60001492

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. 94-314C |
| AUTHOR | C. Muerhoff; S. Faircloth; L. Bernard |
| DATE OF DOC(S) | 1994 |
| 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; Hecla Mining Co., East Zone |
| COMMODITY<br>If not obvious | gold silver |
| NOTES | Drill log; geology; assay; total depth 800'; handwritten notes<br>22p. |

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 5/29/08
Initials Date
DB: MAB
Initials Date
SCANNED:
Initials Date

Revised: 1/22/08

94-314 c

EAST ZONE

60001492 4010

6000 1492

**Hecla**
MINING COMPANY

# ROSEBUD PROJECT
# DIAMOND DRILL LOG

| | | | | | |
|---|---|---|---|---|---|
| HOLE NUMBER | 94-314 | LOCATION | East zone | REMARKS | |
| PAGE 1 OF | | NORTHING | 2204012.4 | RC to 475' | |
| DATE | 11/30/94 | EASTING | 482477.6 | Core 475-800 | |
| LOGGED BY | LJB | ELEVATION | 5295.1 | | |
| SCALE | 1" = 10' | AZIMUTH | 314.5° | | |
| TOTAL DEPTH | 800 | INCLINATION | -89.5° | | |

| %REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| | | 0-35 Brown str. FeOx chips, fine clays<br>20<br>40<br>60 | 10<br>20<br>30 | | | |
| | | 35-65 greenish-white volcaniclastics w/ wk FeOx stains & Vnlets, poss hemiditic Matrix (rarely preserved<br>80<br>100 | 40<br>50 | | | |

| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au (ppb) | Ag | Au2 | Ag2 |
| 0 | 15 | 5 | 20<br>.001 | | | |
| 15 | -25 | 5 | 75<br>.002 | | | |
| 25 | 35 | 5 | 50<br>.001 | | | |
| 35 | 45 | 5 | <5 | | | |
| 45 | 55 | 5 | 98<br>.003 | | | |

HOLE NUMBER 94-314 PAGE 2 OF

| REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| | | 65-105 gr/wh chips volcaniclastics? Mod FeOx coatings & poss hem matrix | 60, 70, 80, 90, 100 | | | |
| | | 105-205 fine bluish/gr chips some volcaniclastic textures. 5% concoidal fractured tan chips poss mixed chl + wh hem matrix | 110, 120 | | | 105-405 fine pyclasses wk-mod chl; 105-115 Mod qtz vn w/ FeOx stains; 115- tr qtz vn |

ANALYTICAL DATA

| FROM | TO | W | Au (ppb) | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|
| 55 | 65 | 5 | 8 | | | |
| 65 | 75 | 5 | <5 | | | |
| 75 | 85 | 5 | <5 | | | |
| 85 | 95 | 5 | <5 | | | |
| 95 | 105 | 5 | 61 .002 | | | |
| 105 | 115 | 5 | 76 .002 | | | |
| 115 | 125 | 5 | 95 .003 | | | |

HOLE NUMBER 94-314 PAGE 3 OF

| REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION | ANALYTICAL DATA FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SEE ABOVE | | | | | | | | | | | |
| | | | | | | | 125 | 135 | 5 | <5 | | | |
| | | | 130 | | | | | | | | | | |
| | | | | | | | 135 | 145 | 5 | <5 | | | |
| | | | 140 | | | | | | | | | | |
| | | | | | | | 145 | 155 | 5 | 61 .002 | | | |
| | | | 150 | | | | | | | | | | |
| | | | | | | | 155 | 165 | 5 | 9 | | | |
| | | | 160 | | | | | | | | | | |
| | | | | | | | 165 | 175 | 5 | <5 | | | |
| | | | 170 | | | | | | | | | | |
| | | | | | | | 175 | 185 | 5 | <5 | | | |
| | | | 180 | | | | | | | | | | |
| | | | | | | | 185 | 195 | 5 | <5 | | | |
| | | | 190 | | | | | | | | | | |

HOLE NUMBER 94-314 PAGE 4 OF

| REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION | ANALYTICAL DATA FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 200 | | | | 195 | 205 | 5 | 200 .006 | | | |
| | | 205-285 fine grain lt bl/gr chips Tuff no strong clastic textures | 210 | | | | 205 | 215 | 5 | 172 .005 | | | |
| | | | 220 | | | 215 wk pyr vn | 215 | 225 | 5 | <5 | | | |
| | | | 230 | | | 225 1% Fe-ox chips | 225 | 235 | 5 | 340 .010 | | | |
| | | | 240 | | | | 235 | 245 | 5 | <5 | | | |
| | | | 250 | | | | 245 | 255 | 5 | 7 | | | |
| | | | 260 | | | | 255 | 265 | 5 | 79 .002 | | | |

