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James Doyle Sell Mining Collection

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ASARCO EXPLORATION RECORD

FIELD EXAMINATION LITERATURE SEARCH ASARCO FILE _____

Section I General Indexing

| | | | | | | | |
|---|------------------------------------|---------------------------|-------------------|---|--------------------|---|---------------------------|
| ① Name(s) of Property or Area NORTH STAR north end Picacho Mtns. Florence Mining District | | | | ② Country U.S.A. | | ③ State or Province Arizona | |
| | | | | ④ Co. or Map Sheet Pinal Cty. | | ⑤ File or Core No. Aa-16A.6.14A | |
| ⑥ Latitude 32°50'N | ⑦ Longitude 111°20'30''W | ⑧ Mer. G&SR | Tws. 7S | Rng. 10E | Sec. 7,8 | ⑨ Examined by FTG, JDS | |
| | | | | | | ⑩ Date 6/3-4/75 | ⑪ Office Tucson |
| | | | | | | ⑫ Field Days 2 | |

Section II Sources of Information

| ⑬ References Author | Date | Title | Publications | Vol. No. |
|--|------|-------|--------------|----------|
| Minor Asarco file data supplemented with reports acquired from Canwex Explorations Ltd | | | | |
| | | | | |
| | | | | |

Section III Appraisal

| ⑭ Recommendations <input checked="" type="checkbox"/> Action Now <input type="checkbox"/> Too Low Grade <input type="checkbox"/> Too Small <input type="checkbox"/> Ownership Problem <input type="checkbox"/> Access Problem | ⑮ <input type="checkbox"/> Past Producer <input type="checkbox"/> Producer <input type="checkbox"/> Mineral Deposit <input checked="" type="checkbox"/> Prospect <input type="checkbox"/> | <input type="checkbox"/> Geologic Concept <input type="checkbox"/> Geochem Anomaly <input type="checkbox"/> Geophy. Anomaly <input type="checkbox"/> | ⑯ Production <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;">Commodity</th> <th style="width:20%;">Tons</th> <th style="width:20%;">Grade</th> </tr> </thead> <tbody> <tr> <td>minor</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table> | Commodity | Tons | Grade | minor | _____ | _____ | _____ | _____ | _____ |
|---|--|---|--|-----------|-------|-----------|-------------------|----------------|-------|-------|-------|-------|
| Commodity | Tons | Grade | | | | | | | | | | |
| minor | _____ | _____ | | | | | | | | | | |
| _____ | _____ | _____ | | | | | | | | | | |
| ⑰ Reserves <input type="checkbox"/> Measured Commodity <input checked="" type="checkbox"/> Estimated <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;">Commodity</th> <th style="width:20%;">Tons</th> <th style="width:20%;">Grade</th> </tr> </thead> <tbody> <tr> <td>Cu</td> <td>10 million</td> <td>0.2% Cu</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table> | | | Commodity | Tons | Grade | Cu | 10 million | 0.2% Cu | _____ | _____ | _____ | |
| Commodity | Tons | Grade | | | | | | | | | | |
| Cu | 10 million | 0.2% Cu | | | | | | | | | | |
| _____ | _____ | _____ | | | | | | | | | | |
| ⑱ Num. Drill Holes <u>9</u> Approx. Total Footage <u>2500</u> | | ⑲ Excavations <u>numerous pits, trenches, shafts -- all shallow</u> | | | | | | | | | | |
| ⑳ Spectro. Analysis Attached | | ㉑ Assays Attached | | | | | | | | | | |
| ㉒ Geochem Results Attached | | | | | | | | | | | | |

Section IV Geologic Data

㉓ Commodity or Contained Metals **Copper**

㉔ Ore Minerals - Major chrysocolla _____ Minor _____

㉕ Host Rocks - Major granite granodiorite _____ Minor _____

㉖ Age of Host Rocks Precambrian Laramide _____

㉗ Nature of Exposures Prospect is well-exposed; mineralization and favorable structures extend to SE under large area of shallow post-mineral alluvial cover.

㉘ Alteration Bleaching and quartz veining in prospect; thin quartz-chlorite-sulfide joint coatings in NE portion of Lgr. ㉙ Total Extent 2000' x 500' in prospect

㉚ Structure Strongly shattered zone in Precambrian along Lgr contact. Faults strike N30W, dip 30SW.

㉛ Ore Occurrence Porphyry Cu type; total sulfide = 1-2 vol. % with py:cpy = 1:1; sulfides irreg. dissem. and as joint coatings; no supergene enrichment; control is shattering on Lgr contact. ㉜ Age of Mineralization Laramide

㉝ Conclusions and Recommendations North Star is sizeable mineralized zone; other minor copper oxide prospects cover 3 square mile area. Mineralization related to NE contact of Lgr. which projects to SE under cover. Old churn drill holes show weak copper extends under cover. Concealed contact zone 2-4 miles long and marked by sharp aeromagnetic high. Recommend staking open ground and explore concealed contact of Lgr with geologic drill.

(For additional space use extra sheets)

ASARCO EXPLORATION RECORD

Form Revised 3/8/73 by J.H.C.

FIELD EXAMINATION
 LITERATURE SEARCH
 ASARCO FILE
 Verbal _____

Section I General Indexing

| | | | | | | | |
|---|--|----------------------------|--|-------------------------------|-------------|-----------------------------------|------------------|
| ① Name(s) of Property or Area SQUAW PEAK Owner: Squaw Peak Mining Co., Inc.* | | | | ② Country U.S.A. | | ③ State or Province Arizona | |
| | | | | ④ Co. or Map Sheet Yavapai | | ⑤ File or Core No. Aa-25.19.19 | |
| ⑥ Latitude 34°29'N | | ⑦ Longitude 111°51'30"W | | ⑧ Mer. G&SR | Tws. 13N | Rng. 5E | Sec. 30 31 |
| | | | | ⑨ Examined by J. D. Sell | | ⑩ Date 8/22/75 | |
| | | | | ⑪ Office Tucson | | ⑫ Field Days --- | |

Section II Sources of Information

| ⑬ References | Date | Title | Publications | Vol. No. |
|--|------|-------|--------------|----------|
| USGS Bull. 1182-E, p. E30-32 | 1965 | | | |
| Verbal, see File Memo dated 8/22/75 (J.D.Sell) | | | | |

Section III Appraisal

| ⑭ Recommendations <input type="checkbox"/> Action Now <input type="checkbox"/> Too Low Grade <input checked="" type="checkbox"/> Too Small <input type="checkbox"/> Ownership Problem <input type="checkbox"/> Access Problem | ⑮ <input type="checkbox"/> Past Producer <input type="checkbox"/> Producer <input checked="" type="checkbox"/> Mineral Deposit <input type="checkbox"/> Prospect | <input type="checkbox"/> Geologic Concept <input type="checkbox"/> Geochem Anomaly <input type="checkbox"/> Geophy. Anomaly | ⑯ Production <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Commodity</th> <th>Tons</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td>Copper-Moly</td> <td>1000</td> <td>4% Cu 0.6 MoS₂</td> </tr> </tbody> </table> | Commodity | Tons | Grade | Copper-Moly | 1000 | 4% Cu 0.6 MoS ₂ |
|--|--|---|--|-----------|-------|-------------|-------------|-------------------------------------|--|
| Commodity | Tons | Grade | | | | | | | |
| Copper-Moly | 1000 | 4% Cu 0.6 MoS ₂ | | | | | | | |
| ⑰ Reserves <input type="checkbox"/> Measured <input checked="" type="checkbox"/> Estimated <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Commodity</th> <th>Tons</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td>Copper-Moly</td> <td>30 mill.</td> <td>0.36% Cu 0.022% MoS₂</td> </tr> </tbody> </table> | | | Commodity | Tons | Grade | Copper-Moly | 30 mill. | 0.36% Cu 0.022% MoS ₂ | ⑱ Excavations Several thousand feet of UG workings. |
| Commodity | Tons | Grade | | | | | | | |
| Copper-Moly | 30 mill. | 0.36% Cu 0.022% MoS ₂ | | | | | | | |
| ⑲ Num. Drill Holes <u>30-35</u> Approx. Total Footage <u>±25,000</u> | | ⑳ Spectro. Analysis Attached <input type="checkbox"/> | | | | | | | |
| ㉑ Assays Attached <input type="checkbox"/> | | ㉒ Geochem Results Attached <input type="checkbox"/> | | | | | | | |

