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# TOMBSTONE MINING DISTRICT
# COCHISE COUNTY, ARIZONA

## GEOLOGY & LAND RESEARCH

VOLUME III

DRILLING LOGS, REPORTS & ASSAYS

BOOK 2

CHARLESTON MINE & VICINITY

PAGE 239 to 384

JAMES STEWART COMPANY

AUGUST, 1984

PREPARED BY:

JAMES A. BRISCOE & ASSOC., INC.

TUCSON, AZ

J.D. #4 Essays

Inz Nic

| #4 | % Cu | Pb | Zn | S | Ag |
|---|---|---|---|---|---|
| 1611-16 | .14 | .19 | .83 | 1.39 | 2.07 |
| 1791-96 | 7.70 | .58 | .81 | 8.88 | 5.84 |
| 18 96-1903 | 0.53 | .46 | 13.9 | 7.73 | 2.04 |
| 2097-2099 | 1.15 | .86 | 13.4 | 8.23 | 2.34 |
| 2099-2104 | 0.21 | .04 | 1.41 | 0.85 | 0.088 |
| 2183 2190 | 0.49 | .06 | 12.0 | 6.66 | .58 |
| 1729 | .01 | .10 | .095 | 1.19 | 2.09 |
| 1890 | .02 | .32 | 1.93 | 1.22 | .88 |
| 2424 | .01 | 03 | 007 | 3.15 | 2.09 |
| 1479 1501 | .02 | .71 | 1.48 | 2.62 | .58 |
| 1762 1830 | 1.53 | 017 | .13 | 2.26 | 1.46 |

The above are Copies of International assays.

Mott

G

Bear Creek
Inco.

# CHARLESTON PROPERTY ASSAYS

## Borehole # 4

| Sample | Footage | % Cu | % Pb | % Zn | % S | oz/ton Pd | Pt | Au | Ag |
|---|---|---|---|---|---|---|---|---|---|
| S69-909 | 1611-1616 | 0.14 | 0.19 | 0.83 | 1.39 | .0014 | .0016 | <.001 | < .09 |
| S69-910 | 1791-1796 | 7.70 | 0.58 | 0.81 | 8.88 | .0018 | .0018 | .0018 | 5.84 |
| S69-911 | 1896-1903 | 0.53 | 0.46 | 13.9 | 7.73 | .0016 | .0016 | <.001 | 2.04 |
| S69-912 | 2097-2099 | 1.15 | 0.26 | 13.4 | 8.23 | .0018 | .0023 | .0015 | 2.34 |
| S69-913 | 2099-2104 | 0.21 | 0.04 | 1.41 | 0.88 | .0021 | .0030 | <.001 | .088 |
| S69-914 | 2183-2190 | 0.49 | 0.06 | 12.0 | 6.66 | .0016 | .0018 | <.001 | .58 |
| S69-915 | @1729 | 0.01 | 0.10 | 0.095 | 1.19 | .0021 | .0023 | <.001 | <.09 |
| S69-916 | @1890 | 0.02 | 0.32 | 1.93 | 1.22 | .0018 | .0018 | <.001 | .88 |
| S69-917 | @2424 | 0.01 | 0.03 | 0.007 | 3.15 | .0069 | .0076 | .0016 | <.09 |
| S69-918 | 1479-1501 | 0.02 | 0.71 | 1.48 | 2.62 | .0013 | .0014 | .0010 | .58 |
| S69-919 | 1762-1830 | 1.53 | 0.17 | 0.13 | 2.26 | .0025 | .0026 | .0038 | 1.46 |

Molybdenum results will be reported when available - <.01

October 31 & November 20, 1969

Bear Creek
Inco

# CHARLESTON PROPERTY ASSAYS

## Borehole # 4

| Footage | % Cu | % Ni | % Co | % Pb | % Zn | % $MoS_2$ | oz/ton Pd | oz/ton Pt | oz/ton Au | oz/ton Ag |
|---|---|---|---|---|---|---|---|---|---|---|
| 1479.5 - 1481 | .012 | .012 | .005 | - | - | - | Nil | Nil | Nil | .04 |
| 1478 - 1480 | .410 | .010 | .006 | - | - | - | Nil | Nil | Nil | .78 |
| 1481 - 1486 | .069 | .009 | .008 | - | - | - | Nil | Nil | Nil | .08 |
| 1485 - 1487 | .080 | .008 | .008 | - | - | - | Nil | Nil | Nil | .13 |
| 1487 - 1494 | .007 | .010 | .008 | - | - | - | Nil | Nil | Nil | .02 |
| 1494 - 1496 | .136 | .012 | .010 | - | - | - | Nil | Nil | Nil | .27 |
| 1496 - 1498 | .024 | .011 | .003 | - | - | - | Nil | Nil | Nil | .02 |
| 1498 - 1501 | .247 | .011 | .006 | - | - | - | Nil | Nil | Nil | .38 |
| 1791.5 - 1802 | 5.40 | .010 | .004 | - | - | - | Nil | Nil | .002 | 5.25 |
| 1802 - 1810 | .048 | .009 | .002 | - | - | - | Nil | Nil | Nil | .11 |
| 1810 - 1817.5 | 1.59 | .009 | .005 | - | - | - | Nil | Nil | Nil | .74 |
| 1817.5 - 1822 | 1.16 | .011 | .006 | - | - | - | Nil | Nil | Nil | .27 |
| 1895.5 - 1898.5 | 2.98 | .009 | .010 | - | - | <.05 | Nil | Nil | Nil | 1.39 |
| 1898.5 - 1902 | .245 | .009 | .006 | - | - | - | Nil | Nil | Nil | 1.26 |
| 1902 - 1903 | .365 | .008 | .011 | - | - | <.05 | Nil | Nil | Nil | 2.16 |
| 2097.5 - 2099 | .690 | .009 | .018 | - | - | - | Nil | Nil | Nil | 2.02 |
| 2230.5 - 2231.5 | .700 | .009 | .005 | - | - | - | Nil | Nil | Nil | .42 |
| 2231.5 - 2236 | .44 | .009 | .005 | - | - | - | Nil | Nil | Nil | .67 |

February 10, 1970

RECEIVED

MAR 30 1970

JAMES STEWART COMPANY
PHOENIX, ARIZONA

~~Bear Creek~~
Inc

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 42719 | C.O. Pritchard (J.E. Mullock) | Feb.10/70 | U.S.A. - Arizona Charleston Mine; BH #4 @ 1479.5' - 1481'. Sa.#4 Pulp. Assay: Cu Pb Zn PM's Ag | .012 | .012 | .005 | | | PM's - r |
| | | | | Ag - | .04 | | | | |
| | | | | Zn - | .12 | | | | |
| | | | | Pb - | <.1 | | | | |
| 42720 | " | " | Ditto: @ 1478' - 1480'. Sa.#5 Assay: Cu Pb Zn PM's Ag | .410 | .010 | .006 | | | PM's - r |
| | | | | Ag - | .78 | | Zn - 8.90 | | |
| | | | | | | | Pb - 1.05 | | |
| 42721 | " | " | Ditto: @ 1481' - 1486'. Sa.#6 Assay: Cu Pb Zn PM's Ag | .069 | .009 | .008 | | | PM's - r |
| | | | | Ag - | .08 | | Zn - 1.31 | | |
| | | | | | | | Pb - <.1 | | |
| 42722 | " | " | Ditto: @ 1486' - 1487'. Sa.#7 Assay: Cu Pb Zn PM's Ag | .080 | .008 | .008 | | | PM's - r |
| | | | | Ag - | .13 | | Zn - 2.50 | | |
| | | | | | | | Pb - 1.32 | | |
| 42723 | " | " | Ditto: @ 1487' - 1494'. Sa.#8 Assay: Cu Pb Zn PM's Ag | .007 | .010 | .008 | | | PM's - r |
| | | | | Ag - | .02 | | Zn - .39 | | |
| | | | | | | | Pb - <.1 | | |
| 42724 | " | " | Ditto: @ 1494' - 1496'. Sa.#9 Assay: Cu Pb Zn PM's Ag | .136 | .012 | .010 | | | PM's - r |
| | | | | Ag - | .27 | | Zn - 1.18 | | |
| | | | | | | | Pb - 1.05 | | |

Form 219

RECEIVED

MAR 30 1970

JAMES STEWART COMPANY
PHOENIX, ARIZONA

| Sample No. | Name | Date | Location | Cu | Ni | Co | S | Total PMs | Misc. |
|---|---|---|---|---|---|---|---|---|---|
| 42725 | C.O. Pritchard (J.E. Mullock) | Feb. 10/70 | Ditto: @ 1496' - 1498'. Sa.#10<br>Assay: Cu Pb Zn PM's Ag | .024<br>Ag - | .011<br>.02 | .003<br>Zn - 0.10<br>Pb - <.1 | | | PM's - r |
| 42726 | " | " | Ditto: @ 1498' - 1501'. Sa.#11<br>Assay: Cu Pb Zn PM's Ag | .247<br>Ag - | .011<br>.38 | .006<br>Zn - 2.85<br>Pb - 1.37 | | | PM's - r |
| 42727 | " | " | Ditto: @ 1791.5' - 1802'. Sa.#15<br>Assay: Cu Pb Zn PMs Ag | 5.40<br>Ag - | .010<br>5.25 | .004<br>Zn - .58<br>Pb - .24 | | .002 | Pd&Pt:- r<br>OPM:- r<br>Au:- ∞ |
| 42728 | " | " | Ditto: @ 1802' - 1810'. Sa.#17<br>Assay: Cu Pb Zn PM's Ag | .048<br>Ag - | .009<br>.11 | .002<br>Zn - <.05<br>Pb - <.1 | | | PM's - r |
| 42729 | " | " | Ditto: @ 1810' - 1817.5'. Sa.#18<br>Assay: Cu Pb Zn PM's Ag | 1.59<br>Ag - | .009<br>.74 | .005<br>Zn - 0.10<br>Pb - <.1 | | | PM's - r |
| 42730 | " | " | Ditto: @ 1817.5'. Sa. #19.<br>Assay: Cu Pb An PM's Ag | 1.16<br>Ag - | .011<br>.27 | .006<br>Zn - 0.05<br>Pb - <.1 | | | PM's - r |
| 42731 | " | " | Ditto: @ 1895.5'-1898.5'. Sa.#A.<br>Assay: Cu Pb Zn PM's Ag | 2.98<br>$MoS_2$ -<br>Ag - | .009<br><.05<br>1.39 | .010<br>Zn - 6.40<br>Pb - .26 | | | PM's - r |
| 42732 | " | " | Ditto: @ 1898.5' - 1902. Sa.#B<br>Assay: Cu Pb Zn PM's Ag | .245<br>Ag - | .009<br>1.26 | .006<br>Zn - 2.00<br>Pb - .37 | | | PM's - r |
| 2733 | " | " | Ditto: @ 1902'-1903'. Sa.#C<br>Assay: Cu Pb Zn PM's Ag | .365<br>$MoS_2$ -<br>Ag - | .008<br><.05<br>2.16 | .011<br>Zn - 10.00<br>Pb - .37 | | | PM's - r |
| 42734 | " | " | Ditto: @ 2097.5'-2099'. Sa.#D<br>Assay: Cu Pb Zn PM's Ag | .690<br>Ag - | .009<br>2.02 | .018<br>Zn - 17.0<br>Pb - .13 | | | PM's - r |
| 42735 | " | " | Ditto: @ 2230.5'-2231.5'. Sa.#H<br>Assay: Cu Pb Zn PM's Ag | .700<br>Ag - | .009<br>.42 | .005<br>Zn - 1.90<br>Pb - .02 | | | PM's - r |
| 42736 | " | " | Ditto: @ 2231.5'-2236'. Sa.#I<br>Assay: Cu Pb Zn PM's Ag | .44<br>Ag - | .009<br>.67 | .005<br>Zn - 2.80<br>Pb - .10 | | | PM's - r |

CHEMICAL & MINERALOGICAL SERVICES 3435 SOUTH STATE STREET, SALT LAKE CITY, UTAH 84115, (801) 266-6228

ANALYTICAL REPORT FOR:

MAR 14 1970

JAMES STEWART COMPANY

D.D. #4

| | |
|---|---|
| Hewitt Enterprises | CUSTOMER NUMBER 0801 |
| 12415 South 960 East | DATE Oct 16, 1969 |
| Draper, Utah | CUSTOMER'S ORDER NO. |

| Sample # | Ag oz/ton | Au oz/ton | Cu % | Pb % | Zn % | Mo ppm |
|---|---|---|---|---|---|---|
| 1895-1898 | 1.3 | .001 | .28 | .25 | 5.3 | 2 |
| 1898-1902 | 1.5 | .001 | .18 | .48 | 2.7 | 2 |
| 1902-1903 | 2.2 | .001 | .54 | .40 | 10.0 | 1 |
| 2023-2025 | .1 | .001 | .11 | .005 | .08 | 2 |
| 2097-2099 | 2.0 | .003 | .78 | .15 | 15.1 | 1 |
| 2099-2101 | .4 | .002 | .08 | .02 | 2.9 | 1 |
| 2101-2104 | .5 | .002 | .46 | .03 | 4.0 | 1 |
| 2183.5 2184-2190 | .8 | .002 | .67 | .03 | 8.2 | 1 |
| 2230-2232 | .4 | .001 | .68 | .03 | 2.4 | 3 |
| 2231-2236 | .8 | .001 | .44 | .10 | 3.5 | 3 |
| 2249-2249.5 | .7 | .002 | 1.30 | .14 | 1.1 | 10 |

245

CMSI

CHEMICAL & MINERALOGICAL SERVICES 3435 SOUTH STATE STREET, SALT LAKE CITY, UTAH 84115, (801) 266-8228

**ANALYTICAL REPORT FOR:**

RECEIVED D.D.H. #4

OCT 29 1969

JAMES STEWART COMPAN
PHOENIX, ARIZONA

| | |
|---|---|
| Hewitt Enterprizes | OUR NUMBER 0813 |
| 12415 South 960 East | DATE Oct 22, 1969 |
| Braper, Utah | CUSTOMER'S ORDER NO. |

| Sample # | Ag oz/ton | Au oz/ton | Cu % | Pb % | Zn % | Mo ppm | Co ppm | Ni ppm |
|---|---|---|---|---|---|---|---|---|
| #1 2276-2278 | .13 | .002 | .004 | .018 | .02 | 4 | 90 | 70 |
| #2 2438 10" | .43 | .002 | .009 | .035 | 17.00 | 2 | 50 | 190 |
| #3 2597-2604 | .65 | .002 | .365 | .030 | 1.10 | 1 | 40 | 15 |
| #4 2699.5-2705.5 | .26 | .002 | .080 | .010 | .03 | 13 | 40 | 10 |

Ray Broadhead

CMSI

CHEMICAL & MINERALOGICAL SERVICES 3435 SOUTH STATE STREET, SALT LAKE CITY, UTAH 84115, (801) 266-8228

**ANALYTICAL REPORT FOR:**

| | |
|---|---|
| Hewitt Enterprizes | OUR NUMBER 0760 |
| 12415 South 960 East | DATE Sept 30, 1969 |
| Draper, Utah | CUSTOMER'S ORDER NO. |

| Sample # | Ag oz/ton | Au oz/ton | Cu % | Pb % | Zn % | Mo ppm |
|---|---|---|---|---|---|---|
| ? 3X | .30 | .001 | .006 | .003 | .005 | 4 |
| 2-1532-1534 | .50 | .001 | .020 | .210 | .400 | 13 |
| 4-1180-1184 | .20 | .001 | .005 | .005 | .010 | 4 |
| 4-1478-1480 | .90 | .001 | .350 | 1.160 | 9.200 | 2 |
| 4-1479.5-1481 | .15 | .001 | .008 | .022 | .100 | 2 |
| 4-1481-1486 | .15 | .001 | .042 | .031 | 1.600 | 25 |
| 1486-1487 | .30 | .001 | .056 | 1.345 | 2.800 | 1 |
| 4-1487-1494 | .10 | .001 | .006 | .060 | .310 | 3 |
| 4-1494-1496 | .15 | .001 | .140 | 1.090 | 1.600 | 10 |
| 4-1496-1498 | .10 | .001 | .015 | .051 | .086 | 5 |
| 4-1498-1501 | .40 | .001 | .220 | 1.275 | 2.400 | 10 |
| 4-1590-1591 | .20 | .001 | .029 | .142 | .440 | 6 |
| 4-1611-1616 | .20 | .001 | .160 | .222 | .720 | 2 |
| 4-1762-1773 | .15 | .001 | .290 | .013 | .074 | 3 |
| 4-1791.5-1802 | .80 | .001 | .029 | .049 | .073 | 45 |
| 4-1791.5-1802 | .50 | .001 | 4.950 | .234 | .450 | 50 |
| 4-1802-1810 | .10 | .001 | .052 | .008 | .028 | 20 |
| 4-1810-1817.5 | .75 | .001 | 1.800 | .029 | .100 | 75 |
| 4-1817.5-1822 | .45 | .001 | 1.400 | .016 | .048 | 30 |
| 4-1852.5-185315 | .20 | .001 | .020 | .440 | .480 | 5 |

Ray Broadhead

247


# PHELPS DODGE CORPORATION

WESTERN EXPLORATION OFFICE
DRAWER 1217
DOUGLAS, ARIZONA 85607

TEL. 602-364-8414


April 26, 1971

RECEIVED
APR 28 1971
JAMES STEWART COMPANY
PHOENIX, ARIZONA

Mr. Seth Horne
James Stewart Construction Co.
3033 N. Central Avenue
Phoenix, Arizona 85531

Dear Mr. Horne:

Attached are additional analytical results of core samples from drill hole No. 4 at the Charleston property near Tombstone. John Forrester felt they would be informative even though it was obvious they would be below ore grades. The intervals are not necessarily continuous and range from a depth of 195 feet to 2020 feet. This work was carried out in our laboratory and includes three spectrographic analyses for pulps 1535, 1540 and 1546 noted in the left hand column of the geochemical analysis sheets.

Very truly yours,

R. W. Ludden

R. W. Ludden, Jr.
Chief Geologist

RWL:c

Encl.

4/28/71 Copy to Clyde Davis
Boyd Hewitt

4-16-71

# GEOCHEMICAL ANALYSIS

Date Received 3-16-71

Location Charleston Mine, Tombstone Quad., Ariz.

Em. Spec. 4-5-71 LAT X-Ray 4-12-71 JDT Chem.

Geologist J. D. Forrester

| Pulp No. | SAMPLE NUMBER T. R. S. IDENT. | Mo P.P.M. | Pb P.P.M. | Zn P.P.M. | Cu P.P.M. | Ag OZ/TON | Au OZ/TON | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1524 | DDH #4 195'-203' | X / < 35 | X / 40 | X / 130 | X / 40 | ES / .02 | | | | |
| 1525 | 256'-264.5' | X / < 35 | X / 25 | X / 105 | X / 30 | ES / < .02 | | | | |
| 1526 | 264.5'-273' | X / < 35 | X / 47 | X / 115 | X / 67 | ES / .02 | | | | |
| 1527 | 273'-280#' | X / < 35 | X / 20 | X / 80 | X / 32 | ES / < .02 | | | | |
| 1528 | 280'-287' | X / < 35 | X / 42 | X / 85 | X / 37 | ES / < .02 | | | | |
| 1529 | 559'-564' | X / < 35 | X / 40 | X / 105 | X / 57 | ES / < .02 | | | | |
| 1530 | 567'-569' | X / < 35 | X / 47 | X / 83 | X / 29 | ES / < .02 | | | | |
| 1531 | 1090'-1100' | X / 47 | X / 40 | X / 47 | X / 37 | ES / .02 | | | | |

1 Troy Oz/Ton = 34.28 PPM: ES = Em. Spectrograph X = X-Ray A = Atomic Absorption C = Colorometric O = Other

VS = Very Strong S = Strong M = Medium F = Faint ND = Not Detected

4-16-71

# GEOCHEMICAL ANALYSIS

Date Received 3-16-71 Location Charleston Mine Tombstone Quad., Ariz.

Em. Spec. 4-5-71 LAT X-Ray 4-12-71 DT Chem. Geologist J. D. Forrester

| Pulp No. | SAMPLE NUMBER T. R. S. IDENT. | Mo P.P.M. | | Pb P.P.M. | | Zn P.P.M. | | Cu P.P.M. | | Ag OZ/TON | | Au OZ/TON | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1532 | DDH#4 1175'-1180' | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 15 | | 62 | | 50 | ES | < .02 | | | | | | |
| 1533 | 1478-1480 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 980 | | 300 | | 57 | ES | .06 | | | | | | |
| 1534 | 1600-1610 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 110 | | 190 | | 27 | ES | < .02 | | | | | | |
| 1535 | 1610-1620 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 232 | | 1137 | | 240 | ES | .02 | | | | | | |
| 1536 | 1620-1630 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 558 | | 995 | | 30 | ES | .02 | | | | | | |
| 1537 | 1630-1640 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 57 | | 130 | | 32 | ES | < .02 | | | | | | |
| 1538 | 1640-1650 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 65 | | 195 | | 25 | ES | < .02 | | | | | | |
| 1539 | 1650-1660 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 72 | | 210 | | 25 | ES | < .02 | | | | | | |

1 Troy Oz/Ton = 34.28 PPM: ES = Em. Spectrograph X = X-Ray A = Atomic Absorption C = Colorometric O = Other

VS = Very Strong S = Strong M = Medium F = Faint ND = Not Detected

3-16-71

# GEOCHEMICAL ANALYSIS

Date Received 3-16-71

Location Charleston Mine, Tombstone Quad., Ariz.

Em. Spec. 4-6-71 LAT X-Ray 4-12-71 DT Chem.

Geologist J. D. Forrester

| Pulp No. | SAMPLE NUMBER T. R. S. IDENT. | Mo P.P.M. | Pb P.P.M. | Zn P.P.M. | Cu P.P.M. | Ag OZ/TON | Au OZ/TON | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1540 | DDH#4 1794'-1795' | X | X | X | X | | | | | |
| | | 40 | 7300 | 4559 | 2.9% | A | 16.93 | | | |
| 1541 | 1818-1820 | X | X | X | X | | | | | |
| | | < 35 | 725 | 1655 | 1.1% | ES | .24 | | | |
| 1542 | 1894-1899 | X | X | X | X | | | | | |
| | | < 35 | 680 | 1.2% | 412 | ES | .20 | | | |
| 1543 | 1970-1975 | X | X | X | X | | | | | |
| | | < 35 | 70 | 209 | 42 | ES | < .02 | | | |
| 1544 | 1975-1980 | X | X | X | X | | | | | |
| | | < 35 | 65 | 225 | 45 | ES | < .02 | | | |
| 1545 | 1980-1985 | X | X | X | X | | | | | |
| | | < 35 | 20 | 145 | 15 | ES | .03 | | | |
| 1546 | 1985-1990 | X | X | X | X | | | | | |
| | | < 35 | 3630 | 6570 | 555 | ES | .12 | | | |
| 1547 | 1990-1995 | X | X | X | X | | | | | |
| | | < 35 | 1150 | 2357 | 160 | ES | .08 | | | |

1 Troy Oz/Ton = 34.28 PPM: ES = Em. Spectrograph X = X-Ray A = Atomic Absorption C = Colorometer O = Other

VS = Very Strong S = Strong M = Medium F = Faint ND = Not Detected

4-16-71

# GEOCHEMICAL ANALYSIS

Date Received 3-16-71

Location Charleston Mine Tombstone Quad., Arizona

Em. Spec. 4-6-71 LAT X-Ray 4-13-71 DT Chem.

Geologist J. D. Forrester

| Pulp No. | SAMPLE NUMBER T. R. S. IDENT. | Mo P.P.M. | | Pb P.P.M. | | Zn P.P.M. | | Cu P.P.M. | | Ag OZ/TON | | Au OZ/TON | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1548 | 1995'-2000' | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 215 | | 290 | | 50 | ES | .02 | | | | | | |
| 1549 | 2000-2005 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 37 | | 80 | | 30 | ES | < .02 | | | | | | |
| 1550 | 2005-2010 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 27 | | 60 | | 0 | ES | < .02 | | | | | | |
| 1551 | 2010-2015 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 40 | | 62 | | 60 | ES | < 0.016 | | | | | | |
| 1552 | 2015-2020 | | X | | X | | X | | X | | | | | | | | |
| | | | < 35 | | 42 | | 45 | | 7 | ES | < 0.016 | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

1 Troy Oz/Ton = 34.28 PPM: ES = Em. Spectrograph X = X-Ray A = Atomic Absorption C = Colorometric O = Other

VS = Very Strong S = Strong M = Medium F = Faint ND = Not Detected

# QUALITATIVE ANALYSIS REPORT

4-16-71

| 1535 | Charleston Mine, Tombston, Arizona | 3-16-71 | Forrester |
|---|---|---|---|
| PULP | LOCATION | SAMPLE DATE | GEOLOGIST |

DDH #4 1610'-1520'

| Method | SPECTRO | X-RAY | OTHER | | SPECTRO | X-RAY | OTHER |
|---|---|---|---|---|---|---|---|
| Date: | 4-6-71 | | | | | | |
| Initials: | LAT | | | | | | |
| Aluminum | M | | | Molybdenum | ND | | |
| Antimony | ND | | | Nickel | 15 ppm | | |
| Arsenic | ND | | | Niobium | * | | |
| Barium | ND | | | Osmium | ND | | |
| Beryllium | ND | | | Palladium | ND | | |
| Bismuth | ND | | | Phosphorus | ND | | |
| Boron | 33 ppm | | Q# | Platinum | ND | | |
| Bromine | * | | | Potassium | ND | | |
| Cadmium | ND | | | Rhenium | ND | | |
| Calcium | ND | | | Rhodium | ND | | |
| Cerium | ND | | | Rubidium | ND | | |
| Cesium | * | | | Ruthenium | ND | | |
| Chlorine | * | | | Scandium | ND | | |
| Chromium | ND | | | Selenium | * | | |
| Cobalt | ##### | 42 ppm | | Silicon | VS | | |
| Copper | VS | | | Silver | .02 oz/ton | | |
| Fluorine | * | | | Sodium | F | | |
| Gallium | ND | | | Strontium | ND | | |
| Germanium | ND | | | Sulfur | * | | |
| Gold | ND | | | Tantalum | ND | | |
| Hafnium | ND | | | Tellurium | ND | | |
| Iodine | * | | | Thallium | ND | | |
| Indium | ND | | | Thorium | ND | | |
| Iridium | ND | | | Tin | ND | | |
| Iron | S | | | Titanium | M | | |
| Lanthanum | ND | | | Tungsten | ND | | |
| Lithium | ND | | | Uranium | * | | |
| Lead | S | | | Vanadium | F | | |
| Magnesium | VS | | | Yttrium | ND | | |
| Manganese | S | | | Zinc | ND | | |
| Mercury | ND | | | Zirconium | ND | | |

Comments:

Legend: VS - very strong S - strong M - medium F - faint ND - not detected

* - Not detectable by this method

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4-16-71

# QUALITATIVE ANALYSIS REPORT

1540 (PULP) Charleston Mine, Tombstone, Arizona (LOCATION) 3-16-71 (SAMPLE DATE) Forrester (GEOLOGIST)

DDH#4 1794'-1795'

| Method | SPECTRO | X-RAY | OTHER | | SPECTRO | X-RAY | OTHER |
|---|---|---|---|---|---|---|---|
| Date: | 4-6-71 | | | | | | |
| Initials: | LAT | | | | | | |
| Aluminum | F | | | Molybdenum | ND | | |
| Antimony | 53 ppm | | | Nickel | ND | | |
| Arsenic | 30 ppm | | | Niobium | * | | |
| Barium | ND | | | Osmium | ND | | |
| Beryllium | ND | | | Palladium | ND | | |
| Bismuth | > 1000 ppm | | | Phosphorus | ND | | |
| Boron | 47 ppm | | | Platinum | ND | | |
| Bromine | * | | | Potassium | ND | | |
| Cadmium | 120 ppm | | | Rhenium | ND | | |
| Calcium | F | | | Rhodium | ND | | |
| Cerium | ND | | | Rubidium | ND | | |
| Cesium | * | | | Ruthenium | ND | | |
| Chlorine | * | | | Scandium | ND | | |
| Chromium | ND | | | Selenium | * | | |
| Cobalt | ND | | | Silicon | VS | | |
| Copper | VS | | | Silver | > 5.0 oz/ton | | |
| Fluorine | * | | | Sodium | ND | | |
| Gallium | ND | | | Strontium | ND | | |
| Germanium | F | | | Sulfur | * | | |
| Gold | ND | | | Tantalum | ND | | |
| Hafnium | ND | | | Tellurium | ND | | |
| Iodine | * | | | Thallium | ND | | |
| Indium | ND | | | Thorium | ND | | |
| Iridium | ND | | | Tin | ND | | |
| Iron | S | | | Titanium | F | | |
| Lanthanum | ND | | | Tungsten | ND | | |
| Lithium | ND | | | Uranium | * | | |
| Lead | VS | | | Vanadium | ND | | |
| Magnesium | S | | | Yttrium | ND | | |
| Manganese | S | | | Zinc | VS | | |
| Mercury | ND | | | Zirconium | ND | | |

