | 261 | |
| 1164.8 | 1167 | 2.2 | x | x | | | 262 | |
| 1167 | 1172 | 5 | x | x | x | 15 | 263 | |
| 1172 | 1176.5 | 4.5 | x | x | | | 264 | |
| 1176.5 | 1180.6 | 4.1 | x | x | | | 265 | |
| 1180.6 | 1182 | 1.4 | x | x | | | 266 | |
| 1182 | 1187 | 5 | x | x | | | 267 | |
| 1187 | 1192 | 5 | x | x | | | 268 | |
| 1192 | 1197 | 5 | x | x | x | 25 | 269 | |
| 1197 | 1202 | 5 | x | x | | | 270 | |
| 1202 | 1204.2 | 2.2 | x | x | | | 271 | |
| 1204.2 | 1206.2 | 2 | x | x | | | 272 | |
| 1206.2 | 1210.1 | 3.9 | x | x | | | 273 | |
| 1210.1 | 1212 | 1.9 | x | x | | | 274 | |
| 1212 | 1217.4 | 5.4 | x | x | x | 20.4 | 275 | |
| 1217.4 | 1219.2 | 1.8 | x | x | | | 276 | |
| 1219.2 | 1222 | 2.8 | x | x | | | 277 | |
| 1222 | 1227 | 5 | x | x | | | 278 | |
| 1227 | 1229.5 | 2.5 | x | x | | | 279 | |
| 1229.5 | 1231.6 | 2.1 | x | x | | | 280 | |
| 1231.6 | 1237 | 5.4 | x | x | x | 19.6 | 281 | |
| 1237 | 1242 | 5 | x | x | | | 282 | |
| 1242 | 1247 | 5 | x | x | | | 283 | |
| 1247 | 1252 | 5 | x | x | | | 284 | |
| 1252 | 1257 | 5 | x | x | x | 20 | 285 | |
| 1257 | 1262 | 5 | x | x | | | 286 | |
| 1262 | 1267 | 5 | x | x | | | 287 | |
| 1267 | 1272 | 5 | x | x | x | 15 | 288 | |
| 1272 | 1277 | 5 | x | x | | | 289 | |
| 1277 | 1282 | 5 | x | x | | | 290 | |
| 1282 | 1287.1 | 5.1 | x | x | x | 15.1 | 291 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1287.1 | 1290.6 | 3.5 | x | x | | | 292 | |
| 1290.6 | 1292.2 | 1.6 | x | x | | | 293 | |
| 1292.2 | 1297 | 4.8 | x | x | | | 294 | |
| 1297 | 1302 | 5 | x | x | | | 295 | |
| 1302 | 1306.2 | 4.2 | x | x | | | 296 | |
| 1306.2 | 1308.3 | 2.1 | x | x | x | 21.2 | 297 | 1308.3B |
| | | | | | | | 298 | |
| 1308.3 | 1312.6 | 4.3 | x | x | | | 299 | |
| 1312.6 | 1313.7 | 1.1 | x | x | | | 300 | |
| 1313.7 | 1317 | 3.3 | x | x | | | 301 | |
| 1317 | 1322 | 5 | x | x | | | 302 | |
| 1322 | 1327 | 5 | x | x | | | 303 | |
| 1327 | 1332 | 5 | x | x | x | 23.7 | 304 | |
| 1332 | 1337 | 5 | x | x | | | 305 | |
| 1337 | 1338.5 | 1.5 | x | x | | | 306 | |
| 1338.5 | 1341.6 | 3.1 | x | x | | | 307 | |
| 1341.6 | 1347 | 5.4 | x | x | | | 308 | |
| 1347 | 1352 | 5 | x | x | x | 20 | 309 | |
| 1352 | 1357 | 5 | x | x | | | 310 | |
| 1357 | 1362 | 5 | x | x | | | 311 | |
| 1362 | 1367 | 5 | x | x | | | 312 | |
| 1367 | 1370 | 3 | x | x | | | 313 | |
| 1370 | 1374.7 | 4.7 | x | x | x | 22.7 | 314 | |
| 1374.7 | 1377 | 2.3 | x | x | | | 315 | |
| 1377 | 1382 | 5 | x | x | | | 316 | |
| 1382 | 1386.8 | 4.8 | x | x | | | 317 | |
| 1386.8 | 1390.1 | 3.3 | x | x | | | 318 | |
| 1390.1 | 1394 | 3.9 | x | x | | | 319 | |
| 1394 | 1398 | 4 | x | x | x | 23.3 | 320 | |
| 1398 | 1401 | 3 | x | x | | | 321 | |
| 1401 | 1406 | 5 | x | x | | | 322 | |
| 1406 | 1411 | 5 | x | x | | | 323 | |
| 1411 | 1416 | 5 | x | x | x | 18 | 324 | |
| 1416 | 1421.5 | 5.5 | x | x | | | 325 | |
| 1421.5 | 1426.8 | 5.3 | x | x | | | 326 | |
| 1426.8 | 1432 | 5.2 | x | x | | | 327 | |
| 1432 | 1437 | 5 | x | x | x | 21 | 328 | 1437.0B |
| 1437 | 1442 | 5 | x | x | | | 329 | |
| 1442 | 1447 | 5 | x | x | | | 330 | |
| 1447 | 1452 | 5 | x | x | | | 331 | |
| 1452 | 1457 | 5 | x | x | x | 20 | 332 | |
| 1457 | 1462 | 5 | x | x | | | 333 | |
| 1462 | 1467 | 5 | x | x | | | 334 | |
| 1467 | 1472 | 5 | x | x | | | 335 | |
| 1472 | 1477 | 5 | x | x | x | 20 | 336 | |

Down Hole Survey Data
RS-D354-99

| Footage | Measured Bearing | Corrected Azimuth | Measured Inclination | Calculated Dip |
|---|---|---|---|---|
| | | -15.66 | | |
| 52 | 68 | 307.7 | 50 | -40.0 |
| 252 | 72 | 303.7 | 50 | -40.0 |
| 497 | 73 | 302.7 | 50 | -40.0 |
| 702 | 74.0 | 301.7 | 49.9 | -40.1 |
| 902 | 73.5 | 302.2 | 49.8 | -40.2 |
| 1102 | 73 | 302.7 | 46.5 | -43.5 |
| 1302 | 72 | 303.7 | 43.9 | -46.1 |