Section IV Geologic Data

| |
|---|
| ㉓ Commodity or Contained Metals <u>Copper-molybdenum</u> |
| ㉔ Ore Minerals - Major <u>Chalcopyrite Molybdenite</u> Minor _____ |
| ㉕ Host Rocks - Major <u>granite</u> Minor _____ |
| ㉖ Age of Host Rocks <u>Precambrian (1.643 billion years K-Ar)</u> |
| ㉗ Nature of Exposures <u>Brushy hillsides</u> |
| ㉘ Alteration <u>Sericitic-clay with minor potassic central zone grading outward through chlorite.</u> |
| ㉙ Total Extent <u>2500' NW by 900' NE</u> |
| ㉚ Structure <u>Broad NW shear zone with mineralized fractures at N-S to N10°W., with coarse breccias.</u> |
| ㉛ Ore Occurrence <u>Hi-grade stockwork (breccia) pod 55' x 75', but (above reserve estimates) best/mineralization in zone 1800 ft. long by 1000 ft. wide, dipping 50°-60°.</u> |
| ㉜ Age of Mineralization <u>Precambrian(?)</u> |
| ㉝ Conclusions and Recommendations <u>Depth to mineralization less than 200 feet below outcrop. No indications of increased size with depth. Dip of zone into hill precludes open pit. of any consequence.</u> |
| *Gale Wingfield (Pres.); William D. Boler, Jr. (Sec.-Treas.), P.O. Box 6, Camp Verde, AZ 85322, ph. 567-9983 (office in Boler's Bar) and 567-4170 (home). |
| (For additional space use extra sheets) |

ASARCO EXPLORATION RECORD

Form Revised 3/8/75 by J.H.C.

FIELD EXAMINATION
 LITERATURE SEARCH
 ASARCO FILE
 Verbal

Section I General Indexing

| | | | | | | | | |
|--|-------------------------|----------------|-------------|-----------------------------------|------------|----------------------------------|--|---------------------|
| ① Name(s) of Property or Area <p style="text-align: center; font-weight: bold;">BRINDLE PUP PROSPECT</p> Owner: Unknown | | | | ② Country U.S.A. | | ③ State or Province Arizona | | |
| | | | | ④ Co. or Map Sheet Yavapai Co. | | ⑤ File or Gora. No. Aa-25.0.0 | | |
| ⑥ Latitude 34°38-1/2'N | ⑦ Longitude 112°07'W | ⑧ Mer. G&SR | Tws. 15N | Rng. 2E | Sec. 34 | ⑨ Examined by J. D. Sell | | ⑩ Date 8/22/75 |
| | | | | | | ⑪ Office Tucson | | ⑫ Field Days --- |

Section II Sources of Information

| ⑬ References | Date | Title | Publications | Vol. No. |
|--|------|-------|--------------|----------|
| Asarco file memo dated August 22, 1975 by J.D.Sell | | | | |
| | | | | |

Section III Appraisal

| ⑭ Recommendations <input type="checkbox"/> Action Now <input checked="" type="checkbox"/> Too Low Grade <input checked="" type="checkbox"/> Too Small <input type="checkbox"/> Ownership Problem <input type="checkbox"/> Access Problem <input type="checkbox"/> | ⑮ <input type="checkbox"/> Past Producer <input type="checkbox"/> Producer <input type="checkbox"/> Mineral Deposit <input checked="" type="checkbox"/> Prospect <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> Geologic Concept <input type="checkbox"/> Geochem Anomaly <input type="checkbox"/> Geophy. Anomaly <input type="checkbox"/> | ⑯ Production <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Commodity</th> <th style="width: 20%;">Tons</th> <th style="width: 20%;">Grade</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> | Commodity | Tons | Grade | | | | | | |
|---|--|---|---|-----------|------|-------|--|--|--|--|--|--|
| Commodity | Tons | Grade | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| ⑰ Num. Drill Holes <u>4</u> Approx. Total Footage <u>less than 4000</u> | | | ⑱ Excavations Minor | | | | | | | | | |
| ⑲ Measured Commodity <input type="checkbox"/> | | ⑳ Estimated Tons <input type="checkbox"/> | | | | | | | | | | |
| 20 Spectro. Analysis Attached | | 21 Assays Attached | | | | | | | | | | |
| 22 Geochem Results Attached | | | | | | | | | | | | |

Section IV Geologic Data

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|--|
| 23 Commodity or Contained Metals Lead, zinc |
| 24 Ore Minerals - Major galena sphalerite |
| 25 Host Rocks - Major granodiorite porphyry |
| 26 Age of Host Rocks Precambrian(?); Age date sample submitted by Hanna. |
| 27 Nature of Exposures |
| 28 Alteration Chloritic |
| 29 Total Extent |
| 30 Structure Vein dipping 50° SE to E in wide granodiorite porphyry dike which is elongated N-S. |
| 31 Ore Occurrence |
| 32 Age of Mineralization Precambrian(?) |
| 33 Conclusions and Recommendations Four holes drilled by Hanna-Cyprus failed to find intrusive at depth. Very weak alteration-mineralization. <i>(Note: Probably not a porphyry prospect).</i> |

(For additional space use extra sheets)

ASARCO EXPLORATION RECORD

FIELD EXAMINATION LITERATURE SEARCH ASARCO FILE _____

Section I General Indexing

| | | | | | | | |
|---|--|----------------------------|--|----------------------------|-----------------|---------------------------------|-------------------|
| ① Name(s) of Property or Area PENNY COPPER PROSPECT (formerly known as Big Bear Group) Gold-Angel Resources Inc.//Charles Dudley of Payson | | | | ② Country U.S.A. | | ③ State or Province Arizona | |
| | | | | ④ Co. or Map Sheet Gila | | ⑤ File or Corp. No. Aa-7.0.0 | |
| ⑥ Latitude 34°10'40"N | | ⑦ Longitude 111°27'50"W | | ⑧ Mer. G&SR | Tws. 10 N | Rng. 9 E | Sec. 29- 30 |
| | | | | ⑨ Examined by J.D.Sell | | ⑩ Date 3/16/77 | |
| | | | | ⑪ Office Tucson | | ⑫ Field Days 1 | |

Typed: 3/22/77

Section II Sources of Information

| ⑬ References | Date | Title | Publications | Vol. No. |
|--|------|-------|--------------|----------|
| Author | | | | |
| Property Evaluation report by Manny Consultants, Ltd., July 12, 1976. | | | | |
| Gold & Copper Deposits near Payson, Arizona, Arizona Bur.Mines Bull.120, 1925. | | | | |