Comments:

Legend: VS - very strong S - strong M - medium F - faint ND - not detected

* - Not detectable by this method

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4-16-71

# QUALITATIVE ANALYSIS REPORT

| PULP | LOCATION | SAMPLE DATE | GEOLOGIST |
|---|---|---|---|
| 1546 | Charleston Mine, Tombstone, Arizona | 3-16-871 | Forrester |

DDH #4 1985'-1990'

| Method | SPECTRO | X-RAY | OTHER | | SPECTRO | X-RAY | OTHER |
|---|---|---|---|---|---|---|---|
| Date: | 5-4-6-71 | | | | | | |
| Initials: | LAT | | | | | | |
| Aluminum | S | | | Molybdenum | F | | |
| Antimony | ND | | | Nickel | 21 ppm | | |
| Arsenic | ND | | | Niobium | * | | |
| Barium | ND | | | Osmium | ND | | |
| Beryllium | ND | | | Palladium | ND | | |
| Bismuth | 13 ppm | | | Phosphorus | ND | | |
| Boron | 79 ppm | | | Platinum | ND | | |
| Bromine | * | | | Potassium | F | | |
| Cadmium | 51 ppm | | | Rhenium | ND | | |
| Calcium | F | | | Rhodium | ND | | |
| Cerium | ND | | | Rubidium | ND | | |
| Cesium | * | | | Ruthenium | ND | | |
| Chlorine | * | | | Scandium | M | | |
| Chromium | ND | | | Selenium | * | | |
| Cobalt | 62 ppm | | | Silicon | VS | | |
| Copper | VS | | | Silver | .12 oz/ton | | |
| Fluorine | * | | | Sodium | S | | |
| Gallium | ND | | | Strontium | ND | | |
| Germanium | F | | | Sulfur | * | | |
| Gold | ND | | | Tantalum | ND | | |
| Hafnium | ND | | | Tellurium | ND | | |
| Iodine | * | | | Thallium | ND | | |
| Indium | ND | | | Thorium | ND | | |
| Iridium | ND | | | Tin | 3 ppm | | |
| Iron | S | | | Titanium | F | | |
| Lanthanum | ND | | | Tungsten | ND | | |
| Lithium | ND | | | Uranium | * | | |
| Lead | VS | | | Vanadium | ND | | |
| Magnesium | VS | | | Yttrium | ND | | |
| Manganese | VS | | | Zinc | VS | | |
| Mercury | ND | | | Zirconium | ND | | |

Comments: _____

Legend: VS - very strong S - strong M - medium F - faint ND - not detected

* - Not detectable by this method

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# HOLE #4 Assay Summary

6/18/70 - Copy to CAC and Hewitt

# CHARLESTON MINE

## Assay Summary

### HOLE #4

| Depth | Ag Oz/Ton | Au Oz/Ton | Cu % | Pb % | Zn % | Mo PPM | Ni % | Co % |
|---|---|---|---|---|---|---|---|---|
| 1180 - 1184 | .20 | .001 | .005 | .005 | .01 | 4 | | |
| 1478 - 1480 | .90 | .001 | .35 | 1.16 | 9.20 | 2 | | |
| 1479.5 - 1481 | .15 | .001 | .008 | .022 | .10 | 2 | | |
| 1481 - 1486 | .15 | .001 | .049 | .031 | 1.60 | 25 | | |
| 1486 - 1487 | .30 | .001 | .056 | 1.345 | 2.80 | 1 | | |
| 1487 - 1494 | .10 | .001 | .006 | .06 | 0.31 | 3 | | |
| 1494 - 1496 | .15 | .001 | .14 | 1.09 | 1.6 | 10 | | |
| 1496 - 1498 | .10 | .001 | .015 | .051 | .086 | 5 | .011 | .003 |
| 1498 - 1501 | .40 | .001 | .220 | 1.275 | 2.40 | 10 | .011 | .006 |
| 1532 - 1534 | .50 | .001 | .020 | .210 | .40 | 13 | | |
| 1590 - 1591 | .20 | .001 | .029 | .142 | .44 | 6 | | |
| 1611 - 1616 | .20 | .001 | .16 | .222 | .72 | 2 | | |
| 1762 - 1773 | .15 | .001 | .29 | .013 | .074 | 3 | | |
| 1791.5 - 1802 | 5.40 | .001 | 4.95 | .234 | .45 | 50 | .01 | .004 |
| 1802 - 1810 | .10 | .001 | .052 | .008 | .028 | 20 | .009 | .002 |
| 1810 - 1817 | .75 | .001 | 1.80 | .029 | .100 | 75 | .009 | .005 |
| 1817.5 - 1822.5 | .45 | .001 | 1.40 | .016 | .048 | 30 | | |
| 1852.5 - 1855.5 | .20 | .001 | .02 | .440 | .480 | 5 | | |
| 1895 - 1898 | 1.3 | .001 | 2.98 | .25 | 6.40 | 2 | | |
| 1898 - 1902 | 1.5 | .001 | .18 | .48 | 2.7 | 2 | | |
| 1902 - 1903 | 2.2 | .001 | .54 | .40 | 10.0 | 1 | | |
| 2023 - 2025 | .1 | .001 | .11 | .005 | .08 | 2 | | |
| 2097 - 2099 | 2.0 | .003 | .78 | .15 | 17.0 | 1 | | |
| 2099.5 - 2101 | .4 | .002 | .08 | .02 | 2.9 | 1 | | |
| 2183 - 2190 | .8 | .002 | .67 | .03 | 8.2 | 1 | | |
| 2230 - 2231.5 | .4 | .001 | .68 | .03 | 2.4 | 3 | | |
| 2231 - 2236 | .8 | .001 | .44 | .10 | 3.5 | 3 | | |
| 2249 - 2249.5 | .7 | .002 | 1.30 | .14 | 1.1 | 10 | | |
| 2276 - 2278 | .13 | .004 | .004 | .018 | .02 | 4 | | |
| 2238 (10") | .43 | .002 | .009 | .035 | 17.00 | 2 | | |
| 2597 - 2604 | .65 | .002 | .365 | .03 | 1.10 | 1 | | |
| 2699.5 - 2705.5 | .26 | .002 | .080 | .010 | .03 | 13 | | |

# CHARLESTON MINING PROPERTY
## Assay Summary
## Drill Hole #4

| Footage | Percentage | | | | | | | oz/ton | | | | ppm | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cu | Pb | Zn | Ni | Co | S | $MoS_2$ | Pd | Pt | Ag | Au | Mo | Co | Ni |
| 1180 -1184 | .005 | .005 | .010 | | | | | | | .20 | .001 | 4 | | |
| 1478 -1479.5 | .350 | 1.160 | 9.200 | | | | | | | .90 | .001 | 2 | | |
| 1478 -1480 | .410 | 1.05 | 8.90 | .010 | .006 | | | | | .78 | | | | |
| 1479.5-1481 | .012 | .1 | .12 | .012 | .005 | | | | | .04 | | | | |
| 1479 -1501 | .02 | .71 | 1.48 | | | 2.62 | | .0013 | .0014 | .58 | .0010 | | | |
| 1479.5-1481 | .008 | .022 | .100 | | | | | | | .15 | .001 | 2 | | |
| 1481 -1486 | .069 | .1 | 1.31 | .009 | .008 | | | | | .08 | | | | |
| 1481 -1486 | .049 | .031 | 1.600 | | | | | | | .15 | .001 | 25 | | |
| 1485 -1487 | .080 | 1.32 | 2.50 | .008 | .008 | | | | | .13 | | | | |
| 1486 -1487 | .056 | 1.345 | 2.800 | | | | | | | .30 | .001 | 1 | | |
| 1487 -1494 | .009 | .1 | .39 | .010 | .008 | | | | | .02 | | | | |
| 1487 -1494 | .006 | .060 | .310 | | | | | | | .10 | .001 | 3 | | |
| 1494 -1496 | .136 | 1.05 | 1.18 | .012 | .010 | | | | | .27 | | | | |
| 1494 -1496 | .140 | 1.090 | 1.600 | | | | | | | .15 | .001 | 10 | | |
| 1496 -1498 | .024 | .10 | .10 | .011 | .033 | | | | | .02 | | | | |
| 1496 -1498 | .015 | .051 | .086 | | | | | | | .10 | .001 | 5 | | |
| 1498 -1501 | .247 | 1.37 | 2.85 | .011 | .006 | | | | | .38 | | | | |
| 1498 -1501 | .220 | 1.275 | 2.400 | | | | | | | .40 | .001 | 10 | | |
| 1590 -1591 | .029 | .142 | .440 | | | | | | | .20 | .001 | 6 | | |
| 1611 -1616 | .160 | .222 | .83 | | | | | | | .20 | .001 | 2 | | |
| 1611 -1616 | .14 | .19 | .83 | | | 1.39 | | .0014 | .0016 | .09 | .001 | | | |
| 1729 | .01 | .10 | .095 | | | 1.19 | | .0021 | .0023 | .09 | .001 | | | |
| 1762 -1773 | .290 | .013 | .074 | | | | | | | .15 | .001 | 3 | | |
| 1762 -1830 | 1.53 | .17 | .13 | | | 2.26 | | .0025 | .0026 | 1.46 | .0038 | | | |
| 1791 -1796 | 7.70 | .58 | .81 | | | 8.88 | | .0018 | .0018 | 5.84 | .0018 | | | |
| 1791.5-1802 | .029 | .049 | .073 | | | | | | | .80 | .001 | 45 | | |
| 1791.5-1802 | 5.40 | .24 | .58 | .010 | .004 | | | | | 5.25 | .002 | | | |
| 1791.5-1802 | 4.950 | .234 | .450 | | | | | | | .50 | .001 | 50 | | |
| 1802 -1810 | .048 | .1 | .05 | .009 | .002 | | | | | .11 | | | | |
| 1802 -1810 | .052 | .008 | .028 | | | | | | | .10 | .001 | 20 | | |
| 1810 -1817.5 | 1.59 | .1 | .10 | .009 | .005 | | | | | .74 | | | | |
| 1810 -1817.5 | 1.800 | .029 | .100 | | | | | | | .75 | .001 | 75 | | |
| 1817.5-1822 | 1.400 | .016 | .048 | | | | | | | .45 | .001 | 30 | | |
| 1817.5-1822 | 1.16 | .1 | .05 | .011 | .006 | | | | | .27 | | | | |
| 1852.5-1853.5 | .020 | .440 | .480 | | | | | | | .20 | .001 | 5 | | |
| 1890 | .02 | .32 | 1.93 | | | 1.22 | | .0018 | .0018 | .88 | .001 | | | |
| 1895 -1898 | .28 | .25 | 5.3 | | | | | | | 1.3 | .001 | 2 | | |

| Footage | Percentage | | | | | | | oz/ton | | | | ppm | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cu | Pb | Zn | Ni | Co | S | $MoS_2$ | Pd | Pt | Ag | Au | Mo | Co | Ni |
| 1895.5-1898.5 | 2.98 | .26 | 6.40 | .009 | .010 | | .05 | | | 1.39 | | | | |
| 1898 -1902 | .18 | .48 | 2.7 | | | | | | | 1.5 | .001 | 2 | | |
| 1896 -1903 | .53 | .46 | 13.9 | | | 7.73 | | .0016 | .0016 | 2.04 | .001 | | | |
| 1898.5-1902 | .245 | .37 | 2.00 | .009 | .006 | | | | | 1.26 | | | | |
| 1902 -1903 | .54 | .40 | 10.0 | | | | | | | 2.2 | .001 | 1 | | |
| 1902 -1903 | .365 | .37 | 10.00 | .008 | .011 | | .05 | | | 2.16 | | | | |
| 2023 -2025 | .11 | .005 | .08 | | | | | | | .1 | .001 | 2 | | |
| 2097 -2099 | .78 | .15 | 15.1 | | | | | | | 2.0 | .003 | 1 | | |
| 2097 -2099 | 1.15 | .26 | 13.4 | | | 8.23 | | .0018 | .0023 | 2.34 | .0015 | | | |
| 2097.5-2099 | .690 | .13 | 17.0 | .009 | .018 | | | | | 2.02 | | | | |
| 2099 -2101 | .08 | .02 | 2.9 | | | | | | | .4 | .002 | 1 | | |
| 2101 -2104 | .46 | .03 | 4.0 | | | | | | | .5 | .002 | 1 | | |
| 2099 -2104 | .21 | .04 | 1.41 | | | .88 | | .0021 | .0030 | .088 | .001 | | | |
| 2183 -2190 | .49 | .06 | 12.0 | | | 6.66 | | .0016 | .0018 | .58 | .001 | | | |
| 2183.5-2190 | .67 | .03 | 8.2 | | | | | | | .8 | .002 | 1 | | |
| 2230 -2232 | .68 | .03 | 2.4 | | | | | | | .4 | .001 | 3 | | |
| 2230.5-2231.5 | .700 | .02 | 1.90 | .009 | .005 | | | | | .42 | | | | |
| 2231 -2236 | .44 | .10 | 3.5 | | | | | | | .8 | .001 | 3 | | |
| 2231.5-2236 | .44 | .10 | 2.80 | .009 | .005 | | | | | .67 | | | | |
| 2249 -2249.5 | 1.30 | .14 | 1.1 | | | | | | | .7 | .002 | 10 | | |
| 2276 -2278 | .004 | .018 | .02 | | | | | | | .13 | .002 | 4 | 90 | 70 |
| 2424 | .01 | .03 | .007 | | | 3.15 | | .0069 | .0076 | .09 | .0016 | | | |
| 2438 -2439 10" | .009 | .035 | 17.00 | | | | | | | .43 | .002 | 2 | 50 | 190 |
| 2597 -2604 | .365 | .030 | 1.10 | | | | | | | .65 | .002 | 1 | 40 | 15 |
| 2699.5-2705.5 | .080 | .010 | .03 | | | | | | | .26 | .002 | 13 | 40 | 10 |
| 1987 -1995 | .05 | .46 | 1.20 | | | | | | | .21 | .002 | | | |

5 1065

# GENERALIZED DESCRIPTIVE LOG

Charleston Lead Mine | Cochise County | James Stewart Construction Co.

## HORNE(STEWART)#5 DRILL HOLE

| | | |
|---|---|---|
| 0-12 | No core | |
| 12-369 | Graywacke, gray, very fine-to coarse-grained, bedding 50°, locally very thin bedded, shaley, locally arkosic, volcanoclastic, and/or conglomeratic. Clasts up to 2" diam. | |
| | 91-155 | Conglomeratic 50% fragments of sediments and volcanics |
| | 166-173 | Fracture zone; 166-167 red gouge remainder is broken core and gouge argillic, chloritic, Fe oxide |
| | 173-182 | Conglomeratic, 70° fracture, argillic |
| | 191-203 | Fracture zone, gouge and broken core, moderate Fe oxide, strong argillization |
| | 203-211 | Calcite and clay stringers |
| | 211-213 | Fracture zone |
| | 213-219 | Weak Fe oxide |
| | 219-221 | Fracture zone, gouge |
| | 239-259 | Conglomeratic, clasts up to 2" diam., locally well broken |
| | 259-369 | Massive, dark graywacke, high angle kaolin stringers |
| | | 304-305 Pyritic, leached |
| | | 328-329 Gouge zone, local calcite-quartz stringers |
| | | 330- 15° fracture with drusy quartz |
| 369-390 | Andesite, dark green-gray, porphyritic-aphantic; feldspar phenocrysts up to 1 cm. Argillized, kaolinized, bottom on 50° fracture | |
| 390-537 | Graywacke as above, kaolinized, fractured, Fe oxide in fractures | |
| 537-551 | Breccia, maroon, arkosic, shaley, with clasts of graywacke up to 2". Clay along fractures, minor pyrite | |
| 551-837 | Graywacke as above | |
| | 551-566 | Light gray pyritic rock, 1% pyrite, very fine-grained; calcite stringers, bleached, argillized |
| | 566-568 | Fracture zone, finely broken, gouge |
| | 568-582 | Dark gray graywacke conglomerate, clasts of shale, graywacke, volcanics drusy calcite on fractures, kaol. on slips |
| | 637-638 | Fault zone 20° |
| | 651-677 | Bleached, pyritic 0.5-1% pyrite, possible galena traces in fractures drusy calcite and broken core at 665 |
| | 677-728 | Arkosic graywacke conglomerate |
| | 728-730 | Broken core |
| | 745-753 | Bleached .5% pyrite on fractures |
| | 763-774 | Bleached, pyrite |

| | | | |
|---|---|---|---|
| | 775-804 | Irregular disseminated pyrite up to 3%, epidote | |
| | 821-837 | Disseminated pyrite, argillic-intensity increasing toward bottom, abundant clots of epidote up to 1" diam. | |
| 837-921 | Alternating graywacke and light gray porphyritic andesite | | |
| | 837-840 | Andesite, phenocrystic plagioclase up to 2 mm, local clots of epidote and magnetite | |
| | 840-844 | Graywacke | |
| | 844-846 | Andesite | |
| | 846-850 | graywacke | |
| | 850-853 | Andesite | 0.1-1% disseminated pyrite |
| | 853-862 | Graywacke | |
| | 862-864 | Andesite | |
| | 864-873 | Graywacke | |
| | 873-875 | Andesite | |
| | 875-902 | Graywacke: baren | |
| | 902-903 | Andesite | 0.1-1% pyrite, trace chalcopyrite increasing with depth to 2% pyrite |
| | 903-916 | Graywacke, 909-912 gouge | |
| | 916-921 | Andesite | |
| | 921-936 | Graywacke, galena stringer at 930 | |
| 936-947 | Graywacke (?) thoroughly argillized, pyritized, pyrite 1-3%, galena stringers | | |
| | 938-940 | Gouge | |
| | 944 | Bleb 5-8% pyrite, specks of sphalerite | |
| 947-1398 | Graywacke, dark gray, fine-grained, pyritic | | |
| | 947-957 | Calcite and pyrite stringers (2% pyrite), chloritized, bleached coarse euhedral pyrite | |
| | 957-975 | 1-3% disseminated pyrite | |
| | 975-985 | Conglomeratic, tarnished pyrite decreasing to 1%, epidotization increasing with depth | |
| | 1007 | 1-2% irregular pyrite | |
| | 1017-1026 | Intense alteration, pyrite 4-6%, blebs of sphalerite and galena stringers of galena-pyrite-epidote, trace chalcopyrite | |
| | 1026 | Weakly chloritized, 1-2% pyrite | |
| | 1041 | Fracture zone 20°, bleached 1' both sides, veins of quartz-calcite-epidote-galena-sphalerite | |
| | | Below 1041 irregular steep quartz-calcite-pyrite-chalcopyrite-galena stringers. 1-3% disseminated pyrite | |
| | 1065-1067 | Fracture zone; quartz-calcite-pyrite-chalcopyrite-sphalerite-galena strings. Galena weakening | |
| | 1080 | All stringers weak. 3% pyrite decreasing with depth disappears at 1100 | |
| | 1107 | 0.5% pyrite increasing with depth | |
| | 1115-1117 | Fracture zone; broken core and gouge | |

| | |
|---|---|
| 1117 | Intense alteration or thermal metamorphism |
| 1139 | Pyrite decreasing with depth |
| 1143 | Chloritic hydrothermal alteration; trace galena |
| 1147-1149 | Fracture zone |
| 1154 | Fresh rock |
| 1156 | Thermal metamorphism, pyrite, epidote, recrystallization |
| 1158 | Chlorite-epidote-pyrite mineralization; trace galena, chalcopyrite |
| 1182 | Galena-pyrite-chalcopyrite stringers |
| 1188-1191 | Blebs of galena-chalcopyrite-epidote-calcite up to 1" long. Disseminated galena-sphalerite. |
| 1193, 1195, 1197, 1200 | Veins, up to 1.5", galena-pyrite-chalcopyrite-sphalerite-calcite, 15°. Disseminated galena-sphalerite |
| 1201-1204 | Broken core |
| 1204 | Chloritized graywacke; pyrite 1-2% |
| 1212 | 8" quartz vein 60° 1% pyrite |
| 1213 | Graywacke, pyrite, stringers of galena |
| 1220-1223 | Quartz-pyrite vein 20°, minor galena and chalcopyrite 1218-1222 5% pyrite, 0.1% Cu, 0.1% Pb |
| 1230 | Base metal zone |
| 1230-1235 | Graywacke conglomerate, clasts of sediments and volcanics up to 2" diam. 1% pyrite |
| 1235-1246 | Graywacke, 2% pyrite, minor epidote, pyrite decreases with depth |
| 1258 | 2-3% pyrite, fine-grained chlorite-epidote alteration, trace galena |
| 1270-1281 | Conglomerate; thoroughly altered, galena-calcite-sphalerite stringers |
| 1281 | 3" quartz-pyrite vein 50° |
| 1300 | Base metals zone. 0.5% pyrite |
| 1308-1316 | Fracture zone, no alteration, weak Fe oxides |
| 1325 | Chloritic, argillic alteration, 2% pyrite, rock fragments up to 8" |
| 1342 | Galena-epidote-calcite stringers; alteration becoming less pervasive, more irregular |
| 1369 | No alteration |
| 1378 | 1/2" galena-pyrite-chalcopyrite-sphalerite-calcite vein, 50° sulfide content increasing with depth |

1398-1516 Gray arkosic sandstone conglomerate, clasts of sediments and volcanics. 0.5-1% disseminated pyrite, 1% galena and chalcopyrite. Galena-chalcopyrite-calcite stringers; chalorite-epidote, argillic alteration.

| | | |
|---|---|---|
| | 1416 Stringers of sphalerite<br>1428-1429 Quartz-calcite-pyrite vein<br>1430 Disseminated galena and chalcopyrite<br>1464 Sphalerite-epidote-quartz-chalcopyrite stringers<br>1496 Pyrite increasing to 1% | Frequency of clasts decreasing<br>Pyrite 0.5% decreasing |
| | 1502 1" sphalerite-pyrite-epidote-quartz vein, 25°<br>1510 1/4" vein same as above, 20° | |
| 1516-1537 | Gradational contact to massive light gray shale. Grades into dark very-thin-bedded shale then back to massive shale. Abundant calcite stringers. Pyrite 0.5-1%. Grades into limestone below. | |
| 1537-1556 | Light gray massive limestone, slightly recrystallized, 0.1-0.2% pyrite and few calcite stringers. Badly broken core near bottom. | |
| 1556-1560 | Light gray fine-grained quartzite, calcareous matrix 0.1% pyrite | |
| 1560-1579 | Argillaceous sandstone, with few clasts, partially epidotized, 0.5% pyrite argillic-chloritic alteration | |
| 1579-1584 | Coarse grained sandstone, no pyrite, argillic-chloritic-epidote alteration | |
| 1584-1672 | Fine-grained argillaceous sandstone 0.5% disseminated pyrite, light gray to white | |
| | 1554-1674 Badly broken core. Local pebbles up to 1" diam. erratic pyrite distribution. Calcareous matrix below 1618 | |
| | 1638-1642 No core | |
| | 1650 Silicified | |
| | 1654-1658 Silicified sandstone or quartz vein, 10% pyrite with galena, chalcopyrite and sphalerite | |
| | 1657-1663 Gouge, high pyrite | |
| | 1658-1660 Lost core | |
| | 1667-1672 Gouge | |
| 1672-1700 | Very fine-grained gray quartzite, very thinly bedded near top becoming more massive with depth, 40° on bedding, fine pyrite, 5-7% chalcopyrite minor galena. | |
| | 1676-1700 Fine-grained, silicified, pyrite 0.5% locally, massive epidote nodules with pyrite and chalcopyrite | |
| 1700-1704 | Maroon, arkosic shale, trace pyrite, minor epidote | |
| 1704-1795 | Fine-grained argillaceous quartzite, light gray, 0.5% disseminated pyrite | |
| | 1709 No pyrite | |
| | 1714 Limestone inclusions | |
| | 1718 0.5% pyrite | |
| | 1729 and 1737 1/2" veins of quartz-sphalerite-chalcopyrite-galena with epidote rim | |
| | 1772 Pyrite gone | |
| | 1772-1782 Contact; 70°, with epidotic hornfelsic shale epidote-calcite nodules, trace pyrite | |
| | 1795 End of drilling as of 24 September 1970 | |

GENERALIZED DESCRIPTIVE LOG (Cont.)

Charleston Lead Mine Cochise County James Stewart Construction Co.

HORNE (STEWART) # 5 DRILL HOLE

| | |
|---|---|
| 1795-1805 | Quartzite, light gray, fine grained, trace of pyrite along fractures.<br>1798-1804 Fractured and bleached zone, calcite along fractures. |
| 1805-1817 | Hornfelsic shale, dark gray, epidote nodules, pyrite and calcite in nodules and in stringers, 0.1-0.3% disseminated pyrite<br>1814-1817 Fracture zone, clay in stringers |
| 1817-1824 | Quartzite, gray, calcite in stringers $<$0.1% pyrite |
| 1824-1847 | Hornfelsic shale, epidote in nodules, $<$ 0.1% pyrite, dark gray with several maroon horizons; pyrite and chlorite on high-angle slips. |
| 1847-1853 | Quartzite, light gray, fine-to-medium grained, 0.1% disseminated pyrite. |
| 1853-1873 | Shale, maroon, epidote nodules, bleached with pyrite and epidote, calcite and clay on slips. |
| 1873-1919 | Hornfelsic shales, gray, epidotized; epidote-calcite-chlorite nodules with pink matrix, $<$0.1% pyrite, last 20' is maroon and coarser grained.<br>1914-1917 Fracture zone. |
| 1919-1927 | Quartzite, light gray, very-fine-grained; some epidote on fractures. |
| 1927-1947 | Hornfelsic shale, epidotized as above. |
| 1947-1961 | Quartzite, fine grained as above. |
| 1961-1978 | Hornfelsic shales, white to gray, epidote nodules, 0.1% disseminated pyrite.<br>1965-1966 Broken core, no pyrite below fracture. |
| 1978-2014 | Quartzite, light gray, fine-to-medium grained. Calcite on slips, local thin beds of hornfelsic shale. |
| 2014-2040 | Hornfelsic shale, epidote nodules with calcite, 0.1-0.2% disseminated pyrite irregularly distributed, trace of sphalerite in last 2'. |
| 2040-2048 | Quartzite, light gray, locally epidotized, sphalerite in stringers and disseminated $<$ 0.1-0.2% pyrite, trace chalcopyrite, stringers of calcite. |

| | |
|---|---|
| 2048-2080 | Hornfelsic shale, light to dark gray, epidote in stringers and nodules, 0.1-0.2% disseminated pyrite, trace chalcopyrite, trace galena and sphalerite in blebs and disseminated, sparse mineralization below 2064.<br>2069-2074 chloritized, pyrite, sphalerite, chalcopyrite, galena disseminated in friable fractured rock. |
| 2080-2083 | Quartzite, chloritized, disseminated pyrite, chalcopyrite, sphalerite, galena. |
| 2083-2105 | Quartzite, trace of chlorite, trace disseminated pyrite, stringers of epidote-calcite-pyrite-chalcopyrite-sphalerite-galena. |
| 2105-2118 | Hornfelsic shale, epidotized, calcite-pyrite-epidote-sphalerite-chalcopyrite in stringers, local disseminated chalcopyrite, pyrite 0.5% decreasing with depth. |
| 2118-2127 | Quartzite, very fine-grained, gray, epidote-calcite stringers, $<$ 0.1% pyrite. |
| 2127-2147 | Hornfelsic shale, as above.<br>2130 3" long sphalerite-chalcopyrite bleb. |
| 2147-2151 | Quartzite as above. |
| 2151-2213 | Hornfelsic shale as above.<br>2161 1' fracture zone<br>2165 Pyrite stringers<br>2169 Pyrite-epidote-calcite stringers, epidote nodules<br>2191-2195 Fracture zone, finely broken, argillized, 0.5-0.1% pyrite disseminated and in veins. |
| 2213-2231 | Contact zone, abundant epidote-chlorite-calcite blebs and spots, 0.5-0.1% pyrite, dark gray quartzitic to volcanic rock, local phenocrysts of pink feldspar?, local intense brecciation |
| 2231-2313 | Dark to medium gray latite to andesite porphyry, phenocrysts are epidotized.<br>1-3% disseminated pyrite<br>2269-2275 Fracture zones with gouge |
| 2313-2316 | Contact zone, chloritized, bleached, broken rock fragments |
| 2316-2318 | Black, aphanitic rock with feldspar phenocrysts and epidote blebs. |
| 2318-2322 | Quartzite, gray, fine grained, relic bedding at 45°, interbedded with metashale at bottom, epidotized. |
| 2322-2336 | Hornfelsic shale as above. |

| | |
|---|---|
| 2336-2374 | Quartzite, light gray, fine-to-medium grained, local epidote stringers.<br>2352 2" dike andesite porphyry.<br>2369 6" of disseminated galena. |
| 2374-2528 | Alternating quartzite and hornfelsic shale, each 5 to 10' thick. Hornfelses are epidotized with minor local epidote nodules. 0.1% pyrite average distributed irregularly with no apparent control.<br>Broken core at 2497-2499, 2501-2507, 2514-2517 |
| 2528 | End of hole. |

JED:a
October 19, 1970

5 ASSAYS

3226 East 46th Street

Phone 624-0049

# AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS · CHEMISTS · METALLURGISTS

TUCSON, ARIZONA 85713

SAMPLE SUBMITTED BY Hewitt Enterprise

DATE Oct. 5, 1970

| SAMPLE MARKED | GOLD OZ./TON | SILVER OZ./TON | PER CENT COPPER | PERCENT LEAD | PERCENT ZINC | PERCENT MOLYBDENUM | PERCENT IRON | |
|---|---|---|---|---|---|---|---|---|
| Hole 5 - 1717 | Trace | 0.06 | 0.01 | 0.01 | 0.03 | .0087 | =8700 ppm | |

RECEIVED
OCT 19 1970
JAMES STEWART COMPANY
PHOENIX, ARIZONA

INVOICE# 5387

CHARGES $ 13.75

10/5/70

ASSAYER-CHEMIST

J. Harlan
1/29/71

3226 East 46th Street

Phone 624-0049

# AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

SAMPLE SUBMITTED BY [illegible]

DATE Sept. 26, 1970

| SAMPLE MARKED | GOLD OZ / TON | SILVER OZ / TON | PER CENT COPPER | PERCENT LEAD | PERCENT ZINC | PERCENT MOLYBDENUM | PERCENT IRON | |
|---|---|---|---|---|---|---|---|---|
| DDH # 3 1339.0'-1339.5' | .002 | 0.15 | 0.01 | Trace | [illegible] | .0007 | 100ppm | |

RECEIVED

OCT 19 1970

JAMES STEWART COMPANY
PHOENIX, ARIZONA

Invoice # 5324

CHARGES $ 13.75

REGISTERED ASSAYER
CERTIFICATE NO.
PERIS
FLORES
9/26/70

ASSAYER-CHEMIST

J. Harlow
1/29/71

3226 East 46th Street

Phone 624-0049

# AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

SAMPLE SUBMITTED BY Hewitt Enterprises

DATE Sept. 26, 1970.

| SAMPLE MARKED | GOLD OZ / TON | SILVER OZ. / TON | PER CENT COPPER | PERCENT LEAD | PERCENT ZINC | PERCENT MOLYBDENUM | PERCENT IRON |
|---|---|---|---|---|---|---|---|
| Hole # 5 1197-1197.5 | .001 | 0.18 | 0.05 | 0.65 | 1.55 | .0009 | 900 ppm |

RECEIVED

OCT 19 1970

JAMES STEWART COMPANY
PHOENIX, ARIZONA

REGISTERED ASSAYER
CERTIFICATE NO. 6852
PETE S. FLORES
Arizona U.S.A.