HOLE NUMBER 94-314 PAGE 5 OF

| REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION | ANALYTICAL DATA FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 270 | | | | 265 | 275 | 5 | 48 | | | |
| | | | 280 | | | | 275 | 285 | 5 | 700 .021 | | | |
| | | 285-355 H green volcanic tuff fine py disem | 290 | | | | 285 | 295 | 5 | 182 .005 | | | |
| | | | 300 | | | | 295 | 305 | 5 | 130 .004 | | | |
| | | | 310 | | | | 305 | 315 | 5 | 42 .001 | | | |
| | | | 320 | | | | 315 | 325 | 5 | 50 .001 | | | |
| | | | 330 | | | 325- | 325 | 335 | 5 | 103 .003 | | | |

HOLE NUMBER 94-314 PAGE 6 OF

| REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION | ANALYTICAL DATA FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 340 | | | | | | | | | | |
| | | | 350 | | | | 325 | | | 162<br>.005 | | | |
| | | | | | | | 345 | | | 290<br>.009 | | | |
| | | 355-405 lt green fine-grain-ashy Tuff | | | | wk chl Alt<br>Coarse py disem | 355 | | | 138<br>.004 | | | |
| | | | 360 | | | | | | | | | | |
| | | | 370 | | | | 365 | | | 277<br>.007 | | | |
| | | | 380 | | | | 375 | | | 150<br>.004 | | | |
| | | | 390 | | | | 385 | | | 240<br>.007 | | | |
| | | | 400 | | | | 395 | | | 235<br>.007 | | | |

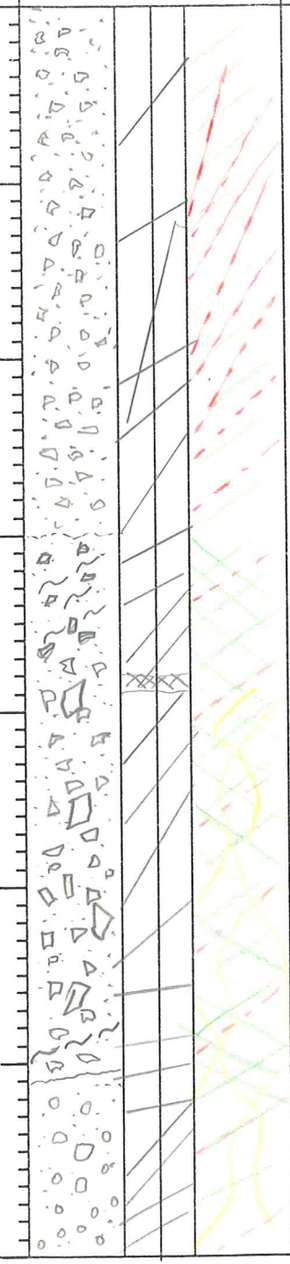
HOLE NUMBER 94-314 PAGE 2 OF

| REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| | | 405-445+ 80-90 % clays<br>fine pyr disseminated | 410<br>420<br>430<br>440<br>450<br>460<br>470 | | | |
| | | 445-475 EOH mod green chl poss w/ sil VCS w/ coarse py disseminated | | | | |

ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|
| 405 | | 235<br>.007 | | | | |
| 415 | | 38<br>.001 | | | | |
| 425 | | 323<br>.010 | | | | |
| 435 | | 80<br>.002 | | | | |
| 445 | | 251<br>.008 | | | | |
| 455 | | 70<br>.007 | | | | |
| 465 | 475 | 500<br>.015 | | | | |

HOLE NUMBER 94-314 PAGE 5 OF

| %REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| 475- | | 475-500 Volcaniclastics with mod-str argillized, wk chl matrix and clasts<br>1/10 - 1/4" matrix supported clasts<br>Coarse py-marcasite dissem ~1-3%<br>bk FeOx of sulf.<br>poss heterolithic though most clasts are altered to some extent<br>Ang - sub rounded<br><br>Last 1ft mod chl alt.<br><br>500-531 (first 1ft mod chl alt)<br>Volcaniclastic with ash str chl matrix<br>heterolithic clasts chl >> argillic<br>most clast 1/8 - 1/4" occasional<br>1-2" clast rare 4" clast @ 536.5<br>matrix support to point contacts<br>sub angular to angular<br>(500-506 wk foliation @ 60°)<br>fine py dissem<br><br>526 v. wk foliation @ 70<br><br>531-578 Matrix supported volcaniclastic<br>sub rounded to rounded clasts 1/8 - 1/4" occasional<br>matrix is ash white/lt green wk-mod chl.<br>clasts mixed chl + sil/argillic<br>med-coarse py dissem. | 480<br>490<br>500<br>510<br>520<br>530<br>540 |  | 475-484 .3 frac/ft @ 40,60<br><br>484-494 .5 frac/ft @ 15,60,50<br><br>494-504 .9 frac/ft @ 35,10<br><br>504-514 .9 frac/ft @ 40<br><br>508 → 507 frac rock<br><br>514-524 .8 frac/ft @ 40,30<br><br>524-534 .9 frac/ft @ 50,85<br><br>534-544 1 frac/ft undulating @ 50,40 | 475-493 ~1.5 qtz-py-marc. vn 1/10" - 1/4" @ 15,25,30<br><br>514<br>493-554 minor qtz-py veinlets <1/10" @ 40-50<br><br>514-554 minor sil-clay wk stockwork or by ± py-marcasite 1/10 - 1/2" wide |

| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | Ag2 |
| 475 | 479 | 4 | .003 | .04 | | |
| 479 | 484 | 5 | .002 | .04 | | |
| 484 | 489 | 5 | .001 | .03 | | |
| 489 | 494 | 5 | .001 | .04 | | |
| 494 | 499 | 5 | .001 | .05 | | |
| 499 | 504 | 5 | .002 | .05 | | |
| 504 | 509 | 5 | .001 | .03 | | |
| 509 | 514 | 5 | .001 | .02 | | |
| 514 | 519 | 5 | .002 | .04 | .002 | |
| 519 | 524 | 5 | .002 | .03 | | |
| 524 | 529 | 5 | .001 | .03 | | |
| 529 | 534 | 5 | .002 | .05 | | |
| 534 | 539 | 5 | .002 | .03 | | |

HOLE NUMBER 94-314 PAGE 9 OF

2

| %REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| | | SEE Above | | | 544-554 .4 frac/ft @ 30<br>544 4" frac zone @50 | 554-556 qtz-sulf vn @ 5-15 1/8-1/4"<br>556-581 1/2" sil-clay vn + numerous vnlets @ 70-85 |
| | | | 550 | | 554-564 1.4 frac/ft @70 | |
| | | | 560 | | 564-574 .4 frac/ft @60 | |
| | | | 570 | | 574-584 1.3 frac/ft @60 | 575 barite vn |
| | | 573-578 SAS mod-str chl matrix | | | | |
| | | 578-590.7 point contact to matrix supported volcaniclastics w/ mod foliation @60, 583 @40 sub-rounded to rounded 1/10 - 1/4" rare 1" | 580 | | 584-594 .9 frac/ft @50 | 581-590.7 minor qtz-sulf and sil-clay vnlets v. wk stockwork <1/20 → 1/10 vnlets w/ minor marcasite<br>581.5 1/4" barite vn @40<br>386 1/10" barite vn w/tr stibnite, + marcasite @50 |
| | | | 590 | | 594-604 1.2 frac/ft @50, 70<br>clay films on frac | |
| | | 590.7-632 rounded to sub rounded volcaniclastics in a dence looking brown/lt gray matrix; fine-med grain clasts 1/4 to 4" in diameter mod sil | 600 | | 604-624 .7 frac/ft @70 | 590.7-632 minor qtz-sulf vnlets <1/10" @ 35 1-2/ft<br>594 barite vn @ 20 1/4" w/ minor stibnite<br>606.5 barite vnlet @15 & 85 <1/10" |
| | | | 610 | | | |

| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | Ag2 |
| 539 | 544 | 5 | .003 | .05 | | |
| 544 | 449 | 5 | .002 | .04 | | |
| 549 | 554 | 5 | .001 | .03 | | |
| 554 | 559 | 5 | .002 | .05 | | |
| 559 | 564 | 5 | .001 | .02 | | |
| 564 | 569 | 5 | .007 | .02 | .006 | |
| 569 | 574 | 5 | .002 | <.02 | | |
| 574 | 579 | 5 | .003 | .06 | | |
| 579 | 584 | 5 | .002 | .04 | | |
| 584 | 589 | 5 | .004 | .08 | | |
| 589 | 594 | 5 | .004 | .07 | | |
| 594 | 599 | 5 | .002 | .02 | | |
| 599 | 604 | 5 | .002 | .05 | | |
| 604 | 609 | 5 | .002 | .05 | | |
| 609 | 614 | 5 | .001 | .04 | | |