Section III Appraisal

| | | | | | | | | |
|---|--|--|--|---|--|---|--|--|
| ⑭ Recommendations <input type="checkbox"/> Action Now <input type="checkbox"/> Too Low Grade <input type="checkbox"/> Too Small <input type="checkbox"/> Ownership Problem <input type="checkbox"/> Access Problem <input checked="" type="checkbox"/> further checking | | ⑮ <input type="checkbox"/> Past Producer <input type="checkbox"/> Producer <input type="checkbox"/> Mineral Deposit <input checked="" type="checkbox"/> Prospect | | <input type="checkbox"/> Geologic Concept <input type="checkbox"/> Geochem Anomaly <input type="checkbox"/> Geophy. Anomaly <input checked="" type="checkbox"/> old workings | | ⑯ Production Commodity Tons Grade <u>copper-silver</u> <u>unknown</u> | | |
| ⑰ Num. Drill Holes 4 Approx. Total Footage 2104 ft. | | ⑱ Excavations <u>along road cuts</u> | | | ⑲ Reserves <input type="checkbox"/> Measured <input type="checkbox"/> Estimated Commodity Tons Grade | | | |
| ⑳ Spectro. Analysis Attached | | ㉑ Assays Attached | | ㉒ Geochem Results Attached | | | | |

Section IV Geologic Data

| | |
|--|--|
| ㉓ Commodity or Contained Metals copper | |
| ㉔ Ore Minerals - Major <u>bornite</u> <u>chalcopyrite</u> Minor _____ | |
| ㉕ Host Rocks - Major <u>greenstone</u> Minor _____ | |
| ㉖ Age of Host Rocks <u>Precambrian</u> | |
| ㉗ Nature of Exposures <u>Heavy soil cover with exposures mainly in new road cuts.</u> | |
| ㉘ Alteration <u>Unknown, may have some albite replacement.</u> | |
| ㉙ Total Extent <u>800x1200 on oxide copper in oc.</u> | |
| ㉚ Structure <u>Northeast trending dike swarm of quartz-granitoids.</u> | |
| ㉛ Ore Occurrence <u>Narrow lenses in quartz veins; disseminated in epidote eyes in greenstone.</u> | |
| ㉜ Age of Mineralization | |
| ㉝ Conclusions and Recommendations <u>Drillhole assays are anomalous from estimate of surface exposures. Re-look at total surface and available core is in order.</u> | |

ASARCO EXPLORATION RECORD

FIELD EXAMINATION LITERATURE SEARCH ASARCO FILE _____

Section I General Indexing

| | | | | | | | |
|--|--------------------------------|---------------------------|-------------------|--|--|---|---------------------------|
| ① Name(s) of Property or Area GIBSON | | | | ② Country U.S.A. | | ③ State or Province Arizona | |
| | | | | ④ Co. or Map Sheet Gila County | | ⑤ File or Gore No. Aa-7.19B.7 | |
| ⑥ Latitude 33°20'N | ⑦ Longitude 110°57'W | ⑧ Mer. G&SR | Tws. 1S | Rng. 14E | Sec. 16 17 20 21 | ⑨ Examined by J.D.Sell | |
| | | | | | | ⑩ Date 1972-77 | ⑪ Office Tucson |
| | | | | | | ⑫ Field Days various | |

Typed: 12/4/78

Section II Sources of Information

| ⑬ References | Date | Title | Publications | Vol. No. |
|---|------|-------|--------------|----------|
| Sell, J.D.; Sept. 1972 etc.; Gibson Mine Area Report and follow-up memos on | | | | |
| subsequent drill holes, etc. ASARCO file Aa-7.19B.7 | | | | |

Section III Appraisal

| | | | | | |
|---|--|---|---|--|--|
| ⑭ Recommendations <input type="checkbox"/> Action Now <input checked="" type="checkbox"/> Too Low Grade <input checked="" type="checkbox"/> Too Small <input type="checkbox"/> Ownership Problem <input type="checkbox"/> Access Problem | ⑮ <input checked="" type="checkbox"/> Past Producer <input type="checkbox"/> Producer <input type="checkbox"/> Mineral Deposit <input type="checkbox"/> Prospect | <input type="checkbox"/> Geologic Concept <input checked="" type="checkbox"/> Geochem Anomaly <input checked="" type="checkbox"/> Geophy. Anomaly | ⑯ Production Commodity Tons Grade <u>Copper</u> <u>6,000</u> <u>Copper</u> unknown | | |
| | | | ⑰ Reserves <input type="checkbox"/> Measured <input type="checkbox"/> Estimated Commodity Tons Grade none | | |
| ⑱ Num. Drill Holes <u>37+</u> Approx. Total Footage <u>19,600</u> | ⑲ Excavations numerous | | | | |
| ⑳ Spectro. Analysis Attached | ㉑ Assays Attached See report | | ㉒ Geochem Results Attached | | |

Section IV Geologic Data

| | |
|---|--|
| ⑳ Commodity or Contained Metals | Copper |
| ㉑ Ore Minerals - Major | chalcopyrite-bornite?-chalcocite Minor _____ |
| ㉒ Host Rocks - Major | Pinal Schist Minor _____ |
| ㉓ Age of Host Rocks | Precambrian |
| ㉔ Nature of Exposures | Low rolling hills, soil and heavy brush cover |
| ㉕ Alteration | None except minor bleaching adjacent to quartz veins. |
| ㉖ Total Extent | |
| ㉗ Structure | Northeast-trending Foerster, Pasquale, and Summit Veins concordant with schistosity. |
| ㉘ Ore Occurrence | Sulfide pods along quartz vein structures. |
| ㉙ Age of Mineralization | |
| Unknown | |
| ㉚ Conclusions and Recommendations | |
| Small and discontinuous ore shoots in vein structures could not be traced to any depth. Disseminated mineralization-alteration not found in drilling within area. | |
| No "porphyry" target within area. No further interest. | |

ASARCO EXPLORATION RECORD

FIELD EXAMINATION
 LITERATURE SEARCH
 ASARCO FILE

Section I General Indexing

| | | | | | | | | |
|---|-------------------------------------|---------------------------|-------------------|--------------------|------------------------------------|--|--|--------------------------|
| ① Name(s) of Property or Area MAMMOTH-NW SAN MANUEL | | | | | ② Country U.S.A. | | ③ State or Province Arizona | |
| | | | | | ④ Co. or Map Sheet Pinal | | ⑤ File or Core No. Aa-16A.13.0 | |
| ⑥ Latitude N32° 43' | ⑦ Longitude W110° 42-1/2' | ⑧ Mer. G&SR | Tws. 8S | Rng. 16E | Sec. 21-22 27-28 | ⑨ Examined by J.D.Sell & D.A.Wolfe | | ⑩ Date 12/4/79 |
| | | | | | | ⑪ Office Tucson | | ⑫ Field Days 1 |

Section II Sources of Information

Typed: 12-26-79

| ⑬ References Author | Date | Title | Publications | Vol. No. |
|-------------------------|------|---|--------------|----------|
| D.A.Wolfe, 1979. | | A Possible Location of the Chalcocite Blanket from the San Manuel-Kalamazoo Porphyry Copper Deposit with recommendations for an IP Survey (ASARCO files) | | |