Invoice # 5324
CHARGES $ 13.75

ASSAYER - CHEMIST

To Harland 1/29/71 ef

269

3226 East 46th Street

Phone 624-0049

# AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

SAMPLE SUBMITTED BY Hewitt Enterprises, Inc.

DATE Sept. 11, 1970

| IPLE MARKED | GOLD OZ./TON | SILVER OZ./TON | PER CENT COPPER | PERCENT LEAD | PERCENT ZINC | PERCENT MOLYBDENUM | PERCENT IRON |
|---|---|---|---|---|---|---|---|
| H-5 937.5'-938' | .003 | 0.80 | 0.11 | 2.55 | 0.03 | .0011 = | 1100ppm. |

REGISTERED ASSAYER CERTIFICATE NO. 6852 REYE S. FLORES Date Signed 9/11/70 Arizona U. S. A.

CHARGES $ 13.75 (Invoice # 5281)

ASSAYER-CHEMIST

to Harlan 1/29/71 gf

CHARLESTON

3226 East 46th Street

Phone 624-0049

# AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

SAMPLE SUBMITTED BY Howitt Enterprises, Inc.

DATE Sept. 11, 1970

| SAMPLE MARKED | GOLD OZ / TON | SILVER OZ./TON | PER CENT COPPER | PERCENT LEAD | PERCENT ZINC | PERCENT MOLYBDENUM | PERCENT IRON | |
|---|---|---|---|---|---|---|---|---|
| H-5 ~~1337.5~~ 1338 | .003 | 0.30 | 0.11 | 0.55 | 0.03 | .0011 | | |
| H-5 1339 1339.5 | | | .01 | | .02 | | | |
| NOT Complete | | | | | | | | |

Hole 5 - Charleston

RECEIVED
SEP 17 1970
JAMES STEWART COMPANY
PHOENIX, ARIZONA

REGISTERED ASSAYER
CERTIFICATE NO. 6852
REYE S. FLORES
Date Signed 9/11/70
ARIZONA U. S. A.

CHARGES $ 13.75 (Invoice # 5281)

ASSAYER - CHEMIST

Assay # 5

To Harlan 1/29/71 gf.

3226 East 46th Street

Phone 624-0049

# AMERICAN ANALYTICAL and RESEARCH LABORATORIES

ASSAYERS - CHEMISTS - METALLURGISTS

TUCSON, ARIZONA 85713

SAMPLE SUBMITTED BY Hewitt Enterprises

DATE Oct. 5, 1970

| SAMPLE MARKED | GOLD OZ./TON | SILVER OZ./TON | PER CENT COPPER | PERCENT LEAD | PERCENT ZINC | PERCENT MOLYBDENUM | PERCENT IRON |
|---|---|---|---|---|---|---|---|
| Hole # 5 1662 - 1662.5 | Trace | 0.11 | 0.01 | 0.20 | 0.02 | .0001 | |

RECEIVED

OCT 19 1970

JAMES STEW...

PHOENIX, ARIZONA

Invoice # 5387

CHARGES $ 13.75

10/5/70

ASSAYER-CHEMIST

J. Harland 1/29/71

**PHELPS DODGE CORPORATION**
WESTERN EXPLORATION OFFICE
DRAWER 1217
DOUGLAS, ARIZONA 85607
TEL. 602-364-8414

December 23, 1970

Mr. M. S. Horne
James Stewart Company
707 Mayer Central Building
3033 North Central Avenue
Phoenix, Arizona 85012

RE: Charleston Mine

Dear Mr. Horne:

Mr. Walker just handed me your letter of December 4, 1970, and asked me about the footage on Hole #5 from 1,795' to 2,038'. I have reviewed our logs and suggested sampling and no samples were requested within that interval.

May I request that Mr. Hughes put the hole number on each sample bag. It simplifies record keeping by our sample handlers.

Very truly yours,

John D. Forrester

J. D. Forrester

JDF:a

cc: D. Clark Hughes
C. A. Cosgrove

RECEIVED
DEC 28 1970
JAMES STEWART COMPANY
PHOENIX, ARIZONA

273


# PHELPS DODGE CORPORATION

WESTERN EXPLORATION OFFICE
DRAWER 1217
DOUGLAS, ARIZONA 85607


October 20, 1970


TEL. 602-364-8414


Mr. M. S. Horne, President
James Stewart Company
707 Mayer Central Building
3033 North Central Avenue
Phoenix, Arizona 85012

Re: Charleston Mine, Tombstone

Dear Mr. Horne:

Mr. Jonathan DuHamel and I have logged the remainder of Hole #5. Attached are our logs and suggested sample intervals.

We appreciate the opportunity of logging these holes and look forward to receiving the split core for assay.

Very truly yours,

John D. Forrester

JDF:jc
Encls.

cc: Clark Hughes

JA

## Suggested Assays - Horne #5

| Footage | Assay Intervals |
|---|---|
| 2038-2040 | 2' |
| 2040-2048 | 8' |
| 2048-2080 | 10' |
| 2080-2083 | 3' |
| 2083-2105 | 10' |
| 2105-2118 | 5' |
| 2240-2250 | 10' |
| 2325-2335 | 10' |
| 2350-2360 | 10' |
| 2400-2410 | 10' |
| 2518-2528 | 10' |

COPY

275

CARLOS ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. 7126

HECTOR C. ROCHIN SR.
FOUNDER
REGISTERED ASSAYER
ARIZONA REG. No. 4073

HECTOR A. ROCHIN JR
MINING ENGINNER AND
LAND SURVEYOR
ARIZONA REG. No. 2472

ROCHIN ENGINEERING AND ASSAY OFFICE
P. O. BOX 218 PHONE 364-8092
DOUGLAS, ARIZONA 85607

# CERTIFICATE OF ASSAY

Name Western Exploration, Drawer 1217, Douglas, Arizona 85607

| Attn: Mr. J. Forrester | GOLD OZS | SILVER OZ | COPPER % | Pb % | Zn % | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30799 14461 | Tr | Tr | 0.078 | 0.34 | 2.00 | | | | |

LOCATION: CHARLESTON LEAD MINE, TOMBSTONE QUAD.
D.D.H. STEWARD NO. 5 DEPTH 1180' thru 1185'

REGISTERED ASSAYER CERTIFICATE NO. 7126 CARLOS ROCHIN Date Signed Arizona U. S. A.

REMARKS: To H Jones 1/29/71 -

DATE: November 7, 1970

CHARGES $11.50

276

CARLOS ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. 7126

# ROCHIN ENGINEERING AND ASSAY OFFICE

P. O. BOX 218 PHONE (AC 602) 364-8092
DOUGLAS, ARIZONA - 85607

HECTOR A. ROCHIN, Jr.
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 2473

ASSAYERS & METALLURGICAL CHEMISTS

## CERTIFICATE OF ASSAY

LOCATION:
CHARLESTON LEAD MINE
TOMBSTONE QUAD., ARIZONA

Name Western Exploration, Drawer 1217, Douglas, Arizona D.D.H. STEWART NO.5

| Attn: Mr. J. Forrester | | GOLD OZS | SILVER OZS | COPPER % | Pb % | Zn % | INTERVALS | BOX NO. |
|---|---|---|---|---|---|---|---|---|
| 30800 | 14462 | Tr | Tr | 0.058 | 0.25 | 0.79 | 1185 - 1189 | 129 |
| 30801 | 14463 | Tr | Tr | 0.058 | 0.31 | 0.96 | 1189 - 1191 | " |
| 30802 | 14464 | Tr | Tr | 0.068 | 0.32 | 0.78 | 1191 - 1193 | " |
| 30803 | 14465 | 0.08 | 0.78 | 0.116 | 0.34 | 1.68 | 1193 - 1195 | " |
| 30804 | 14466 | Tr | 0.18 | 0.280 | 2.88 | 4.27 | 1195 - 1197 | " |
| 30805 | 14467 | Tr | 0.08 | 0.165 | 0.64 | 2.29 | 1197 - 1198 | " |
| 30806 | 14468 | Tr | 0.02 | 0.145 | 0.22 | 1.69 | 1198 - 1200 | 130 |
| 30807 | 14469 | Tr | Tr | 0.129 | 0.27 | 1.29 | 1200 - 1202 | " |
| 30808 | 14470 | Tr | Tr | 0.068 | 0.37 | 1.28 | 1202 - 1204 | " |
| 30809 | 14471 | Tr | Tr | 0.087 | 0.25 | 1.09 | 1204 - 1206 | " |
| 30810 | 14472 | Tr | Tr | 0.097 | 0.25 | 1.00 | 1206 - 1208 | " |
| 30811 | 14473 | Tr | Tr | 0.107 | 0.32 | 1.08 | 1208 - 1210 | 131 |
| 30812 | 14474 | Tr | Tr | 0.078 | Tr | 1.18 | 1210 - 1212 | " |
| 30813 | 14475 | Tr | Tr | 0.078 | Tr | 0.98 | 1218 - 1220 | 132 |
| 30814 | 14476 | Tr | Tr | 0.089 | Tr | 1.28 | 1220 - 1222 | " |
| 30815 | 14477 | Tr | 0.02 | 0.097 | Tr | 1.86 | 1222 - 1224 | " |
| 30816 | 14478 | Tr | 0.02 | 0.078 | Tr | 1.97 | 1224 - 1226 | " |
| 30817 | 14479 | Tr | 0.18 | 0.107 | Tr | 1.19 | 1226 - 1228 | " |
| 30818 | 14480 | Tr | Tr | 0.087 | Tr | 1.27 | 1228 - 1233 | 133 |
| 30819 | 14481 | Tr | Tr | 0.068 | Tr | Tr | 1233 - 1237 | " |
| 30820 | 14482 | 0.02 | 12.32 | 0.087 | Tr | Tr | 1237 - 1242 | 134 |
| 30821 | 14483 | Tr | Tr | 0.079 | Tr | Tr | 1242 - 1246 | " |
| 30822 | 14484 | Tr | Tr | 0.068 | Tr | Tr | 1281 - 1282 | 138 |

REGISTERED ASSAYER CERTIFICATE NO. 7126 CARLOS ROCHIN ARIZONA U.S.A.

REMARKS:

DATE: November 19, 1970

CHARGES: $ 264.50

277

CARLOS ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. 7126

# ROCHIN ENGINEERING AND ASSAY OFFICE

P. O. BOX 218 PHONE (AC 602) 364-8092
DOUGLAS, ARIZONA - 85607

HECTOR A. ROCHIN, Jr.
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 2473

ASSAYERS & METALLURGICAL CHEMISTS

## CERTIFICATE OF ASSAY

LOCATION:
CHARLESTON MINE
TOMBSTONE QUAD., ARIZONA
D.D.H. STEWART No. 5

Name Western Exploration, Drawer 1217, Douglas, Arizona

| | | GOLD OZS | SILVER OZS | COPPER % | Pb % | Zn % | | INTERVALS | | BOX No |
|---|---|---|---|---|---|---|---|---|---|---|
| 30823 | 14485 | Tr | Tr | 0.068 | tr | tr | CORE | 1323 | 1325 | 143 |
| 30824 | 14486 | Tr | Tr | 0.058 | 0.10 | tr | | 1325 | 1327 | " |
| 30825 | 14487 | Tr | Tr | 0.068 | 0.18 | tr | | 1327 | 1329 | " |
| 30826 | 14488 | 0.01 | 1.93 | 0.058 | 0.21 | 0.80 | | 1329 | 1331 | " |
| 30827 | 14489 | Tr | 0.04 | 0.068 | 0.15 | tr | | 1331 | 1332 | " |
| 30828 | 14490 | Tr | Tr | 0.087 | tr | 0.50 | | 1389 | 1394 | 150 |
| 30829 | 14491 | Tr | 0.08 | 0.079 | tr | 1.50 | | 1394 | 1398 | " |
| 30830 | 14492 | Tr | Tr | 0.068 | tr | tr | | 1398 | 1403 | 151 |
| 30831 | 14493 | Tr | Tr | 0.087 | tr | tr | | 1403 | 1408 | " |
| 30832 | 14494 | Tr | Tr | 0.078 | tr | tr | | 1408 | 1413 | 152 |
| 30833 | 14495 | Tr | Tr | 0.079 | tr | tr | | 1413 | 1417 | " |
| 30834 | 14496 | Tr | Tr | 0.058 | tr | tr | | 1417 | 1422 | 153 |
| 30835 | 14497 | Tr | Tr | 0.068 | tr | tr | | 1422 | 1427 | " |
| 30836 | 14498 | Tr | Tr | 0.068 | tr | tr | | 1427 | 1432 | 154 |
| 30837 | 14499 | Tr | Tr | 0.097 | tr | tr | | 1432 | 1436 | " |
| 30838 | 14500 | Tr | Tr | 0.079 | tr | tr | | 1436 | 1441 | 155 |
| 30839 | 14316 | Tr | Tr | 0.050 | tr | tr | | 1441 | 1446 | " |
| 30840 | 14317 | Tr | Tr | 0.050 | tr | tr | | 1512 | 1517 | 163 |
| 30841 | 14318 | Tr | Tr | 0.050 | tr | tr | | 1517 | 1521 | " |
| 30842 | 14319 | Tr | Tr | 0.040 | tr | tr | | 1521 | 1605 | 173 |
| 30843 | 14320 | Tr | Tr | 0.040 | tr | tr | | 1605 | 1609 | " |
| 30844 | 14321 | Tr | Tr | 0.069 | tr | tr | | 1609 | 1624 | 175 |
| 30845 | 14322 | Tr | Tr | 0.050 | tr | tr | | 1624 | 1629 | " |

REGISTERED ASSAYER CERTIFICATE No. 7126 CARLOS ROCHIN Signed Arizona U.S.A.

REMARKS:

DATE: 22 Nov 70

CHARGES: $ 264.50

278

CARLOS ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. 7126

# ROCHIN ENGINEERING AND ASSAY OFFICE

P. O. BOX 218 PHONE (AC 602) 364-8092
DOUGLAS, ARIZONA - 85607

HECTOR A. ROCHIN, Jr.
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 2473

ASSAYERS & METALLURGICAL CHEMISTS

## CERTIFICATE OF ASSAY

LOCATION:
CHARLESTON LEAD MINE
TOMBSTONE QUAD., ARIZONA
D.D.H. STEWART No.5

Name Western Exploration, Drawer 1217, Douglas, Arizona

Attn: Mr. J. Forrester

| | | GOLD OZS | SILVER OZS | COPPER % | Pb % | Zn % | | INTERVALS | BOX No. |
|---|---|---|---|---|---|---|---|---|---|
| 30846 | 14323 | Tr | Tr | 0.050 | tr | tr | CORE | 1643 - 1645 | 177 |
| 30847 | 14324 | Tr | Tr | 0.030 | tr | tr | | 1645 - 1647 | " |
| 30848 | 14325 | Tr | Tr | 0.020 | tr | tr | | 1647 - 1649 | " |
| 30849 | 14326 | Tr | Tr | 0.040 | tr | tr | | 1649 - 1651 | " |
| 30850 | 14327 | Tr | Tr | 0.050 | tr | tr | | 1651 - 1653 | " |
| 30851 | 14328 | Tr | Tr | 0.040 | tr | tr | | 1653 - 1655 | 178 |
| 30852 | 14329 | Tr | Tr | 0.327 | 1.60 | 2.50 | | 1655 - 1657 | " |
| 30853 | 14330 | Tr | Tr | 0.288 | 0.27 | 0.50 | | 1657 - 1659 | " |
| 30854 | 14331 | Tr | Tr | 0.060 | tr | tr | | 1659 - 1662 | " |
| 30855 | 14332 | Tr | Tr | 0.040 | tr | tr | | 1662 - 1665 | " |
| 30856 | 14333 | Tr | 0.10 | 0.754 | tr | tr | | 1665 - 1667 | 179 |
| 30857 | 14334 | Tr | 0.04 | 0.536 | tr | tr | | 1667 - 1669 | " |
| 30858 | 14335 | Tr | Tr | 0.119 | tr | tr | | 1669 - 1672 | " |
| 30859 | 14336 | Tr | 0.34 | 1.310 | tr | tr | | 1672 - 1674 | " |
| 30860 | 14342 | Tr | Tr | 0.069 | tr | tr | | 1674 - 1676 | " |

REGISTERED ASSAYER
CERTIFICATE NO. 7126
CARLOS ROCHIN
Date Signed
Arizona U. S. A.

REMARKS:

DATE: 22 Nov 70

CHARGES: $ 172.50

CARLOS ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. 7126

# ROCHIN ENGINEERING AND ASSAY OFFICE

P. O. BOX 218 PHONE (AC 602) 364-8092
DOUGLAS, ARIZONA - 85607

HECTOR A. ROCHIN,
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 24

279

ASSAYERS & METALLURGICAL CHEMISTS

## CERTIFICATE OF ASSAY

RESULTS FROM:
CHARLESTON MINE DH #5
TOMBSTONE QUAD. ARIZONA

Name Western Exploration Office Drawer 1217 Douglas, Arizona 85607

| Attn: Mr. R.W. Ludden | | GOLD OZS | SILVER OZS | COPPER % | Pb % | Zn % | INTERVALS | | |
|---|---|---|---|---|---|---|---|---|---|
| 31070 | 16951 | | | 0.030 | 0.10 | Tr | 537 - 544 | | |
| 31071 | 16952 | | | 0.040 | 0.10 | Tr | 544 - 550 | | |
| 31072 | 16953 | | | 0.050 | Tr | Tr | 570 - 575 | | |
| 31073 | 16954 | | | 0.030 | Tr | Tr | 650 - 660 | | |
| 31074 | 16955 | | | 0.025 | 0.10 | Tr | 660 - 670 | | |
| 31075 | 16956 | | | 0.025 | Tr | Tr | 670 - 680 | | |
| 31076 | 16957 | | | 0.030 | Tr | Tr | 680 - 685 | | |
| 31077 | 16958 | | | 0.035 | Tr | Tr | 685 - 690 | | |
| 31078 | 16959 | | | 0.025 | Tr | Tr | 690 - 700 | | |
| 31079 | 16960 | | | 0.040 | Tr | Tr | 700 - 705 | | |
| 31080 | 16961 | | | 0.035 | Tr | Tr | 705 - 710 | | |
| 31081 | 16962 | | | 0.030 | 0.11 | Tr | 710 - 720 | | |
| 31082 | 16963 | | | 0.025 | 0.17 | 0.15 | 720 - 730 | | |
| 31083 | 16964 | | | 0.030 | 0.13 | 0.20 | 730 - 740 | | |
| 31084 | 16965 | | | 0.020 | 0.13 | 0.15 | 740 - 750 | | |
| 31085 | 16966 | | | 0.030 | Tr | Tr | 750 - 760 | | |
| 31086 | 16967 | | | 0.030 | Tr | Tr | 760 - 770 | | |
| 31087 | 16968 | | | 0.030 | Tr | Tr | 770 - 780 | | |
| 31088 | 16969 | | | 0.030 | Tr | Tr | 780 - 790 | | |
| 31089 | 16970 | | | 0.030 | Tr | Tr | 790 - 800 | | |
| 31090 | 16971 | | | 0.040 | Tr | Tr | 800 - 810 | | |
| 31091 | 16972 | | | 0.025 | Tr | Tr | 810 - 820 | | |
| 31092 | 16973 | | | 0.040 | Tr | Tr | 820 - 830 | | |

REGISTERED ASSAYER CERTIFICATE 7126 CARLOS ROCHIN ARIZONA U.S.A.

REMARKS: CORE SAMPLES

DATE: February 17, 1971

CHARGES: $ 189.75

CARLOS ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. 7126

# ROCHIN ENGINEERING AND ASSAY OFFICE

P. O. BOX 218 PHONE (AC 602) 364-8092
DOUGLAS, ARIZONA - 85607

HECTOR A. ROCHIN, J
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 247

ASSAYERS & METALLURGICAL CHEMISTS

## CERTIFICATE OF ASSAY

RESULTS FROM:
CHARLESTON MINE DH #5
TOMBSTONE QUAD. ARIZONA

Name Western Exploration Office Drawer 1217 Douglas, Arizona 85607

| Attn: Mr. R.W. Ludden | | GOLD OZS | SILVER OZS | COPPER % | Pb % | Zn % | INTERVALS | | |
|---|---|---|---|---|---|---|---|---|---|
| 31093 | 16974 | | | 0.050 | Tr | Tr | 850 - 860 | | |
| 31094 | 16975 | | | 0.045 | Tr | Tr | 900 - 905 | | |
| 31095 | 16976 | | | 0.060 | 0.17 | Tr | 905 - 910 | | |
| 31096 | 16977 | | | 0.060 | Tr | Tr | 910 - 915 | | |
| 31097 | 16978 | | | 0.080 | 0.41 | Tr | 915 - 920 | | |
| 31098 | 16979 | | | 0.085 | 0.13 | Tr | 920 - 925 | | |
| 31099 | 16980 | | | 0.050 | Tr | Tr | 925 - 930 | | |
| 31100 | 16981 | | | 0.055 | Tr | Tr | 930 - 935 | | |
| 31101 | 16982 | | | 0.035 | 0.34 | Tr | 935 - 940 | | |
| 31102 | 16983 | | | 0.050 | 0.21 | Tr | 940 - 945 | | |
| 31103 | 16984 | | | 0.045 | 0.23 | 0.30 | 945 - 950 | | |
| 31104 | 16985 | | | 0.050 | 0.23 | 0.50 | 960 - 965 | | |
| 31105 | 16986 | | | 0.065 | 0.17 | Tr | 965 - 970 | | |
| 31106 | 16987 | | | 0.045 | Tr | 0.40 | 975 - 980 | | |
| 31107 | 16988 | | | 0.060 | Tr | 0.40 | 980 - 985 | | |
| 31108 | 16989 | | | 0.050 | 0.14 | 0.30 | 985 - 990 | | |
| 31109 | 16990 | | | 0.050 | 0.17 | Tr | 990 - 995 | | |
| 31110 | 16991 | | | 0.050 | Tr | Tr | 995 - 1000 | | |
| 31111 | 16992 | | | 0.050 | Tr | Tr | 1000 - 1005 | | |
| 31112 | 16993 | | | 0.050 | 0.13 | Tr | 1005 - 1010 | | |
| 31113 | 16994 | | | 0.055 | 0.17 | Tr | 1010 - 1015 | | |
| 31114 | 16995 | | | 0.045 | 0.17 | Tr | 1015 - 1020 | | |
| 31115 | 16996 | | | 0.055 | 0.20 | Tr | 1020 - 1025 | | |

REGISTERED ASSAYER CERTIFICATE NO. 7126 CARLOS ROCHIN Signed

REMARKS: CORE SAMPLES

DATE: February 17, 1971

CHARGES: $ 189.75

CARLOS ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. 7126

# ROCHIN ENGINEERING AND ASSAY OFFICE

P. O. BOX 218 PHONE (AC 602) 364-8092
DOUGLAS, ARIZONA - 85607

HECTOR A. ROCHIN, J
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 247:

ASSAYERS & METALLURGICAL CHEMISTS

## CERTIFICATE OF ASSAY

RESULTS FROM:
CHARLESTON MINE D.H. #5
TOMBSTONE QUAD. ARIZONA

Name Western Exploration Office Drawer 1217 Douglas, Arizona 85607

| Attn: Mr. R.W. Ludden | | GOLD OZS | SILVER OZS | COPPER % | Pb % | Zn % | INTERVALS | |
|---|---|---|---|---|---|---|---|---|
| 31116 | 16997 | | | 0.050 | Tr | Tr | 1025 | - 1030 |
| 31117 | 16998 | | | 0.060 | 0.17 | Tr | 1030 | - 1035 |
| 31118 | 16999 | | | 0.060 | Tr | Tr | 1035 | - 1040 |
| 31119 | 17000 | | | 0.055 | Tr | Tr | 1040 | - 1045 |

REGISTERED ASSAYER CERTIFICATE NO. 7126 CARLOS ROCHIN Arizona U.S.A.

REMARKS:

DATE: February 17, 1971

CHARGES: $ 33.00

HECTOR C. ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. No. 4073

# ROCHIN ENGINEERING AND ASSAY OFFICE

100 W. 9TH STREET • P. O. BOX. 218 • PHONE: EMpire 4-6092
DOUGLAS, ARIZONA

HECTOR A. ROCHIN
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 2472

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Western Exploration, Deawer 1217, Douglas, Arizona RESULTS FROM:

## CERTIFICATE OF ASSAY

CHARLESTON MINE DH #5

| Attn: Mr. R.W. Ludden | | GOLD ozs. | SILVER ozs. | COPPER % | LEAD % | Zn % | | INTERVALS | |
|---|---|---|---|---|---|---|---|---|---|
| 31120 | 17151 | | | 0.040 | Tr | 0.50 | | 1045 - 1050 | |
| 31121 | 17152 | | | 0.010 | Tr | Tr | | 1050 - 1055 | |
| 31122 | 17153 | | | 0.035 | Tr | 0.40 | | 1055 - 1060 | |
| 31123 | 17154 | | | 0.040 | Tr | 0.40 | | 1060 - 1065 | |
| 31124 | 17155 | | | 0.045 | Tr | 0.45 | | 1065 - 1070 | |
| 31125 | 17156 | | | 0.040 | Tr | Tr | | 1070 - 1075 | |
| 31126 | 17157 | | | 0.040 | Tr | Tr | | 1075 - 1080 | |
| 31127 | 17158 | | | 0.080 | Tr | Tr | | 1080 - 1085 | |
| 31128 | 17159 | | | 0.040 | Tr | 0.35 | | 1085 - 1090 | |
| 31129 | 17160 | | | 0.050 | Tr | Tr | | 1090 - 1095 | |
| 31130 | 17161 | | | 0.055 | Tr | 0.40 | | 1095 - 1100 | |
| 31131 | 17162 | | | 0.055 | Tr | 0.40 | | 1126 - 1128 | |
| 31132 | 17163 | | | 0.070 | Tr | Tr | | 1156 - 1159 | |
| 31133 | 17164 | | | 0.040 | Tr | Tr | | 1159 - 1162 | |
| 31134 | 17165 | | | 0.040 | Tr | Tr | | 1162 - 1165 | |
| 31135 | 17166 | | | 0.040 | Tr | 0.35 | | 1165 - 1168 | |
| 31136 | 17167 | | | 0.040 | Tr | Tr | | | 1168 - 1171 |
| 31137 | 17168 | | | 0.040 | 0.10 | Tr | | | 1171 - 1174 |
| 31138 | 17169 | | | 0.040 | Tr | 0.40 | | | 1174 - 1177 |
| 31139 | 17170 | | | 0.050 | Tr | 0.30 | | | 1177 - 1180 |
| 31140 | 17171 | | | 0.050 | Tr | Tr | | | 1213 - 1218 |

REGISTERED ASSAYER CERTIFICATE NO. 7126 CARLOS ROCHIN Date Signed Arizona U. S. A.