HOLE NUMBER 94-314 PAGE 10 OF

| %REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION | ANALYTICAL DATA FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SEE Above | | | | | | | |
| | | | | | | 614-632 numerous barite vn in wss & major low angle frac. 1-2/ft w/tr stibnite | 614 | 619 | 5 | .004 | .03 | | |
| | | | | | | | 619 | 624 | 5 | .002 | .03 | | |
| | | | | | 624-634 1.1 frac/ft @70 | | 624 | 629 | 5 | .002 | .09 | | |
| | | | | | | 630 mod stibnite | 629 | 634 | 5 | .003 | .51 | | |
| | | 632-649 subangular to rounded volcaniclastic w/ fine-med grain, brown hem matrix heterolithic matrix supported clast H+dk green chl clasts + diss py and white-pink argillic clasts 1/8-3", some point contacts. | | | 634-644 1 frac/ft @50 | 632-678.5 wk-mod qtz-sulf-ba veinlets @30-40 Coarser low-angle vn 1/4" @ 85 tr stibnite | 634 | 639 | 5 | .006 | .11 | | |
| | | | | | | | 639 | 644 | 5 | .003 | .14 | | |
| | | | | | 644-664 .8 frac/ft @70 | 644 mod stibnite on barite 1" wy | 644 | 649 | 5 | .005 | .27 | | |
| | | 649-654.5 clast supported heterolithic volcaniclastic SAS but chl matrix 1/4-3" | | | | | 649 | 654 | 5 | .004 | .12 | | |
| | | 654.5-658 sub rounded to sub-angular rectangle mosaic matrix to point contact heter volcaniclastic in brown hem matrix 1/4-1" | | | | | 654 | 659 | 5 | .013 | .25 | | |
| | | | | | | | 659 | 664 | 5 | .005 | .20 | | |
| | | 658-678 Angular to sub rounded clast supported volcanic breccia 1/4-5" heterolithic clasts, chl matrix | | | 664-674 .6 frac/ft @ 70, 40 | | 664 | 669 | 5 | .004 | .22 | .005 | |
| | | | | | 678.5 1/2 white gouge | | 669 | 674 | 5 | .001 | .06 | | |
| | | | | | 674-684 1 frac/ft @30-60 | | 674 | 679 | 5 | .002 | .05 | | |
| | | 678-682 SAS w/ hemititic matrix | | | | | | | | | | | |

| %REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| | | 682-686 SAB w/ chl matrix — vn contact<br>686-706 apple green chl matrix supported volcaniclastic Tuff (locally clast supported) wavy green silty matrix 1/10 - 1" sub-angular to sub rounded clast (homolithic) most large clast w/ chl zonation | 690 | | 684-694 .7 frac/ft @ 70<br>694-704 .8 frac/ft @ 70 | 680-706 wk developed sil-clay or qtz (white) stockwork or crackle br system w/ strong development of qtz + barite along wavy joints + grain contacts minor py + marc.<br>699 wk stibnite on barite |
| | | 706-708.5 V. str sil flooded tectonic bx w/ sub-angular to rounded sil tan clasts, some veining — bx contact<br>708-717 str sil flooded tectonic bx, predominantly brown/gray med grain Tuff - fractured-angular clasts frac supported<br>717-723 str sil flooded tectonic bx, predominantly green chl tuffs w/ some brown clasts sim to above sub-angular to rounded clast supported + matrix supports (after silica flooding).<br>723-730.5 V. str silica flooding and white, gray, + dk gray qtz veining and tectonic bx<br>730.5-734 str sil, lt gray tuff fine-med grain fine rubble bx + crackle bx<br>734-743 lt gy/brown fine-medium grain Tuff w/ glassy textures, mod crackle bx overprint.<br>743-745 w/ tight rubble bx, rk as below<br>745-750 str foliated lt. brown Tuff w/ str fine py disseminated foliation @ 40. mod crackle overprint | 700<br>710<br>720<br>730<br>740<br>750 | FOOTWALL OF SRF ? DT↓ | 704-714 1.5 frac/ft 60, 70<br>704-705 broken rock<br>712.5 1" fine zone<br>714-724 .6 frac/ft @ 60<br>724-734 1.7 frac/ft @ 75<br>734-744 1.7 frac/ft @ 60, 70, 30<br>738 1" crushed/sil zone<br>744-754 1.2 frac/ft @ 70, 10 | 706-708 str sil flood vert tectonic bx<br>707 dk gy sil-sulf vn 3" @ 70<br>708-723 str silica flooding of tectonic bx, minor blebs of qtz-marc, minor barite on frac joints white silica cements<br>723-730.5 V. strong silica flooded tectonic bx + vein material white qtz, minor sulfs<br>730 white qtz vn @ 60 1/4"<br>730.5-734 str sil and vert qtz-sulfide vnlets<br>743-766.5 mod-str sil mod crackle bx w/ qtz-sulf cements. |

| ANALYTICAL DATA | | | | | | |
|---|---|---|---|---|---|---|
| FROM | TO | W | Au | Ag | Au2 | Ag2 |
| 679 | 684 | 5 | .002 | .12 | | |
| 684 | 689 | 5 | .003 | .20 | | |
| 689 | 694 | 5 | .004 | .20 | | |
| 694 | 699 | 5 | .004 | .28 | | |
| 699 | 704 | 5 | .056 | .57 | .047 | |
| 704 | 706 | 2 | .033 | 2.82 | | |
| 706 | 708.5 | 2.5 | .006 | .19 | | |
| 708.5 | 713.5 | 5 | .005 | .12 | | |
| 713.5 | 718 | 4.5 | .003 | .09 | | |
| 718 | 723 | 5 | .005 | .06 | | |
| 723 | 728 | 5 | .005 | .04 | | |
| 728 | 730.5 | 2.5 | .001 | .02 | | |
| 730.5 | 734 | 3.5 | .005 | .06 | | |
| 734 | 739 | 5 | .005 | .09 | | |
| 739 | 744 | 5 | .005 | .09 | | |
| 744 | 749 | 5 | .004 | .05 | | |

