# VERA CRUZ PROSPECT
# PROGRESS REPORT

Armco Inc.
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## SUMMARY

The Vera Cruz property was optioned for its molybdenum potential at the root zone of a fluidized breccia pipe. The model used for this potential was taken from the Parson's mine, nine miles to the southwest where a low-grade gold bearing oxidized breccia pipe grades downward into pyrite, pyrite-molybdenite-anhydrite, molybdenite-magnetite, and magnetite, all above a mid-Tertiary alkaline intrusive body. No mineable sized body of molybdenum ore was found at the Parson's, but some wide ore-grade intercepts were encountered. It was felt that molybdenum mineralization may be better developed at depth at the Vera Cruz mine because the breccia pipe system was more fluidized and associated intrusives were more siliceous.

Deep drilling ( 1700 ft.) below the breccia pipe failed to intercept the root zone of the breccia or any molybdenite mineralization. Pyrite sericite veins with small amounts of chalcopyrite and sphalerite were intersected in a zone of strong pervasive sericitization within an aplitic quartz monzonite. This quartz monzonite host is believed to be identical with that forming Vera Cruz Mtn. to the north. Trace element analysis of the deep hole showed no diagnostic increases typical of molybdenum orebodies. It is concluded that a molybdenite orebody of any consequence, say 1,000 ft. in diameter, does not exist within 1000 ft. of this drill hole. Thus the molybdenum potential is low.

Our second hole intersected oxidized argillic pebble breccia grading about 0.01 oz. Au/ton. A second breccia was intersected at depth. It contains +10% pyrite and small amounts of base metal sulfides. No ore grade precious or base metals were found within it.

About one hundred samples were collected for analysis from surface and underground workings to assess the potential of a cyanide leach operation on the oxidized potion of the breccia. It was found that ore grade gold values (+.05 oz. Au)

were restricted to siliceous portions of the breccia. Past mining had also concentrated on this siliceous breccia, with underground stopes and the Glory Hole within this siliceous zone. Examination of the limited 11 ft. Level, below the haulage level, showed that the siliceous zone continues below the haulage level.

Significant differences were found between our sample results and those of Bowman (1938). Because of the size of the gold grains, cyanide leach tests were made to get a better understanding for the gold content of the mineralized rock. The leach tests showed significantly higher results than the rock assays but also showed that significant values are restricted to the central siliceous core of the breccia.

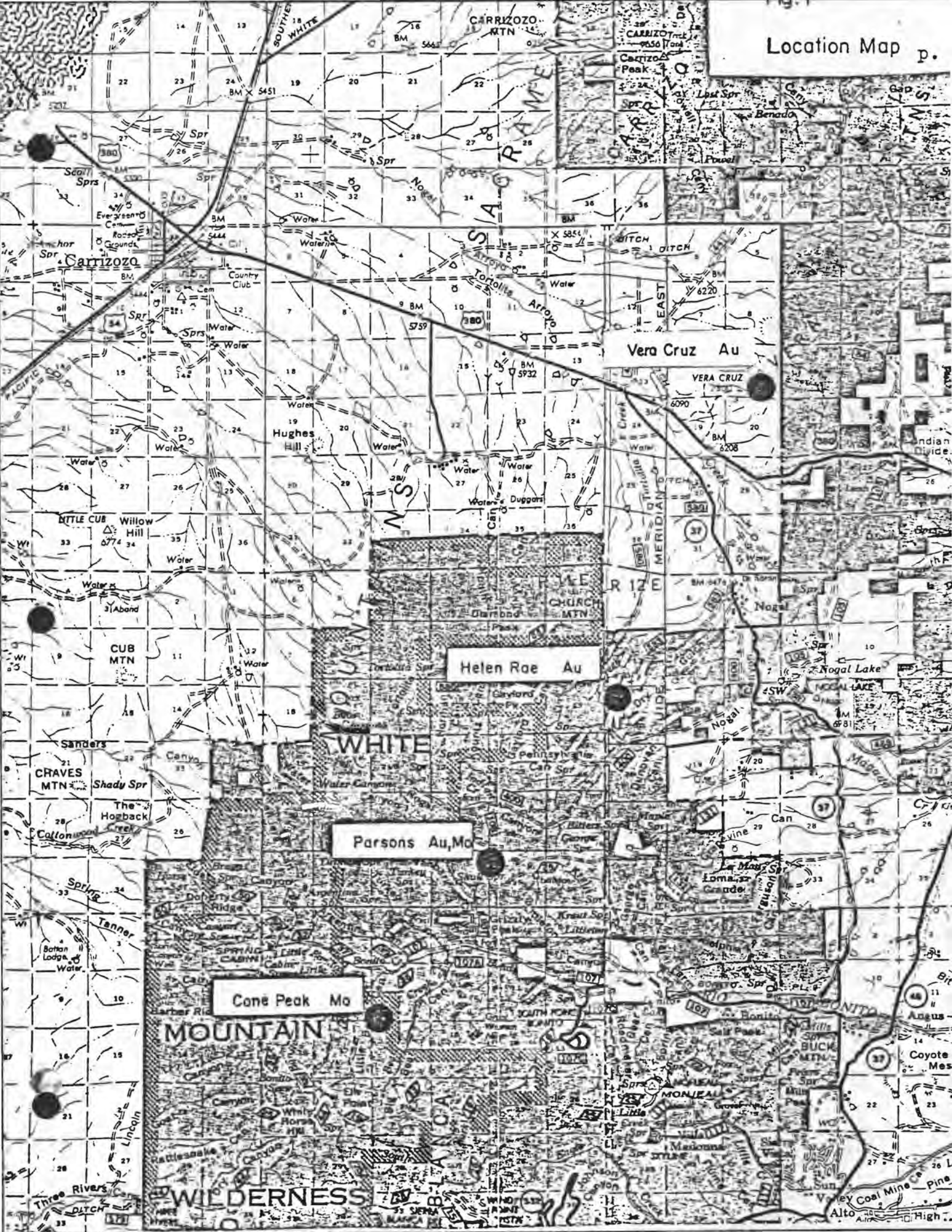
Potential exists for 60,000 to 100,000 tons of ore grading +0.1 oz. Au/ton. Further drilling to outline this tonnage would have to be made from the stoped area on the haulage level.