REMARKS:
RESULT FROM: CHARLESTON MINE
TOMBSTONE QUAD.
ARIZONA

ANALYSIS CERT. BY:

DATE: Feb. 26, 1971

CHARGES: $ 172.25

HECTOR C. ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. No. 4073

# ROCHIN ENGINEERING AND ASSAY OFFICE

100 W. 9TH STREET • P. O. BOX. 218 • PHONE: EMpire 4-8092
DOUGLAS, ARIZONA

HECTOR A. ROCHIN
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 247

Western Exploration , Drawer 1217, Douglas, Arizona — RESULTS FROM: CHARLESTON MINE

## CERTIFICATE OF ASSAY

D.D.H. #5

| | | GOLD ozs. | SILVER ozs. | COPPER % | LEAD % | Zn % | | | INTERVALS |
|---|---|---|---|---|---|---|---|---|---|
| 31141 | 17172 | | | 0.040 | Tr | Tr | | | 1250 - 1260 |
| 31142 | 17173 | | | 0.040 | Tr | Tr | | | 1260 - 1270 |
| 31143 | 17174 | | | 0.040 | Tr | Tr | | | 1270 - 1275 |
| 31144 | 17175 | | | 0.035 | 0.10 | Tr | | | 1275 - 1280 |
| 31145 | 17176 | | | 0.070 | Tr | 0.70 | | | 1280 - 1285 |
| 31146 | 17177 | | | 0.070 | Tr | Tr | | | 1285 - 1290 |
| 31147 | 17178 | | | 0.050 | Tr | Tr | | | 1290 - 1295 |
| 31148 | 17179 | | | 0.065 | Tr | 0.40 | | | 1295 - 1300 |
| 31149 | 17180 | | | 0.085 | Tr | Tr | | | 1325 - 1330 |
| 31150 | 17181 | | | 0.070 | Tr | 0.35 | | | 1330 - 1335 |
| 31151 | 17182 | | | 0.060 | Tr | Tr | | | 1335 - 1340 |
| 31152 | 17183 | | | 0.070 | Tr | 0.40 | | | 1340 - 1345 |
| 31153 | 17184 | | | 0.060 | Tr | Tr | | | 1345 - 1350 |
| 31154 | 17185 | | | 0.070 | Tr | 0.40 | | | 1350 - 1355 |
| 31155 | 17186 | | | 0.070 | Tr | 0.40 | | | 1355 - 1360 |
| 31156 | 17187 | | | 0.070 | Tr | 0.30 | | | 1360 - 1365 |
| 31157 | 17188 | | | 0.080 | Tr | Tr | | | 1366 - 1370 |
| 31158 | 17189 | | | 0.090 | Tr | 0.35 | | | 1370 - 1375 |
| 31159 | 17190 | | | 0.110 | Tr | Tr | | | 1375 - 1385 |
| 31160 | 17191 | | | 0.080 | Tr | 0.35 | | | 1446 - 1452 |
| 31161 | 17192 | | | 0.080 | Tr | Tr | | | 1452 - 1458 |

REMARKS:
RESULTS FROM:
CHARLESTON MINE
TOMBSTNE QUAD.
ARIZONA

ANALYSIS CERT. BY:

REGISTERED ASSAYER CERTIFICATE No. 7126 CARLOS ROCHIN Date Signed Arizona U. S. A.

DATE: Feb. 26, 1971

$ 172.25

CHARGES: $

HECTOR C. ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. No. 4073

# ROCHIN ENGINEERING AND ASSAY OFFICE

100 W. 9TH STREET • P. O. BOX. 218 • PHONE: EMpire 4-8092
DOUGLAS, ARIZONA

HECTOR A. ROCHIN
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 2472

Western Exploration office

Results from;
Charleston mine

## CERTIFICATE OF ASSAY

DD.H. #5

| ATTN: R.W. LUDDEN JR | | GOLD OZS. | SILVER OZS. | COPPER % | LEAD % | Zn % | | INTERVALS | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 31162 | 17193 | | | 0.070 | Tr | Tr | | 1458 - 1464 | | |
| 31163 | 17194 | | | 0.080 | Tr | 0.35 | | 1500 - 1502 | | |
| 31164 | 17195 | | | 0.100 | Tr | Tr | | 1502 - 1506 | | |
| 31165 | 17196 | | | 0.050 | Tr | Tr | | 1506 - 1510 | | |
| 31166 | 17197 | | | 0.025 | Tr | Tr | | 1582 - 1592 | | |
| 31167 | 17198 | | | 0.030 | 0.26 | 0.35 | | 1592 - 1602 | | |
| 31168 | 17199 | | | 0.035 | Tr | 0.30 | | 1602 - 1612 | | |
| 31169 | 17200 | | | 0.030 | Tr | Tr | | 1612 - 1622 | | |
| 31170 | 17201 | | | 0.070 | Tr | Tr | | 1622 - 1632 | | |
| 31171 | 17202 | | | 0.050 | Tr | Tr | | 1632 - 1642 | | |
| 31172 | 17203 | | | 0.050 | Tr | Tr | | 1676 - 1680 | | |
| 31173 | 17204 | | | 0.065 | Tr | Tr | | 1680 - 1684 | | |
| 31174 | 17205 | | | 0.055 | Tr | Tr | | 1684 - 1688 | | |
| 31175 | 17206 | | | 0.050 | Tr | Tr | | 1688 - 1692 | | |
| 31176 | 17207 | | | 0.060 | Tr | Tr | | 1692 - 1696 | | |
| 31177 | 17208 | | | 0.090 | Tr | Tr | | 1696 - 1700 | | |
| 31178 | 17209 | | | 0.050 | Tr | Tr | | 1700 - 1705 | | |
| 31179 | 17210 | | | 0.060 | Tr | Tr | | 1705 - 1710 | | |
| 31180 | 17211 | | | 0.050 | Tr | Tr | | 1710 - 1715 | | |
| 31181 | 17212 | | | 0.060 | 0.14 | Tr | | 1715 - 1720 | | |
| 31182 | 17213 | | | 0.040 | Tr | Tr | | 1720 - 1725 | | |

REMARKS:
RESULTS FROM:
CHARLESTON MINE
TOMBSTNE QUAD. ARIZONA

ANALYSIS CERT. BY:

DATE: Feb. 26, 1971

CHARGES: $174.25

HECTOR A. ROCHIN
MANAGER
REGISTERED ASSAYER
ARIZONA REG. No. 4073

# ROCHIN ENGINEERING AND ASSAY OFFICE

100 W. 9TH STREET • P. O. BOX. 218 • PHONE: EMpire 4-8092
DOUGLAS, ARIZONA

HECTOR A. ROCHIN
MINING ENGINEER AND
LAND SURVEYOR
ARIZONA REG. No. 247

RESULTS FROM:
CHARLESTON MINE

## CERTIFICATE OF ASSAY

WESTERN EXPLORATION OFFICE

D.D.H. #5

| | | GOLD OZS. | SILVER OZS. | COPPER % | LEAD % | Zn % | | INTERVALS | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 31183 | 17214 | | | 0.070 | 2.13 | Tr | | 1725 - 1730 | | |
| 31184 | 17215 | | | 0.040 | 1.05 | Tr | | 1730 - 1735 | | |
| 31185 | 17216 | | | 0.030 | Tr | 0.40 | | 1735 - 1740 | | |
| 31186 | 17217 | | | 0.030 | Tr | Tr | | 1740 - 1745 | | |
| 31187 | 17218 | | | 0.030 | 0.83 | 0.40 | | 1745 - 1750 | | |
| 31188 | 17219 | | | 0.030 | Tr | Tr | | 1750 - 1755 | | |
| 31189 | 17220 | | | 0.025 | Tr | Tr | | 1755 - 1760 | | |
| 31190 | 17221 | | | 0.025 | Tr | Tr | | 1760 - 1765 | | |
| 31191 | 17222 | | | 0.010 | Tr | Tr | | 1765 - 1770 | | |
| 31192 | 17223 | | | 0.040 | Tr | 0.30 | | 1770 - 1775 | | |
| 31193 | 17224 | | | 0.040 | Tr | Tr | | 1775 - 1780 | | |
| 31194 | 17225 | | | 0.040 | Tr | Tr | | 1780 - 1785 | | |
| 31195 | 17226 | | | 0.030 | Tr | Tr | | 1785 - 1790 | | |
| 31196 | 17227 | | | 0.030 | Tr | Tr | | 1790 - 1795 | | |

REMARKS:

XXXX RESULTS FROM:
CHARLESTON MINE
TOMBSTONE QUAD. ARIZONA

ANALYSIS CERT. BY:

DATE: Feb. 26, 1971

CHARGES: $ 116.50

5A LOGS

# ASARCO

DEC 8 1978

JAMES STEWART COMPANY
PHOENIX, ARIZONA

**Exploration Department**
Southwestern United States Division
R. B. Crist
Property Manager

December 6, 1978

J. Stewart Company
3033 North Central Avenue
Phoenix, Arizona 85012

Attention: Mr. Roger Horne

Charleston Mine
Cochise County, Arizona

Dear Roger:

Sorry to be so late with this. Burt Devere, the Asarco geologist who handles the Tombstone area, gave me the enclosed log regarding your Charleston property.

In October, he logged the core from Drill Holes 1 and 2.

The alteration was weak and the mineralization decreased with depth. None of the core was assayed due to the lack of mineralization.

We always appreciate the opportunity to look at rocks. In this instance the core was not split for assay work, however, I did promise assays and if you ask again, I will get some for you.

Very sincerely,

R. B. Crist

R. B. Crist.

RBC:jlh
encls BJD log

ASARCO Incorporated P. O. Box 5747 Tucson, Az 85703
1150 North 7th Avenue (602) 792-3010

1/78
B.J.Devere

Charleston Pb Mine
Cochise County, Arizona

Hole #1

| From | To | |
|---|---|---|
| 0 | 2103 | Drilled previously. |
| 2103 | 2252 | Cretaceous Bisbee Group, <½% py, rare Tr sph mineral. |
| 2252 | 2514 | Cretaceous Bisbee Group, barren to rare Tr py mineral. |
| 2514 | 2640 | Cretaceous Bisbee Group, weak py <1% mineral. |
| 2640 | 2764 | Cretaceous Bisbee Group, barren, no mineral. |

Bottom 2764 feet.

Hole #5-A

| | | |
|---|---|---|
| 0 | 631 | Drilled previously. |
| 631 | 733 | Tertiary-Cretaceous Bronco Volcanics, ±2% diss py mineral. |
| 733 | 785 | Tertiary-Cretaceous Bronco Volcanics, barren, no mineral. |
| 785 | 824 | Tertiary-Cretaceous Bronco Volcanics, ±1% diss py mineral. |
| 824 | 984 | Tertiary-Cretaceous Bronco Volcanics, barren, no mineral. |
| 984 | 1184 | Cretaceous Bisbee Group, barren, no mineral. |
| 1184 | 1405 | Cretaceous Bisbee Group, rare trace diss py, mineral. |

Bottom 1405 feet.

BJD:jlh

py = pyrite
Tr = trace
sph = sphalerite
diss = disseminated

D.D. #7 LOGS

JHS

October 15, 1971

Mr. H. Clyde Davis
Director, Mineral Development
859 East 2730 North
Provo, Utah 84601

Dear Clyde:

We have sent you under separate cover via Airmail three small samples from Drill Hole #7 at Tombstone. We are still drilling one shift only, and make about 20 feet a day.

Clarence and I think that you should have a serious study made of the samples enclosed yesterday. Note the unusual metal at approximately 3273'. Also you will note that we have run through a section of very good sericite. This is by far the deepest that we have encountered any sericite of this quality.

Both Clarence and I will be in Washington, D. C. all of next week. We will be staying at the Interstate Inn (703) 534-9100. If you think that the hole should be shut down, please call us there and we will call Clark. I think Clarence has a surge of optimism because of what we have encountered at 3200'.

Sincerely yours,

M. S. Horne

MSH:ef

J.J. #7 Essays

289

CMS

CHEMICAL & MINERALOGICAL SERVICES 3435 SOUTH STATE STREET, SALT LAKE CITY, UTAH 84115 (801) 266-8228

## ANALYTICAL REPORT FOR:

| | |
|---|---|
| Mr. Clyde Davis Brigham Young University | OUR NUMBER 2263 |
| Administration Bldg. | DATE Oct 24, 1971 |
| Provo, Utah Hole #7 | CUSTOMER'S ORDER NO. |

| Sample # | Ag ppm | Cu ppm | Pb ppm | |
|---|---|---|---|---|
| 3233 ft | 3.0 | 20 | 10 | Light Rock – pyrite |
| 3274 ft | | 20 | | Darker Rock — |
| | .03 | .002 | .001 | |

Ray Bradshaw

# HAWLEY & HAWLEY

ASSAYERS AND CHEMISTS, INC.

BOX 50106 1700 W. GRANT RD.,
TUCSON, ARIZONA 85703 (602) 622-4836

Registered Assayers
OVER 50 YEARS

BRANCHES
Douglas
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Morenci
Inspiration
El Paso
St. Louis

| IDENTIFICATION | | Gold OPT | Silver OPT | Lead % | Copper % | Zinc % | Mo. % | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Hole 7 | | | | | | | | | | |
| 1 | 1656-1660 | | None | < 0.01 | < 0.01 | 0.02 | | | | |
| 2 | 1670-1674 | | 0.01 | < 0.01 | < 0.01 | < 0.01 | | | | |
| 3 | 1674-1678 | | None | < 0.01 | < 0.01 | < 0.01 | | | | |
| 4 | 1683-1687 | | None | < 0.01 | < 0.01 | < 0.01 | | | | |
| 5 | 1697-1702 | | 0.01 | < 0.01 | < 0.01 | 0.14 | | | | |
| 6 | 1702-1706 | | None | 0.03 | < 0.01 | 0.03 | | | | |
| 7 | 1716-1720 | | None | 0.02 | 0.01 | 0.26 | | | | |
| 8 | 1722-1725 | | 0.01 | 0.18 | < 0.01 | 0.01 | | | | |
| 9 | 1775-1779 | | None | 0.02 | < 0.01 | < 0.01 | | | | |
| 10 | 1839-1843 | | None | < 0.01 | < 0.01 | < 0.01 | | | | |
| 11 | 1885-1889 | | None | < 0.01 | < 0.01 | < 0.01 | | | | |
| 12 | 2102-2106 | | None | < 0.01 | 0.01 | < 0.01 | | | | |
| 13 | 2161-2165 | | None | < 0.01 | < 0.01 | < 0.01 | | | | |
| 14 | 2209-2213 | | None | < 0.01 | < 0.01 | < 0.01 | | | | |
| 15 | 2218-2222 | | 0.01 | 0.18 | < 0.01 | < 0.01 | | | | |
| 16 | 2231-2235 | | None | < 0.01 | < 0101 | < 0.01 | | | | |
| 17 | 2236-2240 | | None | < 0.01 | < 0.01 | < 0.01 | | | | |

REGISTERED ASSAYER CERTIFICATE NO. 678 H. E. RICHARD Tucson Arizona U. S. A.

CC: James Stewart Co.
ADD: Attn: Mr. Clark Hughes
CITY: 3033 N. Central Avenue
ADD: Phoenix, Arizona 85012
TY:

REMARKS:
Single analyses

Analysis Cert. By ..... Signed

Preparation $ 15.30
Analysis $ 161.50

ACC: JAMES STEWART COMPANY | Date Spl. Received 8/20/71 | Date Compl. 8/25/71 | PNX 345569 | $ 176.80

HH3

D.D. #8 1055

E391

September 19, 1973

MEMO TO: M. S. Horne

RE: HOLE #8

It is my belief from observation that transition from volcanic to sedimentary rock occurred at a depth of 840-845 feet. At this point there is approximately six feet of fault gouge very, very heavy in ground up metals. No possibility of determination of type without microscopic examination and analysis.

Thorough lab studies and assays of this hole would be to your advantage. A piece of core from 870' location is attached.

CAC/bde

C. A. Cosgrove

September 19, 1973

MEMO TO: M. S. Horne

RE: CHARLESTON

Hole #8 was stopped at depth 872', Monday, September 17.

Strata coordination was found between sediments:

#2 -- 785-797

#8 -- 850-864

A quartzitic material, one which I call sugar quartz. I think Clyde knows what I mean, and can give it its proper nomenclature.

Below this strata there is a transition into fine grained sandstone, very salicaous.

It is well to remember in comparing strata differentials, that the collar elevation of Hole #8 is about 50 feet below collar elevation of Hole #2. Hence, the true strata differential is about 115 feet in a horizontal of 340' or a pitch of an angle whose tangent is .0334 plus or minus.

CAC/bde

C. A. Cosgrove

D.J. #5 Assembly

Hole #8

# ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
817 WEST MADISON ST. PHOENIX, ARIZONA 85007 PHONE 254-6181

For Mr. C. A. Cosgrove Date September 5, 1973

Sample of ~~XXXX~~ Ore Received: 9/4/73

Submitted by: same

## ASSAY CERTIFICATE

Gold figured at $ 100.00 per ounce Silver figured at $ 2.00 per ounce

| LAB. NO. | IDENTIFICATION | GOLD | | SILVER | | PERCENTAGES | | |
|---|---|---|---|---|---|---|---|---|
| | | OZ. PER TON | VALUE | OZ. PER TON | VALUE | COPPER | LEAD | ZINC |
| 5152 | 8-287' | Nil | | Nil | | 15ppm | 35ppm | |
| | 8-347' | Nil | | Nil | | | | |
| | 8-488' | 0.1ppm | | 1 ppm | | | | |
| | 8-566' | 0.1 | | 46 | ppm? ≈1.50 Hon | 1200 | 5.00% | 0.59% |
| | 8-598' | 0.1 | | 13 | | 70 | 0.37% | 1000ppm |

RECEIVED
JAMES STEWART CO.
Phoenix, Arizona

SEP 12 1973

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean Jr.
V.O.

Claude E. McLean, Jr.

6 394

September 19, 1973

MEMO TO: M. S. HORNE

RE: ASSAY ON LAST SAMPLES

Hole #8, Depth 771:

| | |
|---|---|
| Silver | .2 |
| Lead | 0 |
| Copper | .025 |
| Zinc | 2.4 |

Hole #8, Sample #2, Depth 806:

| | |
|---|---|
| Silver | .09 |
| Lead | 0 |
| Copper | .025 |
| Zinc | 0 |

all was pyrite.

D.D. #9 1065

October 10, 1973

Mr. H. Clyde Davis
859 E. 2730 North
Provo, Utah 84601

Dear Clyde:

RE: CHARLESTON - HOLE #9

Under separate cover we are transmitting samples of the volcanics from Hole #9. A brief study of the hole Monday and Tuesday indicated roughly the following.

The first 170 feet is very good serracite completely altered. We then have a horst of andesite, followed by another 40 or 50 feet of serracite. We then break into the andesite which continues down to approximately 515 feet. The top 100 feet of this andesite are fairly heavily metalized with pyrites diminishing as it approaches the 320 foot zone. At 340 feet we pick up a section which I believe is a minable zinc ore section flowing out from both sides of a high grade streak at 346 feet. This high grade streak has zinc sulphide, lead and calcopyrite. The calco extends a couple of feet in each direction from the center, but is the minor constituent of the three metals, with zinc predominant. I have not disturbed this ore zone, but have taken a sample from approximately 15 feet below it and having it assayed by Holley & Holley at Tucson. We are assaying this for all the metals.

The zone immediately below this ore zone for the next 150 feet is interspersed continuously with seams of sphalerite ranging from knife thickness to 1' thick zones. In almost every case the outer fringes of the sphalerite is seemingly oxidized into what I feel is hemimorphite. Also continuously through this section are isolated splotches of possible hemimorphite, some of them with the zinc as a pseudo morph after galena. Continuing on down, we pass the 520 foot zone and go into a couple hundred feet of highly salicious light colored volcanic monzonite heavily metalized with pyrite. However, much of the pyrite is oxidized and this zone also contains the green splotches. There falls below this a zone of a darker material, less heavily metalized with pyrite, but much heavier in the dark green splotches. Also this zone contains intermittent zones of the sphalerite, both in seams and in pocket forms. This hole bottoms out at approximately 900 feet deep with a 30 foot section of breccia.

They were still in the breccia when I left last night and I presume they will have penetrated the sediment today. It is our intention to cut off the hole today and await study of both Holes #8 and #9 before further work is done. The holes are cased for further depth drilling if and when it is deemed necessary.

This hole, to me, is the most interesting hole we have drilled yet. The zinc sphalerite throughout the whole volcanic section occupies practically every seam or fissure available. It also has penetrated both in disseminated form and in splotchy form. This led me to a possible conclusion as to the source of the intrusion bringing the metal in. It is my thinking that the intrusion may lay below the two east-west faults, one which is in the pit and the other a half mile north of the pit. You will recall this is a highly altered fault laying between two definite faults.

Would appreciate your thoughts on this, as well as the investigation into the zinc oxide in the volcanics. If it is zinc oxide, Hole #9 becomes a minable proposition. Regards.

Sincerely,

CAC/bde

C. A. Cosgrove

P.S. I realize that there is a possibility that the green material is one of the chlorides instead of the oxide of zinc, but even if this is true there are sufficient sulphides of zinc and lead that this Hole still leaves me excited.

D.D. #9 ASSAYS

To: Clyde Davis
859 East 2730 North
Prove Utah 84601

FROM: C.A. Cosgrove
326 San Vicente Blvd
Santa Monica Calif
90402

Subject: Assays - Holes 8 & 9

Date: 11/15/73

MESSAGE: Enclosed are copies of assays of Holes 8 & 9 which I took.

#9-365 was taken outside of what I considered an ore zone centered on Elevation 341' which I didn't want disturbed prior to logging & charting.

9-763 was taken to test for Zinc Oxide.

Both Holes deserve study and assay work. Surely Hope ASYR does some work on them.

NOV 19 1973

Regards
Clarence

Copy MS Hume

Signed

Rediform 4S 468 ☐ NO REPLY NECESSARY ☐ REPLY REQUESTED—USE REVERSE SIDE

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
P.O. Box 50106, 1700 W, Grant Rd., Tucson, Arizona 85703

# CERTIFICATE OF ANALYSIS

| SAMPLE IDENTIFICATION | GOLD oz/ton | SILVER oz/ton | LEAD % | ZINC % | COPPER % | MO | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9-365 | <0.005 | 0.19 | 0.93 | 1.36 | 0.04 | | | | |

NOV 19 1973

TO:
Mr. C.A. Cosgrove
1923 W. Osborn Road
Phoenix, Arizona 85015

Hole #9

REMARKS:
Single analysis

CERTIFIED BY:

CHARGES:
PREPARATION $
ANALYSIS $ 10.00
Minimum charge

| ACCT.: | DATE REC'D: | DATE COMPL.: | | |
|---|---|---|---|---|
| MR. C.A. COSGROVE | 10/10/73 | 10/16/73 | 348082 | $10.00 |

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
P.O. Box 50106, 1700 W. Grant Rd., Tucson, Arizona 85703

# CERTIFICATE OF ANALYSIS

| SAMPLE IDENTIFICATION | GOLD | SILVER | LEAD | ZINC % | COPPER % | MO | ZnO % | | |
|---|---|---|---|---|---|---|---|---|---|
| 763' | | | | 0.44 | 0.01 | | 0.02 | | |

TO:
Mr. C. A. Cosgrove
1923 W. Osborne
Phoenix, Arizona 85015
cc: Santa Monica, California

(Hole #9)
CAC getting copy to Dave

REMARKS:
Single analysis
Split Core being mailed under separate cover.

CERTIFIED BY:

CHARGES:
PREPARATION $
ANALYSIS $10.00

| ACCT.: | DATE REC'D: | DATE COMPL.: | | |
|---|---|---|---|---|
| MR. C.A. COSGROVE | 10/12/73 | 10/18/73 | 348095 | $10.00 |

D.D. #10 ASSAYS

# COPPER STATE ANALYTICAL LAB., INC.

DNYANENDRA A. SHAH
ARIZONA REG. NO. 8888

REGISTERED ASSAYER
P. O. BOX 7517
TUCSON, ARIZONA 85725

710 E. EVANS BLVD
PHONE 602-884-5811
884-5812

James Stewart Co.
Attn: Harvey Hays
707 Mayer Central Bldg.
3033 N. Central Ave.
Phoenix, AZ 85012

JOB # 001454
RECEIVED 8/27/82
REPORTED 9/3/82
INVOICE # C 1775

| SAMPLE NUMBER | | Au ppm | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm |
|---|---|---|---|---|---|---|---|
| Hole 10 | | | | | | | |
| Box 7 1128-1137 | | 0.04 | 11.6 | 0.16% | 0.21% | 2.10% | 12 |
| 16 1211-1220 | | <.01 | 0.4 | 12 | 20 | 40 | |
| 24 1282-1291 | | 0.01 | 0.5 | 14 | 194 | 500 | |
| 25 1291-1300 | at 1292 | 0.01 | 0.7 | 20 | 106 | 0.60% | |
| 27 1309-1318 | | <.01 | 1.8 | 0.16% | 782 | 0.17% | |
| 28 1318-1328 | | <.01 | 0.7 | 264 | 0.21% | 0.98% | |
| 36 1392-1401-A | | <.01 | 0.7 | 38 | 44 | 55 | 22 |
| 36 1392-1401-B | | <.01 | 0.9 | 112 | 0.12% | 0.53% | |
| 37 1401-1410 | | <.01 | 0.3 | 22 | 20 | 50 | |
| 43 1456-1465 | | 0.01 | <.2 | 18 | 14 | 54 | |
| 45 1475-1484 | | <.01 | <.2 | 16 | 12 | 62 | |
| 47 1491-1503 | | <.01 | <.2 | 15 | 12 | 40 | |
| 49 1513-1522 | | <.01 | <.2 | 22 | 28 | 114 | |
| 61 1623-1632 | | <.01 | 1.2 | 116 | 491 | 810 | 30 |
| 62 1632-1642 | | <.01 | 0.2 | 30 | 40 | 26 | |

REGISTERED ASSAYER CERTIFICATE NO. 8888 Dnyanendra Amrutlal Shah Arizona U. S. A.

Shah 3-82

1 ppm = 0.0001% 1 troy oz./ton = 34.286 ppm 1 ppm = 0.0292 troy oz./ton

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

301

# COPPER STATE ANALYTICAL LAB., INC.

DNYANENDRA A. SHAH
ARIZONA REG. NO. 8888

REGISTERED ASSAYER
P. O. BOX 7517
TUCSON, ARIZONA 85725

710 E. EVANS BLVD.
PHONE 602-884-5811
884-5812

James Stewart Co.
707 Mayer Central Bldg.
3033 N. Central Ave.
Phoenix, AZ 85012
Attn: Harvey Hays

#10 HOLE

| | |
|---|---|
| JOB# | 001493 |
| RECEIVED | 9/17/82 |
| REPORTED | 9/27/82 |
| INVOICE# | C 1825 |

| SAMPLE NUMBER | | Pb ppm | Cu ppm | Zn ppm | | | |
|---|---|---|---|---|---|---|---|
| Box | | | | | | | |
| 75 | | 42 | 20 | 48 | | | |
| 100 | | 62 | 20 | 160 | | | |
| 125 | | 34 | 20 | 64 | | | |
| 135 | | 32 | 18 | 50 | | | |

REGISTERED ASSAYER CERTIFICATE NO. 8888 Dnyanendra Amrutlal Shah DATE SIGNED 9-27-82 Arizona U. S. A.

Underground depth

1 ppm = 0.0001% 1 troy oz./ton = 34.286 ppm 1 ppm = 0.0292 troy oz./ton

* Gold and Silver reported in troy oz. per 2,000 lb. ton.

CHS #1 LOSS

CH2 1852 (sample labelled CHS-2)

The original rock was a mudstone or claystone composed largely of argillic material. Detrital grains are widely scattered in a massive, crudely bedded fabric. These are small grains that are subangular to subround. Most common are quartz and mafites (mostly hornblende), with minor plagioclase. The rock has been hornfelsed by epizonal thermal metamorphism.

Most of the rock is now a dense cryptocrystalline mass of pennine, quartz, and feldspars stippled uniformly with earthy clots of epidote. Incipient veinlets, zones of crystal growth, cut the fabric carrying the same minerals - quartz, pennine, epidote - as the matrix but of enlarged grain size. Pyrite is sparingly disseminated throughout the matrix with no associated nearby recrystallization. One spherule has developed and consists of cherty quartz and small quartz crystalloblasts formed around detrital quartz. This patch is purged of pennine but is rich in coarse poikiloblastic epidote, interstitial calcite, and pyrite.

CHS - 1 1810

The original rock was a porphyry, probably a quartz monzonite. There were numerous subhedral phenocrysts of plagioclase, and less of rounded β quartz, thick biotite books, and an occasional hornblende prism. These are randomly oriented in a granular matrix that was probably quartz-orthoclase. Epizonal alteration has been strong.