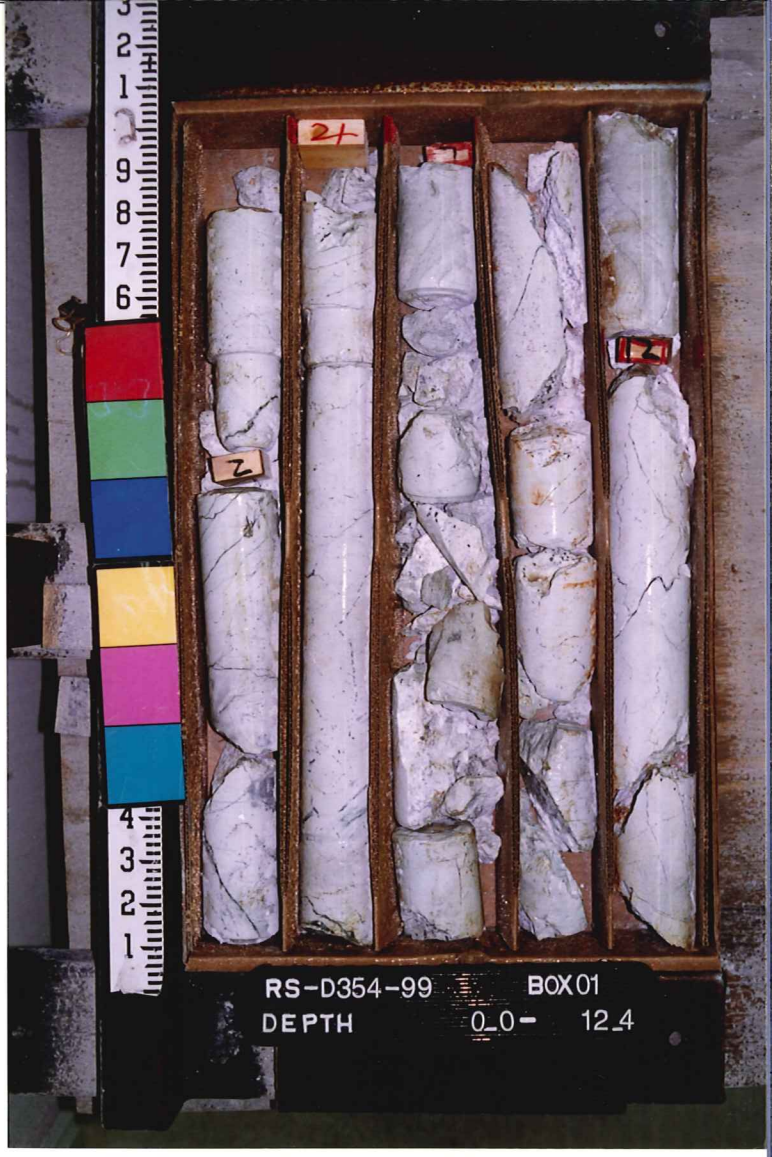
Missing

Boxes 33 thru 82 - 109

Missing

Boxes 33 thru 82 - 109

RS-D354-99 BOX02
DEPTH 12_4- 22_8


RS-D354-99 BOX01
DEPTH 0_0- 12_4

RS-D354-99 BOX03
DEPTH 22_8- 31_0

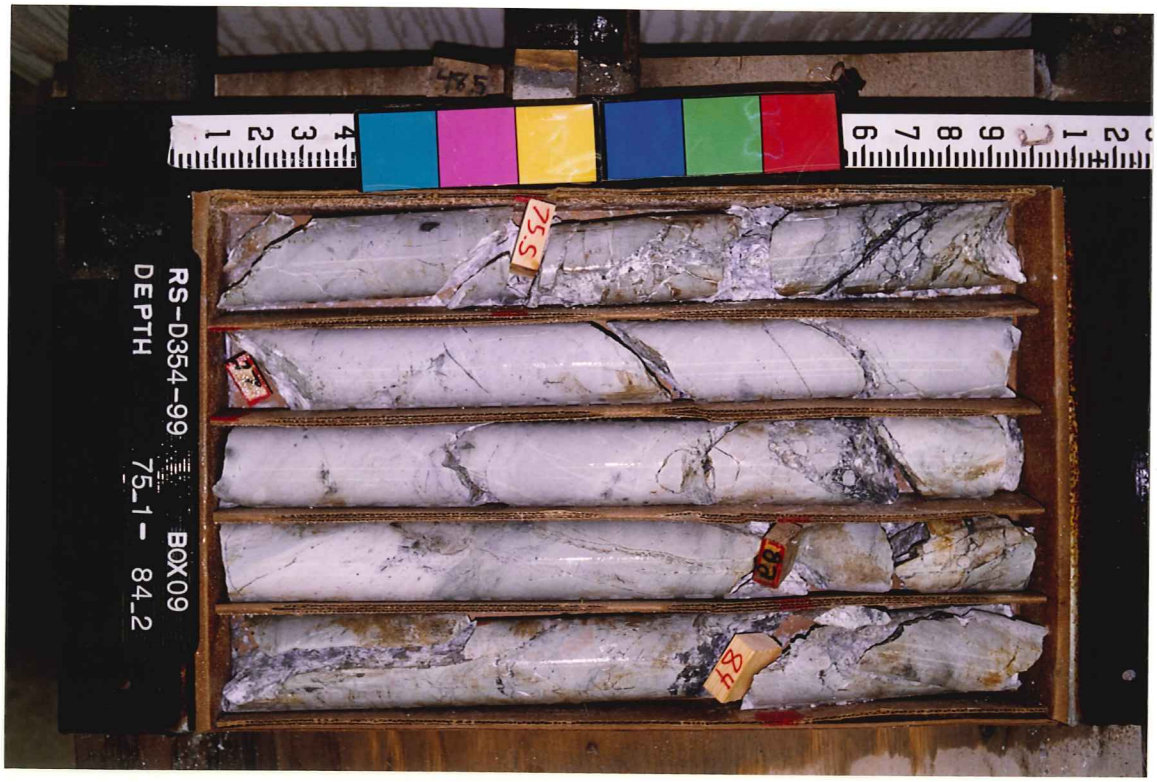
RS-D354-99 BOX05
DEPTH 40_0- 49_0

RS-D354-99 BOX04
DEPTH 31_0- 40_0

RS-D354-99 BOX06
DEPTH 49_0- 59_0

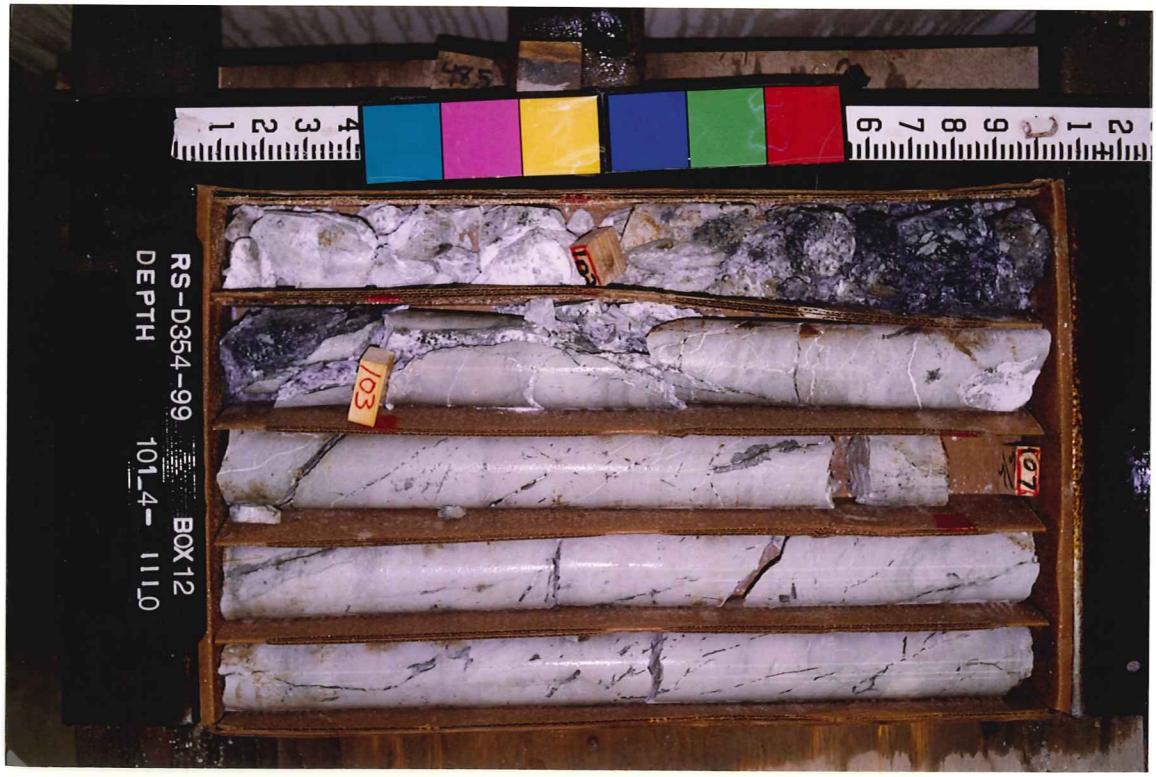
RS-D354-99
BOX08
DEPTH
66_5- 75_1

RS-D354-99
BOX07
DEPTH
59_0- 66_5


RS-D354-99
BOX09
DEPTH
75_1- 84_2

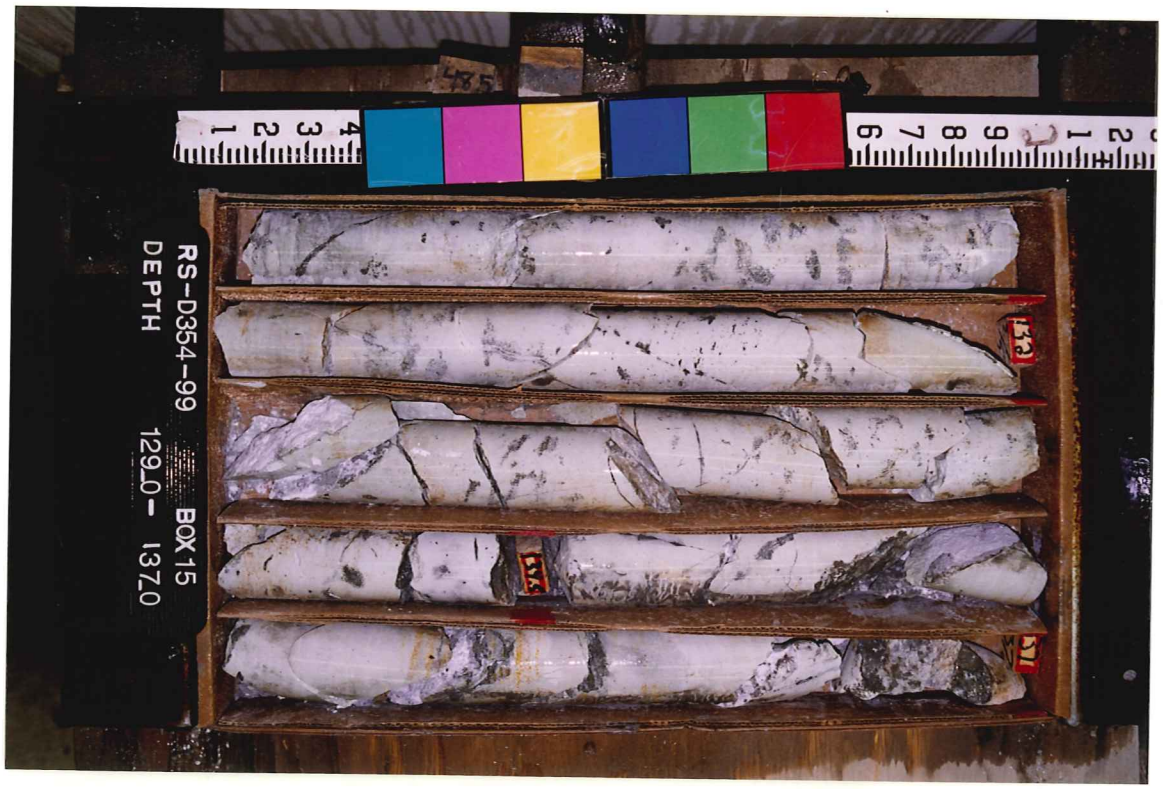
97
98
96
RS-D354-99 BOX11
DEPTH 92_1- 101_4