## INTRODUCTION

An interest was taken in the Vera Cruz property during a molybdenum reconnaissance program of the White Mountains (Sierra Blanca) of New Mexico in the spring of 1979. The four most interesting properties in the area are shown on Fig. 1. These properties were all examined during the reconnaissance. The Parson's molybdenum property had been explored for molybdenum over the past 25 years and was at the time of the reconnaissance under option by AMAX. During 1979-1980 AMAX drilled a 2500 ft. hole on this prospect.

I had been in the area in 1975 for Noranda Exploration Inc, when I staked and explored a rhyolite porphyry plug south of the Parson's prospect. During the winter of 1979-1980 Superior Oil drilled a helicopter supported 3,600 ft. hole on this rhyolite plug. They have since drilled two other 2,000 ft. holes in the White Mountains.

A reexamination of the Parson's project during the Armco reconnaissance showed that the Parson's was a unique type of molybdenum occurrence, different from the Colorado type of porphyry-Mo deposits. The surface expression at the Parson's property was an oxidized gold bearing pyritic breccia pipe. The first core hole drilled beneath this breccia intersected 300 ft. of 0.24% $MoS_2$. Drilling on 800 ft. centers failed to duplicate values found in the first hole. Other holes only intersected discontinuous 0.0X $MoS_2$ mineralization. From the gold-pyrite zone exposed at the surface, mineralization graded downwards into pyrite-molybdenite, molybdenite-magnetite, and magnetite only. The source rock for the mineralization is a pink potash-rich monzonite with the different zones described above located within and at the upper contact of the source rock.


Location Map p.
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Carrizozo
Vera Cruz Au
VERA CRUZ
Helen Rae Au
Parsons Au,Mo
Cone Peak Mo
Hughes Hill
Willow Hill
CUB MTN
LITTLE CUB
CHURCH MTN
CRAVES MTN
Shady Spr
The Hogback
Cottonwood Creek
Sanders
Tanner
Lincoln
Three Rivers
WILDERNESS
MOUNTAIN
Nogal
Nogal Lake
Loma Grande
Bonito
Alto
Valley Coal Mine
Coyote Mes
Indian Divide
Anchor Spr
Country Club
Duggars
Tortolita Arroyo
Tortolita Ditch
Cañon Bonito
Gayford
Diamond Peak
Pennsylvania Can
Water Canyon
Doherty Ridge
Spring Cabin
Bonito Peak
Salt Peak
Buck Mtn
Monjeau
Madonna
Sierra Blanca Peak
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The surface expression of the Vera Cruz breccia pipe was found to be similar to that of the Parson's except that fluidization had been more intense and the breccia appeared to be larger than the Parson's. The intrusive rocks exposed near the breccia pipe, on Vera Cruz Mtn., were more siliceous than those at the Parson's. With more siliceous intrusives and more intense vapor phase activity (fluidization) it was felt that molybdenite mineralization would be better developed at depth than at the Parson's. A secondary target was the gold mineralization in the oxidized near-surface portion of the Vera Cruz breccia pipe.

From the last century to 1932 the Vera Cruz property had been mined for gold. During this time about 20,000 tons of ore had been mined by glory hole and room and pillar methods. The ore was dropped from the glory hole through ore passes to the main haulage level, from where it was taken to the amalgamation and cyanide mill.

In 1938 F. C. Bowman, a consulting mining engineer from Denver, mapped the underground workings. He continuously sampled levels in the Glory Hole on 10 ft. increments and thoroughly sampled the underground workings. About 200 samples were taken for assay. From these results Bowman concluded the following gold reserves:

| | | | |
|---|---|---|---|
| Assured ore | 207,450 tons | at | 0.14 oz/ton |
| Probable ore | 435,000 tons | at | 0.12 oz/ton |
| Possible ore | 934,800 tons | at | 0.12 oz/ton |

A copy of Bowman's report is attached as Appendix A. His underground maps were used as the basis for the Armco study. The Bowman report also discusses the history of the property.

In 1974 the Vera Cruz property was optioned by GeoSurvey s Inc., a Colorado Springs based small exploration company. This company did limited amount of resistivity and magnetic geophysical work the first year. The next spring twelve rotary

percussion hammer drill holes were drilled. Most holes were less than 100 ft. deep and three were drilled to depths exceeding 300 ft. Results of this program were negative and the property was dropped. A preliminary report of GeoSurveys by C. F. Bauer is attached as Appendix B. This report predates their drilling program. Also shown in Appendix B are the assay results of their drilling program. Gold recovery may have been poor as the Vera Cruz gold is visible free gold and could be lost in an air-circulating hammer drilling program. GeoSurveys did not make an attempt to enter the underground workings.

During the reconnaissance examination of the underground workings, bagged cuttings from all the GeoSurveys' drill holes were found just inside the portal of the old haulage tunnel. As we had no information on the results of the GeoSurveys program, the lower portion of one of the deep holes, VC-2, was taken as an experiment and assayed on 5 ft. increments from 295 ft. to 395 ft. This returned excellent results, showing a 50 ft. thick section at the bottom of the assayed interval grading about 1% Cu (Appendix C). Microscopic examination of these chips showed the copper to be as secondary chalcocite, coating abundant pyrite cubes. The pyrite could have been the pyrite halo to a porphyry Mo-deposit. When assay results were later obtained on all the GeoSurveys drilling (from AMAX in Tucson), it was discovered that the 5 ft. Armco samples had assayed the best interval from the most encouraging hole.

By early summer of 1979 Armco had the five patented claims under option and had staked nine additional unpatented claims (Plate I). A preliminary regional mapping program was completed by Alvis Lisenbee by the end of July (Plate II).

After detailed mapping and examination of the surface and the readily accessible underground workings (Plate III), it was decided to drill a +1,000 ft. core hole towards the base of the breccia pipe, which was believed to be plunging towards the north.

This belief was based on the size and shape of the breccia pipe on the surface, compared with its extent on the haulage level, and the fact that a lower exploration level (see Palte III) driven below the breccia pipe found no breccia 250 ft. below the stoped level.