Coarse shreddy sericite replaces feldspars in matrix and phenocrysts alike. It also rims biotite and hornblende prisms that have been pseudomorphosed by clinochlore and accessory rutile. Sericite in the matrix tends to be pushed into the interstices of enlarged quartz grains. Pyrite tends to be concentrated in veins with crystalloblasts of anhydrite.

Minerals are present in the following estimated amounts: quartz 35%, sericite 54%, anhydrite 2%, pyrite 4%, clinochlore 4%, plagioclase tr., rutile 0.5%.

CHS - 1 2765

The rock is a breccia of varied fragments including coarse andesite among more numerous chunks of porphyry - probably a quartz monzonite originally. The original nature of the matrix is uncertain owing to intense alteration and K-metasomatism.

First coarse secondary biotite formed at the expense of mafites in the fragments; it is most abundnat in the andesite. As a result of continued growth, the biotite may attack plagioclase as well. A later epizonal event relates to veining by granular quartz associated with pyrite and anhydrite. Quartz has been introduced in the vein walls, growing to a granular aggregate with sericite (derived from feldspars) trapped in the interstices. Further from the veins, sericite attacks plagioclase and biotite has retrogressed to clinochlore. This episode seems to have ended with veining by pyrite-anhydrite-calcite.

CHS - 1 3862

The rock is a granodiorite porphyry with numerous subhedral phenocrysts of plagioclase and thick biotite books set at random in a granular quartz - feldspar matrix. A few phenocrysts of β quartz and hornblende were noted. Orthoclase rarely mantles and corrodes plagioclase phenocrysts. Hydrothermal alteration is moderate.

Early crushed zones developed in the fabric were characterized by growth of secondary biotite in plagioclase and growth of orthoclase. Disseminated pyrite relates to this event as well as retrograde sericitization of plagioclase. Some biotite and all hornblende were chloritized at this time. A last event is veining by coarse stilbite and interstitial calcite. These are evidently retrograde minerals derived in large measure from plagioclase.

Percentages of minerals present are as follows: quartz 20%, orthoclase 12%, plagioclase 34%, sericite 5%, calcite 6%, clinochlore 8%, stilbite 9%, pyrite 2%, magnetite 0.5%, biotite 3%, rutile 0.5%, apatite tr., zircon tr..

CHS - 2 4061

The rock is an andesite with a pilotaxitic structure. It was originally composed of swarms of well aligned plagioclase laths and small interstitial grains of mafites. Flowage alignment wraps around large subhedral plagioclase phenocrysts. The rock seems to have experienced some autobrecciation. Hydrothermal alteration and K-metasomatism have been moderate.

Most of the rock is unaffected except where cut by a network of granulated zones. In these, tiny scales of secondary biotite have formed at the expense of plagioclase and mafites; the biotite may be accompanied by lenses or pods of new, fresh orthoclase. Coarser orthoclase also occurs in well-defined veins with pyrite and late interstitial calcite. The walls of such veins show sericitization of plagioclase and retrograde alteration of biotite to clinochlore.

CHS - 3 2616

The rock is an intrusive breccia of intermediate composition. It carries innumerable phenocrysts of plagioclase and some β quartz and thick biotite books. These lie in a dense microgranular matrix of quartz and orthoclase that may embay or corrode phenocrysts. There is a crude flowage alignment to the matrix, and it carries numerous, partly resorbed xenoliths. Most of these appear to be cognate granophyres. The rock is quite fresh with epizonal alteration expressed only along fractures or veinlets.

Veinlets generally carry orthoclase and albite euhedrons; which it is depends on whether the vein cuts plagioclase (albite) or the matrix (orthoclase). Additional gangue minerals include calcite and clinochlore. Pyrite is rare in the veins and was also observed mantling accessory magnetite in the vein walls. Elsewhere in the rock alteration is confined to minor calcite and hydromicas in plagioclase and partial chloritization of biotite.

Total Depth
Elevation
Coordinates
Inclination Vertical

# ASS O GEOLOGIC LO

Project Charleston

Chs-1

HOLE No. Ch
Sheet No.
Date Completed
Logged by J R Kim

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 22 | | | | | | | | | | | | | | | | | | PLUG BIT |
| 22 | 181 | 159 | NC | | +85 | 6-8 | 3/1 | | + | | | | ✓ | + | | | | U.S. por | oxidized to ≈15 alter is intense, b cavities occas small fault 181-1 |
| 181 | 228 | 47 | NC | | " | 5-7 | 3/1 | | + | | | | ✓ | + | | | | An por | PRAB dike |
| 228 | 278 | 50 | NC | | " | 4-3 | 3/1 | | + | | | | ✓ | + | | | | Δ | Heterolithic lots |
| 278 | 356 | 78 | NC | | " | 7 | 3/1 | | + | | | | r | ✓ | | | | (An por) Δ | with open cavit as above. less cavities small 236 & 284. |
| 356 | 450 | 94 | NC | | " | 6-8 | 3/1 | | + | | | | + | ✓ | | | | Δ | good breccia w/ NATURE as w/ |
| 450 | 505 | 55 | NC | | " | 3-5 | 4/1 | 100/1 | + | tr | | | + | | | tr | | An por | mix Gd por a becoming more ch mag as diss & c poss fault 470-4 |
| 505 | 690 | 185 | NC | | " | 5-7 | 3/1 | 100/1 | + | tr | | | + | | | | | Δ | beautiful heter breccia as seen outcrop |
| 690 | 811 | 121 | NC | | " | 4-6 | 2/1 | | + | | | | + | | | | | An por | breccia in part alter decreasing CaCO3 occasing al fract. |
| 811 | 831 | 20 | NC | | " | 6 | 4/1 | | + | | | | + | | | | | Gd por | less gmss, light colour, alter sev same intensity |
| 831 | 916 | 85 | NC | | " | 4-5 | 2/1 | 20/1 | + | tr | | | + | | | ✓ | | And por | concentrat flui & brecciated, cpy both diss & fract |
| 916 | 950 | 34 | NC | | " | 3-4 | 1/1 | 15/1 | + | ✓ | ? | | + | | | tr | | Gd por | well mineral bu alter decreasing silic in |

CHS #1

SAR

# GEOLOGIC LOG

...OLE ... Cl

Sheet No.

Date Completed

Project Charleston Chs-1

Logged by J. R. King

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 860 | 10 | NC | | -25 | 4 | 1/2 | | + | | | | + | | | tr | | Δ | intrusive breccia mod to strong al |
| 0 | 1000 | 40 | NC | | +85 | 5 | 2/1 | | + | | | | + | | | tr | | Gd por | as before sw faults 967, 998 |
| 00 | 1021 | 21 | NX | | +85 | 5 | 2/1 | | + | | | | + | | | tr | | " | as above |
| 21 | 1411 | 390 | NX | | +35 | 3 | 1/2 | 20/1 | + | tr | | | ✓ | | | ✓ | ✓ | An por | alter - weak tar chl increasing |
| 11 | 1658 | 247 | NX | | +85 | 2.4 | 1/3 | 15/1 | + | ✓ | | | + | | tr | ✓ | ✓ | Δ | intrusive heter breccia no op cavities |
| 58 | 1829 | 171 | NX | | +85 | 2 | 1/1 | 15/1 | + | tr | | | + | | | ✓ | ✓ | Gd por | 1507-17, 1610-12 as before show several zones o brecciation ge gouge 1792-1800 |
| 29 | 2151 | 322 | NX | | +85 | 3 | 1/2 | 20/1 | + | tr | | | + | | | tr | ✓ | Gd por | as before alter mod to strong |
| 51 | 2312 | 161 | NX | | +85 | 4 | 1/2 | 25/1 | + | tr | | | + | | | | + | Δ-Gd por | variable por breccia, alter |
| 312 | 2392 | 80 | NX | | +85 | 5 | 1/1 | 30/1 | + | tr | | ?Gn | + | | | | + | Gd por | small fault-2307 alter strong |
| 2 | 2617 | 225 | NX | | +25 | 4 | 1/2 | 15/1 | + | ✓ | | | + | | | ✓ | ✓ | Δ-Gd por | as above alter mod-stron heterolith breccia part, some stockw VNING. |
| 7 | 2879 | 262 | NX | | +85 | 3 | 1/3 | 10/1 | + | ✓ | | | + | | tr | tr | tr | Δ | Heterolith breccia gd por - mix - an alter mod to str |
| 29 | 2947 | 68 | NX | | +85 | 2 | 1/4 | 20/1 | | | ? | | + | | tr | ✓ | tr | Gd por | as before alter wk to mo |
| | | | END OF NX | | | | | | | | | | | | | | | | |

365

# GEOLOGIC LOG

Project [illegible] Chs. 1

Date Completed

Logged by [illegible]

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 3005 | 58 | Bx | | +85 | 2 | 1/4 | 20/1 | + | ✓ | ? | | + | | ? | +r | | Gd por | as before [illegible] -2747, alteratic weak to moder |
| 05 | 3038 | 33 | Bx | | +70° | 2 | ? | | | | | | | | | | | | cataclastic - broken - fau |
| 38 | 3469 | 431 | Bx | | +85° | 1-2 | 1/4 | 10/1 | + | ✓ | | | + | | +r | ✓ | | Gd por - | mix An por, al weak to moder cpy more abun |
| 69 | 3605 | 136 | Bx | | +85 | 2 | 1/3 | 7/1 | + | ✓ | ? | | + | | ✓ | +r | | Gd por - | mix An por |
| 05 | 3656 | 51 | Bx | | +65 | 2 | 1/2 | 20/1 | + | +r | | | | | | | | fault | as above. [illegible] zones of better c zone |
| 656 | 3749 | 93 | Bx | | +85 | 1-2 | 1/1 | 30/1 | + | +r | | | + | | ✓ | +r | | Gd por | with some zon An por (3600-14 |
| 749 | 3890 | 141 | Bx | | +85 | 1 | 1/2 | 15/1 | + | ✓ | ? | | + | | ✓ | +r | | Gd por | alteration we as above, s fault 3892 weak |
| 890 | 4002 | 52 | Bx | | +85 | 2 | 1/2 | 20/1 | + | ✓ | ? | | + | | ✓ | ✓ | | Gd por. | mix an por before alter weak small - 3913, 3922. |
| | TD | | | | | | | | | | | | | | | | | | |

nal depth
levation
ordinates
clination Vertical

# ASARCO
# GEOLOGIC LOG

Project Charleston

✓ - min
tr - tr

HOLE NO. Ch 1
Sheet No. 1
Date Completed
Logged by AR King

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 22 | | | | | | | | | | | | | | | | | | Plug Bit |
| 22 | 181 | 159 | NC | | +85 | 6-8 | 3/1 | | + | | | | ✓ | + | | | | U.S. por | oxidized to ≈150' alter is intense, breccia cavities occas. pre small fault 181-186 |
| 181 | 228 | 47 | NC | | " | 5-7 | 3/1 | | + | | | | ✓ | + | | | | An por | PROB dike |
| 228 | 278 | 50 | NC | | " | 4-8 | 3/1 | | + | | | | ✓ | + | | | | Δ | Heterolithic breccia |
| | | | | | | | | | | | | | | | | | | (An por) | with open cavities |
| 278 | 356 | 78 | NC | | " | 7 | 3/1 | | + | | | | + | ✓ | | | | Δ | as above. less OPEN cavities, small fault 236 & 284. |
| 356 | 450 | 94 | NC | | " | 6-8 | 3/1 | | + | | | | + | ✓ | | | | Δ | good breccia w/ FLUI NATURE as w/ MIN. |
| 450 | 505 | 55 | NC | | " | 3-5 | 4/1 | 100/1 | + | tr | | | + | | | tr | | An por | mix Gd por, alter becoming more chl, mag as diss & uns. pass fault 470-490 |
| 505 | 690 | 185 | NC | | " | 5-7 | 3/1 | 100/1 | + | tr | | | + | | | | | Δ | beautiful heterolith breccia as seen in outcrop |
| 690 | 811 | 121 | NC | | " | 4-6 | 2/1 | | + | | | | + | | | | | An por | breccia in part alter decreasing in in $CaCO_3$ occurring along fract. |
| 811 | 831 | 20 | NC | | " | 6 | 4/1 | | + | | | | + | | | | | Gd por | less gmss, lighter colour, alter remains same intensity |
| 831 | 916 | 85 | NC | | " | 4-5 | 2/1 | 20/1 | + | tr | | | + | | | ✓ | | And por | somewhat fluidize & brecciated, cpy both diss & fract. |
| 916 | 950 | 34 | NC | | " | 3-4 | 1/1 | 15/1 | + | ✓ | ? | | + | | | tr | | Gd por | well mineral but alter. decreasing silic in u[redacted] ?? |

al depth
evation
ordinates
lination

# ASARCO
# GEOLOGIC LOG

Project Charleston

E NO. Chs -
Sheet No.
Date Completed
Logged by J. R. King

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 950 | 960 | 10 | NC | | -25 | 4 | 1/2 | | + | | | | + | | | tr | | Δ | intrusive breccia |
| | | | | | | | | | | | | | | | | | | | mod to strong alter |
| 960 | 1000 | 40 | NC | | +85 | 5 | 2/1 | | + | | | | + | | | tr | | 6d por | as before, small |
| | | | | | | | | | | | | | | | | | | | faults 967, 908. |
| 1000 | 1021 | 21 | NX | | +85 | 5 | 2/1 | | + | | | | + | | | tr | | " | as above |
| 1021 | 1411 | 390 | NX | | +85 | 3 | 1/2 | 20/1 | + | tr | | | ✓ | | | ✓ | ✓ | An por | alter - weak to moderate |
| | | | | | | | | | | | | | | | | | | | chl increasing |
| 1411 | 1658 | 247 | NX | | +85 | 2-4 | 1/3 | 15/1 | + | ✓ | | | + | | tr | ✓ | ✓ | Δ | intrusive heterolith |
| | | | | | | | | | | | | | | | | | | | breccia no open |
| | | | | | | | | | | | | | | | | | | | cavities. Faulting |
| | | | | | | | | | | | | | | | | | | | 1507-17, 1610-12 |
| 1658 | 1829 | 171 | NX | | +85 | 2 | 1/1 | 15/1 | + | tr | | | + | | | ✓ | ✓ | 6d por | as before shows |
| | | | | | | | | | | | | | | | | | | | several zones of |
| | | | | | | | | | | | | | | | | | | | brecciation good |
| | | | | | | | | | | | | | | | | | | | gouge 1792-1800 |
| 1829 | 2151 | 322 | NX | | +85 | 3 | 1/2 | 20/1 | + | tr | | | + | | | tr | ✓ | 6d por | as before, alter. |
| | | | | | | | | | | | | | | | | | | | mod to strong |
| 2151 | 2312 | 161 | NX | | +85 | 4 | 1/2 | 25/1 | + | tr | | | + | | | | + | Δ-6d por | variable por & |
| | | | | | | | | | | | | | | | | | | | breccia, alter str. |
| 2312 | 2392 | 20 | NX | | +85 | 5 | 1/1 | 30/1 | + | tr | | ?Gn | + | | | | + | 6d por | small fault - 2307 |
| | | | | | | | | | | | | | | | | | | | alter strong |
| 2392 | 2617 | 225 | NX | | +85 | 4 | 1/2 | 15/1 | + | ✓ | | | + | | | ✓ | ✓ | Δ-6d por | as above |
| | | | | | | | | | | | | | | | | | | | alter mod - strong |
| | | | | | | | | | | | | | | | | | | | heterolith breccia |
| | | | | | | | | | | | | | | | | | | | part, some stockwork |
| | | | | | | | | | | | | | | | | | | | veining. |
| 2617 | 2879 | 262 | NX | | +85 | 3 | 1/3 | 10/1 | + | ✓ | | | + | | tr | tr | tr | Δ | Heterolith breccia & |
| | | | | | | | | | | | | | | | | | | | 6d por - mix - an po |
| | | | | | | | | | | | | | | | | | | | alter mod to strong |
| 2879 | 2947 | 68 | NX | | +85 | 2 | 1/4 | 20/1 | | | ? | | + | | tr | ✓ | tr | 6d por | as before |
| | | | | | | | | | | | | | | | | | | | alter wk to mod. |
| | | | END OF NX | | | | | | | | | | | | | | | | |

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# ASARCO
# GEOLOGIC LOG

Project Charleston

HOLE NO. Char 1
Sheet No.
Date Completed
Logged by J R K... & S R...

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 2995 | 52 | Bx | | +25 | 2 | 1/4 | 20/1 | + | ✓ | ? | | + | | ? | tr | | Gd por | as before. An por to -2967, alteration weak to moderate |
| 2995 | 3032 | 32 | Bx | | +70° | 2 | ? | | | | | | | | | | | cataclastic - broken - faulted | |
| 3032 | 3469 | 431 | Bx | | +85° | 1-2 | 1/4 | 10/1 | + | ✓ | | | + | | tr | ✓ | | Gd por - | mix An por, alter weak to moderate, cpy more abundant |
| 3469 | 3605 | 136 | Bx | | +85 | 2 | 1/3 | 30/1 | + | ✓ | ? | | + | | ✓ | tr | | Gd por - | mix An por as above, some zones of better cpy |
| 3605 | 3656 | 51 | Bx | | +65 | 2 | 1/2 | 20/1 | + | tr | | | | | | | | fault | zone |
| 3656 | 3749 | 93 | Bx | | +85 | 1-2 | 1/1 | 30/1 | + | tr | | | + | | ✓ | tr | | Gd por | with some zones of An por (3600-14). alteration weak |
| 3749 | 3890 | 141 | Bx | | +85 | 1 | 1/2 | 15/1 | + | ✓ | ? | | + | | ✓ | tr | | Gd por | as above, small fault 3890, alter weak. |
| 3890 | 4002 | 52 | Bx | | +85 | 2 | 1/2 | 10/1 | + | ✓ | ? | | + | | ✓ | ✓ | | Gd por. | mix an por as before. alteration weak. small faults 3913, 3923, |
| | TD | | | | | | | | | | | | | | | | | | |

309

CNS #1 ASSAYS

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

310

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm | As ppm | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chs-1 68-75 | <0.2 | 25 | 30 | 20 | 10 | | | | |
| 2 | 143-152 | <0.2 | 40 | 30 | 25 | 8 | | | | |
| 3 | 164-169 tr Cc ? | <0.2 | 310 | 25 | 30 | 4 | | | | |
| 4 | 194-199 | | 105 | 75 | 125 | 4 | | | | |
| 5 | 321-326 | | 255 | 120 | 100 | 6 | 5 | | | |
| 6 | Chs-1 398-403 | <0.2 | 255 | 110 | 185 | 16 | | | | |

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sulfide

J. R. K.
APR 2 - 1974

TO:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. J. R. King

REMARKS:
Trace analysis

CERTIFIED BY:
REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK DATE SIGNED 4/24/74 Arizona U.S.A.

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 4/20/74 | 4/24/74 | 740711 |

311


SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CP-1 240-250 | | <0.2 | 15 | 50 | 185 | 2 | ? | CHS #1 | |
| 2 | CP-1 330-350 | | 0.2 | 15 | 65 | 180 | 2 | | | |
| 3 | CP-1 370-395 | | <0.2 | 15 | 25 | 90 | 2 | | | |
| 4 | Chs-2 4351-4356 | <0.02 | <0.2 | 10 | 45 | 40 | 8 | | | |
| 5 | 4470-4479 | <0.02 | <0.2 | 100 | 5 | 30 | 2 | | | |
| 6 | 4742-4747 | <0.02 | <0.2 | 15 | 65 | 70 | 2 | | | |
| 7 | 4971-4980 | <0.02 | <0.2 | 25 | 15 | 50 | 24 | | | |
| 8 | Chs-2 5012-5021 | <0.02 | <0.2 | 35 | 50 | 320 | 2 | | | |

TO: American Smelting & Refining Company

REMARKS:

CERTIFIED BY:

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

312

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CHS-1 520-528 | | | 300 | 45 | 70 | 8 | | | |
| 2 | 591-599 | | | 280 | 40 | 130 | 10 | | | |
| 3 | 692-700 | | | 180 | 105 | 200 | 4 | | | |
| 4 | 792-800 | | | 450 | 25 | 95 | 8 | | | |
| 5 | CHS-1 923-933 | <0.02 | <0.2 | 330 | 60 | 80 | 14 | | | |

TO:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. J. R. King

REMARKS:
Trace analysis

CERTIFIED BY:

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 4/26/74 | 4/30/74 | 740759 |

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

313

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Cu ppm | Pb ppm | Zn ppm | Mo ppm | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CHS-1 983-993 | 400 | 60 | 50 | 30 | | | | | |
| 2 | CHS-1 1087-1097 | 600 | 25 | 20 | 14 | | | | | |
| 3 | CHS-1 1257-1267 | 850 | 45 | 60 | 36 | | | | | |
| 4 | CHS-1 1347-1357 | 750 | 45 | 60 | 40 | | | | | |

American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. J. R. King

REMARKS:
Trace analysis

CERTIFIED BY:

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 5/2/74 | 5/7/74 | 740816 |

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | | Cu ppm | Pb ppm | Zn ppm | Mo ppm | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CHS-1 | 1442-1452 | 950 | 50 | 55 | 22 | | | | | |
| 2 | | 1552-1562 | 900 | 40 | 35 | 18 | | | | | |
| 3 | | 1632-1642 | 1350 | 35 | 20 | 14 | | | | | |
| 4 | CHS-1 | 1745-1754 | 20 | 30 | 5 | 22 | | | | | |

O:

American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. J. R. King

REMARKS:

Trace analysis

CERTIFIED BY:

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 5/9/74 | 5/14/74 | 740857 |

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CHS-1 1857-1867 | | | 235 | 15 | 10 | 2 | | | |
| 2 | 1948-1958 | | | 610 | 35 | 40 | 6 | | | |
| 3 | 1996-2006 | | | 475 | 20 | 5 | 4 | | | |
| 4 | 2041-2051 | <0.02 | <0.2 | 135 | 20 | 5 | 30 | | | |
| 5 | CHS-1 2124-2134 | | | 1200 | 20 | 5 | 12 | | | |

TO:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. J. R. King

REMARKS:
Trace analysis

CERTIFIED BY: Charles E. Thompson

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 5/17/74 | 5/22/74 | 740923 |

316

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm | As ppm | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CHS-1 2207-2217 | | | 60 | 10 | 5 | < 2 | | | |
| 2 | 2280-2290 | | | 630 | 10 | 10 | 2 | | | |
| 3 | 2380-2390 | <0.02 | <0.2 | 620 | 10 | 5 | 10 | 28 | | |
| 4 | CHS-1 2455-2465 | | | 1150 | 10 | 10 | 20 | | | |

TO:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. John R. King

REMARKS:
Trace analysis

CERTIFIED BY: William L. Lehmbeck

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 5/31/74 | 6/6/74 | 741018 |

317


SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Cu % | Pb ppm | Zn ppm | Mo ppm | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CHS-1 2612-2622 | 0.19 | 20 | 20 | 18 | | | | | |
| 2 | CHS-1 2525-2535 | 0.19 | 1000 | 85 | 12 | | | | | |

TO:

American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. John R. King

REMARKS:

Trace analysis
Copper - single analysis

CERTIFIED BY:

REGISTERED ASSAYER CERTIFICATE No. 9425 WILLIAM L. LEHMBECK PRESIDENT Arizona U.S.A.

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 6/7/74 | 6/13/74 | 74-1062 |

318

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Ag ppm | Cu ppm | Cu % | Pb ppm | Zn ppm | Mo ppm | As ppm | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Series Chs-1: | | | | | | | | | |
| 1 | 2684-2694 | | >2000 | 0.19 | 20 | 20 | 22 | | | |
| 2 | 2787-2797 | | >2000 | 0.13 | 15 | 15 | 16 | | | |
| 3 | 2844-2854 | | >2000 | 0.41 | 15 | 20 | 16 | | | |
| 4 | 2919-2929 | < 0.2 | 950 | | 25 | 15 | 10 | | | |
| 5 | 2525-2535 (from 741062) | < 0.2 | | | | | | 5 | | |

D:

American Smelting & Refining Co.
Southwestern Exploration Division
P. O. Box 5747
Tucson, Arizona 85703

Attn: Mr. John R. King

REMARKS:

Trace analysis
3 Copper single analysis

CERTIFIED BY:

REGISTERED ASSAYER CERTIFICATE WILLIAM L. LEHMBECK DATE SIGNED 6/17/74 Arizona U.S.A.

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 6/13/74 | 6/17/74 | 741098 |

319


SKYLINE LABS, INC.
Hawley & Hawley Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | | Au ppm | Cu ppm | Cu % | Pb ppm | Zn ppm | Mo ppm | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chs-1 | 3011-3021 | <0.02 | 425 | | 15 | 15 | < 2 | | | |
| 2 | | 3102-3112 | | 495 | | 10 | 15 | 2 | | | |
| 3 | | 3231-3241 | | 1300 | | 10 | 30 | < 2 | | | |
| 4 | | 3305-3315 | | >2000 | 0.20 | 15 | 40 | 6 | | | |
| 5 | | 3401-3411 | <0.02 | >2000 | 0.25 | 15 | 15 | 10 | | | |
| 6 | Chs-1 | 3459-3469 | <0.02 | >2000 | 0.21 | 10 | 35 | < 2 | | | |

D:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. W. L. Kurtz

REMARKS:
Trace analysis
3 Copper - single analysis

CERTIFIED BY:

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 6/28/74 | 6/29/74 | 741212 |

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

320

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | | Cu ppm | Cu % | Pb ppm | Zn ppm | Mo ppm | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chs-1 | 3545-3554 | >2000 | 0.23 | 10 | 25 | 14 | | | | |
| 2 | Chs-1 | 3626-3636 | 500 | | 85 | 110 | 6 | | | | |
| 3 | Chs-1 | 3710-3719 | 435 | | 220 | 240 | 6 | | | | |

TO:

American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. Steven R. Davis

REMARKS:

CERTIFIED BY: William L. Lehmbeck

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK Arizona U.S.A.

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 7/5/74 | 7/9/74 | 741246 |

321


SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Cu % | Pb ppm | Zn ppm | Mo ppm |
|---|---|---|---|---|---|
| 1 | Chs-1 3849-3858 | 0.23 | 15 | 35 | 18 |
| 2 | Chs-1 3905-3914 | 0.26 | 45 | 160 | 4 |

J. R. K.
JUL 19 1974

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK STATE SIGNED Arizona U.S.A.

TO:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. S.R. Davis

REMARKS:

CERTIFIED BY: William L. Lehmbeck

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 7/9/74 | 7/12/74 | 741282 |

322


SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Cu % |
|---|---|---|
| 1 | CHS - 1 2535-2545 | 0.08 |
| 2 | 2545-2555 | 0.09 |
| 3 | 2555-2565 | 0.20 |
| 4 | 2565-2575 | 0.15 |
| 5 | 2575-2585 | 0.13 |
| 6 | 2585-2595 | 0.16 |
| 7 | 2595-2605 | 0.08 |
| 8 | 2605-2612 | 0.15 |
| 9 | 2622-2632 | 0.14 |
| 10 | 2632-2642 | 0.13 |
| 11 | 2642-2652 | 0.21 |
| 12 | CHS - 1 2652-2662 | 0.17 |

American Smelting & Refining Co.
Southwestern Exploration Division
P. O. Box 5747
Tucson, Arizona 85703

Attn: Mr. W. L. Kurtz

REMARKS: Single determinations

CERTIFIED BY:

DATE REC'D: 8/5/74

DATE COMPL.: 8/13/74

JOB NUMBER: 741520

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

323

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Cu % |
|---|---|---|
| | Series CHS-1 | |
| 1 | 2662-2672 | 0.11 |
| 2 | 2672-2684 | 0.11 |
| 3 | 2694-2705 | 0.30 |
| 4 | 2705-2715 | 0.15 |
| 5 | 2715-2725 | 0.16 |
| 6 | 2725-2735 | 0.18 |
| 7 | 2735-2745 | 0.21 |
| 8 | 2745-2755 | 0.21 |
| 9 | 2755-2765 | 0.17 |
| 10 | 2765-2775 | 0.19 |
| 11 | 2775-2787 | 0.25 |
| 12 | 2797-2807 | 0.22 |
| 13 | 2807-2817 | 0.20 |
| 14 | 2817-2827 | 0.22 |
| 15 | 2827-2837 | 0.18 |
| 16 | 2837-2844 | 0.17 |

J. R. K.
AUG 2 0 1974

0060
JRK

TO:
American Smelting & Refining Co.
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attention: Mr. John R. King

REMARKS:
Single determinations

CERTIFIED BY: William L. Lehmbeck 8/23/74

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK ARIZONA U.S.A.