HOLE NUMBER 94-314 PAGE 12 OF 12

| %REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| | | 750-766.5 lt gray w/brown streaks along str. foliation @ 60 med grain str welding w/ v. fine py disseminated | 760 | | 754-764 .8 frac/ft @ 15, 80 | SEE Above |
| | | 766.5-789 medium grain similar to above by texture masked by strong rubble + crackle bx | 770 | | 764-774 .9 frac/ft @ 50 | 766.5-789 str rubble and crackle bx with strong vertical component of pre-solid cements (@ 0, 10, 40) |
| | | | 780 | | 774-784 .7 frac/ft @ 50, 60 | |
| | | | | | 784-794 1 frac/ft @ 70 | 778-800 Mod SY crackle bx Mod MARC disseminated (fine) Vert. |
| | | 789-800 EOH fine-med grain Tuff similar to above but with V clastic components and fine marcasite disseminated. Mod crackle bx overprinted preminerl + mineralized phases | 790 | | 794-800 .6 frac/ft @ 70 | |
| | | | 800 EOH | | | |

ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|
| 749 | 754 | 5 | .018 | .14 | | |
| 754 | 759 | 5 | .007 | .05 | .006 | |
| 759 | 764 | 5 | .005 | .06 | | |
| 764 | 769 | 5 | .005 | .10 | | |
| 769 | 774 | 5 | .027 | .14 | .023 | |
| 774 | 779 | 5 | .013 | .13 | | |
| 779 | 784 | 5 | .003 | .04 | | |
| 784 | 789 | 5 | .012 | .10 | | |
| 789 | 794 | 5 | .002 | .06 | | |
| 794 | 800 | 6 | .005 | .05 | | |

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

HOLE # 94-314 DATE: 10-6-94 LOGGED BY: RK PAGE 1 OF 3

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 475 | 484 | 104 | 104 | .83 | 479 | RZ | .3 | 40, 60 | R | qtz gy vn 1/10" | 479 | 558.5 | 235 | 2.38 |
| 484 | 494 | 92 | 97 | .56 | 489 | RZ | .5 | 15, 60, 50 | R | nil & qtz-gy veinlets < 1/10" | 489 | 552 | 233 | 2.38 |
| 494 | 504 | 91 | 99 | .63 | 499 | RZ | .9 | 35, 60 | R | nil | 500 | 284.2 | 130 | 2.18 |
| 504 | 514 | 83 | 94 | .74 | 509 | RZ | .9 | 40 | R | nil / qtz cont | 509 | 522.5 | 220 | 2.38 |
| 514 | 524 | 86 | 95 | .64 | 519 | RZ | .8 | 40, 70 | R | nil / qtz veinlets < 1/10 | 519 | 491 | 200 | 2.45 |
| 524 | 534 | 96 | 98 | .80 | 529 | RZ | .9 | 50, 55 | R | clay films | 529 | 477 | 195 | 2.44 |
| 534 | 544 | 93 | 95 | .70 | 539 | RZ | 1.0 | 80, 40 veinlets | R | sil clay films & vns | 539 | 473.6 | 200 | 2.37 |
| 544 | 554 | 89 | 95 | .76 | 549 | RZ | 1.4 | 30 | R | SAS | 549 | 656.2 | 260 | 2.52 |
| 554 | 564 | 90 | 98 | .68 | 559 | RZ | 1.4 | 70 | R | nil | 559 | 593.5 | 240 | 2.47 |
| 564 | 574 | 99 | 99 | .84 | 569 | RZ | 1.4 | 60 | R | nil | 569 | 504 | 210 | 2.4 |
| 574 | 584 | 88 | 97 | .74 | 579 | RZ | 1.3 | 60 | R | qtz vn sil clay vn > 1/10" | 579 | 449.2 | 180 | 2.49 |