The deep Armco hole was completed by late January 1980, and did not intersect the breccia. At 624 ft. an aplitic quartz monzonite intrusive was entered and followed to the bottom of the hole at 1,757 ft. Alteration (sericitic) became quite pronounced from 1,000 to 1,500 ft. depth and then diminished. The whereabouts of the breccia underground remained unknown. Except for local veins of pyrite sphalerite and chalcopyrite in the sericitic zone, no increased mineralization was found with depth. Geochemical samples, taken about every 30 ft., of core showed no increase with depth in Mo, Cu, Zn, Ag, or Au.

Thus the evaluation of the secondary target, the gold-bearing upper oxidized portion of the breccia pipe, became the primary objective. A second diamond drill hole was aimed to cross the breccia pipe in the oxide zone and extended to come below a 10 ft. intercept grading 0.65 oz/ton Au near the bottom of rotary hole VC-12 (see cross sections). No ore-grade intercepts were found in Armco's second hole. Because of the discrepancy of assay results between the upper portion of the Armco hole and the sampling done by Bowman, it was decided that the Glory Hole should be entirely resampled.

We then entered the underground workings through a 65 ft. high caved raise along the haulage level and were able to map and sample the workings under the Glory Hole. At the time that Bowman sampled these workings, the two winzes from this level were filled with waste rock. We found both winzes empty and open. Thus there must have been underground exploration activity between 1938 and 1974.

## GEOLOGY

Vera Cruz Mountain is made up of a fine-grained equigranular quartz monzonite pluton intruded into sandstone and shale of the Mesaverde Formation. Metamorphism has changed these sediments to quartzite and hornfels respectively within several thousand feet of the contact. The pluton is part of the alkaline Mid-Tertiary intrusives that make up the core of many mountain ranges in Central New Mexico at the eastern edge of the Basin and Range Province. Most of these intrusives are laccolithic in shape and have very little evidence of hydrothermal activity and sulfide minerals associated with them. As exposed on the face of Vera Cruz Mtn., the quartz monzonite is typical of this type of unmineralizing intrusive activity.

At the south end of Vera Cruz Mtn., within the hornfels halo of the quartz monzonite, a fluidized breccia is exposed in a steep arroyo bottom. This pebble breccia contains fragments of every rock type observed on the surface; pebbles are well rounded. Below the zone of oxidation (200 to 250 ft. depth), sulfide minerals, mostly pyrite with small amounts of sphalerite, chalcopyrite, and galena, occur as the matrix of the breccia and amount to more than 10% of the breccia by volume. Sulfides are disseminated within the pebbles of the breccia also. The breccia is variable in appearance from an open drusy siliceous variety, where sulfides line the druses, to a tight argillized variety where rock flour and sulfides form the massive matrix.

At the surface the breccia is 600 ft. long in an east-west dimension and tapers from a width of 200 ft. at its eastern end to a much narrower width at its west end. On the upper haulage level, about 150 ft. below the lip of the Glory Hole, the northeastern contact of the breccia is more than 120 ft. farther to the northeast than on the surface. This indicates either a widening of the breccia with depth or a plunge to the northeast between the levels.

The deep drill hole, VCD-1, was based on the assumption that the breccia plunged northeast. This belief was not just based on the northeast dip of the contact, but also on the fact that Bowman found no breccia on the Lower Level adit (Plate III). The deep hole was collared just 40 ft. north of the breccia pipe but intersected no pebble breccia. A strongly altered phase of the quartz monzonite of Vera Cruz Mtn. was intersected at 624 ft. and followed down the drill hole to the bottom. A thin-section analysis of this rock is shown on the next page. Near the upper contact of the quartz monzonite another variety of intrusive was found cutting across the aplitic quartz monzonite. This intrusive is a felsite porphyry with an aphanitic groundmass and sparse phenocrysts of 2-3 mm. K-feldspar and quartz, and rarely a black mineral with conspicuous radioactive damage halos. In the logs and sections this dike is labeled as "quartz porphyry".

A second diamond drill hole (VCD-2) was aimed to intersect the upper oxidized portion of the breccia pipe. This hole intersected two varieties of felsite. An aphanitic white dike with 3% euhedral feldspar phenos was crossed immediately below the oxidized breccia pipe. A second felsite, a flow-banded "rhyolite" with alternating bands of grey silica and feldspar rich layers, was intersected 100 ft. below the first dike (Plate IV). this banded rock has about 5% euhedral pyrite by volume; small gas bubble cavities lined with quartz are common. Pebbles of a very similar porphyry were found in a second, lower breccia pipe.

The second breccia pipe was intersected from 480 to 833 ft. in hole VCD-2, below and southeast of the breccia pipe exposed on the surface. The second breccia pipe is quite similar to the upper breccia pipe, but because of the depth at which it was intersected it is unoxidized. Where quartzite pebbles are predominant, the breccia is vuggy and has quartz and sulfide minerals lining the vugs. Where meta-shale is the predominant clastic material, the breccia is tight, argillized, and has little pore space. Sulfide minerals are common in both open and tight breccias.

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January 2, 1980

Preliminary petrographic analysis of specimen VCD-1-628 indicates the original lithology to have been composed of approximately 40 to 60% plagioclase, 20 to 30% K-spar, and 25% quartz. This would place the rock in the quartz monzonite to quartz diorite field. The assemblage has undergone substantial alteration, consisting of seritization, silification, calcite replacement, and the partial replacement (30 to 50%) of plagioclase by K-spar (potassic alteration). The composition of plagioclase is not determinable by microscopic technique because of this alteration.

Fragments within the breccia vary from well-rounded to sub-angular with the latter being more common lower in the breccia.

Because of the roundness and equidimensional nature of the pebbles in the breccia, flow direction could not be well established. Near the upper contact of the lower breccia, flow banded elongate felsite pebbles (?) had foliations at 15 to 20° to core axis. Thus the second pebble breccia may have a near flat attitude, in which case the two breccias may be connected underground. However, the well exposed southeast contact of the upper breccia at the surface, when connected with the same contact intersected in the drill hole (see Plate IV) indicates an almost vertical contact. A problem with a vertical contact is that according to Bowman's report, the breccia was not intersected in the Lower Level adit which would be within a vertically projected breccia pipe.