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 8/22/74 | 8/23/74 | 741656 |

324


SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | | Cu % |
|---|---|---|---|
| 1 | CHS - 1 | 2854-2865 | 0.26 |
| 2 | | 2865-2875 | 0.24 |
| 3 | | 2875-2885 | 0.15 |
| 4 | | 2885-2895 | 0.18 |
| 5 | | 2895-2905 | 0.12 |
| 6 | | 2905-2915 | 0.10 |
| 7 | | 2915-2919 | 0.10 |
| 8 | | 2929-2940 | 0.14 |
| 9 | | 2940-2950 | 0.12 |
| 10 | | 2950-2960 | 0.12 |
| 11 | | 2960-2970 | 0.11 |
| 12 | | 2970-2980 | 0.09 |
| 13 | | 2980-2990 | 0.05 |
| 14 | | 2990-3000 | 0.05 |
| 15 | | 3000-3011 | 0.05 |
| 16 | | 3021-3030 | 0.03 |
| 17 | | 3030-3040 | 0.05 |
| 18 | | 3040-3050 | 0.04 |
| 19 | | 3050-3060 | 0.04 |
| 20 | | 3060-3070 | 0.04 |
| 21 | | 3070-3080 | 0.04 |
| 22 | | 3080-3090 | 0.10 |
| 23 | | 3090-3103 | 0.08 |
| 24 | | 3112-3120 | 0.06 |
| 25 | | 3120-3130 | 0.04 |
| 26 | | 3130-3140 | 0.09 |
| 27 | | 3140-3150 | 0.09 |
| 28 | CHS - 1 | 3150-3160 | 0.09 |

TO:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. John King

REMARKS:
Single analysis

CERTIFIED BY:

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 8/26/74 | 8/29/74 | 741694 |

326


SKYLINE LABS, INC.
Hawley & Hawley Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | | Cu % |
|---|---|---|---|
| 1 | CHS-1 | 3160-3170 | 0.05 |
| 2 | | 3170-3180 | 0.05 |
| 3 | | 3180-3190 | 0.13 |
| 4 | | 3190-3200 | 0.12 |
| 5 | | 3200-3210 | 0.10 |
| 6 | | 3210-3220 | 0.14 |
| 7 | | 3220-3232 * | 0.11 |
| 8 | | 3242-3250 ** | 0.09 |
| 9 | | 3250-3260 | 0.16 |
| 10 | | 3260-3270 | 0.08 |
| 11 | | 3270-3280 | 0.10 |
| 12 | | 3280-3290 | 0.14 |
| 13 | | 3290-3305 | 0.20 |
| 14 | | 3315-3325 | 0.19 |
| 15 | | 3325-3335 | 0.20 |
| 16 | | 3335-3345 | 0.09 |
| 17 | | 3345-3355 | 0.06 |
| 18 | | 3355-3365 | 0.15 |
| 19 | | 3365-3375 | 0.20 |
| 20 | | 3375-3385 | 0.22 |
| 21 | | 3385-3401 | 0.25 |
| 22 | | 3411-3420 | 0.25 |
| 23 | | 3420-3430 | 0.20 |
| 24 | | 3430-3440 | 0.09 |
| 25 | | 3440-3450 | 0.16 |
| 26 | | 3450-3459 | 0.18 |
| 27 | | 3469-3480 | 0.26 |
| 28 | | 3480-3490 | 0.24 |
| 29 | | 3490-3500 | 0.28 |
| 30 | | 3500-3510 | 0.19 |
| 31 | | 3510-3520 | 0.29 |
| 32 | | 3520-3530 | 0.15 |
| 33 | | 3530-3545 | 0.33 |
| 34 | | 3554-3565 | 0.26 |
| 35 | CHS-1 | 3565-3575 | 0.16 |

S:
American Smelting & Refining Company
P.O. Box 5747
Tucson, Arizona 85703

REMARKS:

* Sample marked 3220-3231
** Sample marked 3241-3250

CERTIFIED BY:



DATE REC'D: | DATE COMPL.: | JOB NUMBER:

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

326

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | | Cu % |
|---|---|---|---|
| 36 | CHS-1 | 3575-3585 | 0.35 |
| 37 | | 3585-3595 | 0.32 |
| 38 | | 3595-3605 | 0.22 |
| 39 | | 3605-3615 | 0.07 |
| 40 | | 3615-3626 | 0.09 |
| 41 | | 3636-3645 | 0.05 |
| 42 | | 3645-3655 | 0.02 |
| 43 | | 3655-3665 | 0.04 |
| 44 | | 3665-3675 | 0.03 |
| 45 | | 3675-3685 | 0.01 |
| 46 | | 3685-3695 | 0.01 |
| 47 | | 3695-3710 | 0.03 |
| 48 | | 3719-3730 | 0.07 |
| 49 | | 3730-3740 | 0.01 |
| 50 | | 3740-3750 | 0.02 |
| 51 | | 3750-3760 | 0.03 |
| 52 | | 3760-3770 | 0.03 |
| 53 | | 3770-3780 | 0.02 |
| 54 | | 3780-3790 | 0.03 |
| 55 | | 3790-3800 | 0.04 |
| 56 | | 3800-3810 | 0.03 |
| 57 | | 3810-3820 | 0.04 |
| 58 | | 3820-3830 | 0.07 |
| 59 | | 3830-3840 | 0.06 |
| 60 | | 3840-3849 | 0.12 |
| 61 | | 3858-3870 | 0.07 |
| 62 | | 3870-3880 | 0.07 |
| 63 | | 3880-3890 | 0.06 |
| 64 | | 3890-3905 | 0.08 |
| 65 | | 3914-3925 | 0.21 |
| 66 | | 3925-3935 | 0.08 |
| 67 | | 3935-3945 | 0.17 |
| 68 | | 3945-3955 | 0.15 |
| 69 | | 3955-3965 | 0.09 |
| 70 | | 3965-3979 | 0.22 |
| 71 | CHS-1 | 3988-3992 | 0.09 |

REMARKS:

CERTIFIED BY: William L. Lehmbeck

REGISTERED ASSAYER CERTIFICATE NO. 9125 WILLIAM L. LEHMBECK DATE SIGNED 9/23/74 ARIZONA U.S.A.



| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 9/13/74 | 9/23/74 | 741873 |

327

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | As ppm | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chs-1 3979-3988 | <0.02 | 0.6 | < 1 | | | | | | |
| 2 | Chs-1 3992-4002 | <0.02 | 0.8 | < 1 | | | | | | |

O:

American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. S.R. Davis

REMARKS:

Trace analysis

CERTIFIED BY:

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK ARIZONA U.S.A.

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| | 7/29/74 | 741301-A |

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

328

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Cu % | Pb ppm | Zn ppm | Mo ppm | Au | Ag | As | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chs-1 3979-3988 | 0.20 | 25 | 65 | 4 | | | | | |
| 2 | Chs-1 3992-4002 | 0.16 | 20 | 230 | 4 | | | | | |

Running for Au Ag As

J. R. K.
JUL 19 1974

TO:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. S. R. Davis

REMARKS:

CERTIFIED BY: William L. Lehmbeck

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK DATE SIGNED 7-16-74 Arizona U.S.A.

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 7/11/74 | 7/16/74 | 741301 |

CH5 #2 L065

CHS - 1 3862

The rock is a granodiorite porphyry with numerous subhedral phenocrysts of plagioclase and thick biotite books set at random in a granular quartz - feldspar matrix. A few phenocrysts of β quartz and hornblende were noted. Orthoclase rarely mantles and corrodes plagioclase phenocrysts. Hydrothermal alteration is moderate.

Early crushed zones developed in the fabric were characterized by growth of secondary biotite in plagioclase and growth of orthoclase. Disseminated pyrite relates to this event as well as retrograde sericitization of plagioclase. Some biotite and all hornblende were chloritized at this time. A last event is veining by coarse stilbite and interstitial calcite. These are evidently retrograde minerals derived in large measure from plagioclase.

Percentages of minerals present are as follows: quartz 20%, orthoclase 12%, plagioclase 34%, sericite 5%, calcite 6%, clinochlore 8%, stilbite 9%, pyrite 2%, magnetite 0.5%, biotite 3%, rutile 0.5%, apatite tr., zircon tr..

CHS - 2 4061

The rock is an andesite with a pilotaxitic structure. It was originally composed of swarms of well aligned plagioclase laths and small interstitial grains of mafites. Flowage alignment wraps around large subhedral plagioclase phenocrysts. The rock seems to have experienced some autobrecciation. Hydrothermal alteration and K-metasomatism have been moderate.

Most of the rock is unaffected except where cut by a network of granulated zones. In these, tiny scales of secondary biotite have formed at the expense of plagioclase and mafites; the biotite may be accompanied by lenses or pods of new, fresh orthoclase. Coarser orthoclase also occurs in well-defined veins with pyrite and late interstitial calcite. The walls of such veins show sericitization of plagioclase and retrograde alteration of biotite to clinochlore.

CHS - 3 2616

The rock is an intrusive breccia of intermediate composition. It carries innumerable phenocrysts of plagioclase and some β quartz and thick biotite books. These lie in a dense microgranular matrix of quartz and orthoclase that may embay or corrode phenocrysts. There is a crude flowage alignment to the matrix, and it carries numerous, partly resorbed xenoliths. Most of these appear to be cognate granophyres. The rock is quite fresh with epizonal alteration expressed only along fractures or veinlets.

Veinlets generally carry orthoclase and albite euhedrons; which it is depends on whether the vein cuts plagioclase (albite) or the matrix (orthoclase). Additional gangue minerals include calcite and clinochlore. Pyrite is rare in the veins and was also observed mantling accessory magnetite in the vein walls. Elsewhere in the rock alteration is confined to minor calcite and hydromicas in plagioclase and partial chloritization of biotite.

CH2 1852 (sample labelled CHS-2)

The original rock was a mudstone or claystone composed largely of argillic material. Detrital grains are widely scattered in a massive, crudely bedded fabric. These are small grains that are subangular to subround. Most common are quartz and mafites (mostly hornblende), with minor plagioclase. The rock has been hornfelsed by epizonal thermal metamorphism.

Most of the rock is now a dense cryptocrystalline mass of pennine, quartz, and feldspars stippled uniformly with earthy clots of epidote. Incipient veinlets, zones of crystal growth, cut the fabric carrying the same minerals - quartz, pennine, epidote - as the matrix but of enlarged grain size. Pyrite is sparingly disseminated throughout the matrix with no associated nearby recrystallization. One spherule has developed and consists of cherty quartz and small quartz crystalloblasts formed around detrital quartz. This patch is purged of pennine but is rich in coarse poikiloblastic epidote, interstitial calcite, and pyrite.

CHS - 1 1810

The original rock was a porphyry, probably a quartz monzonite. There were numerous subhedral phenocrysts of plagioclase, and less of rounded β quartz, thick biotite books, and an occasional hornblende prism. These are randomly oriented in a granular matrix that was probably quartz-orthoclase. Epizonal alteration has been strong.

Coarse shreddy sericite replaces feldspars in matrix and phenocrysts alike. It also rims biotite and hornblende prisms that have been pseudomorphosed by clinochlore and accessory rutile. Sericite in the matrix tends to be pushed into the interstices of enlarged quartz grains. Pyrite tends to be concentrated in veins with crystalloblasts of anhydrite.

Minerals are present in the following estimated amounts: quartz 35%, sericite 54%, anhydrite 2%, pyrite 4%, clinochlore 4%, plagioclase tr., rutile 0.5%.

CHS - 1 2765

The rock is a breccia of varied fragments including coarse andesite among more numerous chunks of porphyry - probably a quartz monzonite originally. The original nature of the matrix is uncertain owing to intense alteration and K-metasomatism.

First coarse secondary biotite formed at the expense of mafites in the fragments; it is most abundnat in the andesite. As a result of continued growth, the biotite may attack plagioclase as well. A later epizonal event relates to veining by granular quartz associated with pyrite and anhydrite. Quartz has been introduced in the vein walls, growing to a granular aggregate with sericite (derived from feldspars) trapped in the interstices. Further from the veins, sericite attacks plagioclase and biotite has retrogressed to clinochlore. This episode seems to have ended with veining by pyrite-anhydrite-calcite.

# GEOLOGIC LO

Project Charleston — Chs-2

Hole No. / Sheet No. / Date Completed / Logged by A.R.K.

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 21 | | | | | | | | | | | | | | | | | | Plug B.T |
| 21 | 182 | | NC | | +85 | ? | ? 1/3 | - | | | | | ✓ | + | | | | Lus por | oxidized, with |
| | | | | | | | | | | | | | | | | | | | of And por ex |
| | | | | | | | | | | | | | | | | | | | 132-159, alter |
| | | | | | | | | | | | | | | | | | | | mod in Lus por, |
| | | | | | | | | | | | | | | | | | | | in And por n |
| | | | | | | | | | | | | | | | | | | | small faults 30, 8 |
| | | | | | | | | | | | | | | | | | | | 103, 132-133, CO |
| 182 | 619? | | NC | | +85 | 1-3 | 20/1 | | + | | | | ✓ | + | | | | Lus por | as above, al |
| | | | | | | | | | | | | | | | | | | "Uncle Sam" | variable wk-m |
| | | | | | | | | | | | | | | | | | | | An por dikes |
| | | | | | | | | | | | | | | | | | | | 274-287 429- |
| | | | | | | | | | | | | | | | | | | | pebble dikes freq |
| | | | | | | | | | | | | | | | | | | | w/ above. F |
| | | | | | | | | | | | | | | | | | | | K6, 195-208, 29-2 |
| | | | | | | | | | | | | | | | | | | | 267-274, 289, 31 |
| | | | | | | | | | | | | | | | | | | | 376-403, 447, 46 |
| 619 | 1226 | | Nc | | +85 | 1-3 | 20/1 | | + | | | tr GN Sph | + | + | | | | Kbv | Bronco volcan |
| | | | | | | | | | | | | | | | | | | | contact approx, |
| | | | | | | | | | | | | | | | | | | | moderate mi |
| | | | ↓ | | | | | | | | | | | | | | | | weaker. An f |
| | | | 1012 | | | | | | | | | | | | | | | | 768-808 919-923, |
| | | | Nx | | | | | | | | | | | | | | | | 1166 breccia |
| 226 | 1327 | | Nx | | +90 | 1 | 20/1 | | + | tr | | tr GN Sph | ✓ | + | | | | | 1226 - strong a |
| | | | | | | | | | | | | | | | | | | An por | dike - variable |
| | | | | | | | | | | | | | | | | | | | w/ some epido |
| 1327 | 1355 | | Nx | | +90 | 1-2 | 10/1 | | + | | | | ✓ | + | | | | Bisbee | sediments, silt |
| | | | | | | | | | | | | | | | | | | | Bedding 10°, a |
| | | | | | | | | | | | | | | | | | | | weak to mod. |
| 1355 | 1407 | | Nx | | +95 | 1 | 20/1 | | + | | | | | ✓ | | | | An por | as above, epi |
| | | | | | | | | | | | | | | | | | | | common mi |
| | | | | | | | | | | | | | | | | | | | weak |
| | | | | | | | | | | | | | | | | | | CHS #2 | |

# GEOLOGIC LOG

Project Charleston

Chs-2

Sheet No.

Date Completed

Logged by JRK

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | 1853 | | NX | | +95 | ≥1 | 20/1 | | + | | | | tr | ✓ | | | | Bisbee | mudstones weak to mod; 1560-1579 1588 pebble dike 170 bedding 7° |
| 53 | 1874 | | NX | | +95 | 1 | 20/1 | | + | | | | | + | | | | An por | |
| 74 | 2210 | | NX | | +95 | ≥1 | 25/1 | | + | ? | | tr ? Gn | | ✓ | | | ✓ | Bisbee | sediment as alter weak flourite fault 92, bedding |
| 10 | 2268 | | NX | | 95 | 1-2 | 20/1 | | + | | | | | + | | | + | An por | breccia - pebbl dike in part, frags in a. s anhydrite VN |
| 68 | 2307 | | NX | | 95 | ≥1 | 10/1 | | + | | | | | + | | | | Bisbee | as above, mod mudstones, silts sandstone bed 12° dip |
| 07 | 2352 | | NX | | 95 | 2-4 | 10/1 | | + | | | | + | + | | | | Peb dike | - fault zone |
| 52 | 2949 | | NX | | 95 | 1-4 | 10/1 | | + | tr | | tr Gn | ✓ | + | | | | Bisbee | as above a weak-mod b 15° numerous hbtite dikes 2 2503-40. 2572- 2592-2625; 267 2878-2903 epi |
| 49 | 3033 | | 2002 BX | | 95 | 3-6 | 10/1 | | | | | | + | ✓ | | tr | ✓ | An por- | Gd por alter m bounded by a |
| 33 | 3093 | | Bx | | 65 | | | | | | | | | | | | | FAULT | involves both sed & intrusive rock |

# GEOLOGIC LOG

Project Charlestown

Ch s - 2

OLE Ch
Sheet No.
Date Completed
Logged by ARK.

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wedge | | | NX | | | | | | | | | | | | | | | | |
| 195 | 3415 | | 3202 | | 90 | | | | | | | | | | | | | | as described on |
| | | | BX | | | | | | | | | | | | | | | | page three |
| | | | ↓ | | | | | | | | | | | | | | | | |
| 15 | 3895 | | BX | | 90 | 1-2 | 1/3 | | + | tr | tr | GN | + | ✓ | | | ✓ | BISBEE | siltst limesilt, s |
| | | | | | | | | | | | | | | | | | | | epidote g |
| | | | | | | | | | | | | | | | | | | | alter |
| | | | | | | | | | | | | | | | | | | | med to strong |
| 345 | 4075 | | Bx | | | 1-2 | 1/2 | | + | | | | + | | tr | | | An por | |
| | | | | | | | | | | | | | | | | | | | Gd por |
| | | | | | | | | | | | | | | | | | | | silicification r |
| 225 | 4493 | | Bx | | +90 | 1 | 1/1 | | + | tr | tr | GN | + | | ? | | + | BISBEE | siltst |
| | | | | | | | | | | | | | | | | | | | alter strong |
| | | | | | | | | | | | | | | | | | | | silicification |
| | | | | | | | | | | | | | | | | | | | bedding 10° |
| 193 | 4828 | | Bx | | +90 | ≥1 | 2/1 | | + | tr | tr | GN | ✓ | ✓ | | | | BISBEE | limest, congl |
| | | | | | | | | | | | | | | | | | | | alter |
| | | | | | | | | | | | | | | | | | | | to mod silic |
| | | | | | | | | | | | | | | | | | | | variable bed |
| | | | | | | | | | | | | | | | | | | | 10° |
| 328 | 4959 | | Bx | | +85 | ≥1 | 2/1 | | + | | tr | GN | | | | | | Paleozoic | marble |
| | | | | | | | | | | | | | | | | | | | alter is weak |
| | | | | | | | | | | | | | | | | | | | bedding 5° |
| 259 | 4980 | | 4985 | | +90 | 2-4 | 3/1 | | + | | | | + | | | | | An por | fine grained r |
| | | | AX | | | | | | | | | | | | | | | | alteration poor |
| | | | ↓ | | | | | | | | | | | | | | | | core recovery |
| | | | | | | | | | | | | | | | | | | | silic |
| | | | | | | | | | | | | | | | | | | | noted |
| 80 | 5028 | | AX | | +90 | .5-2 | 3/1 | | + | tr | | tr GN | | | | | | Paleozoic | marble as |
| | | | | | | | | | | | | | | | | | | | before conta |
| | | | | | | | | | | | | | | | | | | | poor core recove |
| | | | | | | | | | | | | | | | | | | | alter |
| | | | | | | | | | | | | | | | | | | | wk, bedding 5 |
| | | | | | | | | | | | | | | | | | | | small fault 50° |

al - depth -3405 (cage 5023)
evation
ordinates
clination Vertical

# ASARCO
# GEOLOGIC LOG

✓ minor
tr trace

Project Chauncey

E NO. Chs. 2
Sheet No. 1
Date Completed
Logged by J R King · S R C

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 21 | | | | | | | | | | | | | | | | | | Pluc Bit |
| 21 | 182 | | NC | | +85 | ? | ? 1/3 | - | | | | | ✓ | + | | | | Lus por | oxidized, with dikes of And por 80-100 132-159, alter is var mod in Lus por, wk in And por, numerous small faults 30, 80-85, 103 132-133, $CO_2$ un |
| 182 | 619 ? | | NC | | +85 | 1-3 | 20/1 | | + | | | | ✓ | + | | | | Lus por "Uncle Sam" | as above, alter still variable wk-mod, An por dikes 182-1 274-287, 429-463, pebble dikes freq. asso. w/ above, faults 166, 195-208, 219-221, 2 267-274, 289, 310, 3 376-403, 447, 460, 48 |
| 619 | 1226 | | NC | | +85 | 1-3 | 20/1 | | + | | | tr GN Sph | + | + | | | | Kbu | bronco volcanics contact approx, alter moderate min some weaker. An por 768-808, 919-923, 940-9 1166, breccia 1185 1226 - strong alter |
| | | | ↓ 1012 Nx | | | | | | | | | | | | | | | | |
| 1226 | 1327 | | Nx | | +90 | 1 | 20/1 | | + | tr | | tr GN Sph | ✓ | + | | | | An por | dike - variable alt w/ some epi. |
| 1327 | 1355 | | Nx | | +90 | 1-2 | 10/1 | | + | | | | ✓ | + | | | | BISBEE | sediments, silts-sa Bedding 10°, alter weak to mod. |
| 1355 | 1407 | | Nx | | +95 | 1 | 20/1 | | + | | | | | ✓ | | | | An por | as above, epidote common, min ver weak |

ASARCO

# GEOLOGIC LOG

Project Charleston

Hole NO. Chs-2
Sheet No.
Date Completed
Logged by HRK — S.R.C.

| | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization: Ratio | Py | Cpy | Mo | Others | Alteration: Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 1853 | | NX | | +95 | ≥1 | 20/1 | | + | | | | tr | ✓ | | | | Bisbee | sediments [illegible] Hat. nodulous alt. weak to mod.; fault 1560-1579, 1588, 1646 pebble dike 1709, bedding 7°; |
| 3 | 1874 | | NX | | +95 | 1 | 20/1 | | + | | | | | + | | | | An por | mafic dike [illegible] scattered [illegible] strong and alter [illegible] |
| | 2210 | | NX | | +95 | ≥1 | 25/1 | | + | ? | | tr ? GN | | ✓ | | | ✓ | Bisbee | sediments - as abo alter. weak poss. fluorite, fault 2187 92, bedding 10° |
| 0 | 2240 | | NX | | 95 | 1-2 | 20/1 | | + | | | | | + | | | + | An por | breccia - pebble dike in part, Bisbee frags in Δ, strong anhydrite UNING. |
| 8 | 2302 | | NX | | 95 | ≥1 | 10/1 | | + | | | | | + | | | | Bisbee | as above, nodular mudstones, siltst. sandstone. bedd. 12° |
| 2 | 2352 | | NX | | 95 | 2-4 | 10/1 | | + | | | | + | + | | | | Peb dike | - fault zone |
| 2 | 2949 | | NX | | 95 | 1-4 | 10/1 | | + | tr | | tr GN spk | ✓ | + | | | | Bisbee | - as above alter weak-mod. bedding 15°, numerous an altite dikes, 2470-9 2503-40, 2572-76, 2597-2625, 2671-272 2878-2903, epi common |
| 19 | 3032 | | 3002 BX | | 85 | 3-6 | 10/1 | | | | | | + | ✓ | | tr | ✓ | Anpor- | bd por alter underg |
| 33 | 3093 | | Bx | | 65 | | | | | | | | | | | | | FAULT | bounded by a fault involves both sediment + igneous rocks |

Depth 3405
on
nates
tion

# ASARCO
# GEOLOGIC LOG

Project Charleston

I NO. Chs-2
Sheet No. 3
Date Completed
Logged by JRK

| | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3245 | | BX | | 90 | 1-4 | 15/1 | | + | tr | | tr GN | ✓ | ✓ | | tr | ✓ | BISBEE | [illegible] limey siltstones alter mod beddin 50, dike at 3112-3149. |
| 5 | 3250 | | BX | | 90 | 2-4 | 5/1 | 50/1 | + | tr | | | + | | tr | | tr | Au pow | [illegible] alter strong |
| 6 | 3415 | | BX | | 90 | 1-4 | 5/1 | | + | tr | | tr GN SPW. | ✓ | + | | | tr | BISBEE | siltst, limey sil. limest, minor conglo alter is mod. epi common, silicified |
| | | | | | | | loss | hole | due | to | was[illegible] | at | 30[illegible] | | | | | wedge | set for Chs-7 at 2496 |

depth 5028
ion
nates
ition vertical ?

# ASARCO
# GEOLOGIC LOG

Project Charleston

NO. Chs-2W
Sheet No. 4
Date Completed
Logged by JRK

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wedge | | | NX | | | | | | | | | | | | | | | | |
| 75 | 3415 | | 3202 | | 40 | | | | | | | | | | | | | | as described on |
| | | | BX | | | | | | | | | | | | | | | | page three |
| | | | ↓ | | | | | | | | | | | | | | | | |
| 15 | 3895 | | Bx | | 90 | 1-2 | 1/3 | | + | +v | +v | GN cpy | + | v | | | v | Bisbee | siltst limestone, sandy |
| | | | | | | | | | | | | | | | | | | | epidote silicified, garnet |
| | | | | | | | | | | | | | | | | | | | prevalent, alter |
| | | | | | | | | | | | | | | | | | | | mod to strong |
| 95 | 4005 | | Bx | | 90 | 1-2 | 1/3 | | + | | | | + | | +v | | | An por | [illegible] |
| | | | | | | | | | | | | | | | | | | | [illegible] |
| | | | | | | | | | | | | | | | | | | | silicification noted |
| 25 | 4493 | | Bx | | +90 | 1 | 1/1 | | + | +v | +v | GN cpy | + | | ? | | + | Bisbee | siltst, limest |
| | | | | | | | | | | | | | | | | | | | alter strong - |
| | | | | | | | | | | | | | | | | | | | silicification |
| | | | | | | | | | | | | | | | | | | | bedding 10°. |
| 93 | 4828 | | Bx | | +90 | ≥1 | 2/1 | | + | +v | +v | GN cpy | v | v | | | | Bisbee | limest, sandy lim |
| | | | | | | | | | | | | | | | | | | | stone, alter wk |
| | | | | | | | | | | | | | | | | | | | to mod, silicified |
| | | | | | | | | | | | | | | | | | | | variable bedding |
| | | | | | | | | | | | | | | | | | | | 10° |
| 28 | 4959 | | Bx | | +25 | ≥1 | 2/1 | | + | | +v | GN cpy | | | | | | Paleozoic | - marble |
| | | | | | | | | | | | | | | | | | | | alter is mod |
| | | | ↓ | | | | | | | | | | | | | | | | bedding 5° |
| 57 | 4990 | | 4985 | | +90 | 2-4 | 3/1 | | + | | | | + | | | | | An por | fine grained mod |
| | | | AX | | | | | | | | | | | | | | | | altered poor |
| | | | ↓ | | | | | | | | | | | | | | | | core recovery or |
| | | | | | | | | | | | | | | | | | | | considerable silicification |
| | | | | | | | | | | | | | | | | | | | noted |
| 20 | 5028 | | Ax | | +80 | .5-2 | 3/1 | | + | +v | +v | GN cpy | | | | | | Paleozoic | marble as |
| | | | | | | | | | | | | | | | | | | | before, considerable |
| | | | | | | | | | | | | | | | | | | | poor core recovery |
| | | | | | | | | | | | | | | | | | | | otherwise alteration |
| | | | | | | | | | | | | | | | | | | | wk, bedding 5° |
| | | | | | | | | | | | | | | | | | | | small fault 5020-28 |

338


SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm |
|---|---|---|---|---|---|---|---|
| 1 | CHS-2 | 50-60 | <0.2 | 5 | 10 | 65 | < 2 |
| 2 | | 150-160 | <0.2 | 35 | 15 | 95 | < 2 |
| 3 | | 250-260 | <0.2 | 10 | 15 | 60 | 2 |
| 4 | | 350-360 | <0.2 | 5 | 10 | 75 | < 2 |
| 5 | | 450-460 | <0.2 | 45 | 35 | 120 | < 2 |
| 6 | | 550-560 | <0.2 | 10 | 50 | 65 | < 2 |
| 7 | | 650-660 | <0.2 | 5 | 20 | 65 | < 2 |
| 8 | | 750-760 | <0.2 | 5 | 20 | 65 | < 2 |
| 9 | | 850-860 | <0.2 | 15 | 30 | 65 | < 2 |
| 10 | CHS-2 | 950-960 | <0.2 | 5 | 35 | 35 | < 2 |

TO:
American Smelting & Refining Company
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. S. R. Davis

REMARKS:

CERTIFIED BY: William L. Lehmbeck

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK ARIZONA U.S.A.