89
87
85.6
RS-D354-99 BOX10
DEPTH 84_2- 92_1


103
97
RS-D354-99 BOX12
DEPTH 101_4- 111_0

RS-D354-99 BOX 14
DEPTH 120_0- 129_0

RS-D354-99 BOX 13
DEPTH 111_0- 120_0


RS-D354-99 BOX 15
DEPTH 129_0- 137_0

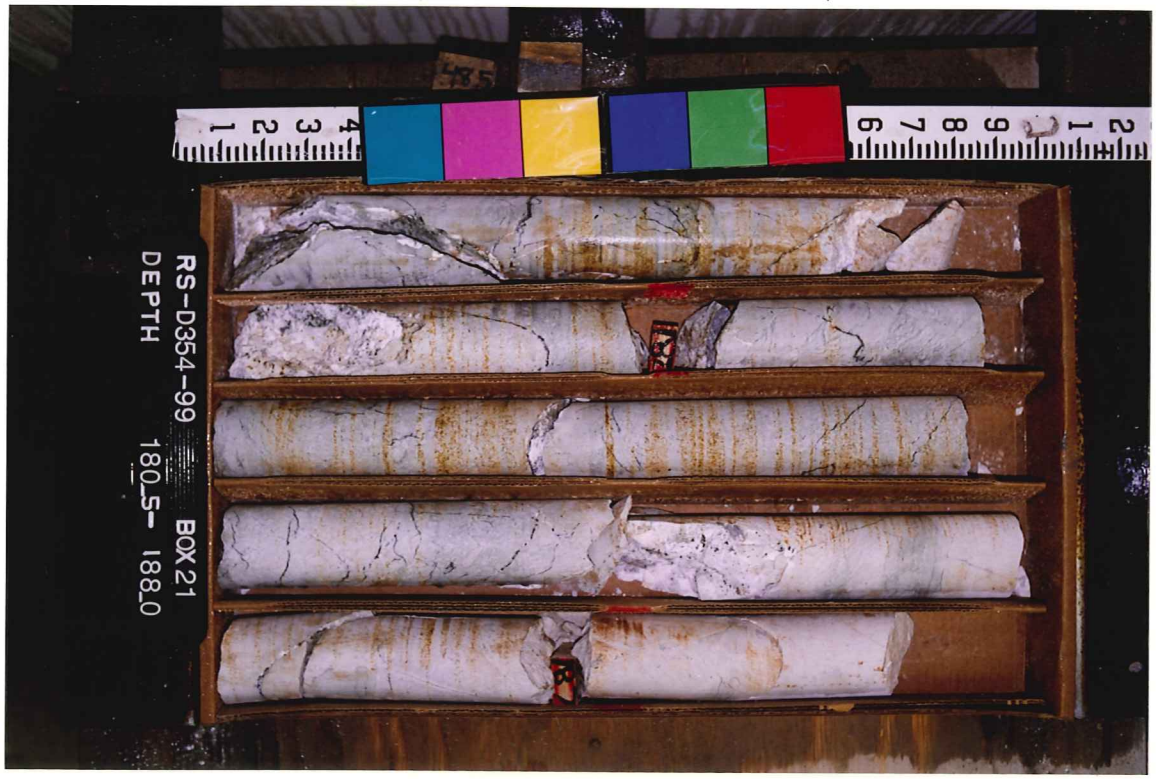
RS-D354-99 BOX 17
DEPTH 146_5- 155_0

RS-D354-99 BOX 16
DEPTH 137_0- 146_5

RS-D354-99 BOX 18
DEPTH 155_0- 162_0

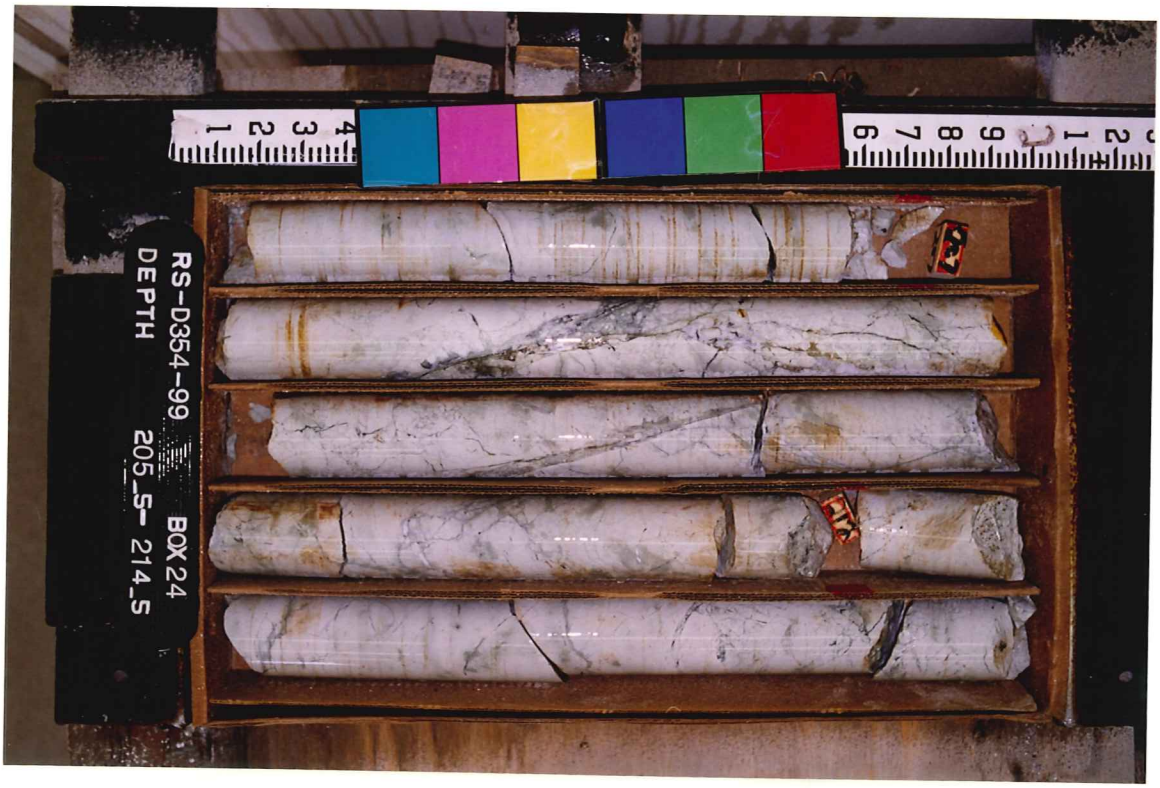
RS-D354-99 BOX 20
DEPTH 171_5- 180_0

RS-D354-99 BOX 19
DEPTH 162_0- 171_5


RS-D354-99 BOX 21
DEPTH 180_5- 188_0

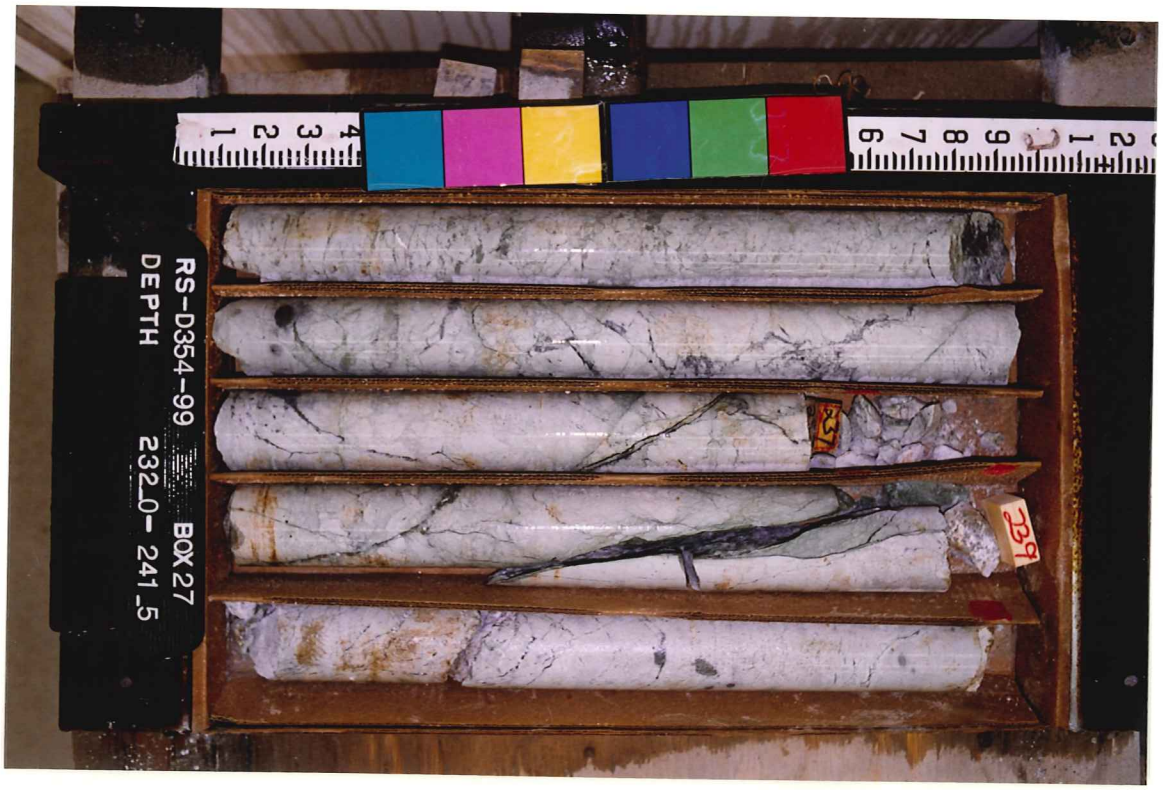
RS-D354-99 BOX 23
DEPTH 197_0- 205_5

RS-D354-99 BOX 22
DEPTH 188_0- 197_0


RS-D354-99 BOX 24
DEPTH 205_5- 214_5

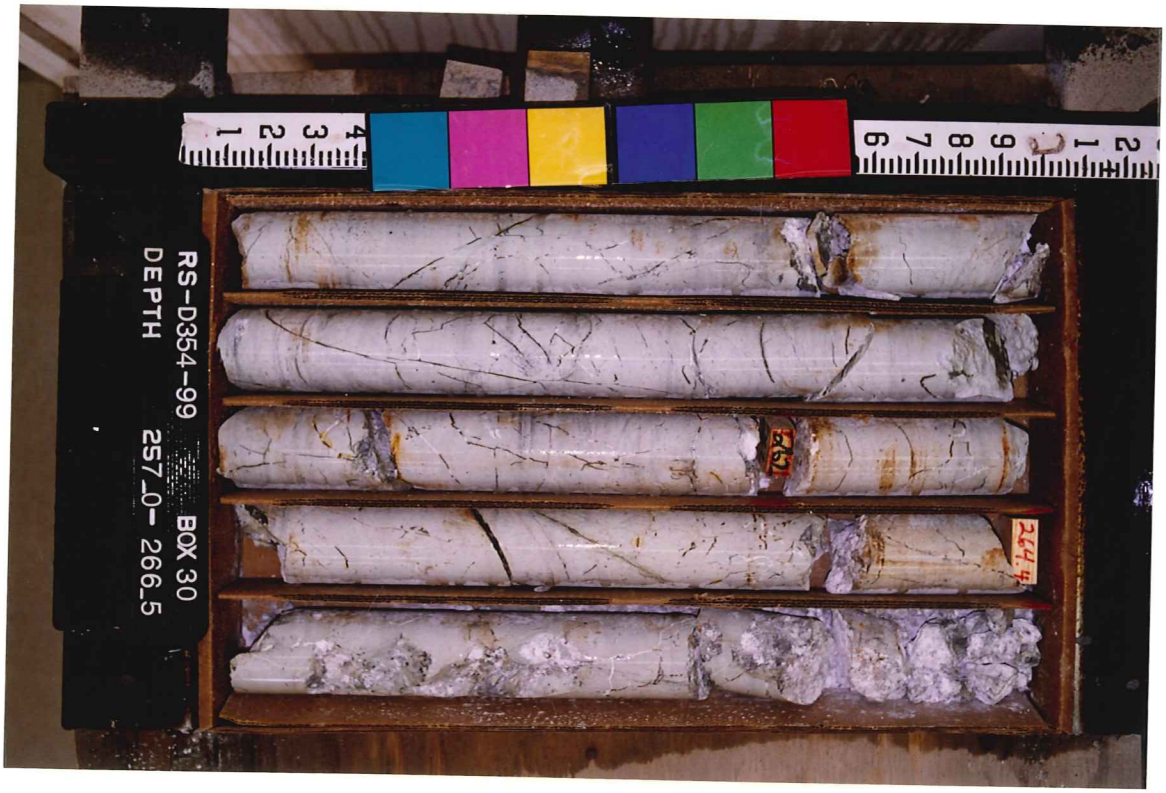
RS-D354-99 BOX 26
DEPTH 223_5- 232_0

