6000 0824

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. D-21-94 |
| AUTHOR | G. Winchester; C. Muerhoff; S. Faircloth |
| 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; Hecla Mining Co.; Rosebud Project South Zone |
| COMMODITY<br>If not obvious | gold; silver |
| NOTES | Drill log; geology; assay; total depth 178'; receipt; handwritten notes<br>6 p. |

Keep docs at about 250 pages if no oversized maps attached (for every 1 oversized page (>11x17) with text reduce the amount of pages by ~25)

SS: DD 5/1/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

D-21-94

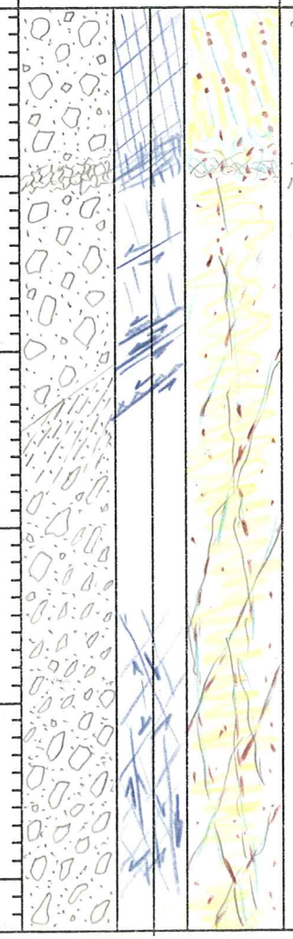
6000 0824
4010

6000 0824

**Hecla**
MINING COMPANY

# ROSEBUD PROJECT
# DIAMOND DRILL LOG

| | | | | | |
|---|---|---|---|---|---|
| HOLE NUMBER | D-21-94 | LOCATION | South Zone | REMARKS | ORIENTATIONS STATED AS |
| PAGE 1 OF | 3 | NORTHING | 2,203,541.8 | | ∡ TO CORE AXIS; CORE PHOTO'D; WHOLE |
| DATE | 8-22-94 | EASTING | 481,451.0 | | CORE ASSAY SAMPLES; COLLAR'D IN |
| LOGGED BY | CBWINETEER | ELEVATION | 4726.0 | | DRILL STA. NO. 7; SECTION 400N |
| SCALE | 1"=10' | AZIMUTH | 129° | | |
| TOTAL DEPTH | 178' | INCLINATION | +68° | | |

| %REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| 35 | .007 5 | 0-23' Mod. hd. cream, pale pink and lt. grey poorly-sorted, matrix-supported, lithic tuff and tuff breccia. Clast-supported at upper contact w/ fault. | |  | 0-11' FRAC'D RUBBLE W/ PALE GRN GOUGE CLAYS ON 10° & 50° STX'S. Fault bx 10-11' | 0-10' Mod. to weakly silic. wkly arg. wkly py-izat. frac'd, w/ py coatings of frac's, $CaCO_3$ vnlts @ 20° ± micro tect. bx. Minor ill w/ $CaCO_3$ vnlts 10-11' mod. clay alt. clay gouge discont. $CaCO_3$ + sulf. vnlts. 11-54' Weak silic. g.m., wk arg. of clasts w/ thin 1ST order RR, wk py-izat (Tr to 1%); Mod density frac's @ 4-7/ft @ 5° & 25° w/ pale grn clay-silic / $CaCO_3$ + py ft ± ill ± Trspl. ± Tr to Acc. celestite in part repl of clasts. |
| 83 | .000 7 | | | | | |
| 40 | .000 11.5 | | 10 | | 11-22.5' occ. frac + micro bx @ 55-60° & 15-20° | |
| 94 | .016 15 | | | | | |
| 90 | .52 20 | | | | 10-13' $CaCO_3$ vnlts w/ py ft + Access. celestite & diss celestite repl of clasts. | |
| 83 | .72 25 | 23-27' Mod. to mod hd, inter-laminated pink & pale green fine-grained, well-sorted, planar, wavy and contorted flow-laminated water-lain tephra/tuff. Grading & interbedded downward into lithic tuff breccia. | 20 | | | |
| 96 | .80 30 | | | | | |
| 92 | .84 35 | 27- tuffaceous Mod hd., pale green-grey fine-grained matrix w/ poorly-sorted, angular to sub rounded matrix & clast-supported lithic fragments in lithic tuff breccia's, loc. flow-lamination & elongation of clasts, loc. irregular contorted fragments. | 30 | | 35-52' Frac'd w/ pale green clay gouge ± ill + sulf + chl ± $CaCO_3$ micro stkwk | |
| 72 | .34 40 | | | | | |
| 97 | .03 42 | | 40 | | | |
| 110 | .38 47 | | | | | |
| 92 | .48 | | 50 | | | |

## ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|
| 0 | 5 | 5.0' | 0.002 | 0.10 | | |
| 5 | 11 | 6.0' | 0.003 | 0.16 | | |
| 11 | 15 | 4.0' | 0.005 | 0.15 | | |
| 15 | 20 | 5.0' | 0.002 | 0.06 | | |
| 20 | 25 | 5.0' | 0.002 | 0.04 | | |
| 25 | 30 | 5.0' | 0.002 | 0.03 | | |
| 30 | 35 | 5.0' | 0.001 | 0.02 | | |
| 35 | 40 | 5.0' | 0.004 | 0.12 | | |
| 40 | 45 | 5.0' | 0.013 | 0.14 | | |
| 45 | 50 | 5.0' | 0.020 | 0.39 | | |

HOLE NUMBER D-21-94 PAGE 2 OF 3

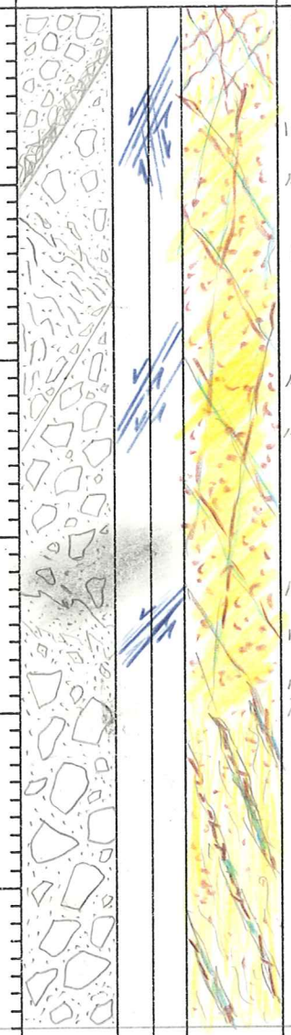
| %REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| | 52 | | | | | 54-87' Mod. siliz. g.m., mod. arg. clasts ± mod. siliz/ py-iz'ation; py-iz'ation @ 1-3%; wk to mod. frac's 2-5/ft. w/ $CaCO_3$ + py & pale green silic-clay @ 20-30' |
| 87 | .67 57 | | | | | |
| 89 | .50 62 | | 60 | | 58.5' 30° microbx - post sulfide w/ slicked & RSG Stx py, f.g. open-space Q + zoned f. to med. g. bar. | |
| 81 | .67 67 | | | | | |
| 93 | .42 72 | | 70 | | | 69-73' Mod. to intensely silicified stronger 2nd to 3rd order RR. |
| 94 | .66 77 | | | | | |
| 100 | .56 82 | | 80 | | pale grn clay gouge on 20° frac's | |
| 93 | .72 87 | | | | | sim. to above w/ 87-93' Frac's at 20° w/ admixtures of $CaCO_3$ + ill + py + Acc. celestite & spl; ± dispersed open-space f.g. Q xls |
| 100 | .72 92 | | 90 | | 90-102' Minor frac-slicks + microbx | |
| 89 | .60 97 | | | | pyrr @ 90-50° | 93-94' $CaCO_3$ vnlts w/ pyrr + py + spl |
| 96 | .54 102 | | 100 | | | 94-97 mod. siliz. & arg. alt. a. a. 97-100' incr. arg. alt of clasts & g.m.; loc. silic. of clasts, incr. py-iz'ation 2-3% loc. |
| 86 | .68 107 | | | | | 100-127' mod. siliz. g.m. incr. RR's w/ siliz. core & .10" clay arg. rims, py-iz'at. 2-4%; weak $CaCO_3$ + py microvnlts ~~stkwk~~ @ 10', 40', 40' |
| 112 | .61 111 | | 110 | | 109' slick & microbx @ 15' | |
| 97 | .56 116 | | | | 112' S.A.A. 114' slicks & microbx @ 25° | |
| 98 | .75 | | 120 | | 119' slick @ 20 | |

ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|
| 50 | 55 | 5.0' | 0.001 | 0.04 | | |
| 55 | 60 | 5.0' | 0.001 | 0.03 | | |
| 60 | 65 | 5.0' | <0.001 | <0.02 | | |
| 65 | 70 | 5.0' | <0.001 | 0.02 | | |
| 70 | 75 | 5.0' | 0.009 | 0.04 | | |
| 75 | 80 | 5.0' | 0.050 | 0.12 | (grav) 0.054 | |
| 80 | 85 | 5.0' | <0.001 | <0.02 | | |
| 85 | 90 | 5.0' | 0.001 | 0.02 | | |
| 90 | 95 | 5.0' | 0.001 | 0.03 | | |
| 95 | 100 | 5.0' | 0.018 | 0.04 | | |
| 100 | 105 | 5.0' | 0.001 | 0.03 | | |
| 105 | 109 | 4.0' | 0.002 | 0.03 | | |
| 109 | 114 | 5.0' | 0.012 | 0.32 | | |
| 114 | 118 | 4.0' | 0.002 | 0.03 | | |
| 118 | 122 | 4.0' | <0.001 | 0.02 | | |

HOLE NUMBER D-21-94 PAGE 3 OF 3

| %REC | RQD | LITHOLOGY | FT | GRAPHIC LOG | STRUCTURE | ALTERATION AND MINERALIZATION |
|---|---|---|---|---|---|---|
| | 121 | | | | 125.5–127' Slicks (post-sulf) & micro bx's @ 25° | |
| 98 | .88 | 127–134' Matrix-supported, poorly-sorted, massive bedded lithic tuff breccia w/ a siliceous fine-grained matrix. | | | | 127–141' Mod. intense silic g.m. w/ silic ± arg; 2nd RR clasts; py-ization 2-4% diss. cubic (50%) + bladed sulf (50%); frac'-coatings open-space Q → ill → carbon-coated py?/ marc. ± cpy clotts. @ 10° & 40° (part. 131-133') |
| | 126 | | | | 127' Fault contact and bx @ 30° | |
| 94 | .45 | | 130 | | 128–129.5' post + sulf. slicks & micro bx's @ 10° | |
| | 131 | | | | | |
| 96 | .50 | 134' Contact appears to be "ripped-up", torn suggesting 134–141' is large block-fragment w/in lithic tuff breccia. | | | 134' Contact @ ~ 50° | |
| | 136 | | | | | |
| 92 | .58 | 134–141' Fine-grained well-sorted, flow-laminated & sheared water lain tephra/tuff. Dense mod. hard, mottled pink and pale green. Loc. interbedded thin units of lithic tuff. | 140 | | 141' post $CaCO$ + sulf slicked contact @ 30° | 141–160' intensely silic, w/ intensely silic-arg. alt. clasts 2nd-3rd order RR's up to 0.3"; py-ization 2-4% incl. diss. cubic py & bladed sulf. x-cutting 10° & 40° $CaCO_3$ + carbon-coated sulf.?; loc. cpy ± Tr spl. grey stn. salvage on frac's, ± ill |
| | 141 | | | | | |
| 88 | .81 | | | | 143' post $CaCO_3$ + sulf. slick @ 30° | |
| | 148 | | | | | |