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

HOLE # 94-314 DATE: 10-6-94 LOGGED BY: RK 

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 584 | 594 | 98 | 98 | .85 | 589 | R2 | .9 | 50 | R | clay films | 589 | 442 | 180 | 2.46 |
| 594 | 604 | 97 | 98 | .75 | 599 | R2 | 1.2 | 50, 70 | R | clay films / 1/10" clay vn | 599 | 406 | 170 | 2.39 |
| 604 | 614 | 97 | 97 | .73 | 609 | R3 | .7 | 70 | R | clay films qtz veinlets | 609 | 501.2 | 208 | 2.41 |
| 614 | 624 | 89 | 94 | .66 | 619 | R3 | .7 | 70 | VR | qtz-clay barite vn 1/10-1/4" | 619 | 519 | 205 | 2.53 |
| 624 | 634 | 96 | 96 | .65 | 629 | R3 | 1.1 | 70 | R-S | clay films sil clay 1/10" | 629 | 331.7 | 130 | 2.55 |
| 634 | 644 | 99 | 100 | .70 | 639 | R2 | 1.0 | 50 | R | clay/sil/ barite vn 1/2" | 639 | 472 | 190 | 2.48 |
| 644 | 654 | 95 | 96 | .82 | 649 | R2 | .8 | 70 | R | qtz-py / clay films | 649 | 478.7 | 192 | 2.49 |
| 654 | 664 | 92 | 98 | .75 | 659 | R2 | .8 | 70 | R undulating | SAS | 659 | 502 | 202 | 2.49 |
| 664 | 674 | 91 | 95 | .85 | 669 | R2 | .6 | 70, 40 | R | qtz-py vn w/ barite | 669 | 378.5 | 150 | 2.52 |
| 674 | 684 | 86 | 94 | .69 | 679 | R2 | 1.0 | 50-60 | R | SAS | 679 | 600.8 | 240 | 2.50 |
| 684 | 694 | 84 | 91 | .70 | 689 | R2 | .9 | 70 | VR | qtz-barite 1/5" | 689 | 494 | 194 | 2.55 |

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

HOLE # 94-314 DATE: 10-7-94 LOGGED BY: RK PAGE 3 OF 3

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 694 | 704 | 80 | 94 | .57 | 699 | R3 | .8 | 70 | VR | qtz barite vn 1/5" | 699 | 599.3 | 235 | 2.55 |
| 704 | 714 | 71 | 93 | .32 | 709 | R3 | 1.5 | 60, 70 | S-R | nil, qtz-ba 1/10" | 709 | 355.5 | 140 | 2.54 |
| 714 | 724 | 92 | 96 | .78 | 719 | R3 | .6 | 60 | R | clay vn <1/10" | 719 | 541.5 | 220 | 2.46 |
| 724 | 734 | 76 | 94 | .47 | 729 | R3 | 1.7 | 75 | R-S | sil Rh clay vn ± pyridism | 729 | 474.8 | 185 | 2.56 |
| 734 | 744 | 75 | 97 | .43 | 739 | R3 | 1.7 | 60, 70, 30 | R-S | clay films, ±ba, py | 739 | 461 | 180 | 2.56 |
| 744 | 754 | 82 | 97 | .56 | 749 | R3 | 1.2 | 70, 10 | R | clay films ± marc | 749 | 407.5 | 170 | 2.40 |
| 754 | 764 | 87 | 98 | .68 | 759 | R3 | .8 | 15, 80 | R | SAb | 759 | 481 | 200 | 2.41 |
| 764 | 774 | 82 | 98 | .75 | 769 | R3 | .9 | 50 | R | clay film w/solf | 769 | 323 | 125 | 2.58 |
| 774 | 784 | 83 | 95 | .62 | 779 | R3 | .7 | 50, 60 | R | clay films | 779 | 419.5 | 175 | 2.40 |
| 784 | 794 | 100 | 100 | .79 | 789 | R3 | 1.0 | 70 | R | SAb | 789 | 438.2 | 180 | 2.43 |
| 794 | 800 | 100 | 100 | .75 | 797 | R3 | .6 | 70 | R | SAb | 797 | 375 | 152 | 2.46 |

# ANALYSIS REPORT

American Assay Laboratories
P.O. BOX 71060
RENO, NV,,U.S.A.,
Ph.1-702-356-0606, Fax.1-702-356-1413
Telex:

## HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF

:

:

:

CLIENT REFERENCE No: 94-319

LABORATORY JOB No. : SP030847

SAMPLE TYPE :

RECEIVED : 12 SEP 1994

REPORTED : 22 SEP 1994

No. SAMPLES : 47

| ANALYSIS | ANALYTICAL METHOD | QUALITY PARAMETER | UNIT | DETECTION |
|---|---|---|---|---|
| Au | FA30 | 15% | ppb | 5 |
| Au(R) | FA30 | 15% | ppb | 5 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-319
JOB NUMBER : SP030847
REPORTED : 22 SEP 1994

| SAMPLES | Au FA30 ppb | Au(R) FA30 ppb |
|---|---|---|
| 94-319 00-15 | 20 | |
| 94-319 15-25 | 75 | |
| 94-319 25-35 | 50 | |
| 94-319 35-45 | <5 | |
| 94-319 45-55 | 98 | |
| 94-319 55-65 | 8 | |
| 94-319 65-75 | <5 | |
| 94-319 75-85 | <5 | |
| 94-319 85-95 | <5 | |
| 94-319 95-105 | 61 | |
| 94-319 105-115 | 76 | |
| 94-319 115-125 | 95 | |
| 94-319 125-135 | <5 | |
| 94-319 135-145 | <5 | |
| 94-319 145-155 | 61 | |
| 94-319 155-165 | 9 | |
| 94-319 165-175 | <5 | |
| 94-319 175-185 | <5 | <5 |
| 94-319 185-195 | 6 | |
| 94-319 195-205 | 200 | |
| 94-319 205-215 | 172 | |
| 94-319 215-225 | <5 | |
| 94-319 225-235 | 340 | |
| 94-319 235-245 | <5 | |
| 94-319 245-255 | 7 | |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-319
JOB NUMBER : SP030847
REPORTED : 22 SEP 1994