Section III Appraisal

| ⑭ Recommendations <input checked="" type="checkbox"/> Action Now <input type="checkbox"/> Too Low Grade <input type="checkbox"/> Too Small <input type="checkbox"/> Ownership Problem <input type="checkbox"/> Access Problem <input type="checkbox"/> | ⑮ <input type="checkbox"/> Past Producer <input type="checkbox"/> Producer <input type="checkbox"/> Mineral Deposit <input checked="" type="checkbox"/> Prospect <input type="checkbox"/> | <input type="checkbox"/> <input checked="" type="checkbox"/> Geologic Concept <input type="checkbox"/> Geochem Anomaly <input type="checkbox"/> Geophy. Anomaly <input type="checkbox"/> | ⑯ Production <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Commodity</th> <th style="width: 20%;">Tons</th> <th style="width: 20%;">Grade</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> ⑰ Reserves <input type="checkbox"/> Measured <input type="checkbox"/> Estimated <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Commodity</th> <th style="width: 20%;">Tons</th> <th style="width: 20%;">Grade</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> | Commodity | Tons | Grade | | | | | | | | | | Commodity | Tons | Grade | | | | | | | | | |
|--|---|--|---|-----------|------|-------|--|--|--|--|--|--|--|--|--|-----------|------|-------|--|--|--|--|--|--|--|--|--|
| Commodity | Tons | Grade | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Commodity | Tons | Grade | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ⑱ Num. Drill Holes None known Approx. Total Footage _____ | ⑲ Excavations minor in Cloudburst Unit | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ⑳ Spectro. Analysis Attached | ㉑ Assays Attached | ㉒ Geochem Results Attached | | | | | | | | | | | | | | | | | | | | | | | | | |

Section IV Geologic Data

| |
|---|
| ㉓ Commodity or Contained Metals |
| ㉔ Ore Minerals - Major _____ Minor _____ |
| ㉕ Host Rocks - Major _____ Minor _____ |
| ㉖ Age of Host Rocks _____ |
| ㉗ Nature of Exposures |
| |
| ㉘ Alteration Moderate argillic with some silica addition. ㉙ Total Extent 6 sq. miles volcanoclastic cover |
| ㉚ Structure NW & NE faults cut cover and expose small altered outcrops. |
| |
| ㉛ Ore Occurrence Minor copper oxide in altered trend extending into covered area. ㉜ Age of Mineralization Laramide |
| ㉝ Conclusions and Recommendations Wolfe's mapping of stronger zone with copper oxides in vein structures trending under Cloudburst cover is valid. The outcrop within the Cloudburst is better than those exposed outside the cover -- adding interest to the area between the isolated outcrop and the lead-zinc-molybdate mineralization at Tiger. Area should be examined for additional leads and sampled, coupled with previous ASARCO file data. |

(For additional space use extra sheets)

MR. ~~SIB~~ JDS-JRW-NPW-ADV-WGF

READ AND RETURN JHC Desk

PREPARE ANSWERS HANDLE

FILE INITIALS

W.E.S.

JUL 18 1969

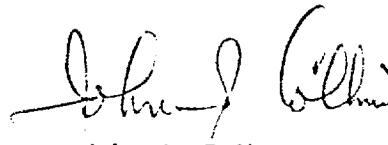
New York, July 15, 1969

S. I. B

JUL 18 1969

Memorandum to: Regional Supervisors, Exploration Department

Please report values of precious metals in ounces or grams, milligrams, etc., not dollars unless you specify the price of gold or silver on which your monetary figure is based. It has been quite some time since industrial gold was sold at \$35 per ounce and the future market price is uncertain. To make our reports readily understandable in the future, we should take pains to utilize weight measurements whenever appropriate.


John J. Collins

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

January 26, 1970

TO: C. E. Beverly B. E. French
S. I. Bowditch R. D. Karvinen
H.L.Crittendon B. E. Kilpatrick
A. Dalla Vista Wm. L. Kurtz
S. R. Davis R. H. Luning
B. J. Devere J. D. Sell 
W. G. Farley N. P. Whaley

FROM: W. E. Saegart

Attached is a copy of a Memorandum from J. H. Courtright regarding the use of standard Exploration Note Files under the categories of "Research", "Reconnaissance", and "Summary".

While in the field, you will be primarily concerned with the "Reconnaissance" Form (2) and you are requested to maintain a supply of these at all times.

In the course of regional or district studies, the "Reconnaissance" Form should be used to record field observations which may directly or indirectly be related to bulk low grade metal occurrences (porphyry copper or porphyry molybdenum, etc). Information should be recorded on observations such as the following:

1. Fringe alteration-mineralization which might be related to a concealed ore deposit.
2. Exotic copper mineralization which might be related to a concealed ore deposit.
3. Large pyritic altered areas with consideration for vertical metal zoning.
4. Fragments of leached capping occurring as stream float or in conglomerate units which could have been derived from a concealed ore deposit.
5. Geophysical or geochemical results of the kind which are commonly related to bulk low grade base metal deposits.

Small mineral occurrences surrounded by barren country rock should not be reported in the "Reconnaissance" file unless they are considered as possible fringe manifestations of bulk low grade occurrences.

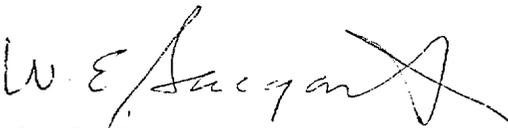
The most important aspect of these forms is that they provide a convenient method of reviewing prior work in any individual area. We anticipate thereby to eliminate future duplication of efforts. Periodic review of these files will also be advantageous to our assessment of prospects that should be reconsidered due to changes in economics or technology.

The "Research" Exploration Note File (1) should be utilized whenever data is obtained through sources other than field observation which may suggest an important metal occurrence. Such sources would include publications, company files, and personal communications.

Whenever additions of the "Reconnaissance" or "Research" forms are made, it will be your responsibility to see that the "Summary" sheet is updated accordingly. New entries should be made on the "Summary" sheet in chronological sequence.

The Porphyry Note Files are maintained in hard bound note books in the Library. Any of the staff not presently familiar with these files should review them as time permits to gain a working familiarity with their format.

Your Note File Reports should be directed to my attention prior to filing.


W. E. Saegart

WES:lab
Enclosures

Exploration
Note file

W.E.S.

JAN 26 1969
W. L. K.

JAN 26 1970

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

January 22, 1970

- TO: R. J. Lacy
 W. E. Saegart 
 R. K. Kirkpatrick
 L. P. Entwistle
 D. M. Fletcher
 J. V. Desvaux
 Keith Whiting
 J. F. Lord
 S. A. Anzalone
 R. B. Sprague
 R. L. Brown

EXPLORATION NOTE FILE

Attached are three forms designed for use in the recording of information obtained from Company files, literature and other sources, as well as field observations:

1. Exploration Note File - Research
2. Exploration Note File - Reconnaissance
3. Exploration Note File Summary

The Note File system was originated and first employed here in the Southwest in the search for porphyry copper deposits. It was later modified to include all types of deposits.

The principal advantage of this system is that it permits orderly and rapid accumulation of data in looseleaf book form for quick reference and/or review by staff members. It is of particular value as well in providing continuity of effort when changes in supervisory or other personnel take place.

The Research form (1.) is designed to facilitate the recording of essential data in the form of brief notations. If additional space is required, pages may be added. Also, certain sub-headings may be deleted.

and others substituted to better fit the characteristics of mineral occurrence in any one region. Under the heading Recommended Company Interest, "Technical" applies principally to mines and prospects controlled by other companies.

The Reconnaissance form (2.) is designed to facilitate the recording of observations as brief notes in situations where a formal report (time consuming) is not required.

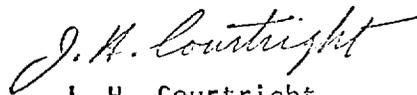
The Summary form (3.) serves as an index of mines and prospects for each convenient geographic division, such as state or province. As new information on listed prospects comes in, as the result of field examination or from other sources, the Company Interest Rating can be easily updated, or checked off on this sheet. A small scale location map should be attached to the Summary.

Also attached are examples of completed Note File forms prepared by Mr. Von Fay on research conducted in British Columbia. Samples of S.W. U.S.A. note sheets are included.