To date evidence from drill holes and mapping has been inconclusive as to the existence of several discrete breccias or one continuous flat-lying breccia. As the breccias have been found above the aplitic quartz monzonite, there is a good chance that the breccia pipes are late explosive events associated with the contact zone of the quartz monzonite. Dikes of felsite were found in greatest abundance at the contact zone of the quartz monzonite in both drill holes. However, as dikes do cut and are chilled against the quartz monzonite, this associated intrusive event is discrete.

The southern contact of the breccia pipe is a fault contact. This is the only fault of any consequence found on the property. No other major faults were observed during surface or underground mapping. Many short well developed faults can be seen underground but few can be traced more than 40 ft. along strike. These faults appear to be the result of rock volume shrinkage during oxidation of sulfides, where from 5 to 20% of the total rock volume has been removed by supergene leaching of pyrite.

## MINERALIZATION

The pebble breccia is the latest hydrothermal-intrusive event observed at the Vera Cruz property. No later veins of any type intersect the breccia. The breccia appears to be coincident in time with the pyrite-base metal veins and associated alteration, which are well developed within the quartz monzonite to a depth of 1500 ft. in hole VCD-1. This veining was believed to represent a base metal halo above a possible stockwork-type Mo/Cu orebody. However, the quartz monzonite is fresh, without veining below 1500 ft. depth in VCD-1. Possibly the outer lateral limits of a base-metal halo were intersected, with a stockwork-type orebody to the southeast. Another, more likely possibility is that the veins found in VCD-1 are the outer limits of the mineralization best developed in the breccia. The veining observed in the quartz monzonite has generally the same pyrite to base metal sulfide ratio as the sulfides in the breccia. Vein alteration halos are sericite-pyrite-quartz.

Elemental analyses were made on five feet long splits of the core every 30 ft. to the bottom of the hole. Elements analyzed for were Mo, Zn, W, Cu, Ag, and Au (Appendix D). Consistently low results, without any detectable geochemical gradients, were obtained for Au, Ag, Cu, Mo, and W. Zinc was locally quite high but also showed no discernable gradient. Since molybdenum gave no indication of increasing with depth, it is felt that the chances for a stockwork-type molybdenite deposit, within about 1000 ft. of drill hole VCD-1 are very slim.

GOLD: The pyritic unoxidized lower breccia is locally anomalous in gold, with some sections of it grading 0.01 oz. Au/ton. Values approaching ore grade were not found in it. Hole VCD-2 intersected no ore grade mineralization in the upper oxidized breccia either. However, consistent intervals of 0.01 oz/ton Au were intersected. In between the two breccias only trace amounts of gold were encountered. No significant gold values were found below rotary hole VC-12 where 10 ft. of 0.65 oz. Au/ton were reported.

A reexamination of the breccia within the Glory Hole showed that the better gold values of the Bowman report are in areas where the breccia is silicified. The silica is chalcedonic, indicating that the silicification is supergene. Thus the higher gold grades probably are the result of supergene enrichment. The underground examination of the breccia also showed a coincidence of siliceous breccia, with mostly chalcedonic silica, and higher gold values, as shown on Bowman's maps and confirmed by Armco sampling. Siliceous breccia is limited in size to an area 100 ft. in diameter as exposed on the haulage level.

It is now believed that silicification is the result of pyrite oxidation and the formation of sulfuric acid. This acid attacked feldspar minerals, altering them to clay. The transition of feldspar to clay would liberate silica causing it to move downwards and precipitate at lower levels. Gold became mobile during this process; $MnO_2$ would have been necessary to mobilize gold in this type of acid environment.

Panning of fines from the stoped area on the haulage level showed the gold to be visible but uniformly very fine in size.

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Panning of fines from the stoped area on the haulage level showed the gold to be visible but uniformly very fine in size.

## SAMPLING

Because of the discrepancy between the gold values reported by Bowman and those found in the oxidized and argillized pebble breccia intersected in hole VCD-2, resampling of the Glory Hole and the underground workings became necessary.

Four continuous sample lines were run along the walls of the pit with sample intervals being 10 ft. long. Sample locations and results of this sampling are shown in Appendix E. Sixty four samples were assayed, returning an average grade of 0.023 oz. Au, much lower than that reported by Bowman. It became apparent that in areas of silicification the breccia matrix was missing. The fines of the matrix had been removed from the Glory Hole walls by the action of frost, wind and rain, since operations ceased 50 years ago. It then became imperative that the underground workings, where the elements of weathering had not been in action, be examined.

A surprisingly large amount of breccia had been mined by the old timers from irregular stopes extending up from the haulage level. Mining had been restricted to the brittle silicified portion of the breccia, although exploration drifts had been extended out into the argillized breccia. Plate V shows the sample location points and assays of the Armco sampling program. Samples of argillized breccia along the haulage level and in the exploration drift at the northeast end of the workings returned detectable but very low gold values. Samples taken along the central stoped area averaged 0.101 oz. Au/ton. Panning of fines from a stope at point S3-1 showed very strong colors; a large sample of fines from here returned an assay of 0.57 oz. Au.

Very little mining had been done below the haulage level and no doubt, the siliceous breccia that had been mined by the old timers continues below the haulage level. A winze extends down 140 ft. in the breccia from the stoped area. To date this winze has not been sampled. However, a limited amount of

exploratory drifting had been done 11 ft. below the haulage level. Continuous chip sampling of this level returned an assay of 0.067 oz. Au/ton. This sample compared very poorly with Bowman's sampling of the 11 ft. level which returned an average of 0.44 oz. Au (averaging 7 samples).

From values obtained in the Glory Hole and the haulage level it was concluded that:

1.) Gold values of interest are restricted to brittle silicified portions of the breccia.

2.) Highs and lows correspond well between Armco's sampling and that of Bowman's, but that Armco's absolute values were much lower than those obtained by Bowman.

Because it is not known what size sample Bowman actually had fired in his assays, and because much of the gold is visible free gold, further testing, on larger samples, was believed necessary.