RS-D354-99 BOX 25
DEPTH 214_5- 223_5


RS-D354-99 BOX 27
DEPTH 232_0- 241_5

RS-D354-99 BOX 29
DEPTH 249_5- 257_0

RS-D354-99 BOX 28
DEPTH 241_5- 249_5

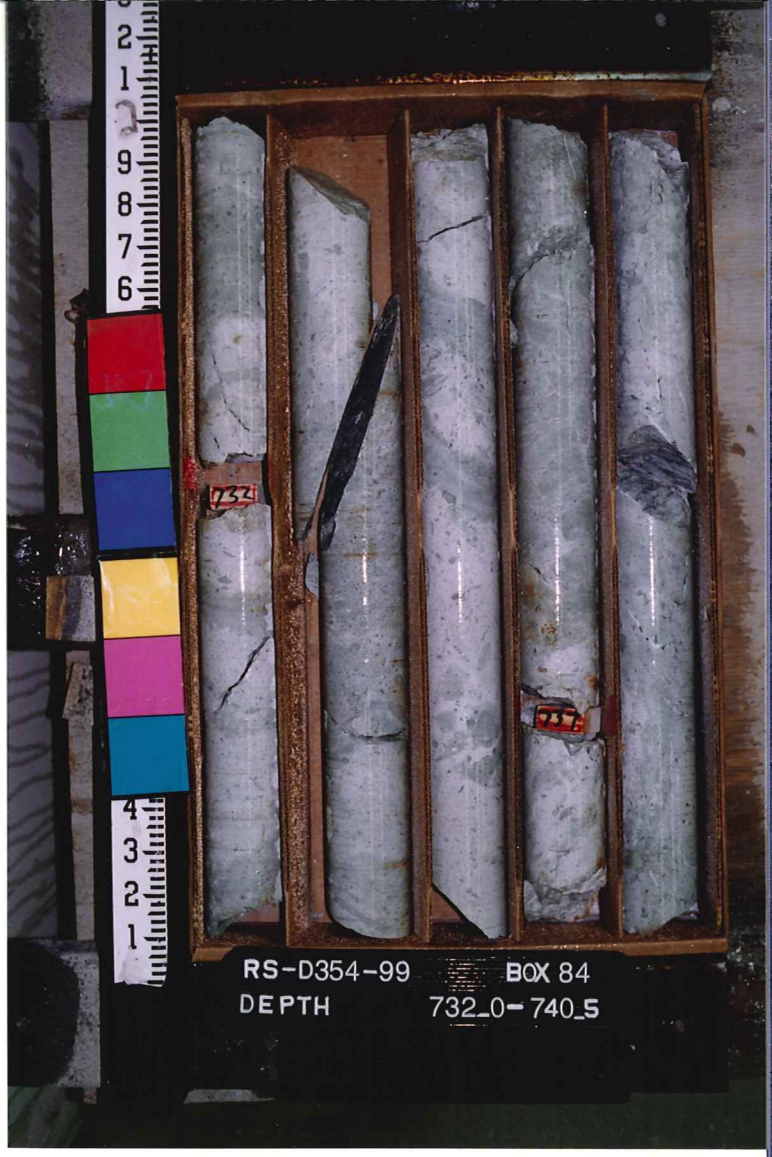

RS-D354-99 BOX 30
DEPTH 257_0- 266_5

RS-D354-99 BOX 32
DEPTH 274_5- 283_8

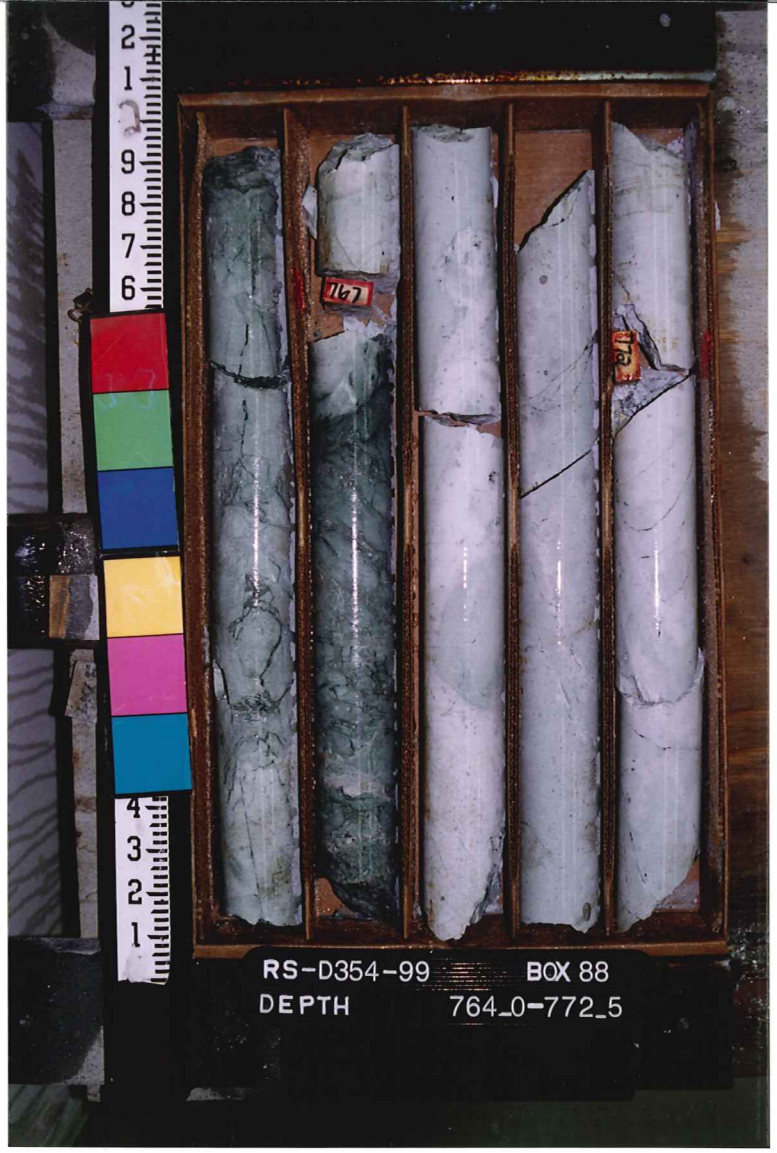
RS-D354-99 BOX 31
DEPTH 266_5- 274_5

RS-D354-99 BOX 83
DEPTH 723_0- 732_0

RS-D354-99
BOX 85
DEPTH
740_5-749_5

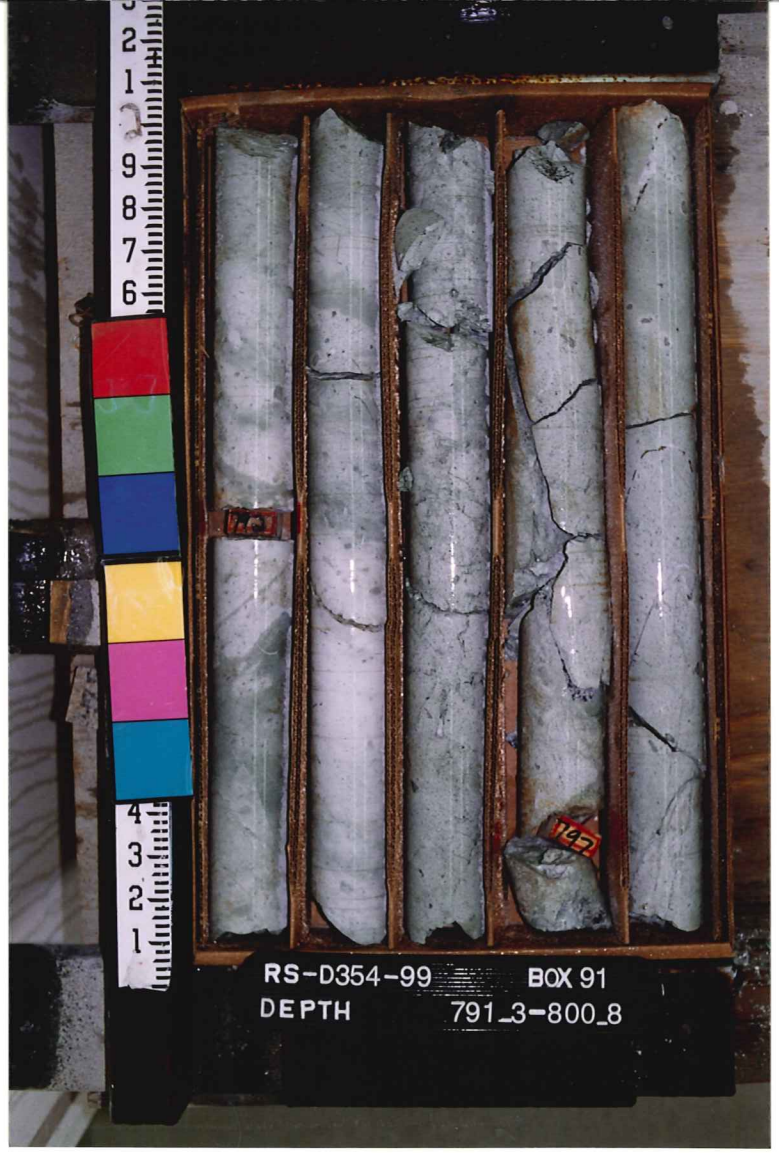

RS-D354-99
BOX 84
DEPTH
732_0-740_5

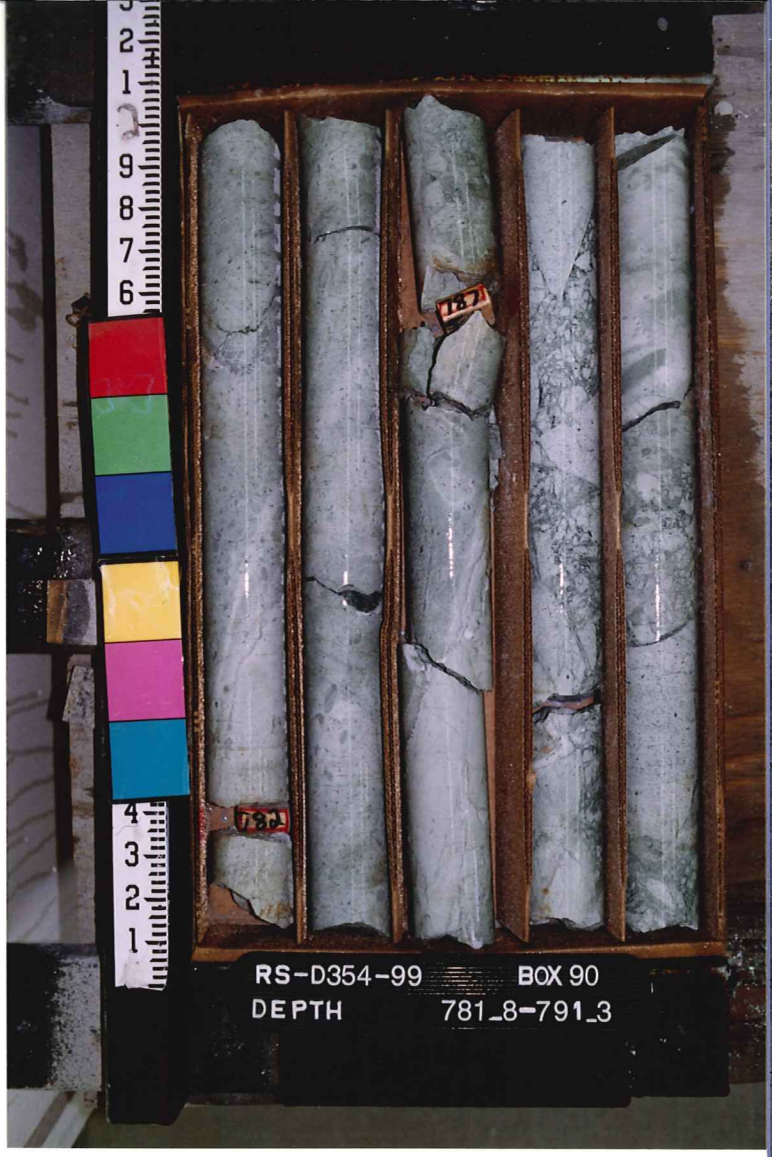
RS-D354-99
BOX 86
DEPTH
749_5-756_0

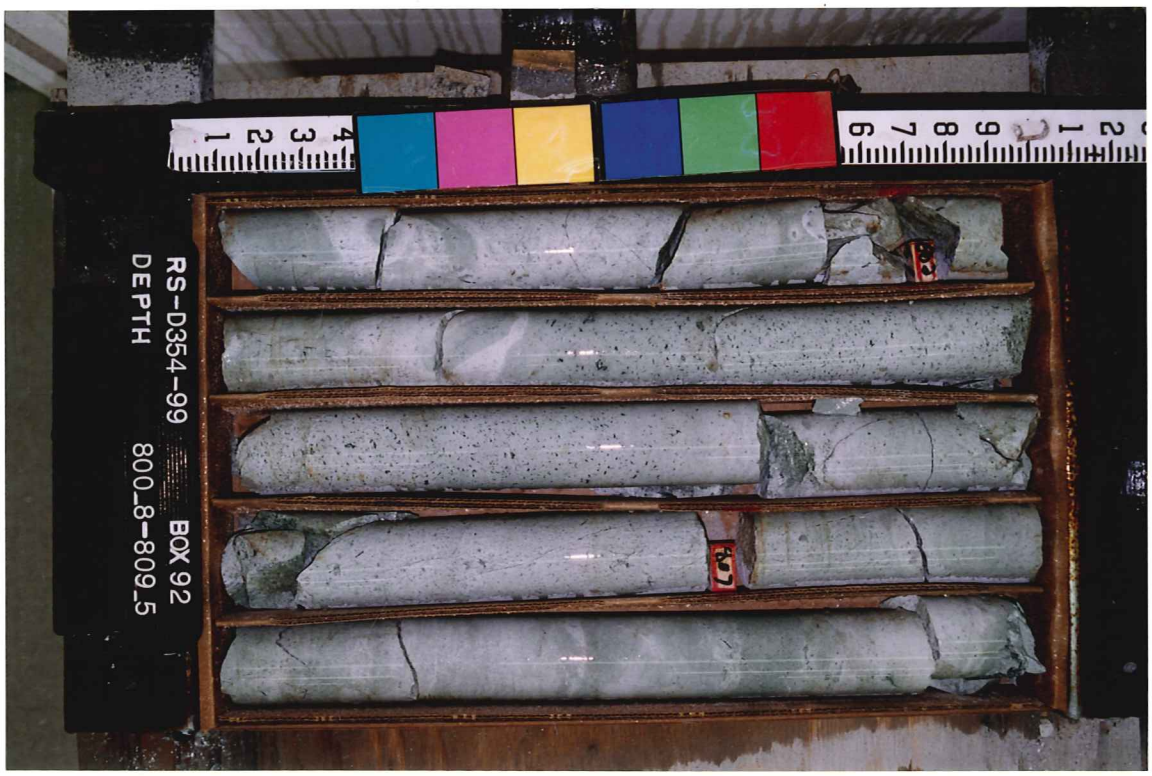

RS-D354-99 BOX 88
DEPTH 764_0-772_5

RS-D354-99 BOX 87
DEPTH 756_0-764_0

RS-D354-99 BOX 89
DEPTH 772_5-781_8


RS-D354-99 BOX 91