DATE REC'D: 9/27/74 | DATE COMPL.: 10/2/74 | JOB NUMBER:

339


SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm |
|---|---|---|---|---|---|---|---|
| 1 | CHS-2 | 1050-1060 | <0.2 | 10 | 65 | 75 | 2 |
| 2 | | 1150-1160 | <0.2 | 10 | 30 | 5 | 2 |
| 3 | | 1250-1260 | <0.2 | 55 | 15 | 130 | < 2 |
| 4 | | 1350-1360 | <0.2 | 40 | 20 | 85 | < 2 |
| 5 | | 1450-1460 | <0.2 | 5 | 15 | 35 | 2 |
| 6 | | 1550-1560 | <0.2 | 25 | 30 | 70 | < 2 |
| 7 | | 1650-1660 | <0.2 | 5 | 10 | 35 | < 2 |
| 8 | | 1750-1760 | <0.2 | 10 | 10 | 50 | < 2 |
| 9 | | 1850-1860 | <0.2 | 15 | 50 | 130 | 2 |
| 10 | | 1950-1960 | <0.2 | 10 | 20 | 65 | 2 |
| 11 | | 2050-2060 | <0.2 | 5 | 15 | 70 | 2 |
| 12 | | 2150-2160 | <0.2 | 15 | 100 | 70 | 2 |
| 13 | | 2190-2200 | <0.2 | 5 | 20 | 5 | 2 |
| 14 | | 2200-2210 | <0.2 | 115 | 10 | 5 | 2 |
| 15 | | 2210-2220 | <0.2 | 35 | 15 | 50 | 2 |
| 16 | CHS-2 | 2250-2260 | <0.2 | 10 | 25 | 40 | 2 |

TO:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. S. R. Davis

REMARKS:

CERTIFIED BY: William L. Lehmbeck

REGISTERED ASSAYER CERTIFICATE NO. 9425 DATE ISSUED 10 Arizona U.S.A.

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 9/30/74 | 10/7/74 | 741973 |

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

340

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chs-2 2911-2913 | 20. | 485 | 5400 | 7600 | < 2 | | | | |

TO:

American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

REMARKS:

Trace analysis

CERTIFIED BY:

DATE REC'D:

DATE COMPL.:

JOB NUMBER:

341


SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chs-2 2988-2998 | 0.2 | 25 | 15 | 35 | 2 | | | | |
| 2 | Chs-2 3243-3253 | 0.6 | 210 | 1800 | 2100 | 2 | | | | |
| [redacted] | | [redacted] | | | | | | | | |


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Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
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# CERTIFICATE OF ANALYSIS


Charles E. Thompson
Arizona Registered Assayer No. 942

William L. Lehmbeck
Arizona Registered Assayer No. 942


| SAMPLE IDENTIFICATION | GOLD ppm | SILVER | COPPER | LEAD | ZINC ppm | MO ppm | | | |
|---|---|---|---|---|---|---|---|---|---|
| Chs-2 3243-3253 | <0.02 | | | | | | | | |
| [redacted] | [redacted] | | | | [redacted] | [redacted] | | | |

TO:
American Smelting & Refining Company
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. John R. King

REMARKS:

2 Gold @ $2.50
1 Zinc - 1.25
1 Molybdenum - $1.50

CERTIFIED BY: William L. Lehmbeck

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK DATE SIGNED 11/11/74 ARIZONA U.S.A.

CHARGES:
PREPARATION $
ANALYSIS $ 7.75

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: | $ 7.75 |
|---|---|---|---|
| | 11/11/74 | 742154-A | |

TO:
American Smelting & Refining Company
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. John King

REMARKS:

CERTIFIED BY: William L. Lehmbeck

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK DATE SIGNED 11/4/74 ARIZONA U.S.A.

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 10/30/74 | 11/4/74 | 742154 |

342

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chs-2 3378-3388 | <0.02 | <0.2 | 55 | 55 | 250 | < 2 | | | |

D:
American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

Attn.: Mr. John R. King

REMARKS:

CERTIFIED BY: William L. Lehmbeck

11/14/74

| DATE REC'D: | DATE COMPL.: | JOB NUMBER: |
|---|---|---|
| 11/6/74 | 11/14/74 | 74-2100 |

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

343

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | Cu % | Pb ppm | Zn ppm | Mo ppm | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Chs-2 W 4205-4215 | <0.02 | 27 | 1.04 | 295 | 220 | < 2 | | | |

D:
American Smelting & Refining Co.
Southwestern Exploration Div.
P. O. Box 5747
Tucson, Arizona 85703

Attn: Mr. John King

REMARKS:

CERTIFIED BY:

DATE REC'D:

DATE COMPL.:

JOB NUMBER:

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | Cu % | Pb ppm | Zn ppm | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chs 4195-4205 | <0.02 | 6.6 | 0.53 | 210 | 530 | | | | |

American Smelting & Refining Company
Southwestern Exploration Division
P.O. Box 5747
Tucson, Arizona 85703

REMARKS:

CERTIFIED BY:

DATE REC'D: | DATE COMPL.: | JOB NUMBER:

345


SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425


# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CP-1 240-250 | | <0.2 | 15 | 50 | 185 | 2 | | | |
| 2 | CP-1 330-350 | | 0.2 | 15 | 65 | 180 | 2 | | | |
| 3 | CP-1 370-395 | | <0.2 | 15 | 25 | 90 | 2 | | | |
| 4 | Chs-2 4351-4356 | <0.02 | <0.2 | 10 | 45 | 40 | 8 | | | |
| 5 | 4470-4479 | <0.02 | <0.2 | 100 | 5 | 30 | 2 | | | |
| 6 | 4742-4747 | <0.02 | <0.2 | 15 | 65 | 70 | 2 | | | |
| 7 | 4971-4980 | <0.02 | <0.2 | 25 | 15 | 50 | 24 | | | |
| 8 | Chs-2 5012-5021 | <0.02 | <0.2 | 35 | 50 | 320 | 2 | | | |

TO: American Smelting & Refining Company

REMARKS:

CERTIFICATE BY:

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK

CH6 #3 L065

CHS - 1 3862

The rock is a granodiorite porphyry with numerous subhedral phenocrysts of plagioclase and thick biotite books set at random in a granular quartz - feldspar matrix. A few phenocrysts of β quartz and hornblende were noted. Orthoclase rarely mantles and corrodes plagioclase phenocrysts. Hydrothermal alteration is moderate.

Early crushed zones developed in the fabric were characterized by growth of secondary biotite in plagioclase and growth of orthoclase. Disseminated pyrite relates to this event as well as retrograde sericitization of plagioclase. Some biotite and all hornblende were chloritized at this time. A last event is veining by coarse stilbite and interstitial calcite. These are evidently retrograde minerals derived in large measure from plagioclase.

Percentages of minerals present are as follows: quartz 20%, orthoclase 12%, plagioclase 34%, sericite 5%, calcite 6%, clinochlore 8%, stilbite 9%, pyrite 2%, magnetite 0.5%, biotite 3%, rutile 0.5%, apatite tr., zircon tr..

CHS - 2 4061

The rock is an andesite with a pilotaxitic structure. It was originally composed of swarms of well aligned plagioclase laths and small interstitial grains of mafites. Flowage alignment wraps around large subhedral plagioclase phenocrysts. The rock seems to have experienced some autobrecciation. Hydrothermal alteration and K-metasomatism have been moderate.

Most of the rock is unaffected except where cut by a network of granulated zones. In these, tiny scales of secondary biotite have formed at the expense of plagioclase and mafites; the biotite may be accompanied by lenses or pods of new, fresh orthoclase. Coarser orthoclase also occurs in well-defined veins with pyrite and late interstitial calcite. The walls of such veins show sericitization of plagioclase and retrograde alteration of biotite to clinochlore.

CHS - 3 2616

The rock is an intrusive breccia of intermediate composition. It carries innumerable phenocrysts of plagioclase and some β quartz and thick biotite books. These lie in a dense microgranular matrix of quartz and orthoclase that may embay or corrode phenocrysts. There is a crude flowage alignment to the matrix, and it carries numerous, partly resorbed xenoliths. Most of these appear to be cognate granophyres. The rock is quite fresh with epizonal alteration expressed only along fractures or veinlets.

Veinlets generally carry orthoclase and albite euhedrons; which it is depends on whether the vein cuts plagioclase (albite) or the matrix (orthoclase). Additional gangue minerals include calcite and clinochlore. Pyrite is rare in the veins and was also observed mantling accessory magnetite in the vein walls. Elsewhere in the rock alteration is confined to minor calcite and hydromicas in plagioclase and partial chloritization of biotite.

# GEOLOGIC LO

ation
dicates
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Project Charleston

Chs-3

HOLE No.
Sheet No.
Date Completed
Logged by John R.

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 2.3 | | | | | | | | | | | | | | | | | | Plug B.F |
| 13 | 115 | 92 | NC | | +80 | ?1-4 | - | - | + | | | | + | + | | | | Δ | Breccia w/ open oxidation to ~ 1 |
| | | | | | | | | | | | | | | | | | | | pred por + US |
| 115 | 210 | 95 | NC | | +80 | 1-3 | 3/1 | | + | | | | | + | | | | Dac por | dac → gd; phenos |
| | | | | | | | | | | | | | | | | | | | plag, Hb, Qtz Mc |
| | | | | | | | | | | | | | | | | | | | alter |
| | | | | | | | | | | | | | | | | | | | bottom 10' |
| 210 | 560 | 350 | NC | | +75 | 3-6 | 5/1 | | + | | | | + | ✓ | | | | Gd por Δ | breccia in part, |
| | | | | | | | | | | | | | | | | | | | filling some |
| | | | | | | | | | | | | | | | | | | | alteration - strong |
| | | | | | | | | | | | | | | | | | | | faulting - 225, 25 |
| | | | | | | | | | | | | | | | | | | | 335, 355, 458, 4 |
| 560 | 610 | 50 | NC | | +85 | 3-6 | 4/1 | | + | | | | | | | | | Gd por | as before |
| | | | 631 | | | | | | | | | | | | | | | | relation |
| 610 | 1070 | 460 | NX | | +85 | 2-5 | 3/1 | 100% | + | tr | | tr ON | + | | | tr | tr | Δ | heterolithic igne |
| | | | | | | | | | | | | | | | | | | | breccia |
| | | | | | | | | | | | | | | | | | | | frag. alter - st |
| | | | | | | | | | | | | | | | | | | | minor open cavit |
| 970 | 1093 | 23 | NX | | +85 | 2-3 | 5/1 | | + | | | | + | | | | | Dac por | as above excep |
| | | | | | | | | | | | | | | | | | | | no py phenos |
| | | | | | | | | | | | | | | | | | | | plag hb qtz |
| 993 | 1104 | 11 | NX | | +85 | 2-3 | 2/1 | | + | | | | + | | | | | Δ | heterolithic brecc |
| | | | | | | | | | | | | | | | | | | | above alter |
| | | | | | | | | | | | | | | | | | | | decreasing |
| 104 | 1266 | 162 | NX | | +90 | 2-3 | 10/1 | | + | | | tr ON SPH | - | | | | ✓ | Qtz Mz Por | with strong p |
| | | | | | | | | | | | | | | | | | | | dissem. plag |
| | | | | | | | | | | | | | | | | | | | fa |
| | | | | | | | | | | | | | | | | | | | at 1260 otherwise |
| | | | | | | | | | | | | | | | | | | | sulfide VNING is |
| | | | | | | | | | | | | | | | | | | | NORMALLY NONE |

CHS #3

GEOLOGIC LO

Project Charleston

Chs - 3

Hole
Sheet No.
Date Completed
Logged by LRK

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 266 | 1484 | [illegible] | NX | | [illegible] | 2 | 3/1 | 25/1 | + | tr | | | + | | tr | tr | ✓ | Gd-Por | with dissem py [illegible] faulting 1278, [illegible] some brecciation [illegible] 1453-1484. |
| 484 | 1516 | [illegible] | NX | | .90 | 2 | 3/1 | 20/1 | + | ✓ | | tr GN | + | | | tr | ✓ | Δ | Heterolithic [illegible] breccia wi[illegible] |
| 516 | 1587 | [illegible] | NX | | .95 | 1 | 4/1 | 20/1 | + | ✓ | | | ✓ | | | tr | ✓ | An por | alter definite decreasing [illegible] of An por of G |
| 587 | 1930 | [illegible] | NX | | .95 | 1-2 | 4/1 | 20/1 | + | ✓ | | | ✓ | | | ✓ | ✓ | Gd-por | with [illegible] Ks [illegible], alter wk to strong [illegible] ser twinn[illegible] [illegible] An. |
| 930 | 2103 | [illegible] | NX | | .95 | 1 | 8/1 | 15/1 | + | ✓ | | | ✓ | | tr | ✓ | ✓ | Gd-por | mix 1830-1930 [illegible] relatively unjointed K-pl [illegible] |
| 103 | 2340 | [illegible] | NX | | .95 | ≤1 | 4/1 | 10/1 | + | ✓ | | | ✓ | | ✓ | ✓ | ✓ | Gd por | mix and por gu possibly an intrus breccia zone. |
| 340 | 2501 | [illegible] | NX | | .95 | 1 | 2/1 | 15/1 | + | ✓ | | | ✓ | | ✓ | ✓ | tr | Gd por- | mix and por [illegible] rocks with K- phenos; in Po rock shows defi intrusive breccia qtz veining & [illegible] veining prevail |

# GEOLOGIC LO

Project Charleston

Chs-3

HOLE
Sheet No.
Date Completed
Logged by JRK

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 501 | 2910 | | NX | | ~95 | 2 | 3/1 | 10/1 | + | ✓ | | | + | | ✓ | ✓ | ✓ | HYBRID | [illegible] mod to strong [illegible] we [illegible] pre in places seen in Chs he before bres in places f 3254 |
| 910 | 3003 | 93 TD | NX | | ~95 | ≤1 | 2/1 | 15/1 | + | ✓ | | | tr | | tr | tr | tr | Gd pre | very fresh, [illegible] Kspar phenos alter weak, [illegible] chlorite. |

depth 3003
ation
dinates
nation Vertical

# ASARCO
# GEOLOGIC LOG

tr - trace
✓ minor
+ abundant

Project Charleston

NO. Hs-3
Sheet No. 1
Date Completed
Logged by John R. [illegible]

| From | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 22 | | | | | | | | | | | | | | | | | | Plus R.— |
| 3 | 115 | 93 | NC | | +80 | ?1-4 | - | - | + | | | | + | + | | | | Δ | Breccia w/ open cavitie oxidation to ≥ 150' |
| 15 | 210 | 95 | NC | | +80 | 1-3 | 3/1 | | + | | | | | + | | | | Dac por | pred. por ad + US por fa dac→ad; phenos of Pl, Ab, Hb, Qtz, Mag. Py alter is oxidation weak bottom 10' intense sert |
| 210 | 560 | 350 | NC | | +75 | 2-6 | 5/1 | | + | | | | + | ✓ | | | | Gd por Δ | breccia in part, py-q filling some cavities alteration - chlor fault, -225, 255, 310 335, 355, 458, 470, 51 |
| 560 | 610 | 50 | NC 631 | | +25 | 3-6 | 4/1 | | + | | | | | | | | | Gd por | as before except relation in breccia |
| 610 | 1070 | 460 | NX | | +85 | 2-5 | 3/1 | 100/1 | + | tr | | TR GN SPH | + | | | tr | tr | Δ | heterolithic intrusive breccia pred ad por frags alter - chlor minor open cavit. Δ ? |
| 1070 | 1093 | 23 | NX | | +85 | 2-3 | 5/1 | | + | | | | + | | | | | Dac por | as above, except no py, chlor, only plag, hb, qtz, |
| 1093 | 1104 | 11 | NX | | +85 | 2-3 | 2/1 | | + | | | | + | | | | | Δ | heterolithic breccia as above. alter is decreasing |
| 1104 | 1266 | 162 | NX | | +90 | 2-3 | 10/1 | | + | | | TR GN SPH | + | | | | ✓ | Qtz Mg Por | with chlor, py. disseminated plag crystals intermixed. fault at 1260 otherwise rock is unchloritized. sulfide mining is VIRTUALLY NON EXISTENT |

depth 3003
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# ASARCO
# GEOLOGIC LOG

Project Charleston

E NO. Che-3
Sheet No. 2
Date Completed
Logged by LRK

| n | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 66 | 1484 | 314 | NX | | +95 | 2 | 3/1 | 25/1 | + | tr | | | + | | tr | tr | ✓ | Gd-Por | with [illegible] also plag [illegible] data phenos. faulting 1278, 1303, [illegible] some brecciation [illegible] 1453-1484 |
| 54 | 1516 | 32 | NX | | +90 | 2 | 3/1 | 20/1 | + | ✓ | | tr 6N [illegible] | + | | | tr | ✓ | A | Heterolithic igneous breccia with [illegible] mass [illegible] |
| 6 | 1587 | 71 | NX | | +95 | 1 | 4/1 | 20/1 | + | ✓ | | | ✓ | | | tr | ✓ | An por | altes definitely [illegible] [illegible] of An por of Che-1 |
| 87 | 1930 | 343 | NX | | +95 | 1-2 | 4/1 | 20/1 | + | ✓ | | | ✓ | | | ✓ | ✓ | Gd-por | with [illegible] K spar phenos, alter [illegible] link to [illegible] [illegible] see twinning reflecting An por mix 1830-1930 |
| 30 | 2103 | 173 | NX | | +95 | 1 | 4/1 | 15/1 | + | ✓ | | | ✓ | | tr | ✓ | ✓ | Gd-por | [illegible] relatively unjointed K phenos generally lacking [illegible] |
| 23 | 2340 | 237 | NX | | +95 | ≤1 | 4/1 | 10/1 | + | ✓ | | | ✓ | | ✓ | ✓ | ✓ | Gd por | mic and por quite possibly a intrusive breccia zone |
| 40 | 2501 | 396 | NX | | +95 | 1 | 2/1 | 15/1 | + | ✓ | | | ✓ | | ✓ | ✓ | tr | Gd por- | mic and por both -rales with K spar phenos. in most rock show definite intrusive brecciation gts UNING & UNZ UNING prevalent |

depth 3003
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# ASARCO
# GEOLOGIC LOG

Project Chalchuapa

Hole NO. Hole 3
Sheet No. 3
Date Completed
Logged by JRK

| | To | Interval | Size | Spec | Recovery % | Total % Sulf. | Diss/Fract | Mineralization Ratio | Py | Cpy | Mo | Others | Alteration Phy | Arg | Pot | Mag | Anhy | Rock | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2910 | [illegible] | NX | | ~95 | 2 | 3/1 | 10/1 | + | ✓ | | | + | | ✓ | ✓ | ✓ | HYBRID | VOL-SFC ? also mod to strong rock f.g. weakly por in places not seen in the holes before breccia in places cont 3054 |
| | 3003 | 93 | NX | | ~95 | ≤1 | 3/1 | 15/1 | + | ✓ | | | tr | | tr | + | tr | Gd por | very fresh, with Kspar veinlets alter weak, [illegible] no chlorite. |
| | | TD | | | | | | | | | | | | | | | | | |

CHS #3 ABBAYS

SKYLINE LABS, INC.
Hawley & Hawley, Assayers and Chemists Division
1700 W. Grant Rd., P.O. Box 50106, Tucson, Arizona 85703
(602) 622-4836

Charles E. Thompson
Arizona Registered Assayer No. 9427

William L. Lehmbeck
Arizona Registered Assayer No. 9425

# CERTIFICATE OF ANALYSIS

| ITEM NO. | SAMPLE IDENTIFICATION | Au ppm | Ag ppm | Cu ppm | Pb ppm | Zn ppm | Mo ppm |
|---|---|---|---|---|---|---|---|
| 1 | Chs-3 201-211 | <0.02 | <0.2 | 220 | 140 | 165 | 2 |
| 2 | 602-610 | <0.02 | <0.2 | 110 | 65 | 65 | 8 |
| 3 | 948-958 | <0.02 | <0.2 | 60 | 70 | 80 | 8 |
| 4 | 1213-1223 | <0.02 | <0.2 | 50 | 30 | 45 | 2 |
| 5 | 1486-1496 | <0.02 | 3.2 | 870 | 820 | 1850 | 14 |
| 6 | 1577-1587 | <0.02 | 0.2 | 185 | 35 | 110 | 6 |
| 7 | 2167-2176 | <0.02 | <0.2 | 295 | 40 | 50 | 16 |
| 8 | 2789-2799 | <0.02 | <0.2 | 940 | 70 | 55 | 12 |

American Smelting & Refining Company
Southwestern Exploration Division
P. O. Box 5747
Tucson, Arizona 85703
Attn: Mr. John R. King

REMARKS:
Trace analysis

CERTIFIED BY:

REGISTERED ASSAYER CERTIFICATE NO. 9425 WILLIAM L. LEHMBECK ARIZONA U.S.A.

DATE REC'D:
DATE COMPL.:
JOB NUMBER:

MISC. CORRES. REL. TO DRILLING

Gen Drilling

354

July 10, 1980

Mr. Nino Trujillo
Joy Manufacturing Company
750 E. Evans Blvd.
Tucson, Arizona 85713

Dear Mr. Trujillo:

RE: Diamond Core Drilling for Apache, Stewart and Suiter Claims

As per our telephone conversation this morning, I am writing to you concerning the possibility of your company doing some diamond core drilling work for us. This work would be done on our federal and state mining claims located in the vicinity of the old Charleston Lead Mine near Tombstone. I am enclosing a topographic map of the area. I have indicated on the 3 locations (red) where we need to have holes core drilled and also the location of our water well (blue). The holes need to be of sufficient diameter, so that we can eventually drill down to 4,000 feet.

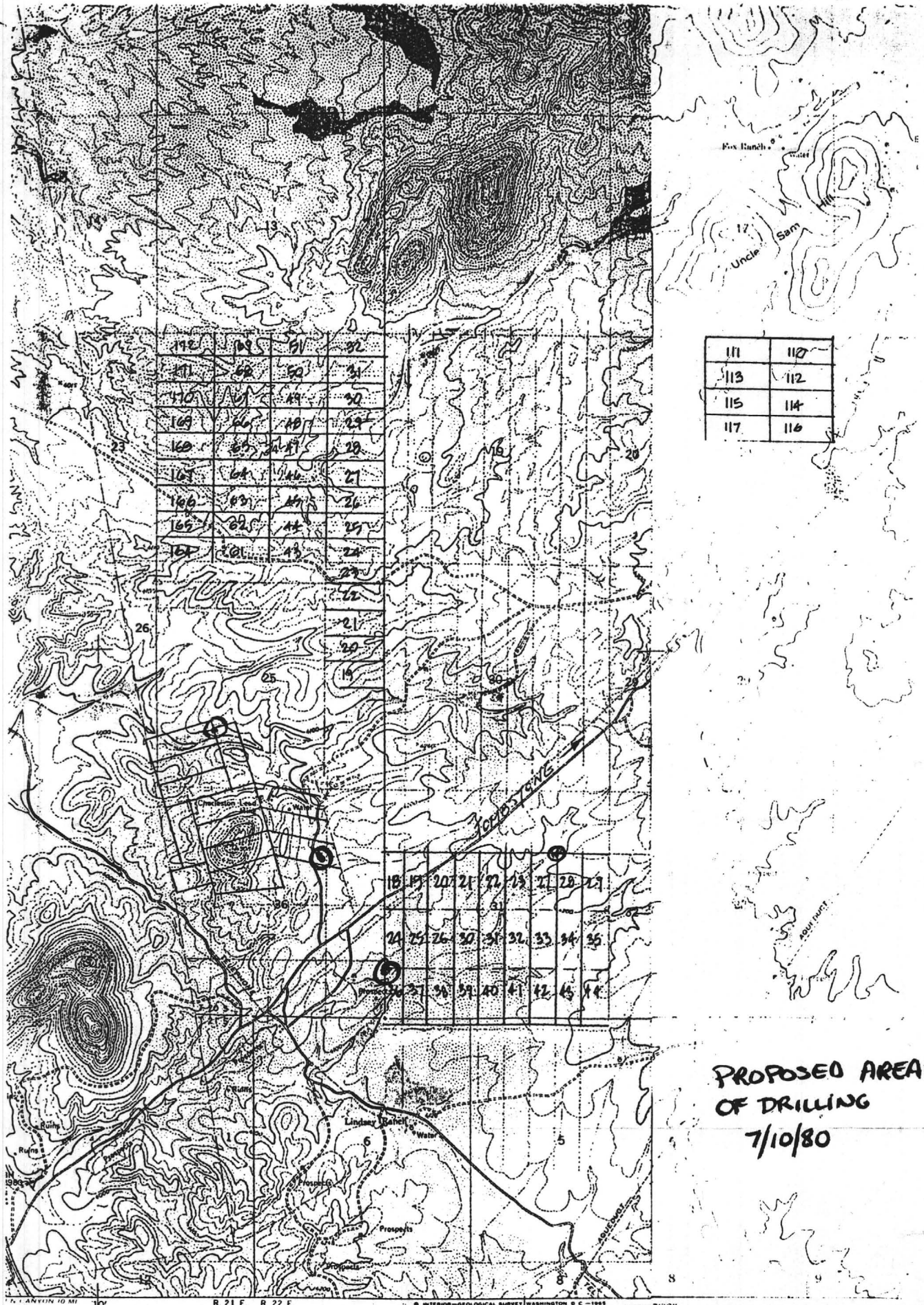
We need to do $28,700 worth of assessment work. Ideally, we would like to do one-half of the work before September 1, 1980, and the balance thereafter. However, if obtaining a drilling rig appears to be difficult, we would like to have $15,900 worth of assessment work done between now and September 1, 1980.

Please send us your bid for this work.

Sincerely,

Roger P. Smith
Property Manager

RPS:jts
Encl.




| | |
|---|---|
| 111 | 110 |
| 113 | 112 |
| 115 | 114 |
| 117 | 116 |

● WATER WELL LOCATION

● LOCATIONS OF HOLES TO BE CORE DRILLED

ROAD CLASSIFICATION

Heavy-duty — Light-duty

Medium-duty — Unimproved dirt

U. S. Route — State Route

Mapped by the Army Map Service
Published by and for sale by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by photogrammetric methods

Polyconic projection. North American datum
10,000-foot grid based on Arizona coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks

ARIZONA

356


# JAMES STEWART COMPANY

*REAL ESTATE INVESTMENTS AND DEVELOPMENT*

707 MAYER CENTRAL BUILDING
3033 NORTH CENTRAL AVENUE • PHOENIX, ARIZONA 85012
602-264-2181


August 10, 1976

Mr. D. Clark Hughes
Box 141
St. David, Arizona 85630

Dear Clark:

RE: Drilling at Charleston Mine

In confirmation of our telephone conversations today, here is a summary of our drilling program for August and September, 1976:

1. Joy Manufacturing will be doing our drilling work this year. Our contact with them is Mr. Jack Lloyd in Tucson. His office phone number is 294-2931, and his home phone is 294-6260. I have instructed Joy to move onto the property on Thursday, August 12, and they expect to arrive between 10 a.m. and 12 noon. They expect to have a man meet you on the property on Wednesday, August 11 for a preliminary survey. He will contact you.

2. We must do at least $2,000 work on the "AIR HOLE" which is located on the southern base of the State claim "STATE NO. 6". This is within 10 or 15 feet of the dirt road going north into the property, and is approximately 300' to 400' north of the cattle guard entering from the paved highway. This hole on State property must be the first hole drilled. You are preparing the pad and the sump hole, and you have verified that our pump has power and is delivering water. You will deliver water via pipes or hoses to the site of the AIR HOLE. Determine whether this hole is cased or not. We do not desire permanent casing on the drilling we are doing this year. However, it may be necessary for Joy to put in temporary casing in order to get a core. Clarence Cosgrove suggests that the hole be drilled Size NX.

3. After the work is completed on the AIR HOLE, the rig and drilling operation should be moved to Hole #8 on Federal ground. This hole is already approximately 900' deep, and is to be deepened but not cased. We believe the size of this hole is BX. It should be deepened in the same size as the original hole. This hole is located in the southeast corner of the Mary Jo Federal claim as indicated on the various maps and diagrams which accompany this letter. It is within 15' of the dirt road going north through the property past the air strip and down in an arroyo.

   We are going to perform the Federal annual work for 1976 and 1977 back-to-back on this hole. Therefore, it is required that $12,000 of work be done in August and $12,000 of work be done in September without removing the drilling rig. You are to prepare the pad and sump hole for Hole #8. You are to provide water from our pump via hose or pipes to the site of Hole #8.

4. If you need a backhoe or tractor of some kind, you may contract for this. If you have difficulty, it has been suggested that we call Mr. J. T. Murphy in Tombstone whose phone number is 457-3382.

5. You can contact me any hour day or night at 264-2181 (office) or at 838-9776 (home) with any questions or problems. If you cannot reach me, the phone number for Clarence Cosgrove in Fairfax, Virginia is (703) 591-5074 (office) or at (703) 671-3287 (home). They are three hours later than we are.

6. The usual procedures are to be carefully observed with respect to the confidential nature and protection of the secret cores, proper labeling, boxing and storing of cores, etc.

I appreciate your assistance and willingness to go right to work after my first phone call.

Very truly yours,

Roger M. Horne

Roger M. Horne

RMH:ef
Encls.
cc Jack Lloyd
Clarence Cosgrove

358

To • MS Horne

• 707 Mayer Bldg

• Phoenix

FROM C^n C. Cosgrove

Subject Charleston Core.