## CYANIDE LEACH TESTING

The Colorado School of Mines Research Institute was contracted to run cyanide leach tests on collected samples. Approximately 500 Kg. of samples were delivered to them. Each of the samples was homogenized and a half kilogram split was taken from each.

Sample splits were then combined into four large samples based on breccia type and location. Two composites were made of the underground sample and two of the Glory Hole samples. These samples are shown below:

| Composite Number | Samples Included |
|---|---|
| 1 | U3-E-3 to U3-E-10 |
| 2 | HSS-1 to HSS-4, S3-1 to S3-7, S2-1 to S2-3 11 FT, S1-W, S1-N, and S1-S |
| 3 | LB-1 to LB-18, LR-1 to LR-22 |
| 4 | UB-1 to UB-23, UR-1 to UR-12 |

From each of the four composite samples, three splits were taken, weighing roughly 500 gm. Thus twelve samples were prepared for the final cyanide leach. Results are shown on the next page.

The cyanide leach tests gave consistently higher grade results than the averages of the fire assays. Strikingly, when the four leach tests results are averaged, a grade of 0.115 oz/ton is obtained, which is approaching Bowman's average of 0.144 oz/ton.

The major difference between Bowman's conclusions and those of this report is that the values are not distributed throughout the breccia, but are restricted to the central siliceous core.

## Cyanide Leach Data

| Composite No. | Sample Wt. gm. | Residue(oz/T) Au | Residue(oz/T) Ag | Liquor(ppm) Au | Liquor(ppm) Ag | Calculated Head(oz/T) Au | Calculated Head(oz/T) Ag | Calculated Average Au(oz/T) | Calculated Average of Original Fire Assays Au(oz/T) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 569.0 | <0.005 | <0.01 | 0.36 | 4.30 | 0.009 | 0.110 | | |
| 1 | 599.9 | <0.005 | <0.01 | 0.12 | 4.50 | 0.003 | 0.109 | 0.005 | 0.005 |
| 1 | 583.4 | <0.005 | <0.01 | 0.10 | 4.50 | 0.002 | 0.112 | | |
| 2 | 562.1 | 0.150 | 0.37 | 5.60 | 6.80 | 0.295 | 0.546 | | |
| 2 | 583.8 | 0.34 | 0.36 | 5.70 | 7.40 | 0.482 | 0.545 | 0.379 | 0.101 |
| 2 | 566.3 | 0.18 | 0.27 | 7.00 | 6.90 | 0.360 | 0.448 | | |
| 3 | 508.9 | 0.006 | 0.01 | 2.56 | 7.60 | 0.079 | 0.218 | | |
| 3 | 515.7 | <0.005 | 0.18 | 0.87 | 7.20 | 0.030 | 0.303 | 0.048 | 0.031 |
| 3 | 519.3 | <0.005 | 0.04 | 1.06 | 7.40 | 0.034 | 0.248 | | |
| 4 | 509.6 | <0.005 | <0.01 | 1.01 | 5.80 | 0.029 | 0.166 | | |
| 4 | 511.3 | <0.005 | <0.01 | 0.90 | 5.90 | 0.026 | 0.168 | 0.026 | 0.011 |
| 4 | 506.0 | <0.005 | <0.01 | 0.82 | 6.00 | 0.024 | 0.173 | | |

## Cyanide Leach Data

| Composite No. | Sample Wt. gm. | Residue(oz/T) Au | Residue(oz/T) Ag | Liquor(ppm) Au | Liquor(ppm) Ag | Calculated Head(oz/T) Au | Calculated Head(oz/T) Ag | Calculated Average Au(oz/T) | Calculated Average of Original Fire Assays Au(oz/T) |
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| 1 | 599.9 | <0.005 | <0.01 | 0.12 | 4.50 | 0.003 | 0.109 | 0.005 | 0.005 |
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| 4 | 506.0 | <0.005 | <0.01 | 0.82 | 6.00 | 0.024 | 0.173 | | |

## CONCLUSIONS

The shape of the breccia pipe or pipes has not been delineated by exploration to date. Assuming two separate breccia pipes, both near vertical, one of them does not have gold potential as it has had no leaching-enrichment processes working on it in the geological past. However, the breccia pipe exposed at the surface has been leached by highly acid supergene waters, with a central silica enriched core high in gold. This zone appears to be +100 ft. in diameter at the haulage level. Its vertical extent is not well known.

Sulfides were found to be completely oxidized within the upper breccia pipe to a depth of +200 ft. Assuming a constant diameter of the siliceous zone with a vertical lenght of 100 ft. (20-40 ft. above the haulage level to 80 ft. below), a total tonnage potential of 60,000 tons (13 $ft.^3$/ton) is obtained. The grade of this block of mineralized rock is difficult to assess. The cyanide leach tests suggest a value of 0.379 oz. Au/ton on sampling done on the haulage level. Samples taken from the Glory Hole, although not separated for argillized or silicified type, suggest values in the range of 0.03 oz. Au/ton. An average grade may be +0.1, as is suggested by a stockpile of coarse rejects from the old mill which assayed 0.081 oz. Au/ton. If the two intersected breccias are one connected body, lying at 40° to the horizontal, the potential size of the enriched zone is bigger. It then may be about 100,000 tons. The fault contact at the southern side of the breccia may also complicate the relationship between the two breccias.

If an attempt were made to further explore the gold bearing breccia by underground drilling, the main haulage level would have to be revamped. Holes 100 ft. deep would have to be drilled down from the main stoped area. If ore is developed by this program, the lower level could be cleaned out for haulage (see Plate III).

The limited gold potential appears to be too small for continued exploration by Armco. The property could be farmed out to a smaller company interested in small cyanide leaching operations. Heap leaching may not be feasible. The cyanide leach tests showed only a 50% recovery on the higher grade material. Secondary silica may coat some of the free gold.

Deep drilling showed no geological or geochemical evidence for molybdenum at depth. However, the root zone of the breccia pipe was not found by exploration to date. Although chances of a successful Mo/Cu porphyry discovery are felt to be low, it would be desirable to drill one more near vertical hole from the southeast to check the extension of mineralization or the breccia in that direction.