It is my recommendation that the Note File system be utilized in all exploration divisions.

Please provide this office with a copy of the Research and Reconnaissance sheets as they become available, and copies of the Summary sheets at appropriate intervals.

Any questions or suggestions you may have can be brought up during the coming Denver meeting.


J. H. Courtright

JHC/kvs.

cc: C. P. Pollock
S. Von Fay

EXPLORATION NOTE FILE - RESEARCH

Location:

Property
District
Mt. Range

See Index Map (p.)

| | |
|--|--|
| <p>Source of Information:</p> <p><input type="checkbox"/> Publications</p> <p><input type="checkbox"/> Company Files</p> <p><input type="checkbox"/> Other</p> | <p>Explanation:</p> <p style="text-align: right;">Date</p> |
| <p>Recommended Company Interest Classification:</p> <p><input type="checkbox"/> First Order</p> <p><input type="checkbox"/> Second Order</p> <p><input type="checkbox"/> Inactive</p> <p><input type="checkbox"/> None</p> <p><input type="checkbox"/> Technical</p> | <p>Qualifying Remarks:</p> <p style="text-align: right;">(see p.)</p> |

MINERALIZATION (See Sketch Map.....)

Alteration, Metallization and Host Rocks:

Leached Outcrops:

(see p.)

Enrichment:

(see p.)

Associated Metal Deposits:

(see p.)

STRUCTURE (See Sketch Map p.....)

Fissures:

(see p.)

Intrusives:

(see p.)

Breccia Pipes:

(see p.)

Cover Rocks:

(see p.)

DEVELOPMENT, PRODUCTION, FACILITIES, ECONOMIC POSITION, ETC.,:

(see p.)

Date By

(see p.)

EXPLORATION NOTE FILE - RECONNAISSANCE

Location:

Property
Area
District
Mt. Range
State

Field Check by:

Date -----

Recommended Company
Interest Classification:

- First Order
- Second Order
- Inactive
- None
- Technical

Conclusion:

Notes on Reconnaissance:

Give Explicit Location either by written description or by an attached map.

Map Attached

Date -----

By -----

EXPLORATION NOTE FILE SUMMARY

Company Interest Rating

- A 1st Order
- B 2nd Order
- C Inactive
- D None
- E Technical

(Geographic Div.)

| <u>No.</u> | <u>Property or Area</u> | <u>District</u> | <u>Principal Metals or Minerals</u> | <u>Rating</u> |
|------------|-------------------------|-----------------|---|---------------|
| 1 | _____ | _____ | _____ | _____ |
| 2 | _____ | _____ | _____ | _____ |
| 3 | _____ | _____ | _____ | _____ |
| 4 | _____ | _____ | _____ | _____ |
| 5 | _____ | _____ | _____ | _____ |
| 6 | _____ | _____ | _____ | _____ |
| 7 | _____ | _____ | _____ | _____ |
| 8 | _____ | _____ | _____ | _____ |
| 9 | _____ | _____ | _____ | _____ |
| 10 | _____ | _____ | _____ | _____ |
| 11 | _____ | _____ | _____ | _____ |
| 12 | _____ | _____ | _____ | _____ |
| 13 | _____ | _____ | _____ | _____ |
| 14 | _____ | _____ | _____ | _____ |
| 15 | _____ | _____ | _____ | _____ |
| 16 | _____ | _____ | _____ | _____ |
| 17 | _____ | _____ | _____ | _____ |
| 18 | _____ | _____ | _____ | _____ |
| 19 | _____ | _____ | _____ | _____ |
| 20 | _____ | _____ | _____ | _____ |

EXPLORATION NOTE FILE SUMMARY

Company Interest Rating

A 1st Order
 B 2nd Order
 C Inactive
 D None
 E Technical

British Columbia
 (Geographic Div.)

| <u>No.</u> | <u>Property or Area</u> | <u>District</u> | <u>Principal Metals or Minerals</u> | <u>Rating</u> |
|------------|---|-----------------|---|---------------|
| 1 | Bob Creek Mining Property (Gold Brick) | Omineca | Au | A & E |
| 2 | Bornite Group | Alberni | Cu | A |
| 3 | Bornite Group (Kennco Expl.) | Nicola | Cu | E |
| 4 | Boss Mountain | Cariboo | Mo | E |
| 5 | Boulder Creek - Cu Property | Lilloet | Cu | A & B |
| 6 | Brenda Prospect | Osooyos | Mo, Cu | E |
| 7 | Bridge River Miscellaneous | Lilloet | Mo | B ? |
| 8 | British Lion Mines | Skeena | Cu, Pb, Zn, Ag | B |
| 9 | Buckland Moly Prospect | Vancouver | Mo | A |
| 10 | Buff Group | Omineca | Cu | B |
| 11 | Busted Prospector | Omineca | Cu, Ag | A? B? |
| 12 | Buttle Lake Molybdenite (Ex Goodridge Molybdenite) | Omineca | Mo, Cu | A & E |
| 13 | BWM GROUP | Atlin | Cu | D |
| 14 | Canam Copper Co. (Mascot) | New Westminster | Cu | E |
| 15 | Chalco | Lilloet | Cu, W, Mo | D |
| 16 | Champion | Similkameen | Mo | B |
| 17 | China Mountain | Cariboo | Au, Ag, Pb | B |
| 18 | Christina Lake - Moly. | Greenwood | Mo, U | C ? |
| 19 | Collossus Nickel | Lilloet | Ni, Pt | C ? |
| 20 | Copper Island | Atlin | Cu | B ? |

EXPLORATION NOTE FILE - RESEARCH

Prince Groups

Location: 92E, just above shore of Sidney Inlet

Property Sidney Inlet
District
Mt. Range Alberni

See Index Map (p.)

| | |
|--|---|
| Source of Information: <input type="checkbox"/> Publications <input checked="" type="checkbox"/> Company Files <input type="checkbox"/> Other | Explanation: Company reports beginning Smith, 1923, through Stevenson 1960. Date |
| Recommended Company Interest Classification: <input checked="" type="checkbox"/> First Order <input type="checkbox"/> Second Order <input type="checkbox"/> Inactive <input type="checkbox"/> None <input type="checkbox"/> Technical | Qualifying Remarks: Appears to be an area in which careful geologic work with possibly magnetometer and I.P. surveys have a chance to indicate a minimum tonnage orebody. (see p.) |

MINERALIZATION (See Sketch Map.....)

Alteration, Metallization and Host Rocks: Vancouver Group (andesitic volcanics and limestones) are intruded by Coast Range Intrusives. Limestone and some of the greenstone are altered and replaced by garnet, epidote, fairly abundant magnetite, bornite, and chalcopyrite. Silver on the order of about 1/2 ounce and a few hundredths gold are also present. An alteration zone, and presumably a pendant in the granite rocks around the Indian Chief workings, is approximately 800' wide and about

Leached Outcrops:

(cont'd)

Apparently sulphides are very shallow.

Enrichment:

There is apparently some near surface oxide enrichment.

Associated Metal Deposits:

STRUCTURE (See Sketch Map p.....)

Fissures:

Several faults striking roughly NE-SW and dipping southerly have apparent offsets of up to 75'.

Intrusives:

Coast Range granites.

Breccio Pipes:

Cover Rocks:

Scree, etc. between the two altered zones.

DEVELOPMENT, PRODUCTION, FACILITIES, ECONOMIC POSITION, ETC.,

Several adit levels on the Indian Chief area which produced ± 80,000 tons of ore at .01 Oz Au, .68 Oz Ag and 1.49% Cu.