| SAMPLES | Au FA30 ppb | Au(R) FA30 ppb |
|---|---|---|
| 94-319 255-265 | 79 | |
| 94-319 265-275 | 48 | |
| 94-319 275-285 | 700 | |
| 94-319 285-295 | 182 | |
| 94-319 295-305 | 130 | 127 |
| 94-319 305-315 | 42 | |
| 94-319 315-325 | 50 | |
| 94-319 325-335 | 103 | |
| 94-319 335-345 | 162 | |
| 94-319 345-355 | 290 | |
| 94-319 355-365 | 138 | |
| 94-319 365-375 | 227 | |
| 94-319 375-385 | 150 | |
| 94-319 385-395 | 240 | 190 |
| 94-319 395-405 | 235 | |
| 94-319 405-415 | 38 | 44 |
| 94-319 415-425 | 323 | |
| 94-319 425-435 | 80 | |
| 94-319 435-445 | 281 | |
| 94-319 445-455 | 251 | |
| 94-319 455-465 | 78 | |
| 94-319 465-475 | 500 | |

# ANALYSIS REPORT

American Assay Laboratories

P.O. BOX 71060
RENO, NV,,U.S.A.,
Ph.1-702-356-0606, Fax.1-702-356-1413
Telex:

## HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF

:

:

:

CLIENT REFERENCE No: 94-314

LABORATORY JOB No. : SP031328

SAMPLE TYPE :

RECEIVED : 18 OCT 1994

REPORTED : 3 NOV 1994

No. SAMPLES : 67

| ANALYSIS | ANALYTICAL METHOD | QUALITY PARAMETER | UNIT | DETECTION |
|---|---|---|---|---|
| Au(OZ) | FA60 | 15% | OPT | 0.001 |
| Au(RZ) | FA60 | 15% | OPT | 0.001 |
| Ag(OZ) | D210 | 10% | OPT | 0.02 |

SIGNATORY : Sue Faircloth M.S.

AMERICAN ASSAY LABORATORIES
# ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-314
JOB NUMBER : SP031328
REPORTED : 3 NOV 1994

| SAMPLES | Au(OZ) FA60 OPT | Au(RZ) FA60 OPT | Ag(OZ) D210 OPT |
|---|---|---|---|
| 94-314 475-479 | 0.003 | | 0.04 |
| 94-314 479-484 | 0.002 | | 0.04 |
| 94-314 484-489 | 0.001 | | 0.03 |
| 94-314 489-494 | 0.001 | | 0.04 |
| 94-314 494-499 | 0.001 | | 0.05 |
| 94-314 499-504 | 0.002 | | 0.05 |
| 94-314 504-509 | 0.001 | | 0.03 |
| 94-314 509-514 | 0.001 | | 0.02 |
| 94-314 514-519 | 0.002 | 0.002 | 0.04 |
| 94-314 519-524 | 0.002 | | 0.03 |
| 94-314 524-529 | 0.001 | | 0.03 |
| 94-314 529-534 | 0.002 | | 0.05 |
| 94-314 534-539 | 0.002 | | 0.03 |
| 94-314 539-544 | 0.003 | | 0.05 |
| 94-314 544-549 | 0.002 | | 0.04 |
| 94-314 549-554 | 0.001 | | 0.03 |
| 94-314 554-559 | 0.002 | | 0.05 |
| 94-314 559-564 | 0.001 | | 0.02 |
| 94-314 564-569 | 0.007 | 0.006 | 0.02 |
| 94-314 569-574 | 0.002 | | <0.02 |
| 94-314 574-579 | 0.003 | | 0.06 |
| 94-314 579-584 | 0.002 | | 0.04 |
| 94-314 584-589 | 0.004 | | 0.08 |
| 94-314 589-594 | 0.004 | | 0.07 |
| 94-314 594-599 | 0.002 | | 0.02 |