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# R E P O R T

ON

# V E R A  C R U Z  M I N E

OF

## C A R R I Z O Z O  M I N I N G  C O M P A N Y

Carrizozo, New Mexico

By
F. C. Bowman
CONSULTING MINING & METALLURGICAL
ENGINEER

NOVEMBER 1938

942 Pearl Street,
Denver, Colorado
December 15, 1938

Mr. John A. Pratt
President, Carrizozo Mining Company
Golden, Colorado

Dear Sir:

In accordance with your instructions, during the early part of November, I have sampled and examined the Vera Cruz Mine, near Carrizozo, New Mexico, for the purpose of determining the amount and average value of the ore already assured, and the possibility of a continuance of the present orebody beyond the limitations thus far determined.

The findings and recommendations are shon in the included report.

Respectfully submitted,

Consulting Mining & Metallurgical
Engineer.

## MAPS

# R E P O R T

ON
VERA CRUZ MINE
OF
CARRIZOZO MINING COMPANY

By

F. C. Bowman, E.M. & M.

November, 1938

- - - -

This report is based on information and sampling obtained by the writer during a visit to the property November 8th to 16th, 1938, inclusive, the principal object being to determine whether here is sufficient ore assured at the present time to warrant a milling operation and what average ore value could be expected. The samples were all assayed by Charles O. Parker & Company, Denver. Only the gold content was determined as previous samples show the silver content, of minor importance, as it only averages about half ounce.

## LOCATION

The Vera Cruz mine is located in Section 17, of Township 8 South, Range 13 East, along the Southwest flank of Vera Cruz Mountains, at an elevation of about 6800 feet and about 12 miles easterly from Carrizozo, New Mexico. A well improved highway from Carrizozo passes the property about 2 miles to the South. From the highway to the property, the road is rough but is used by auto to the lower Tunnel. From the Lower Tunnel to the mill and Upper Tunnel, a distance of about 700 feet, there is only a trail. The difference in elevation between the main highway and the mine is about 600 feet, 250 feet of which is made up between the lower and upper tunnels.

## PROPERTY

The property consists of the following patented lode mining claims:

Vera Cruz, Survey No. 141
Golden Eagle, Survey No. 157
Bustamente, Survey No. 271
Washoe, Survey No. 272.

comprising a total of 64.89 acres. As far as developed, all the ore is in the Vera Cruz claim.

## DEVELOPMENT

The main ore body has been developed from the surface by an open cut and underground by a tunnel 660 feet in length cutting the brecciated mineralized zone for the last 600 feet. The bottom of the open cut is connected to raise with the upper tunnel. The last

mining was done by "Glory Hole," using the tunnel connection for ore disposal.

About 150 feet from the portal of the upper tunnel a raise and stope was made to the surface. Near this point a winze was sunk in the bottom of the tunnel but was later filled. This winze was reported to have been 65 feet deep all in the brecciated zone.

Another winze was sunk 585 feet from the portal and a few feet south of the main tunnel. Men now living in the district, who claim to have worked in this winze, say that it is 140 feet deep and shows brecciated material in the whole distance. Bedded strata are reported to be showing near the bottom on one side of the winze. At the present time the winze is full of material to within 20 feet of the tunnel level.

From this winze, at a point 11 feet below the tunnel, apparently some prospecting was done and a small amount of stoping, all of which is shown on the sample map of the upper tunnel.

At a point 250 feet lower than the upper tunnel another tunnel has been driven following the same course and almost vertically below. Near the breast of this lower tunnel a raise has been started to connect with the bottom of the 140 ft. winze, from the upper tunnel, for the purpose of ventilation and an outlet for ore below the mill level.

## SURFACE IMPROVEMENTS

Although the property was apparently very well equipped, including a crushing and cyanide plant, the remains of which are shown by Photo No. 1, there is very little of value left.

At the lower tunnel, the blacksmith shop and compressor house, shown by Photo No. 2, was built by the present operators. This building houses the equipment and plant that has been used in driving the lower tunnel.

## HISTORY

The claims of this property were located and patented in the early 80's. No records are available as to when actual mining operations started but evidently the early miners were attracted by the large outcrops of brecciated material at the present location of the "Glory Hole" and its contents in free gold that were found by "panning".

There is evidence the first mining was by open cut and the ore thus mined was transported by surface tramway to the mill located on the present mill site, a few hundred feet below. Probably some form of amalgamation was used to extract the gold. This operation was probably abandoned as the ore must have been too low grade to show a profit on a small scale operation, such as they probably had.

Later the mill, or upper tunnel, located just above the mill site, was driven under the open cut and connection made by raise to the open cut. A new mill was erected, using rolls and Huntington mills for grinding, followed by amalgamation and cyanidation. Some 20,000 tons were mined by Glory Hole method from the surface and room and pillar from underground, as will be seen by referring to the maps included in this report. Evidently this operation was not successful on account of coarse grinding.

The old tailings show a large percentage of material at least 3/8 inch diameter, while recent preliminary tests show that a grind of from 40 to 60 mesh will have to be used to free the fine gold. Evidently an attempt was made to sort out supposedly barren rock from an over size trommel product that had passed the coarse crusher. The dump of these rejects, which run from 1 inch to 2 inches in diameter, is shown at the right of the mill in Photo No. 1. A 50 pound sample was taken from this dump. In selecting the sample, care was taken to pick pieces that were practically free from mineral. After the sample arrived in the assay office it was again examined closely and about half of the pieces seemed to be free from mineral while the other half showed light coatings of exides. A sorting was made placing the pieces free from mineral, as far as the eye could detect, in one sample and the pieces showing mineral coatings or streaks in another. The supposedly barren sample assayed 0.06 oz. gold per ton and the sample with a little mineral assayed 0.96 oz. gold per ton. These results and the attempt to leach by cyanide a product containing 3/8 inch material would lead one to believe that the mill recovery must have been very low and could only result in an unprofitable operation.

In recent years no attempt seems to have been made to place the property in production again.