(cont'd)

Date 24 Mar/66 By S. Von Fay

MINERALIZATION (Continued)

2,000-2,500 feet long with a possible thickness of up to 200 feet. Beds dip east and southeast at 10-25°, and the garnet-other rock contact appears to dip possibly west and south. Five out of 7 drill holes drilled in '55, '56 by Moneta-Porcupine, showed appreciable intercepts of ore grade (\pm .40% Cu) of thickness from 30-70'. Some low grade approximating .3% Cu was intercepted in greenstones. A second zone around the Prince Mine some 2,000' to the northwest shows on the surface somewhat more magnetite and somewhat less copper. This zone has not been tested.

Outcrops between the two zones are apparently either not present or have not been found. It would be interesting to know if the 2 zones are continuous. If such should be the case, this area would appear to have some exploration potential.

Moneta-Porcupine was concerned with development 1.5 to 2 million tons of material grading higher than 1.5% Cu and 15' thick for underground mining. The possibility of larger, much lower grade Cu bearing material was apparently not considered.

It is not known how far altered sediments extend west.

DEVELOPMENT CONTINUED

Smith, 1923, estimated around old stopes 195,000 tons probable and possible ore at .09 Oz Au, .67 Oz Ag and 1.88% Cu. There has been no appreciable production since.

EXPLORATION NOTE FILE - RESEARCH

Arizona - Cochise Co.

Location:
E. of Tombstone; N. of Bisbee
Arizona

Property Turquoise
District (Courtland-Gleason)
Mt. Range Dragoon

See Index Map (p.)

| | |
|---|---|
| <p>Source of Information:</p> <p><input checked="" type="checkbox"/> Publications</p> <p><input type="checkbox"/> Company Files</p> <p><input type="checkbox"/> Other</p> | <p>Explanation: "The Turquoise Copper Mining District, Arizona" by Ransome. USGS Bulletin 530 (1911)</p> <p>Date 12/15/51</p> |
| <p>Recommended Company Interest Classification:</p> <p><input checked="" type="checkbox"/> First Order</p> <p><input type="checkbox"/> Second Order</p> <p><input type="checkbox"/> Inactive</p> <p><input type="checkbox"/> None</p> <p><input type="checkbox"/> Technical</p> | <p>Qualifying Remarks: Definitely warrants reconnaissance to check the altered Laramide intrusives and possible breccia pipes.</p> <p>(see p.)</p> |

MINERALIZATION (See Sketch Map.....)

Alteration, Metallization and Host Rocks:

Granite is altered to qtz-sericite. Some turquoise veinlets. The monzonites alt. to qtz. & sericite --carry dissem. pyr. (copper locally on contacts) where exposed underground in Courtland mines.

Leached Outcrops:

(see p.)

Enrichment:

(see p.)

Associated Metal Deposits:

(see p.)

Cu silicates & sulphides in ls.; contact replacement type

(see p.)

STRUCTURE (See Sketch Map p.....)

Fissures:

(see p.)

Intrusives:

Quartzose granite W. of Turquoise hills. Cut by quartz monzonite porph. body S. of Courtland and as dikes trending NNM. Possibly two monzonites; one less-altered. (KR note: these seem to be typical Laramide intrusives.)

(see p.)

Breccio Pipes:

Brecciated material (overthrust) S. of Mary shaft has steep attitude. (KR note: breccia pipe?) "Tuff breccia" cut in Casey mine contains dissem. pyr. (KR note: breccia pipe?)

(see p.)

Cover Rocks:

(see p.)

DEVELOPMENT, PRODUCTION, FACILITIES, ECONOMIC POSITION, ETC.,

(see p.)

cc:

Date 1/2/52

By Kenyon Richard

Location: South of Morenci

Property

Area Morenci

District

Mt. Range

State Arizona, Greenlee Co.

Field Check by: J. E. Kinnison

Date 8/8/63, 12/17/63

Recommended Company

Interest Classification:

- First Order
 Second Order
 Inactive
 None
 Technical

Conclusion:

Altered float in modern drainage and in Gila Congl. is spread out a minimum of 10 miles south of Morenci alt. zone. Search for altered boulders in Gila formation in other localities may provide clues to concealed porphyry copper deposits.

Notes on Reconnaissance:

Altered fragments derived from the Morenci altered zone were observed to the south (see att. sketch).

Comments on localities:

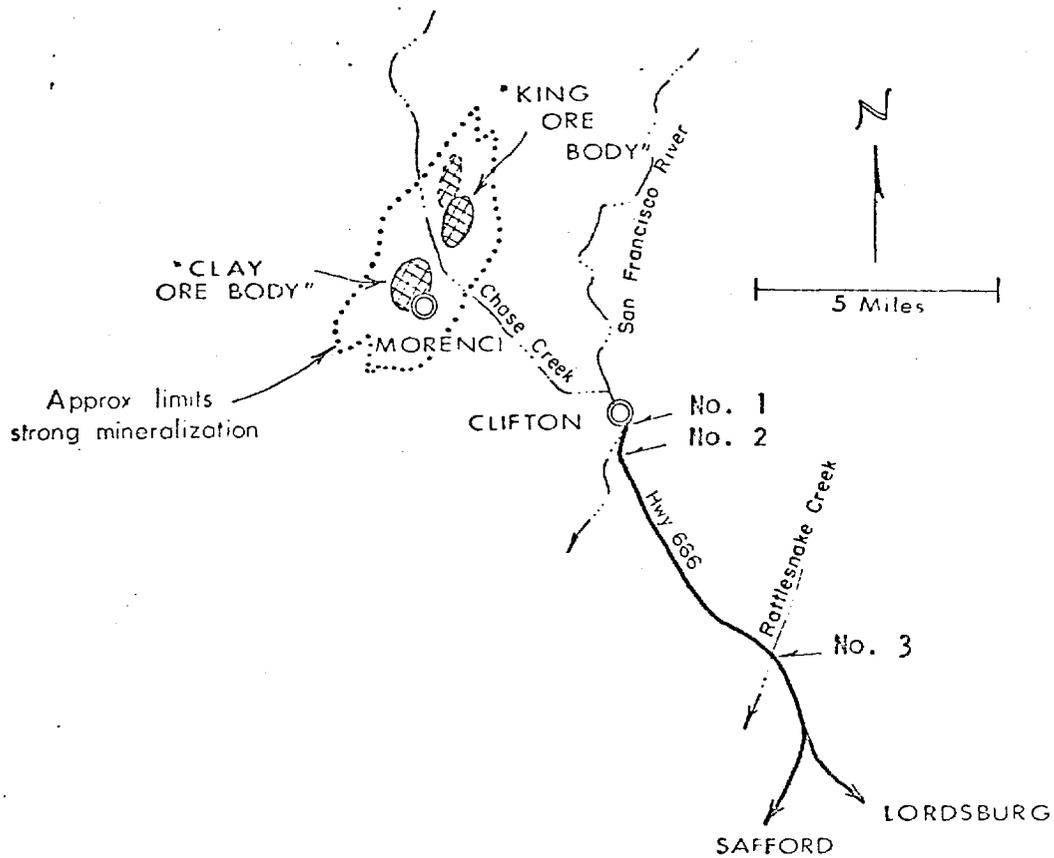
No. 1 In the San Francisco River bed, just south of Clifton, are numerous poorly rounded cobbles of altered porphyry, some with live lim. and others with lim/py. This is below confluence with Chase creek -- from whence most of the altered frags. come -- and about 4 miles south of center of altered zone.

No. 2 Boulders and cobbles in the Gila conglomerate, deposited against the highland outcrops and now incised by modern drainage. Altered porphyry with some "live lim" and some fragments with CuCO_3 . About 10 to 20% of fragments are altered. Conglomerate is coarse.