AMERICAN ASSAY LABORATORIES
# ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-314
JOB NUMBER : SP031328
REPORTED : 3 NOV 1994

| SAMPLES | Au(OZ) FA60 OPT | Au(RZ) FA60 OPT | Ag(OZ) D210 OPT |
|---|---|---|---|
| 94-314 599-604 | 0.002 | | 0.05 |
| 94-314 604-609 | 0.002 | | 0.05 |
| 94-314 609-614 | 0.001 | | 0.04 |
| 94-314 614-619 | 0.004 | | 0.03 |
| 94-314 619-624 | 0.002 | | 0.03 |
| 94-314 624-629 | 0.002 | | 0.09 |
| 94-314 629-634 | 0.003 | | 0.51 |
| 94-314 634-639 | 0.006 | | 0.11 |
| 94-314 639-644 | 0.003 | | 0.14 |
| 94-314 644-649 | 0.005 | | 0.27 |
| 94-314 649-654 | 0.004 | | 0.12 |
| 94-314 654-659 | 0.013 | | 0.25 |
| 94-314 659-664 | 0.005 | | 0.20 |
| 94-314 664-669 | 0.004 | 0.005 | 0.22 |
| 94-314 669-674 | 0.001 | | 0.06 |
| 94-314 674-679 | 0.002 | | 0.05 |
| 94-314 679-684 | 0.002 | | 0.12 |
| 94-314 684-689 | 0.003 | | 0.20 |
| 94-314 689-694 | 0.004 | | 0.20 |
| 94-314 694-699 | 0.004 | | 0.28 |
| 94-314 699-704 | 0.056 | 0.047 | 0.57 |
| 94-314 704-706 | 0.033 | | 2.82 |
| 94-314 706-708.5 | 0.006 | | 0.19 |
| 94-314 708.5-713.5 | 0.005 | | 0.12 |
| 94-314 713.5-718 | 0.003 | | 0.09 |

AMERICAN ASSAY LABORATORIES
# ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : 94-314
JOB NUMBER : SP031328
REPORTED : 3 NOV 1994

| SAMPLES | Au(OZ) FA60 OPT | Au(RZ) FA60 OPT | Ag(OZ) D210 OPT |
|---|---|---|---|
| 94-314 718-723 | 0.005 | | 0.06 |
| 94-314 723-728 | 0.005 | | 0.04 |
| 94-314 728-730.5 | 0.001 | | 0.02 |
| 94-314 730.5-734 | 0.005 | | 0.06 |
| 94-314 734-739 | 0.005 | | 0.09 |
| 94-314 739-744 | 0.005 | | 0.09 |
| 94-314 744-749 | 0.004 | | 0.05 |
| 94-314 749-754 | 0.018 | | 0.14 |
| 94-314 754-759 | 0.007 | 0.006 | 0.05 |
| 94-314 759-764 | 0.005 | | 0.06 |
| 94-314 764-769 | 0.005 | | 0.10 |
| 94-314 769-774 | 0.027 | 0.023 | 0.14 |
| 94-314 774-779 | 0.013 | | 0.13 |
| 94-314 779-784 | 0.003 | | 0.04 |
| 94-314 784-789 | 0.012 | | 0.10 |
| 94-314 789-794 | 0.002 | | 0.06 |
| 94-314 794-800 | 0.005 | | 0.05 |

Hecla Mining Co
Rosebud
Project
94-314
Drill
Hole
654

Hecla Mining Co
Rosebud
Project
94-314
Down
Hole
634

Hecla Mining Co
Rosebud
Project
94-314
674

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole
614

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole

Hecla Mining Co
Rosebud
Project
94-314
UPHOLE
DOWN
HOLE
5941

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
DOWN
HOLE
584

Hecla Mining Co
Rosebud
Project
94-314
11 INCH
Down
Hole
514'

569
Hecla Mining Co
Rosebud
Project
94-314
Down
Hole

Hecla Mining Co
Rosebud
Project
94-314
DDH
NO.
554

Hecla Mining Co.
Rosebud
Project
94-3-14
Hole
Number
1
Depth
344

NEW MEXICO
PZW11
4/13-14
Rosebud Property
Hecla Mining Co.
53H

Hecla Mining Co.
Rosebud
Project
94-314
Hole
Depth
Interval
HPG

Hecla Mining Co
Rosebud
Prospect
94-3-14
Hole
No.
Depth
514
515

Hecla Mining Co.
Rosebud
Project
94-314
Down
Hole
Up
Hole
57

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
DOWN
HOLE
46.4

Hecla Mining Co.
Rosebud
Project
94-314
Down
Hole
Lined
475
484

Hecla Mining Co
Rosebud
Project
94-314
11 Feet
0
Mm
Mm

Rosebud
Project
94-314
Hole
Depth
11 inch

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole

Rosebud
Project
94-314
LINED
Same
Hole
794
800

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole
48L

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
DOWN
HOLE

Hecla Mining Co
Rosebud
Project
94-314
Down
Hole
764

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole

Hecla Mining Co
Rosebud
Project
94-314
TIMBER
OPEN HOLE
154

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole
HNL

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole
734

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole
714

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole
704

694
Hecla Mining Co
Rosebud
Project
94-314
1 INCH
Down
Hole

Hecla Mining Co
Rosebud
Project
94-314
1 INCH
OMM
Hole
689

Hecla Mining Co
Rosebud
Project
94-314
Open
Hole
674

Hecla Mining Co
Rosebud
Project
94-314
Down
Hole
649