## GEOLOGY

During this examination, the time available was not sufficient to make a study of the geology of the mine and district; however, the following is quoted from Professional Paper 68 by Waldemar Lindgren, Louis C. Graton and Charles H. Gordon of the U. S. Geol. Survey, page 178.

"The Nogal district lies mostly on the upper east side and at the north end of the Sierra Blanco. At this end the range consists principally of intrusive rocks that have broken up through the Cretaceous sediments which bound the mountains on the east, north, and west. On the east these sediments, consisting mainly of limestone and sandstone, form a broad Mesa. At Capitan there are coal mines which have been operated for a number of years."

"The Vera Cruz mine is located about 4 miles north of the town of Nogal, on the southwest side of Vera Cruz mountain.

The ore body is a mass of much altered porphyry, brecciated and recemented. Fragments of limestone, sandstone, and shale are also present."

"It is probable that the ores of the Hopeful and Vera Cruz mines are related in origin to the veins of other mines -- that the mineral bearing solutions spread through the porous rock at these places and made low-grade deposits."

## EXTENT OF ORE ZONE

The brecciated material of the ore zone is easily recognized although the mineral characteristics, if there are any visible, which determine the value of the ore have not been discovered.

On the surface the breccia zone outcrops about 50 feet east of the upper tunnel portal and can be traced easterly along the line of tunnel, to a few feet beyond the east rim of the Glory Hole, varying in width from 100 to 125 feet.

Underground the only limits of the ore zone that have been definitely determined is the western contact between the sediments and breccia at a point shown as station U-1 on the map, and the southern contact from Station U-1 to a point just beyond Station U-3 where the contact disappears into the south wall of the tunnel. Beyond this point the upper tunnel workings are all in the brecciated zone. In the northeast end of the "Glory Hole" the line of contact is shown between the breccia and sediments. This contact is also shown in an x-cut tunnel driven in the east face of the "Glory Hole". From the evidence here it would seem that the eastern limits of the breccia zone were thus determined; however, developments underground show this zone to continue at least 50 feet farther to the east and 120 feet farther to the north than shown on the surface and no limits reached yet.

The length of the breccia zone, as shown in the east end of the tunnel workings, is over 200 feet with commercial ore, in fact above the average value, showing in the northern, eastern and southern extremities of these workings. From these facts it is evident that this brecciated zone is pitching northeasterly and widening in depth.

The only evidence of the extent of the brecciated zone below the tunnel is two winzes, one near Station U-2 and the other just south of Chute No. 2. The first one is reported to have been 65 feet deep and all in breccia, but, as previously stated, the winze has been filled so it cannot be examined. The second winze which is reported to be 140 feet deep has been filled to within 20 feet of the top where breccia is still showing and was sampled. It is reported that the bottom of the shaft shows sediments on one side.

If these reports are correct, the assumption then is that the ore zone is 150 feet high and 100 feet wide at the western contact, pitches in a northeasterly direction and is 250 feet thick near the eastern extremity of the workings with a developed width of more than 200 feet. There is no evidence of how much farther this brecciated zone extends easterly; however, from the fact that it is shown to be increasing in dimension in that direction, the natural inference would be that a large tonnage could yet be expected in that direction. In other words, the extent of the partially determined ore zone is 600 feet in length by 100 feet in width and 150 feet thick at one end, and increasing to 250 feet thick at the other end, having a top width of 125 feet, a center width of over 200 feet, and a bottom width yet to be determined with its northern, eastern and southern limitations, which are still unknown.

Development by the lower tunnel has not disclosed the downward continuation of the brecciated zone, although several hundred feet of a highly fractured, altered and faulted zone was crossed. In dipping to the northeast the brecciated zone may still be found in depth to the north of the present lower tunnel or to the northeast.

Several samples were taken in the lower tunnel, as shown on Plate I; however, no commercial value was found. More samples may give a clue to the location of the ore. The only samples of interest were, 185, 186 and 187 which were taken across a total of 26 feet, representing the width of a dark colored dike having the general direction of almost north. Float was found on the knoll to the west of the mill which resembled this dike material. This dike may have had an important influence on the ore of the Vera Cruz and should be given further attention.

## SAMPLING AND ORE RESERVES

Sampling and assays are shown on the included maps. All but a few samples were cut in 10 foot horizontal lengths along the walls of the workings and Glory Hole at points indicated on the maps. Owing to the nature of the material it is impossible to cut channel samples; however, approximately 3 pounds of material per foot of sample was taken. Values were found to be spotted and only an average of a large number of samples could be depended to give a fair representation of value. Just because one ten foot sample only assayed 0.01 oz. gold per ton was no proof that the material sampled would not be commercial ore.

Take for instance the first samples taken along the tunnel, samples 18, 19, 20, 21, 22 and 23, all assayed 0.01 oz. gold per ton, showing apparently the material was not ore at these points; however, additional samples taken at #18 and #19 and at #22 and #23 showed commercial ore values, so it is quite evident that the whole brecciated zone has ore possibilities.

Prominent post mineral fracture zones were at first thought to have some influence on the position of ore values; however, as far as sampled, this did not seem to be the case. These fracture zones have a general trend of 10° to 15° to the northeast.

Developed ore blocks were laid out in this direction to conform with the general trend of the ore in the workings at the east end of the main tunnel. The north drift follows along a very prominent slip for 50 feet from the tunnel and then swings to the north. This slip looks like a foot wall but the tunnel cutting through it proved the ore to continus beyond this slip.

The developed ore sampled, is divided into blocks #1, 2, 3, 4, 5, 6, 7, 8 and 9 as shown in plan on the Assay Map of the Upper or Mill Tunnel and the sample map of the Glory Hole. Vertical sections, along the center lines of these blocks, are shown with the average assays and distances which the samples represent. The samples are weighed according to the volume represented, the tunnel level samples covering the volume from 20 feet below the tunnel up to half the distance between the tunnel level and the line of samples in the Glory Hole. The tonnage and average value of each block is estimated separately and then all blocks averaged together and giving the assured ore reserves as follows:

ASSURED ORE

| BLOCK | TONS | AVG. OZ. GOLD PER TON | TOTAL OZ. GOLD |
|---|---|---|---|
| 1 | 53850 | 0.1322 | 7118.97 |
| 2 | 35800 | 0.1130 | 4045.40 |
| 3 | 21800 | 0.1735 | 3782.30 |
| 4 | 15700 | 0.1830 | 2873.10 |
| 5 | 13900 | 0.1425 | 1980.75 |
| 6 | 17100 | 0.1620 | 2770.20 |
| 7 | 10200 | 0.0930 | 948.60 |
| 8 | 28800 | 0.1750 | 4990.00 |
| 9 | 10300 | 0.1330 | 1369.90 |
| Totals | 207450 | 0.144 | 29879.22 |

One ton of ore in place occupies 13 cubic feet.