No. 3 Farther south in Gila congl.; the congl. being finer-grained with many silt beds. Cobbles of altered porphyry 5%; only a few show "live lim", or strong alt.

 Map Attached

Date March 4, 1964 By /s/ John E. Kinnison



Observation Points -- Altered detrital fragments

- No. 1 -- At south edge of Clifton, in San Francisco River bed.
- No. 2 -- Road Cut in Gila conglomerate above abandoned smelter, 1 mile south of No. 1.
- No. 3 -- Road Cut in Gila conglomerate at Rattlesnake Creek, 5 miles south of No. 2.

AMERICAN SMELTING AND REFINING COMPANY
EXPLORATION SERVICES DIVISION
3422 SOUTH 700 WEST
SALT LAKE CITY, UTAH 84119

Jds
RECEIVED
MAR 6 1972
S. W. U. S. EXPL. DIV.

M. P. BARNES
CHIEF COMPUTER GEOLOGIST

March 2, 1972

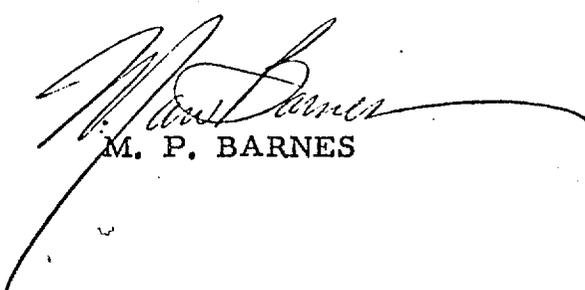
MEMORANDUM TO: DIVISION SUPERVISORS
ASARCO EXPLORATION DEPT.

ASARCO EXPLORATION RECORD SHEETS

Enclosed are approximately 100 copies of the Exploration Record Sheet, the format of which has been extensively revised in accordance with suggestions received during the department meeting in December, 1971.

The sheet has been reviewed, modified, and approved by Messrs. Courtright and Collins. It is recommended for use by all division geologists as a record for field examinations, either as an abstract of a more complete report, or comprising the only record where the area deserves no further attention; and as a record for literature or file search involving abstracting of geological information of interest pertaining to specific geographical areas.

This sheet will take the place of all previous record sheets used for the above purposes. No attempt should be made at this time to update earlier completed records to conform to the new format.


M. P. BARNES

MPB/mb
Enc.

cc: All regional offices w/enc.
J. J. Collins "
J. H. Courtright "

J. D. Hill

Instructions for Completing ASARCO Exploration Record

Section I General Indexing

- (1) thru (5) Self-explanatory.
- (6) (7) If record area is too large to be represented by a single latitude or longitude, area should be boxed by lat. and long.
- (8) Completion of this section is optional.
- (9) thru (12) Self-explanatory.

Section II Sources of Information

- (13) Enter all references by order of importance from which information is drawn in preparing the summary.

Section III Appraisal

- (14) Self-explanatory.
- (15) Check appropriate box for stage of development or fill in blank if choices not appropriate. (More than one check is permissible.)
- (16) (17) Enter production and reserve information where available. (18) Total drill holes, all types. (19) Excavations: number of trenches, pits, adits, shafts.
- (20) Check box if spectrographic analyses are attached.
- (21) Check box if assays are attached.
- (22) Check box if geochem results are attached.

Section IV Geologic Data

- (23) Enter name or symbol of metals or commodity known or being sought in the area of interest.
- (24) Enter ore minerals mentioned in order of abundance. Abbreviations or full mineral names acceptable.
- (25) Enter classification of known or reported host rocks by order of importance.
- (26) Enter age of host rocks in blank space immediately below the name of host rock on Line 25.
- (27) General geologic environment, including particularly post-mineralization cover rocks.
- (28) Enter alteration types, minerals and/or effects, such as bleaching, coloration, recrystallization, etc.
- (29) Enter dimensions of alteration effects.
- (30) Enter brief statement on regional (such as basin-range) and local structure (breccia pipes, folds, faults, etc.).
- (31) Enter information pertaining to mineral occurrence, type of deposit, extent of mineralization, and ore controls.
- (32) Enter age of mineralization - geologic and absolute age if known.
- (33) Brief statement as to conclusions and recommendations - use back of sheet to complete statement, or for additional comments as desired.

copy for all geologists

JSS

W. L. K.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

MAR 20 1972

March 17, 1972

TO: Division Supervisors

EXPLORATION RECORD SHEETS
AND LITERATURE SEARCH

The following tabulation indicates response to date from your offices with respect to Record Sheets and Literature coverage lists. Completed Exploration Note File forms in substantial numbers were also sent in by the Denver, Knoxville and Perth offices, and Note File Summaries by the Spokane office.

| <u>Division Office</u> | <u>Number of Exploration Record Sheets Received</u> | <u>Submitted Lists of Publications Read (X)</u> |
|------------------------|---|---|
| Vancouver | 80 | X |
| Toronto | 97 | X |
| Spokane | 7 | X |
| Salt Lake City | -- | - |
| Denver | 40 | X |
| Knoxville | 129 | X |
| Tucson | 25 | X |
| Tucson (Latin America) | -- | - |
| London | 11 | - |
| Perth | 38 | X |

You now have the revised ASARCO Exploration Record Sheet with Mr. Barnes' letter of March 2, 1972. Please note that "This sheet will take the place of all previous record sheets.....". This includes Exploration Note File forms as well as previous Record Sheets. Kindly continue to supply this office, as well as that of Mr. Barnes, with copies of completed Exploration Record sheets.

In some instances, lists of literature coverage received here did not indicate the identity of the reader, or readers. Please correct this situation in submitting lists in the future.

J. H. Courtright
J. H. Courtright

JHC:lad

cc: JJC Collins

copy for each geologist

J. D. S.

AMERICAN SMELTING AND REFINING COMPANY
TUCSON ARIZONA

W. L. K.

April 9, 1975

APR 14 1975

TO: DIVISION SUPERVISORS

EXPLORATION RECORD SHEETS

As mentioned in my memo of 2-21-75, item 27, "Environment," continues to be misconstrued by some. It may in part be due to the format, even though each item is covered in the instruction sheet.

In an attempt to resolve the problem, "Nature of Exposures" has been substituted for "Environment" on the enclosed Exploration Record sheet, which is to be used henceforth.

Also enclosed are "Instructions for Completing ASARCO Exploration Record" which has been revised or expanded as follows:

(14) "No Action," or "Future Reference," or "Further Study" may be an appropriate notation (in the blank space) in some cases. "Technical" should be used for unavailable properties, or mines operated by other companies.

(27) Intensity of weathering, extent of post-mineral cover rocks and soils, outcrop percentage, topographic relief (high or low?).

(31) Enter information as to nature and extent of mineral occurrence, genetic type, ore controls.

Kindly provide each geologist on your staff with a copy of this revised instruction sheet.

J. H. Courtright
J.H. Courtright

JHC:vmh
Enclosures: 2
cc: J.J. Collins w/enclosures

Distribution:

| | |
|------------------|----------------|
| S.A. Anzalone | D.M. Fletcher |
| J.C. Balla | J.H.G. Fuchter |
| M.P. Barnes | D.D. Harper |
| R.L. Brown | W.L. Kurtz |
| B.J. Devere, Jr. | R.B. Sprague |
| L.P. Entwistle | S. Von Fay |

Instructions for Completing ASARCO Exploration Record

Section I General Indexing

- (1) thru (5) Self-explanatory.
- (6) (7) If record area is too large to be represented by a single latitude or longitude, area should be bracketed by min. and max. lat. and long.
- (8) Completion of this section is optional.
- (9) thru (12) Self-explanatory.