DEPTH 791_3-800_8


RS-D354-99 BOX 90
DEPTH 781_8-791_3

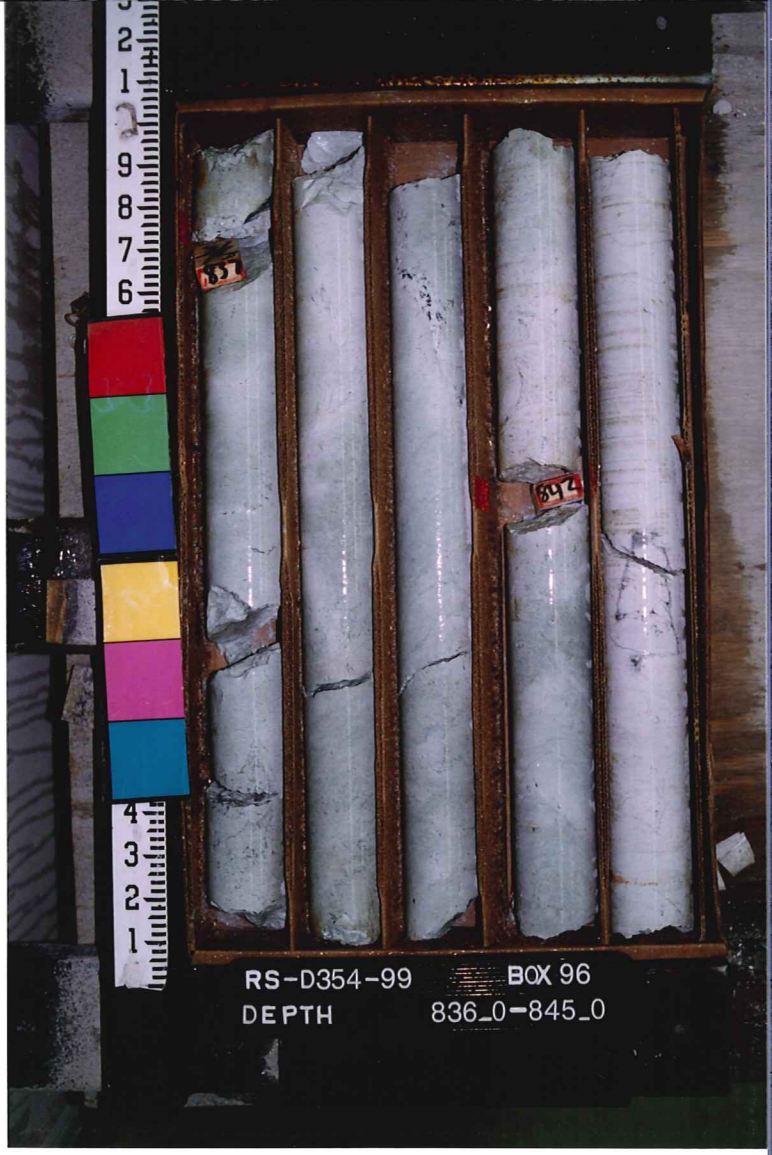

RS-D354-99 BOX 92
DEPTH 800_8-809_5

RS-D354-99 BOX 94
DEPTH 820_0-827_5

RS-D354-99 BOX 93
DEPTH 809_5-820_0

RS-D354-99 BOX 95
DEPTH 827_5-836_0

RS-D354-99
BOX 97
DEPTH
845_0-854_0


RS-D354-99
BOX 96
DEPTH
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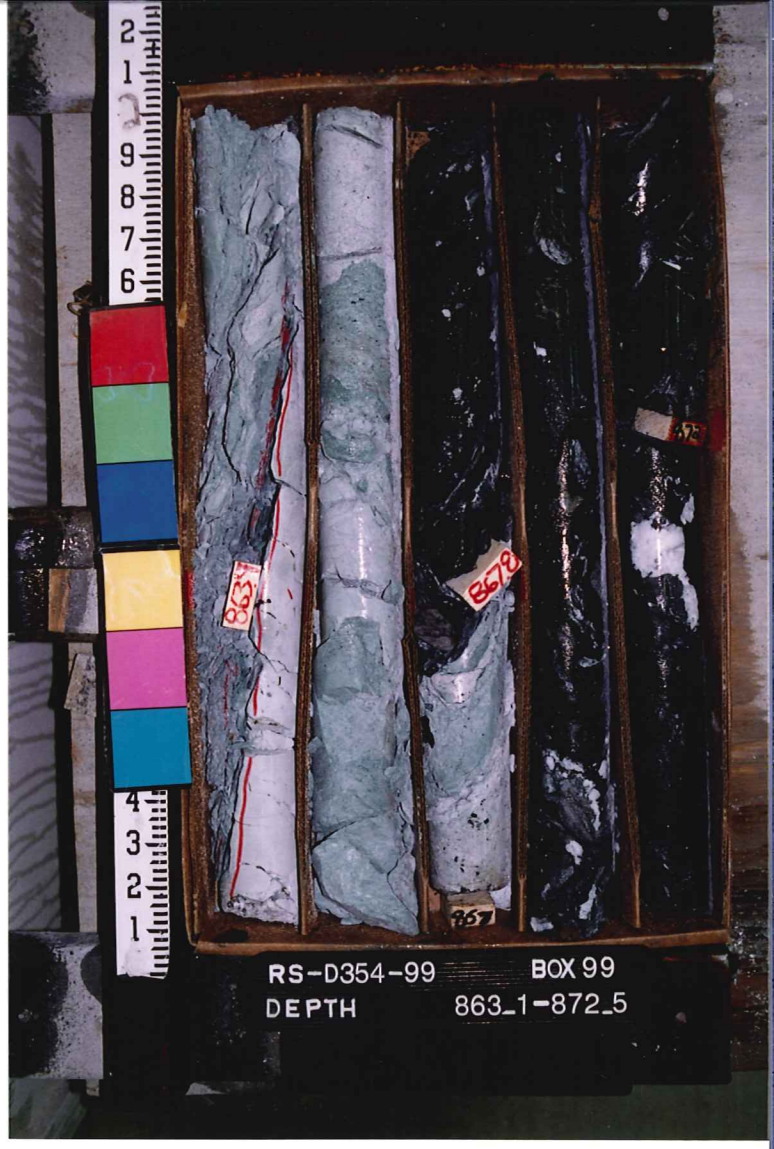
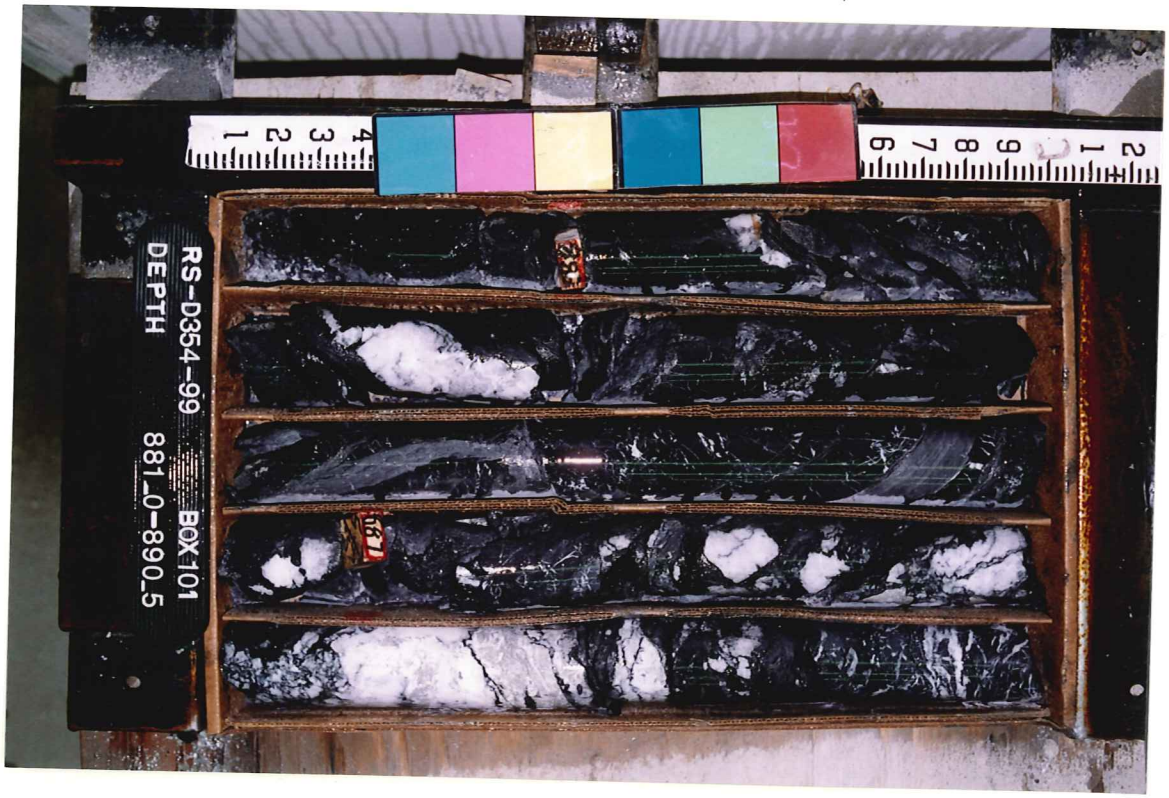
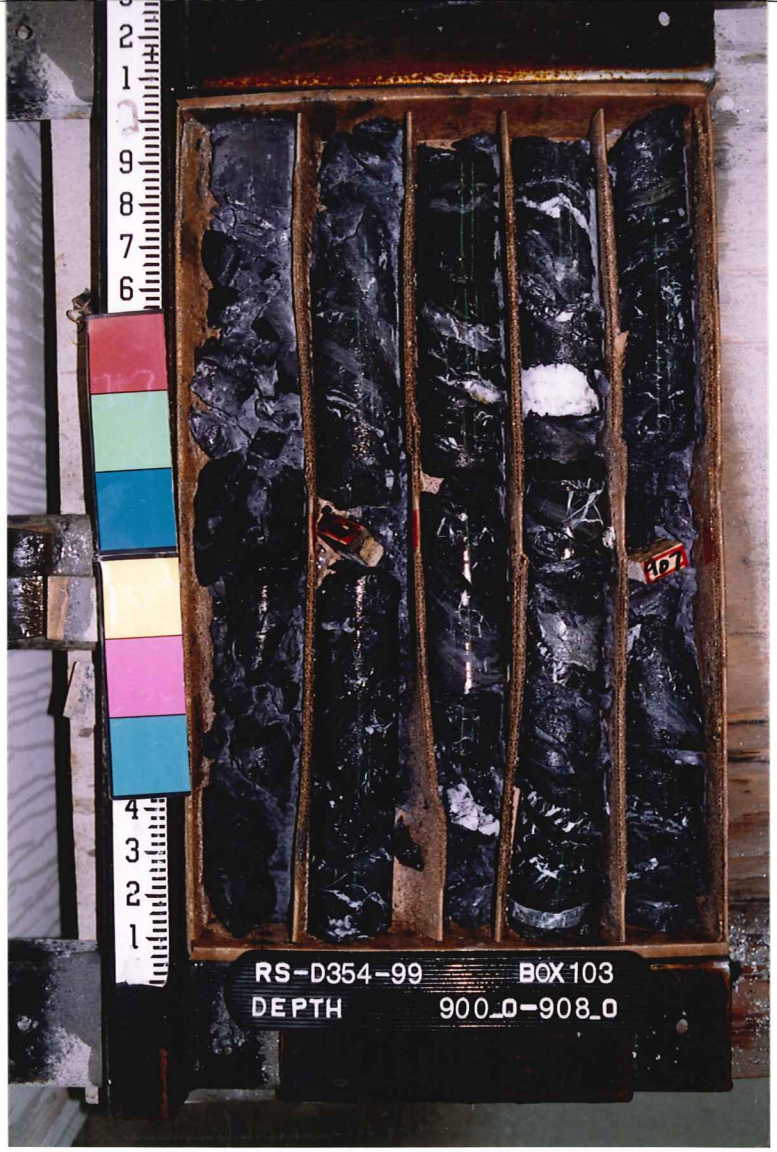
RS-D354-99
BOX 98
DEPTH
854_0-863_1

RS-D354-99
BOX 100
DEPTH
872_5-881_0


RS-D354-99
BOX 99
DEPTH
863_1-872_5


RS-D354-99
BOX 101
DEPTH
881_0-890_5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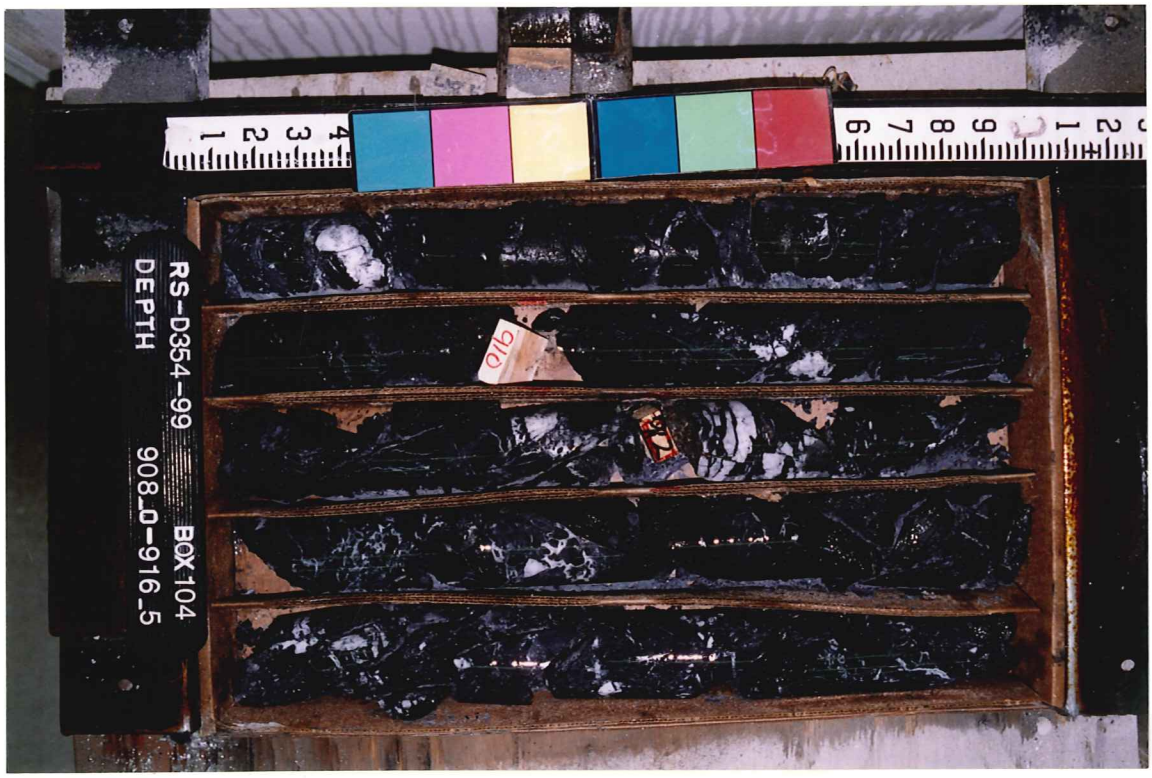
DEPTH 900_0-908_0