| 96 | .70 | 141–154' Lithic tuff breccia: matrix-supported poorly-sorted angular to subangular pale green & cream lithic frags & ing't to reddish brown & med. sage green lithic frags – both colors are f. g. tephra/tuff – loc. lam.; f. g. silic. g.m. is cream to pink. | 150 | | 154' frac'd tephra contact at ~ 70° | |
| | 153 | | | | | |
| 96 | .65 | | | | 156' fragmented tephra contact @ ~ 70° | |
| | 158 | | | | | |
| 100 | .90 | 154–156' Pale green vitroclastic fine-grained, well-sorted, massive-bedded? airfall tephra/tuff. Prob. large (block) clast of tuff bx. | 160 | | 155' post sulf slick @ 45° 156' post-sulf. slick @ 40 w/ R & G stx's | 160–178' Mod. silic. g.m. mod to intensely arg. ± silic. clasts; py-ization mod to intense 2-4% w/ loc. pref. repl. Q clasts > 25%; irreg. "fear" frac's @ 20° w/ open-space Q → ill → carbon coated sulf ± minor med. g. $CaCO_3$ 2-5/ft. |
| | 163 | | | | | |
| 100 | .82 | 156–178? Coarse-grained lithic tuff breccia, very poorly-sorted, coarse-grained (block) heterolithic & polylithic tephra/tuff frags matrix-supported, angular-subangular for 5' clasts in f. g. silic. g.m.; g.m. is mottled green & pink, clasts are cream, grey & green. Moderate hardness. massive-bedded. | | | | |
| | 168 | | | | | |
| 100 | .98 | | 170 | | | |
| | 173 | | | | | |
| 80 | .70 (for 5') / .875 (for 4') | | | | | |
| | 178 | | | | | |
| CORE REC = 100% for 4' | | CORE IS CONTINUOUS & ie. MIS-MEASURED / INCORRECTLY REPORTED. STRONG NATIVE Au LAST 1 FT OF CORE NEED TO DEEPEN HOLE. CBW 8-23-94 | | | | End of hole appears to be actually 177'; however 177.8–178' 35° frac w/ carbon + ill + V.G. + carbon coated hexagonal sulf. ± cpy-V.G. intergrowths |



ANALYTICAL DATA

| FROM | TO | W | Au | Ag | Au2 | Ag2 |
|---|---|---|---|---|---|---|
| 122 | 127 | 5.0' | 0.020 | 0.99 | | |
| 127 | 131 | 4.0' | 0.045 | 1.29 | | |
| 131 | 133 | 2.0' | 0.008 | 0.25 | | |
| 133 | 138 | 5.0' | 0.001 | 0.06 | | |
| 138 | 141 | 3.0' | 0.002 | 0.07 | | |
| 141 | 145 | 4.0' | 0.041 | 0.48 | | |
| 145 | 150 | 5.0' | 0.016 | 0.28 | | |
| 150 | 154 | 4.0' | 0.010 | 0.14 | | |
| 154 | 157 | 3.0' | 0.003 | 0.06 | | |
| 157 | 160 | 3.0' | 0.002 | 0.08 | | |
| 160 | 165 | 5.0' | 0.051 | 0.62 | (grav) 0.053 | |
| 165 | 170 | 5.0' | 0.017 | 0.26 | | |
| 170 | 174 | 3.0' | 0.012 | 0.10 | | |
| 174 | 177.5 | 3.5' | 0.013 | 0.28 | | |
| 177.5 | 178' | 0.5' measured | 0.351 | 1.97 | 0.377 (grav) | |