Section II Sources of Information

- (13) Enter all references by order of importance from which information is drawn in preparing the summary.

Section III Appraisal

- (14) "No Action," or "Future Reference," or "Further Study" may be an appropriate notation (in the blank space) in some cases. "Technical" should be used for unavailable properties, or mines operated by other companies.
- (15) Check appropriate box for stage of development or fill in blank if choices not appropriate. (More than one check is permissible.)
- (16) (17) Enter production and reserve information where available. (18) Total drill holes, all types. (19) Excavations: number of trenches, pits, adits, shafts.
- (20) Check box if spectrographic analyses are attached.
- (21) Check box if assays are attached.
- (22) Check box if geochem results are attached.

Section IV Geologic Data

- (23) Enter name or symbol of metals or commodity known or being sought in the area of interest.
- (24) Enter ore minerals mentioned in order of abundance. Abbreviations or full mineral names acceptable.
- (25) Enter classification of known or reported host rocks by order of importance.
- (26) Enter age of host rocks in blank space immediately below the name of host rock on Line 20.
- (27) Intensity of weathering, extent of post-mineral cover rocks and soils, outcrop percentage, topographic relief (high or low?).
- (28) Enter alteration types, minerals and/or effects, such as bleaching, coloration, recrystallization, etc.
- (29) Enter dimensions of alteration.
- (30) Enter brief statement on regional (such as basin-range) and local structure (breccia pipes, folds, faults, etc.).
- (31) Enter information as to nature and extent of mineral occurrence, genetic type, ore controls.
- (32) Enter age of mineralization - geologic and absolute age if known.
- (33) Brief statement as to conclusions and recommendations - use back of sheet to complete statement, or for additional comments as desired.

File Memorandum:

The following is a list of the sampling equipment required for processing Rotary and Diamond drill hole samples. This list may serve as a guide for future drilling projects.

- ___ Plastic vials (snap-cap type)
- ___ Masking tape
- ___ Strainers
- ___ Pencils and ballpoints

- ___ Paper towels
- ___ Cloth sample bags
- ___ Sponges
- ___ Rubber gloves

- ___ Dilute hydrochloric acid
- ___ Table
- ___ Binocular microscope with illuminator
- ___ AX, BX or NX core boxes

- ___ Magic markers (waterproof)
- ___ Light with attached wire
- ___ Stapling pliers (heavy duty) and staplers
- ___ Wooden blocks (2" x 2" approx.)

- ___ 1/2 pint ice cream containers (1 pt. but only if sludge bds. req'd.)
- ___ Aluminum trough
- ___ Mud overflow pipe
- ___ Rectangular trough w/baffles

- ___ Rotary sample splitter
- ___ Enamel pans
- ___ 20 gallon water container (?)
- ___ 5 gallon water bucket

- ___ 1 qt. container
- ___ Marsh viscosity funnel
- ___ Mud balance
- ___ Sand content apparatus

- ___ Stopwatch
- ___ Core splitter
- ___ Hardhat
- ___ 12-ft. steel tape (or 10-ft.)

RHL:lmi

R.H.L.

cc: JDSell ✓
JRwojcik
JABriscoe

August 29, 1978

TO: Geologists

FROM: F. T. Graybeal

Exploration Record Sheets

Upon reviewing the number of Exploration Record Sheets (ERS) received as compared to properties reviewed since 1976 I found that a large number of properties reviewed do not have an ERS describing the review. I have discussed the utility of the ERS with several of you, with Mr. Kurtz, and with Mr. Courtright and there is unanimous agreement that their use should continue. In addition it was agreed that an ERS should be filled out for every property reviewed, regardless of the length of the review or worth of the property, and that one ERS/property is sufficient.

For brief reviews such as a day in the field or a one-half day office review of a submittal the ERS alone should suffice with whatever attachments you feel necessary. For longer reviews a formal report is generally necessary, but an ERS should also be completed. Where a property is briefly reviewed with the intent to return for a detailed evaluation an ERS should be completed after the initial exam with the intent to return so indicated in the section on recommendations. In the course of a property evaluation which is part of a continuous regional reconnaissance you might indicate in the comment section of the ERS that a general summary of the reconnaissance will be written; thus the reader's attention will be directed to a general compilation he might otherwise miss.

Regarding literature reviews where you run across an interesting property description or idea; you may use the ERS or write a separate note. Please do one or the other for areas outside the SWED District and your thoughts will immediately be passed along. For areas within the Southwest see me and we'll jointly plan the attack. It's obviously not necessary to fill out an ERS or write a report on a property you would like to examine within an area you are already working.

One final comment -- the ERS tells us both what is and is not known about a property; the latter may be more important than the former so do not guess at your entries.

Attached you will find a personalized list of overdue Exploration Record Sheets which I request each of you complete by the end of the year.

F. T. Graybeal

F. T. Graybeal

FTG:lb

cc: WLKurtz

J. D. Sell

Property Name

Mentioned in Quarterly Report For

Gibson
Margarita

2nd - 1977 ✓ 12/1/78
2nd - 1977 ✓ "

ASARCO

copy to Barlow - direction is wrong but center
then be Borcum (spelling?)
Southwestern Exploration Division
New where Henry worked &
October 12, 1978 8:00 AM

One comment paragraph 3.

copy to Hostkins →

copy to JPS ✓

TO: W. L. Kurtz

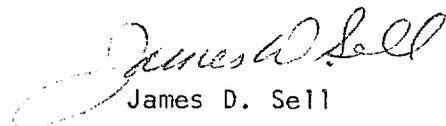
FROM: J. D. Sell

Uranium Porphyry
Rapakivi Granite
Southeast Alaska

Dr. T. B. Thompson of CSU has an \$84,000 contract through Bendix to map and sample the potential of a rapakivi granite (large alkali feldspar granite) for its uranium content. Apparently about 1 million pounds of uranium were produced from small structures cutting the granite, but Bendix-Thompson believe that sufficient uranium exists to allow development of a large open-pit-type operation. The property is about forty miles north(?) of the U.S. Borax moly discovery in southeast Alaska.

The contract is for two years and will be handled by a grad student as his thesis.

Would a study of known uranium deposits in rapakivi granites of western U.S. be advisable?


James D. Sell

JDS:1b

October 12, 1978

TO: W. L. Kurtz

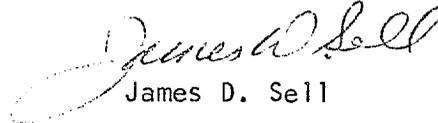
FROM: J. D. Sell

Uranium Porphyry
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Would a study of known uranium deposits in rapakivi granites of western U.S. be advisable?


James D. Sell

JDS:1b

May 25, 1979

TO: Geologists

FROM: F. T. Graybeal

Exploration Record Sheets

Over the past year or two I have noted that many Exploration Record Sheets are not completed until several months after the prospect was examined. In many cases these examinations amount to a 1 or 2-day field check with a dozen or so geochemical samples being collected. Although there may not seem to be any need for speed for prospects of no further interest, I think we should attempt to eliminate as much pending work as possible.

The Exploration Record Sheet is designed so that it may be easily completed in the field, in the motel, or on the plane. Submission of the ERS only awaits geochemical analyses which I realize can sometimes take 2-3 weeks to arrive. Nevertheless, all the typing and map preparation can easily be done ahead of time. In the future please attempt to get me your ERS as soon as possible after your examination is complete and do not wait for the long Winter office season to complete them.



F. T. Graybeal

FTG:1b

cc: WLKurtz