RS-D354-99 BOX 102
DEPTH 890_5-900_0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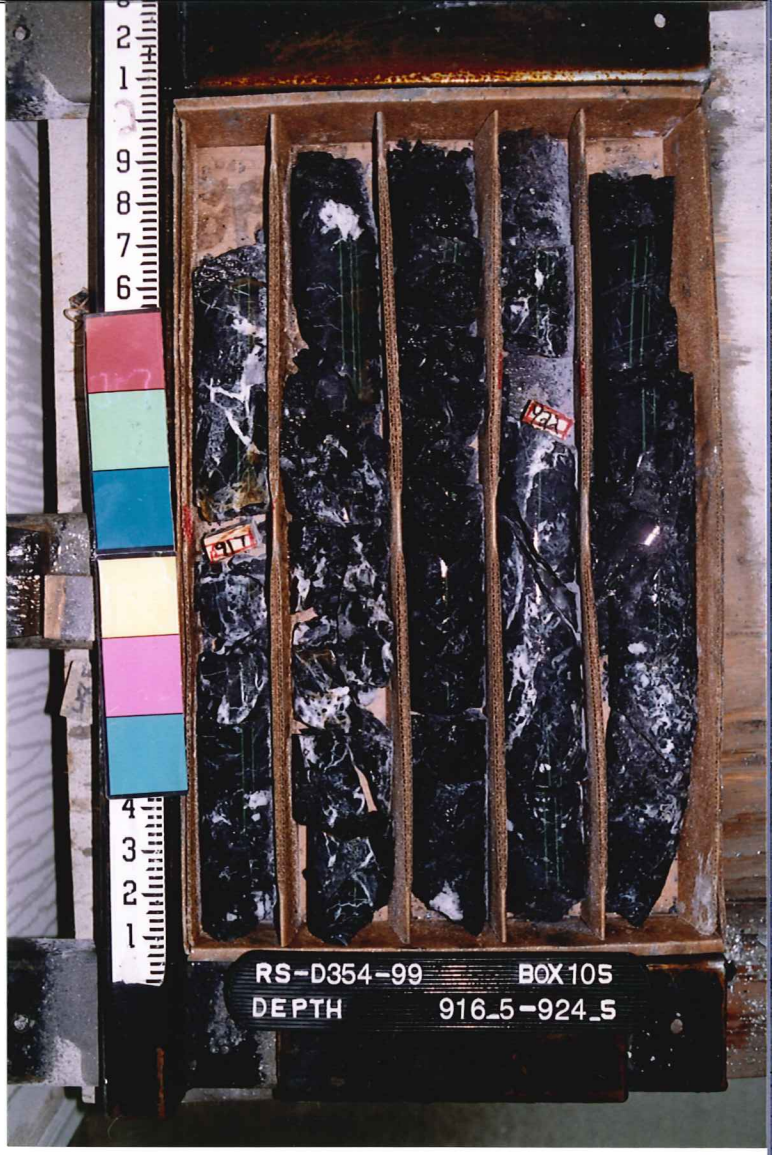
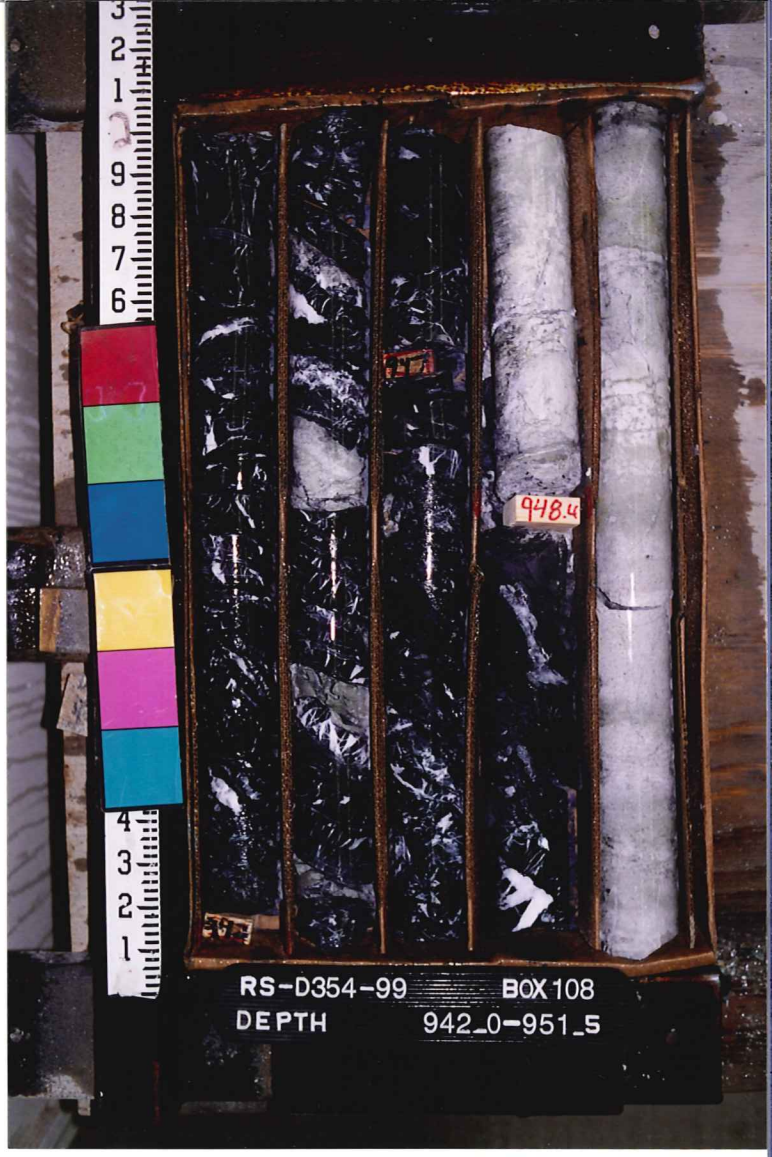
DEPTH 908_0-916_5

RS-D354-99 BOX 106
DEPTH 924_5-933_0


RS-D354-99 BOX 105
DEPTH 916_5-924_5

RS-D354-99 BOX 107
DEPTH 933_0-942_0

RS-D354-99 BOX 110
DEPTH 951_5- 961_0
951.8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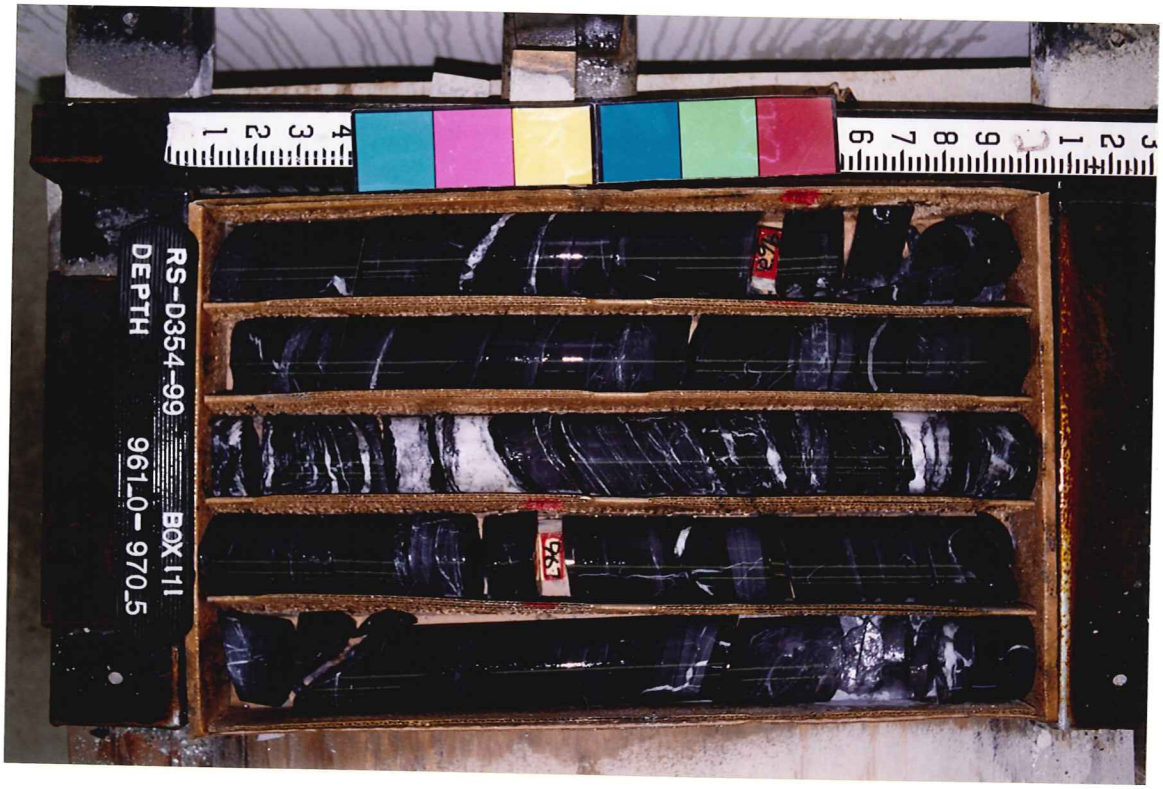
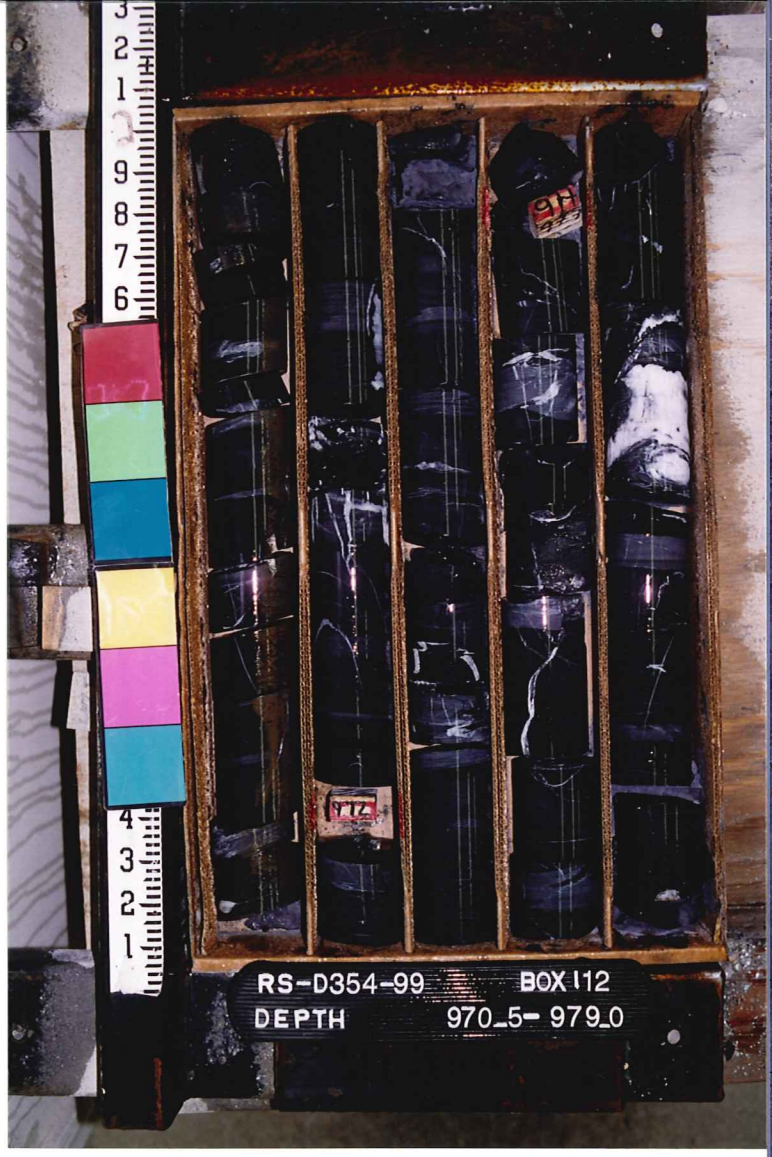
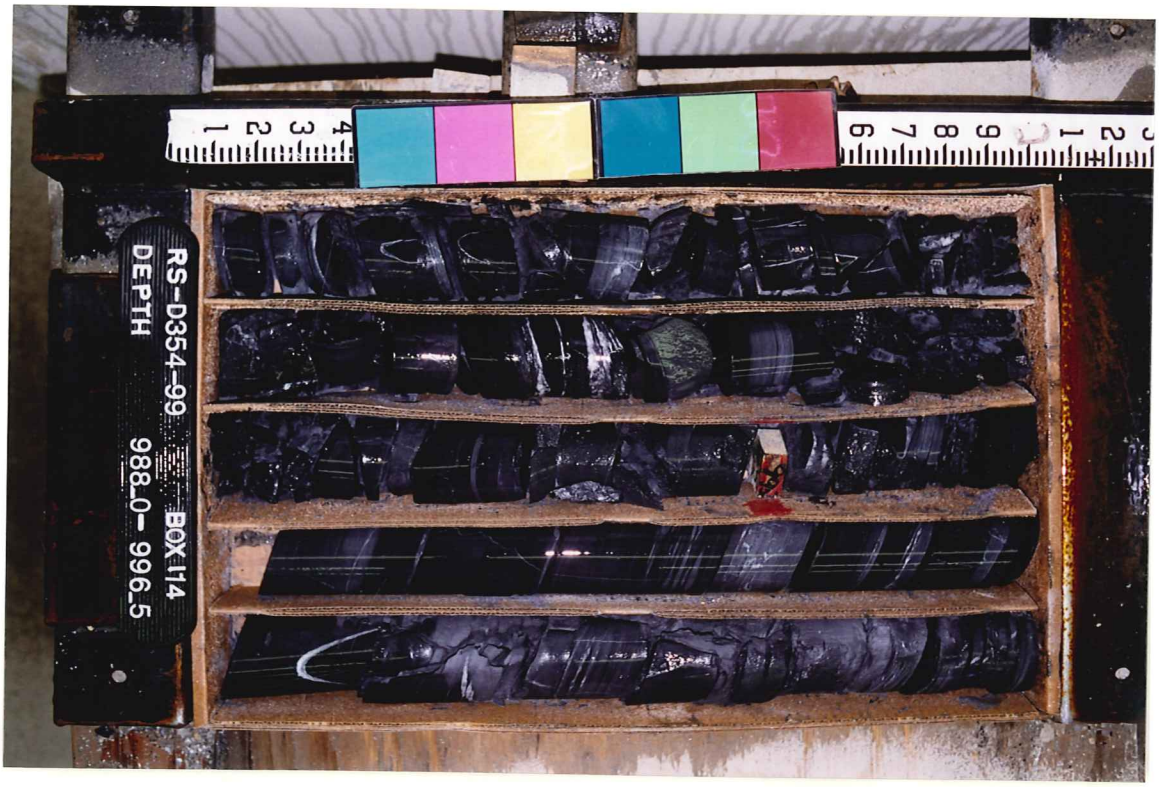
DEPTH 942_0-951_5
948.4