End of Hole

# 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:

posted

## HECLA MINING CO.

COPIES TO : CHARLIE MUERHOFF
:
:
:

CLIENT REFERENCE No: D-21-94
LABORATORY JOB No. : SP030658
SAMPLE TYPE :

RECEIVED : 29 AUG 1994
REPORTED : 8 SEP 1994
No. SAMPLES : 40

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

AMERICAN ASSAY LABORATORIES
# ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-21-94
JOB NUMBER : SP030658
REPORTED : 8 SEP 1994

posted

| SAMPLES | Au(OZ) FA60 OPT | Au(RZ) FA60 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-21-94 0-5 | 0.002 | | | 0.10 |
| D-21-94 5-11 | 0.003 | | | 0.16 |
| D-21-94 11-15 | 0.005 | | | 0.15 |
| D-21-94 15-20 | 0.002 | | | 0.06 |
| D-21-94 20-25 | 0.002 | | | 0.04 |
| D-21-94 25-30 | 0.002 | | | 0.03 |
| D-21-94 30-35 | 0.001 | | | 0.02 |
| D-21-94 35-40 | 0.004 | | | 0.12 |
| D-21-94 40-45 | 0.013 | | | 0.14 |
| D-21-94 45-50 | 0.020 | | | 0.39 |
| D-21-94 50-55 | 0.001 | | | 0.04 |
| D-21-94 55-60 | 0.001 | | | 0.03 |
| D-21-94 60-65 | <0.001 | | | <0.02 |
| D-21-94 65-70 | <0.001 | | | 0.02 |
| D-21-94 70-75 | 0.009 | | | 0.04 |
| D-21-94 75-80 | 0.050 | | 0.054 | 0.12 |
| D-21-94 80-85 | <0.001 | | | <0.02 |
| D-21-94 85-90 | 0.001 | | | 0.02 |
| D-21-94 90-95 | 0.001 | | | 0.03 |
| D-21-94 95-100 | 0.018 | | | 0.04 |
| D-21-94 100-105 | 0.001 | | | 0.03 |
| D-21-94 105-109 | 0.002 | | | 0.03 |
| D-21-94 109-114 | 0.012 | | | 0.32 |
| D-21-94 114-118 | 0.002 | | | 0.03 |
| D-21-94 118-122 | <0.001 | | | 0.02 |

AMERICAN ASSAY LABORATORIES

# ANALYSIS REPORT

American Assay Laboratories

CLIENT : HECLA MINING CO.
PROJECT : ROSEBUD
REFERENCE : D-21-94
JOB NUMBER : SP030658
REPORTED : 8 SEP 1994

| SAMPLES | Au(OZ) FA60 OPT | Au(RZ) FA60 OPT | AuGRAV GRAV OPT | Ag(OZ) D210 OPT |
|---|---|---|---|---|
| D-21-94 122-127 | 0.020 | | | 0.99 |
| D-21-94 127-131 | 0.045 | | | 1.29 |
| D-21-94 131-133 | 0.008 | | | 0.25 |
| D-21-94 133-138 | 0.001 | | | 0.06 |
| D-21-94 138-141 | 0.002 | | | 0.07 |
| D-21-94 141-145 | 0.041 | | | 0.48 |
| D-21-94 145-150 | 0.016 | | | 0.28 |
| D-21-94 150-154 | 0.010 | | | 0.14 |
| D-21-94 154-157 | 0.003 | | | 0.06 |
| D-21-94 157-160 | 0.002 | | | 0.08 |
| D-21-94 160-165 | 0.051 | | 0.053 | 0.62 |
| D-21-94 165-170 | 0.017 | | | 0.26 |
| D-21-94 170-174 | 0.012 | | | 0.10 |
| D-21-94 174-177.5 | 0.013 | | | 0.28 |
| D-21-94 177.5-178 | 0.351 | | 0.377 | 1.97 |