Date 9/30/75

MESSAGE: On the Visit to Charleston to meet with Continental Oil Geologist I found Core Boxes of Hole ~~Charleston~~ #3 in considerable disarray and a section of Core 4-8 inches missing from considerable Number of Boxes ± > 60

also - similar condition at Charleston Mine with Hole #4. There the Boxes had the end Corners cut and the available piece withdrawn. ± 40 Boxes

Signed

Rediform 4S 468 ☐ NO REPLY NECESSARY ☐ REPLY REQUESTED—USE REVERSE SIDE

To: M S Horne
707 Meyer Bldg.
Phoenix

FROM: C A Cosgrove

Subject: Charleston - Core - Protection

Date: 9/30/75

MESSAGE: Last week on Wednesday & Thursday I spent the most of my time straightening out Core & Core Boxes on Haber ASARCo #3, Hole 7, 8 & 4. We need ± 40 New Core boxes for replacement of Weather damage. By Restacking #4 & moving out The Big Table, I can stack Hole #1 in our metal Bldg. That will put 1-2-4 & 6 in that Bldg. It needs ± 4 new glass panes installed. I propose to place the Asarco Core (1400 Boxes) in stacks inside Fence at Mill Site. This will Place 7, 8, 9, & Asarco 1, 2, 3 in that location. Note - Roof Framing + Metal has been Blown off. Weather Protection must come from Plastic tarps. Core on Hole 3 & Berthe #1 are stacked along Fence under Ore Bins - Need some restacking & New Tarps. Advise on Proceeding & timing.

Signed: CAC

Rediform 4S 468

[ ] NO REPLY NECESSARY

[X] REPLY REQUESTED — USE REVERSE SIDE

36

NO INFORMATION FOUND

# AMERICAN EXPLORATION & MINING CO.

December 15, 1972

MEMORANDUM TO: C. B. Gillette

FROM: R.A. Rivera

SUBJECT: Assay Data from Charleston Mine, Arizona

Enclosed is a listing of Cu, Pb, Zn, $MoS_2$, Au and Ag assays on holes DDH 1, 2, and 4 obtained from an assay list accompanying a report by Hewitt Enterprises dated August 10, 1970, on the Charleston Mine property.

I have calculated an approximate equivalent dollar value for each assay interval making the assumption that one foot was assayed in those intervals for which only one depth was given in the logs. The net smelter recoverable values per unit used are as follows:

| | |
|---|---|
| Copper | $6.30 per short ton unit (20 lbs.) |
| Lead | 1.30 " " " " " |
| Zinc | 1.60 " " " " " |
| $MoS_2$ | 15.00 " " " " " |
| Gold | 50.00 per ounce |
| Silver | 1.50 per ounce |

Because of the poor state of the assay data (duplicated and overlapping assay intervals) it was not possible, without some difficulty, to make an automatic composite interval calculation on the computer. The enclosed list of dollar equivalents will, however, make a manual compositing calculation less time consuming.

Robert A. Rivera

RAR:ea

Enc.

-1E 3b.

September 25, 1970

Mr. H. Clyde Davis
Director, Mineral Development
Brigham Young University
A-362 Smoot Adm. Building
Provo, Utah 84601

Dear Clyde:

When you were here, you advised that there would be a meeting of the Mineral Development Committee at Conference time. I haven't heard anything further from you, and therefore know nothing about the time or place.

Maurine and I are flying up Wednesday evening, September 30, and will be staying at the Travelodge at 161 West 6th South. If I do not hear from you before we leave, you might leave a message at the Travelodge as to where and when the meeting is to be held.

I got a report this afternoon from Garry Hewitt that Hole #5 is down to 1891'. There has been nothing of any particular interest for the last 250'. We had 10' of good ore (4' very good) between 1665' and 1676'. Phelps Dodge is doing the logging and assaying, and making whatever other studies seem to be warranted. Bud Walker and another chap are the two who are doing the logging and other on-site work. I had a very nice chat with Ray Ludden. I am sure that they are going to do a good job for us. They are very interested in getting another look at our cores.

I will look forward to seeing you at Conference time.

Sincerely,

M. S. Horne
President

MSH:ef

P. S. It appears that our St. David project is a dud. Do you have any other worthwhile no-good, money-wasting projects to be explored?

M. S. H.

September 21, 1970

Mr. R. W. Ludden, Jr.
Chief Geologist
Phelps Dodge Corporation
Western Exploration Office
Drawer 1217
Douglas, Arizona 85607

Dear Mr. Ludden: RE: Charleston Mine - Tombstone

This will confirm the telephone conversation you had this date with Harlow Jones pertaining to our drilling at Charleston.

You are authorized to log the core on Hole #4 and also the one we are presently drilling, Hole #5. It is also our understanding that you will do what additional assay work appears to be necessary on Hole #4, and also assaying that is warranted for Hole #5. In addition, it is our understanding that we will promptly receive the results of all assays, logs and other information that is developed by your organization.

Mr. Clark Hughes lives on the project. He is going to split the cores, and will make the samples available to you for assaying. We will be guided by your recommendations as to what should be assayed.

We appreciated working with you on our prior drilling program, and we are glad that we have this opportunity to do so again.

Very truly yours,

JAMES STEWART COMPANY

M. S. Horne
President

MSH:ef
cc Harlow L. Jones
Clark Hughes

363

OFFICE CORRESPONDENCE

JAMES STEWART COMPANY

**MEMORANDUM** July 14, 1969

TO: M. S. Horne

RE: Charleston Mine - Hole #4

On Saturday, July 12, Hole #4 was located in the field.

From configuration 4 bearing S 27°40' West, a distance of 600' to stake set in field. This stake is positioned west of pipe line about 50 feet, on State Mining Claim in Section 36, T 20 S, R 21 E. Stake was marked Hole #4.

A measurement was taken to Hole #2 lying slightly west of north, a distance 1,050±.

A measurement was taken from configuration 4 to the #3 corner Father Lode Claim corner, a patented survey metal stake (68' South 15° W ±).

Clark Hughes and Roger Horne were present. They were both taken to the north end Center Corner of Claim Apache #7 which is the position recommended for the 200 foot hole for location work recommended for Claims Apache #1 through #17, and Apache #21 through #23.

A 60 foot hole can be drilled anywhere along the road on Claim #18 or #19.

Sampling of the bottom 150 feet of the 200 foot hole should be undertaken. This hole should be protected with a capped starting casing and then can be used for deeper core work at an opportune time.

On completion a post should be erected and a description of the location work naming the claims covered attached. A copy of this should be recorded. This is a practice (a good one) now being followed by the majors.

Actual hole location (200') described to Clark Hughes was 10' plus south of location and within 30 foot radius of end center post.

Quotations will be asked for to cover this drilling.

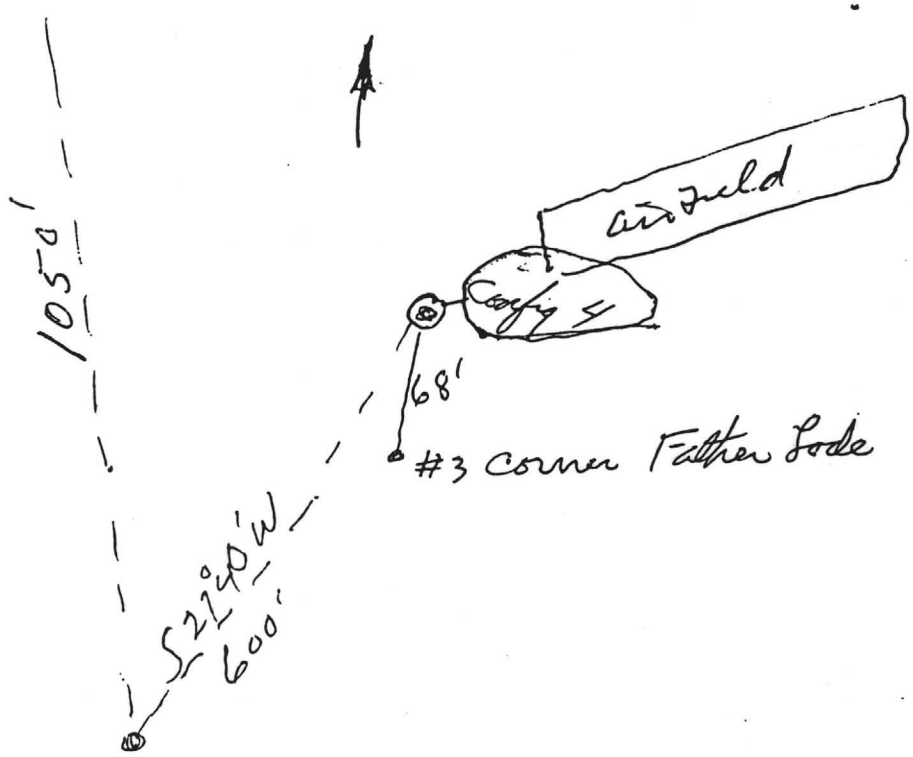
Clark Hughes was authorized to obtain a back hoe to dig the necessary mud sump. Its boundaries were marked on the ground at Hole #4 location.

C. A. Cosgrove

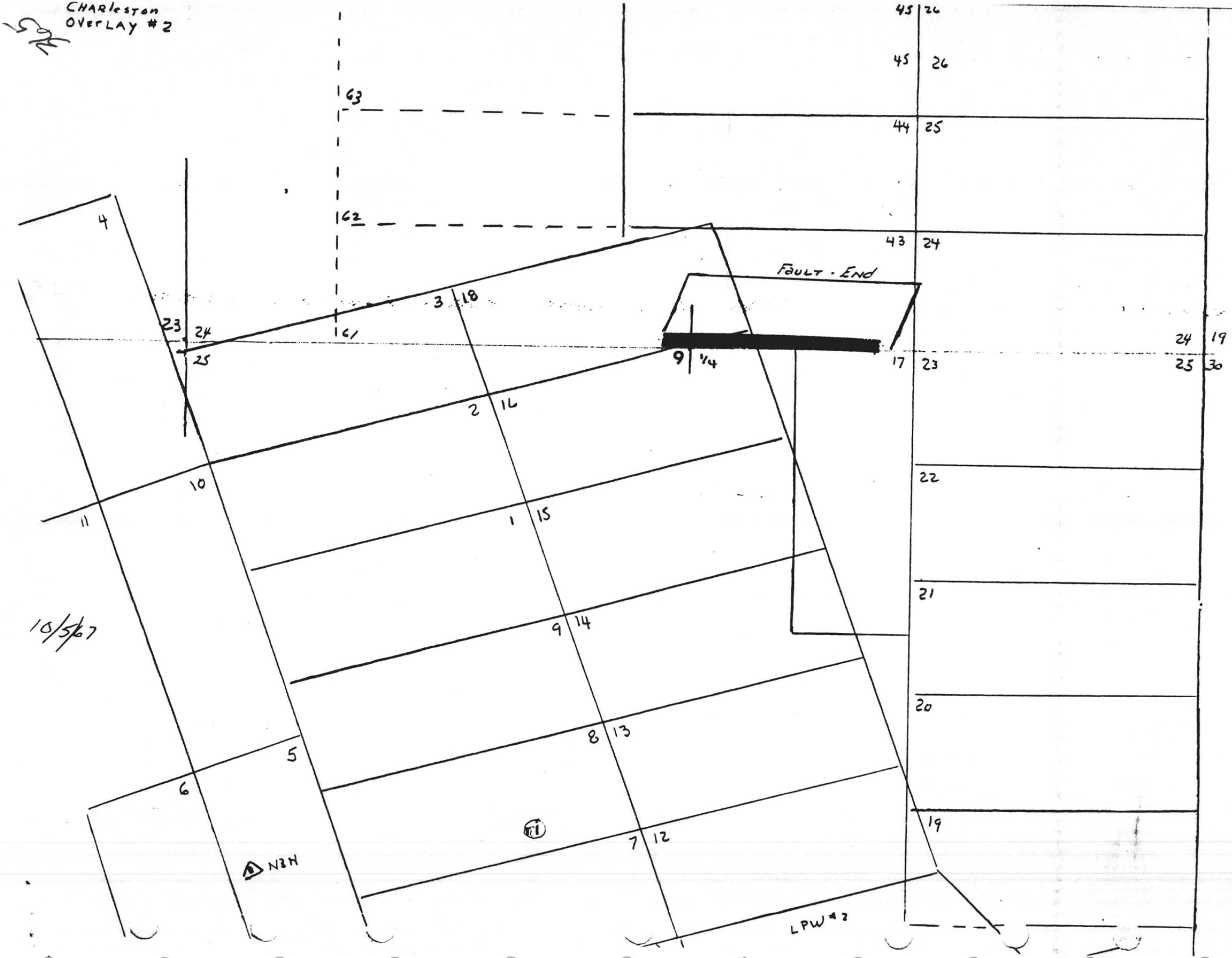
CAC:ef
Attachment

Field Notes

~~Configuration~~
Hole #2 Charleston



CHARLESTON
OVERLAY #2



3b6

**MEMORANDUM TO FILE** July 11, 1969

RE: Charleston Mine

I called Joy Drilling in Tucson. There is no rig for about ten days. Jack Lloyd will notify us as soon as possible as to the exact date.

Location of Hole #4 will be done on Saturday, July 12, by the writer and Roger Horne within the bounds of location circle given by Loyd Hewitt. Scaled dimension and bearing from configuration 4 is South 27° 40' West, a distance of 600 feet to center point of a 450 diameter circle.

The drilling company requires a mud sump constructed closest point to the hole to be 6' to 10' away.

Drilling for claim location has been approved this date for 26 claims on the Apache group. No driller has been located yet for this work. It has been suggested that a location along the south line of Section 30 within the highest metal content prognosis given on the Loyd Hewitt preliminary map of equal sulphide content contours, received July 3, 1969.

The 200' hole should be located 100' to 1400' west of the SE 1/4 Section corner, Section 30, and slightly south of the section line. This area will be reviewed on Saturday. Further study will be made on this.

C. A. Cosgrove

CAC :ef

367

July 1, 1969

Mr. D Clark Hughes
P. O. Box 336
Tombstone, Arizona

Dear Clark: RE: Charleston Mine

Preparation for resumption of core drilling will be needed within the next three weeks. If you can arrange the time, we would like you to handle the following items, submitting a billing for the time involved:

Lab Building: *Remove core of Hole 3 to shed area of mill and cover with plastic.
*Restack Core of Hole 2 on east side of Lab.
*Clear Lab of all material except core of Hole 2 - desk - table and benches.
*Core of Hole 4 will be delivered to Lab and stacked by drill crew. As this will be a tight hole, access to core will be restricted to those specifically authorized by me.

Water Line: Have available a connector tee with adapter and sufficient plastic pipe for 200' maximum run. We will need a valve at end or in plastic line. Notify us if purchase of any of this is required.

Dozer Work: Locate name and phone number of small dozer operator for mud tank work, if possible.

Water Pump: We would like pump check and any packing or other maintenance items handled before drilling starts. Notify us if there are any pump problems.

I appreciate your cooperation in handling these items. If you cannot handle these items, please let us know.

Very truly yours,

JAMES STEWART COMPANY

M. S. Horne
President

MSH:ef

368

December 23, 1968

To Whom It May Concern

Re: The holdover of the diamond drill rig on Hole 3, Charleston Mines

At the time Mr. Clarence Cosgrove was instructed by Mr. Horne to notify Boyles Bros. to discontinue the drilling on Hole 3, I contacted Mr. Roberts of Boyles Bros. and advised them that if they were willing at no cost to leave the equipment on the site I would endeavor to raise the monies from my group in Albuquerque to continue drilling Hole 3 deeper.

At that time I specifically told Boyles Bros. that this was no further obligation of Mr. Horne's or of James Stewart Company and if they wanted to gamble the time I would do the same and try to continue the drilling.

Upon talking to Mr. Janko the following week, I made mention of the fact that the monies were available provided suitable arrangements could be worked out with Mr. Horne. It was about that time or shortly thereafter that I was advised by Mr. Horne that he did not feel the hole should be deepened.

As for the charges incurred I did not personally agree to pay them nor did I agree that the James Stewart Company had anything whatsoever to do with this equipment after they told Boyles Bros. to remove it.

Hoping that this clears the matter up for all concerned.

H. L. Jones

H. L. Jones

HLJ:jm

(Original letter in "Blyler Bros. Accts Payable" (Oct 7))

369

August 8, 1968

Mr. Charles H. Suiter
5008 West Weldon
Phoenix, Arizona 85031

Dear Mr. Suiter: RE: Assessment Work
Charleston Mine - 1968

Assessment work required to cover the twenty mining claims in the Charleston group was performed by Diamond Drilling accomplished by Boyles Bros. Drilling Company.

$2,000 was expended for this drilling during the period September 1, 1967 through December 31, 1967 on a diamond drill hole located on the Father Lode Claim.

Please advise if you require any further data for your necessary filing.

Yours very truly,

JAMES STEWART COMPANY

C. A. Cosgrove

CAC:ef

C 370

June 3, 1968

Mr. H. Clyde Davis
Director, Mineral Development
Brigham Young University
A-362 Smoot Adm. Building
Provo, Utah 84601

Dear Mr. Davis:

At Mr. Cosgrove's request, you will find enclosed two geologic logs from Phelps Dodge for Holes B-1 and Horne No. 3 by W. J. Walker. These reached our office on Saturday, June 1.

Very truly yours,

Secretary to
Mr. Cosgrove

ef
Encls.

6 371

# PHELPS DODGE CORPORATION

WESTERN EXPLORATION OFFICE
DRAWER 1217
DOUGLAS, ARIZONA 85607

TEL. 602-364-8414

May 31, 1968

RECEIVED
JAMES STEWART COMPANY
PHOENIX, ARIZONA

James Stewart Construction Company
3033 North Central Avenue
Phoenix, Arizona 85012

Attention: Mr. Clarence Cosgrove

Dear Mr. Cosgrove:

Attached are two geologic logs for holes B-1 and Horne #3 by Mr. W. J. Walker.

Very truly yours,

R. W. Ludden

R. W. Ludden, Jr.
Chief Geologist

RWL:g
Encls

Copy to Clyde Davis
6/3/68

372

MEMORANDUM TO FILE

April 8, 1968

RE: Mining - Week Ending April 5, 1968

Drilling at Charleston Hole #3 has still not progressed. During this week another bit wore through from side in caved area. This hole was cemented again, and on Friday at 3:30 p.m. they had not reached the bottom of the hole, although they anticipated this for swing shift Friday.

Limestone is drilling without circulation using Bentonite Mud. They anticipate casing the hole approximately at 1400'. Hopefully this will restore circulation. No significant change in Porphry.

Bertha drilling hit a bad water course area at 1820' - 1826' and lost circulation on swing shift Thursday. Preparing to cement hole on Friday.

Two samples of core from Bertha were taken to Phelps Dodge at Douglas. Ray Ludden examined the core under microscope. He said he preferred to wait for return of Sid Williams on next Wednesday to give a report on these cores. One comment Ray Ludden made was the amazing amount of extremely fine sulphides in the core.

A sample -- Mixed area -- 1750' - 1800'. Not the best material. Was left at Douglas Assay office. Should mail results on Monday. Being assayed for Au, Ag, Cu, Pb, and Zu.

Dal Peterson did not get down to do any work this week.

Claim notices were posted on Claims Bertha 115 through 126; 99, 100, 85, 86, 79 and 93. The latter two were replacements.

C. A. Cosgrove

CAC:ef

~ 313

March 25, 1968

Mr. H. Clyde Davis
~~Director, Mineral~~ Development
A-362 Smoot Adm. Building
Provo, Utah 84601

Dear Clyde:

Enclosed for your records are the following:

Phelps Dodge Log - Hole 3
Sheets 1, 2, 3, 4 (3/8/68
Also Sheet 4 (3/15/68)

Phelps Dodge Log - Hole 2
4 Sheets from Depth
2035' to and including 3212'

Very truly yours,

C. A. Cosgrove

CAC:ef
Encl.

37A

March 19, 1968

Mr. H. Clyde Davis, Director
Mineral Development
Brigham Young University
A--362 ASB
Provo, Utah 84601

Dear Clyde:

Enclosed are assay results received from Phelps Dodge for Holes 2 and 3, dated March 11, 12, 13, 1968.

Also enclosed is an assay report from Arizona Assay Office (2037 ST) dated March 18 on Bertha and Charleston.

Very truly yours,

C. A. Cosgrove

ef
Encls.

3-15.

March 6, 1968

Mr. H. Clyde Davis
752 East 2550 North
Provo, Utah

Dear Clyde: RE: Hole 2 - Log and Assays

Enclosed is a Xerox copy of the Phelps Dodge log 2553' to 3062', together with 54 assays ranging to 2630' depth from Rochin Engineering and Assay Office.

Regards,

C. A. Cosgrove

CAC:ef
Encls.

376

# JAMES STEWART COMPANY

*GENERAL CONTRACTORS*
707 MAYER CENTRAL BUILDING
3033 NORTH CENTRAL AVENUE • PHOENIX, ARIZONA 85012
602-264-2181

February 21, 1968

TO: H. L. Jones or Assignee

RE: Drilling - Charleston Mine

This letter is to authorize you to furnish to the James Stewart Company rock bit drilling on the Charleston Mine property, holes not to exceed 300 feet deep, location and amount as directed on an individual basis. Payment will be made on the basis of $3.50 per linear foot.

No water will be furnished.

Drill cuttings from the Hole(s) shall be collected and bagged, tagged and delivered to the laboratory at our Mine headquarters on the basis of 5-foot intervals.

Payment will be made on the basis of footage completed and approved monthly.

Prior to start of drilling operations, you will provide evidence of insurance coverage with a hold harmless clause in favor of the undersigned. Liability amount of insurance shall be a minimum of $300,000/$100,000.

Evidence of payments for labor, material and equipment may be required by the undersigned as a prerequisite for progress payments.

This contract authorization can be cancelled without penalty to the undersigned for lack of performance, failure to provide insurance or evidence of non-payment of obligations.

Very truly yours,

JAMES STEWART COMPANY

M. S. Horne
President

MSH :ef

3/17

December 18, 1967

Mr. H. Clyde Davis
A-362 ASB
Brigham Young University
Provo, Utah 84601

Dear Clyde:

Enclosed you will find the results from Phelps Dodge on holes 1 and 2. They have additional information, but we have not received it as yet. Clarence and Seth are out of the city and requested that I forward this material to you this morning.

We will see you after the holidays, so have a nice Christmas.

Sincerely yours,

Harlow Jones

HJ;jm

Enclosures

P.S. Clyde, U. S. Gypsum's geologist will be on the property January 9.

378 1

October 19, 1967

Mr. H. Clyde Davis
752 - East 2550 North
Provo, Utah

Dear Clyde: RE: Charleston Mine

I returned from a trip to the Mine on Tuesday. During the course of checking on claim location work, I observed a limestone plug at the west edge of Section 7 approximately 6/10 mile due south of Dal's highest reading for the north area.

This limestone is surrounded by highly altered porphry. Looks good. The present hole is showing marked improvement. Metals started showing disseminated through the rock at about 650'.

Enclosed is the final sheet of the Drill Log for Hole #1. Should there be any corrections, please advise.

Our books finally came and your copy will be in the mail under separate cover today.

Regards,

C. A. Cosgrove

CAC:ef
Encl.

U. Stony 6 3A

BRIGHAM YOUNG UNIVERSITY
PROVO, UTAH
84601

ERNEST L. WILKINSON, PRESIDENT

OFFICE OF UNIVERSITY DEVELOPMENT

September 15, 1967

Mr. Clarence Cosgrove
James Stewart Company
Suite 707
3033 North Central Avenue
Phoenix, Arizona 85012

Dear Clarence:

Hole #1 9 thru 1

I spent an hour with Lamar Evans of the U. S. Bureau of Mines, Salt Lake City, pertaining to the spectographic analysis of Samples 1 through 4 which I sent to you.

Titanium would be of interest if it were of the rutile type, which this was not. It would be necessary for you to benificiate it and upgrade it to give you something of commercial value. Then it is worth around 30¢ a pound. The strontium and zirconium and chromium are too small, and you couldn't afford to crush it for these minerals.

The only minerals that would be of value at this time in the spectographic analysis is the total values of copper, zinc, silver, gold, nickel, and lead.

I wish I could have been of more help on this other.

Best regards,

Clyde Davis, Director
Mineral Development

HCD:cc

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# JAMES STEWART COMPANY

*GENERAL CONTRACTORS*
707 MAYER CENTRAL BUILDING
3033 NORTH CENTRAL AVENUE • PHOENIX, ARIZONA 85012
602-264-2181

September 13, 1967

Mr. Clyde Davis
752-East 2550 North
Provo, Utah

Dear Clyde: RE: Charleston Mine

We understood you were going to send us the rough draft of your logging of the core to date. Even though it is preliminary, we feel it would be of value to us.

We are continuing drilling. They can go to about 1750' with their present cables, and can go to as deep as 4000' with the present rig. Whereas above 1000 feet we had continuous changes in color and type of rock, from almost 1000 feet down, with a few intrusions, we have had generally a blue-gray rock, all of which carries pyrites or fine metal crystals, some areas more so than others. Clarence seems to feel that we are getting more seams, although no larger than we had, even as shallow as 300' or 400'.

* At 1548' we have intersected a massive crystalization of stibnite. At 1484' we have a calcite vein carrying galena with pyrites associated. At 1437' we had a very narrow band of black sericite extremely heavy with metals. The drillers report that there has been some indication of some other small sericite seams, but we have had no recovery of such below 1437'. We are having an assay for the metals at 1541' and a spectograph run at 1508'.

It appears to us that we might well use the instrument on each core box starting from the top of the hole on down to the basement to isolate those areas which seem to warrant assays or further definitive studies. This information might assist you in your logging of the hole.

We are somewhat at a loss as to know just what further analysis or study should be made of the core, the hole and the area surrounding the hole to determine what, if anything, we might have and what further should be done, keeping costs in mind. It does seem to us that if we could follow the sericite veins definitively, and particularly at depth or where that might lead us to a large body of ore, that we would be accomplishing something since the sericite seems to gain in metal value at depth. You might discuss this with Dal and see if some means could be evolved to trace the sericite vein structures.

We have had copper occurrences from almost the top of the hole to the bottom to some extent, except that some areas are quite barren and some areas are slightly richer. What might this indicate? Clarence feels that we are continuing to get an increase in mineralization (not necessarily copper) at depth in the rock dispersons.

At this moment we still have not heard from Dal regarding his program. We are anxiously waiting the arrival of you and Dal.

We would also appreciate your comments regarding the memorandum of September 5, 1967 titled "Data Required for Charleston Tract and Fairbanks Tract from Dal Peterson et al". It is recognized that this memorandum sets forth objectives that cannot be fully achieved, but the purpose of the memorandum was to summarize a complete set of objectives that would be desirable to achieve, if possible. If we have overlooked certain factors or items, we would like to have them added to this basic memorandum so that Dal and we can continually strive towards achieving desirable objectives insofar as possible.

There is some question in our office whether or not we sent you a copy of this memorandum; therefore another copy is enclosed in case we failed to send you one on the 5th.

Sincerely yours,

M. S. Horne

MSH:ef
Encl.

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September 11, 1967

Mr. H. Clyde Davis
752 East 2550 North
Provo, Utah

Dear Clyde:

RE: Spectograph Analysis for Samples 1 through 4

We note that in the above samples, your spectographic shows appreciable titanium, strontium, zirconium and chromium.

In view of the price of the metal titanium, we would be very interested in your reaction to the value of this ore in connection with these metals.

Our results from the new assays on the diabase material indicate nil on gold, negligible on copper and silver.

Regards,

C. A. Cosgrove

CAC:EF

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August 23, 1967

Mr. Clyde H. Davis
752 - East 2550 North
Provo, Utah

Dear Clyde:

There is enclosed a sample of the pulp from No. 102 which is from a depth of 864.5 to 869.5 feet. This is the material that assayed 0.4 ounces of silver and 0.055% copper. This sample also showed 1.00% zinc.

When we mentioned the analyser to the assayer, he said they are just about as dependable as "a baby's bowels." He further stated that his process is the same process that would be used in the recovery of the materials by a smelter. Furthermore, he said that he is satisfied that this material does not contain the amount of copper that you have indicated just from a visual examination. Please let us know the results of your analyser on the sample enclosed.

The drill rig is still broken down; we hope they will have it back in operation some time today.

There is enclosed a few chips of the crystalline material (not limestone) below the diabase contact. The diabase material for the 40 feet above contact shows increasingly good mineralization in the coppers.

We will continue to keep you advised.

Sincerely yours,

JAMES STEWART COMPANY

M. S. Horne
President

MSH:sjm

Enclosures

cc Mr. Dal Peterson

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January 10, 1963

Mr. Charles H. Suiter
5008 West Weldon
Phoenix, Arizona

Dear Mr. Suiter:

Reference is made to your request for information on the drilling at Charleston Mine in the year 1957.

Please be advised that we drilled one eight inch churn drill hole on the Passover Claim located in the gulch near the westerly boundary of the claim.

Depth of hole was two hundred fifty feet.

Hole was drilled by O. C. Robinson, of 1918 Jason Vista, Tucson, Arizona, at a cost of two thousand dollars.

Hole was drilled between the dates of July 29 and August 7.

Very truly yours,

JAMES STEWART COMPANY

CAC:da

C. A. Cosgrove