RS-D354-99 BOX 111
DEPTH 961_0- 970_5

RS-D354-99
BOX 113
DEPTH
979_0- 988_0


RS-D354-99
BOX 112
DEPTH
970_5- 979_0


RS-D354-99
BOX 114
DEPTH
988_0- 996_5

RS-D354-99
BOX 116
DEPTH
1005_0-1014_5

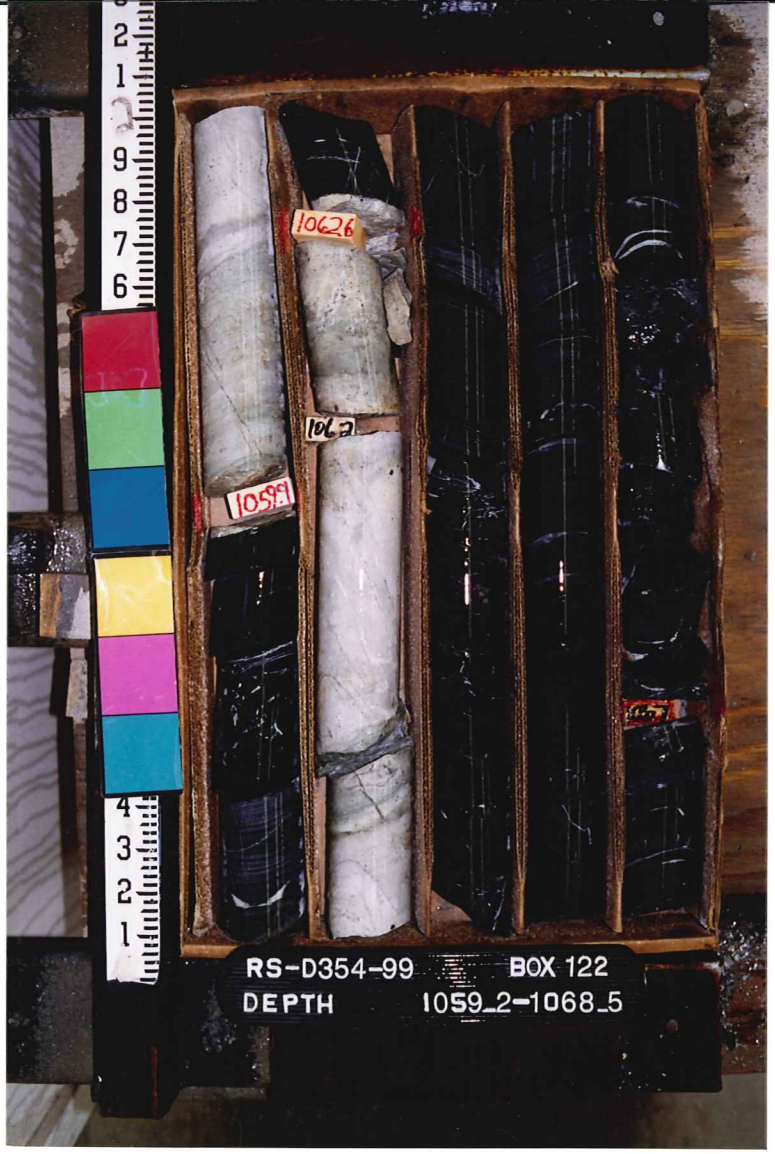
RS-D354-99
BOX 115
DEPTH
996_5-1005_0

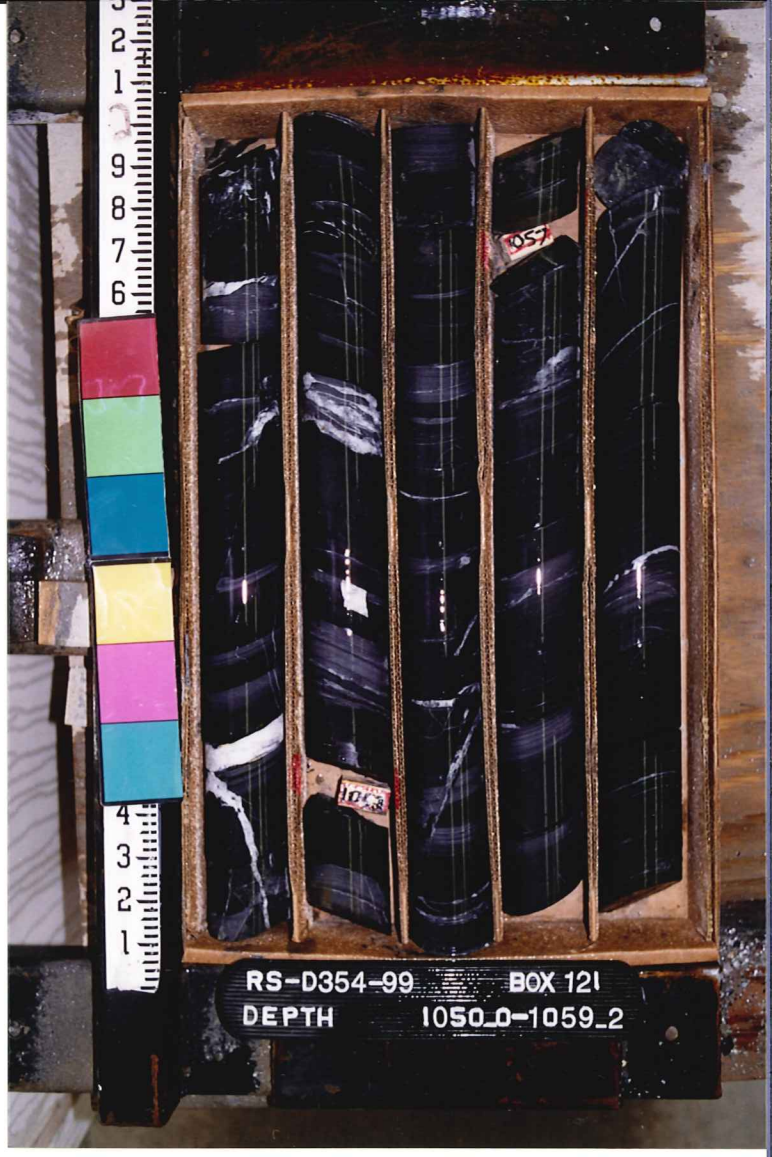
RS-D354-99
BOX 117
DEPTH
1014_5-1023_0

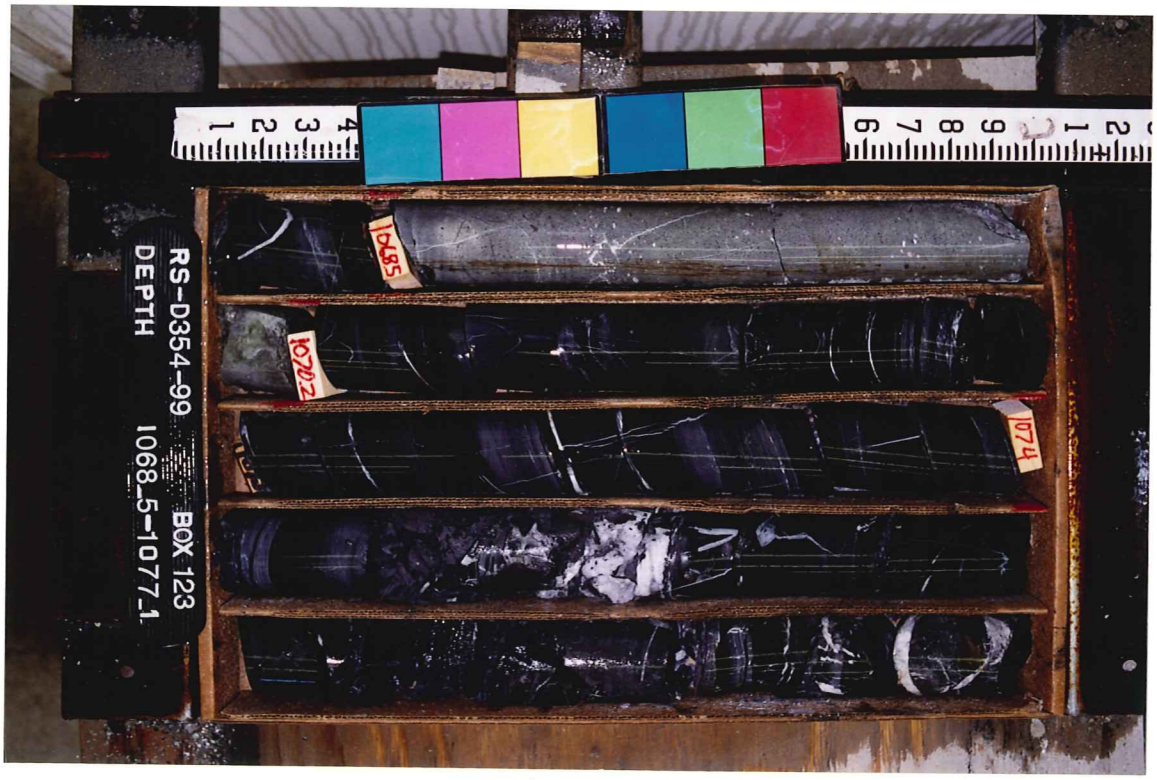
RS-D354-99 BOX 119
DEPTH 1032_0-1041_0

RS-D354-99 BOX 118
DEPTH 1023_0-1032_0

RS-D354-99 BOX 120
DEPTH 1041_0-1050_0

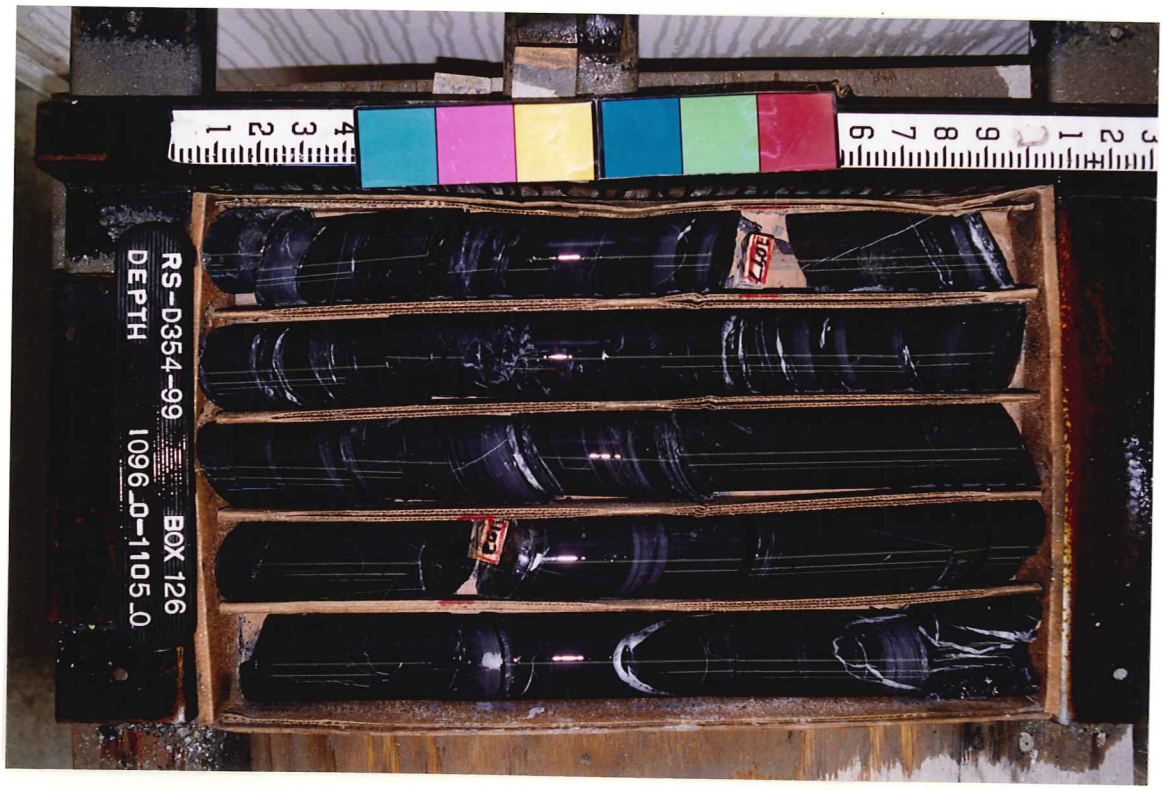

1062.6
1059.9
RS-D354-99 BOX 122
DEPTH 1059_2-1068_5


RS-D354-99 BOX 121
DEPTH 1050_0-1059_2


1068.5
1072.2
1074
RS-D354-99 BOX 123
DEPTH 1068_5-1077_1

RS-D354-99 BOX 125
DEPTH 1086_8-1096_0

1078.6
1077.4
RS-D354-99 BOX 124
DEPTH 1077_1-1086_8


RS-D354-99 BOX 126
DEPTH 1096_0-1105_0

RS-D354-99
BOX 128
DEPTH
1114_5-1123_5

RS-D354-99
BOX 127
DEPTH
1105_0-1114_5

RS-D354-99
BOX 129
DEPTH
1123_5-1132_0

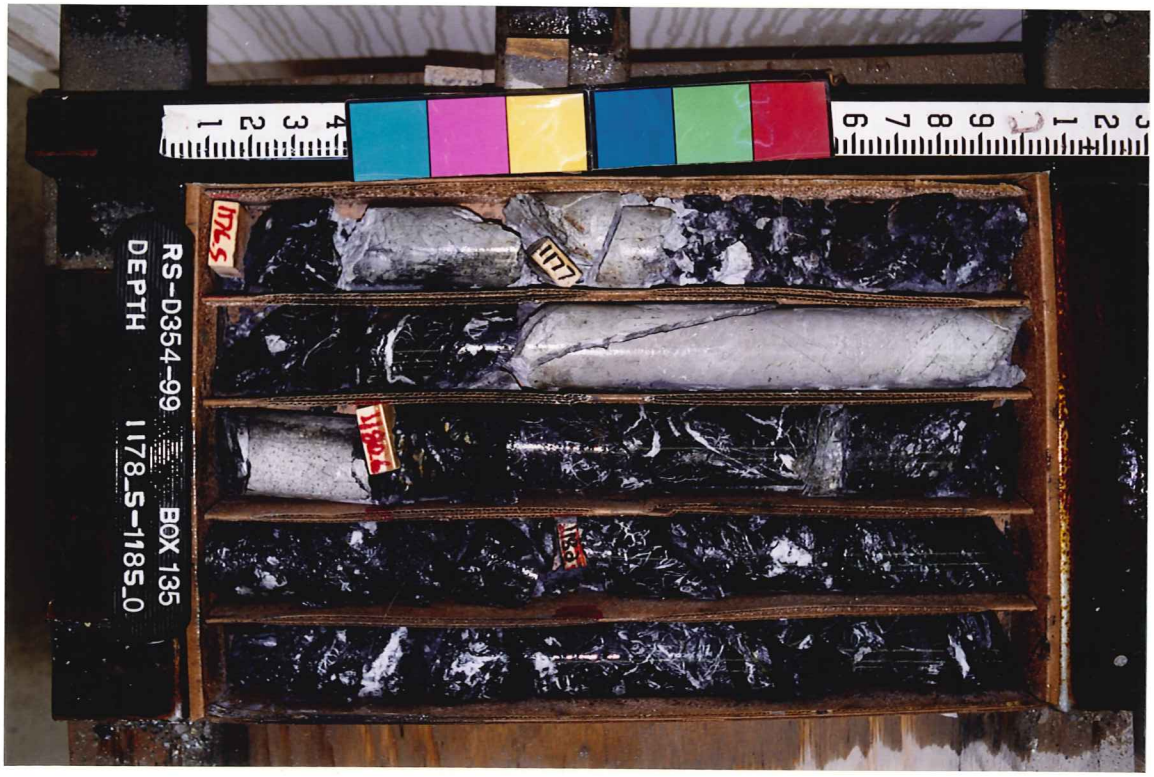
RS-D354-99
BOX 131
DEPTH
1141_5-1149_5

RS-D354-99
BOX 130
DEPTH
1132_0-1141_5

RS-D354-99
BOX 132
DEPTH
1149_5-1158_5

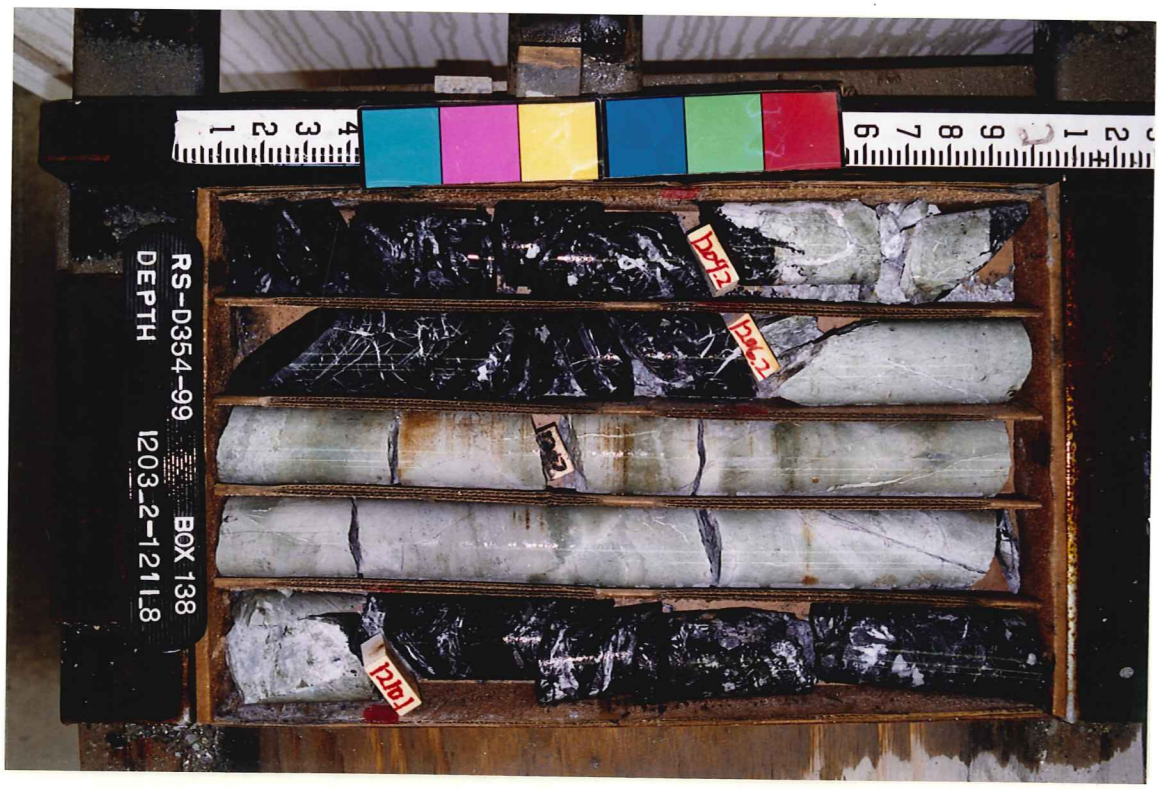
RS-D354-99
BOX 134
DEPTH
1167_0-1178_5

1162
1157.8
1164.8
RS-D354-99
BOX 133
DEPTH
1158_5-1167_0


1174.5
1177
1180.7
1184
RS-D354-99
BOX 135
DEPTH
1178_5-1185_0

RS-D354-99 BOX 137
DEPTH 1194_2-1203_2

RS-D354-99 BOX 136
DEPTH 1185_0-1194_2


RS-D354-99 BOX 138
DEPTH 1203_2-1211_8

RS-D354-99
BOX 139
DEPTH
1211_8-1221_0

WELL RS-D354-99

DEPTH 521'

PICTURE NO. one

INCLINATION -40°

OBS. DIR. 68

COR. DIR. 52.3

TOOL FACE

RUN BY Joe Lavallee

DATE 8.01.99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL RS-D 354-99

DEPTH 252'

PICTURE NO.

INCLINATION -40 -40

OBS. DIR. 72

COR. DIR. 56.3

TOOL FACE

RUN BY G. GARDIE

DATE 8-2-99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL RS-D 354-99

DEPTH 497'

PICTURE NO. Rect 56

INCLINATION -40° -40

OBS. DIR. 73

COR. DIR.

TOOL FACE

RUN BY Joe.

DATE 8.3.99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL RS-B354-99

DEPTH 702'

PICTURE NO.

INCLINATION -40° -40

OBS. DIR. 74

COR. DIR.

TOOL FACE

RUN BY G. GARDIE

DATE 8-5-99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL RS-D 354-99

DEPTH 902

PICTURE NO.

INCLINATION -40°

OBS. DIR. 73.5

COR. DIR.

TOOL FACE

RUN BY Joe

DATE 8·06-99

CHECKED BY

sperry-sun

DRILLING SERVICES

WELL RS-D354

DEPTH 1102'

PICTURE NO.

INCLINATION -40°

OBS. DIR.

COR. DIR.

TOOL FACE

RUN BY G. GADDIE

DATE 8-9-99

CHECKED BY

sperry-sun
DRILLING SERVICES

WELL RS-D354-99

DEPTH 1302'

PICTURE NO.

INCLINATION -40-

OBS. DIR.

COR. DIR.

TOOL FACE

RUN BY G. GAMBLE

DATE 8-11-99

CHECKED BY

sperry-sun

DRILLING SERVICES