PROBABLE ORE

The Map of Ore Blocks shows the probable extent of the brecciated zone for the surface and tunnel level, together with cross sections as indicated, showing the end sections of the various blocks and the probable extentions of the assured ore blocks with the exception of Blocks 1-a, which covers the ores for 20 feet east of Block 1 for 216 feet in length, 125 feet above the tunnel and 20 feet below the tunnel. The average assay is taken the same as for Block #1. The average assays on the other probable ore blocks are taken the same as the assured ore extended, with the

exceptions of blocks U-4+35-U6, the value of which is taken as the average of all the other probable ore except that below the tunnel level. The value of the probable ore below the tunnel level is taken at the average value of all the probable ore above the tunnel level.

PROBABLE ORE

| BLOCK | TONS | AVG. OZ. GOLD PER TON | TOTAL OZ. GOLD |
|---|---|---|---|
| 1-A | 48,180 | 0.1322 | 6369.40 |
| 2-A | 7,740 | 0.1130 | 874.62 |
| 3-A | 16,000 | 0.1735 | 2776.00 |
| 4-A | 12,440 | 0.1830 | 2276.52 |
| 5-A | 15,880 | 0.1425 | 2262.90 |
| 6-A | 13,500 | 0.1620 | 2187.00 |
| 7-A | 24,800 | 0.0930 | 2306.40 |
| U1-U3 | 47,330 | 0.0930 | 4401.69 |
| U3-U3 29 | 12,370 | 0.1070 | 1323.59 |
| U3+29-U4+35 | 26,320 | 0.1820 | 4789.70 |
| U6-U6+25 | 33,400 | 0.0930 | 3106.20 |
| U4+35-U6 | 145,000 | 0.1266 | 18357.00 |
| Total | 402,960 | | 51031.02 |
| Subtract Blocks 8 and 9 | 39,100 | | 6359.90 |
| | 363,860 | 0.123 | 44671.12 |
| Add volume to 20 ft. below tunnel not already included | 71,140 | 0.123 | 8750.22 |
| TOTALS | 435,000 | 0.123 | 53421.34 |

POSSIBLE ORE:

The total area of the breccia zone as taken on the tunnel level is 101,300 sq. ft., which divided by 13 gives 7,790 tons per foot of depth. The possible volume of ore below the tunnel from 20 feet to 140 feet in case the ore continues as reported would add 934,000 tons to ore reserves. While these ore possibilities seem rather remote at present, still from all indications they have to be given consideration until disproved. The gold content of this ore is assumed to be the same as for possible ore.

SUMMARY OF ORE

| | TONS | OZ. GOLD PER TON | VALUE PER TON GOLD AT $35. PER OUNCE | TOTAL GROSS VALUE |
|---|---|---|---|---|
| Assured Ore | 207,450 | 0.144 | $5.04 | $1,045,548.00 |
| Probable Ore | 435,000 | 0.123 | 4.30 | 1,870,500.00 |
| Possible Ore | 934,800 | 0.123 | 4.30 | 4,019,640.00 |

## PRODUCTION

To arrive at a basis to determine the possible life of the operation let us make the reasonable assumption that one-half of the probable ore and one-fourth of the possible ore can be converted into production. This would give an ultimate production of 658,650 tons with an average value of $4.53 per ton. With a 300-ton mill, at 90,000 tons per year, the possible life of the property would then be 7 years.

No complete metallurgical work has been done on the ores; however, preliminary work shows that 85 to 95% of the gold can be recovered by gravity concentration, followed by flotation and 75% of the gold thus recovered can be amalgamated.

The ore is all oxidized and the gold apparently free, so it is reasonably safe to assume that an extraction of better than 90% may be obtained by grinding to 65 mesh and either cyaniding direct or cyaniding the tails after concentration.

It is estimated that the cost of equipping the mine and mill on a 300 ton basis should not exceed $200,000.00.

Most of the factors governing production are very favorable for cheap operations, both in mining and milling. Mining can be done by open cut, loaded with a power shovel and transported to the mill by conveyor. The ore will break easily in the mine and grind easily in the mill and the indications are that a simple mill will give a high recovery and above the average capacity. All these factors make for low costs.

There is plenty of water developed in a well near the railroad, about 1½ miles south of the mine for a 500-ton cyanide mill. This would only have to be raised 450 feet.

Power can be generated by Diesel engines, as Diesel oil can be purchased delivered for 7¢ to 8¢ per gallon. The power plant and pumps could be located together at a convenient point on the railroad. The Railroad Company will put in a spur for delivering machinery and supplies.

## ESTIMATED COST OF OPERATION

| | |
|---|---|
| Mining and Delivery to Mill | .35 |
| Milling | 1.00 |
| Losses | .45 |
| Administration and General | .20 |
| Taxes and Insurance | .25 |
| Amortization of Equipment | .25 |
| | $2.50 |

## ESTIMATED EARNINGS

On a basis of the tonnage and value set forth the gross earnings are estimated at $2.00 per ton, or $180,000.00 annually.

The net earnings will depend on the declared value of the outstanding stock of the Company and the tax assessed by the government.

## RECOMMENDATIONS

Steps should be taken immediately to clean out the winze near the portal of the upper tunnel and winze in the center of the underground workings. These should be completely sampled as well as other parts of the mine which were only partly covered. The upper tunnel should be extended at least 20 feet and a cross-cut driven to the east for at least 20 feet at the end of the north drift. If the results of this work are as favorable as might be expected from all indications, the assured ore would be greatly increased and might even be doubled.

The rejects from the samples already taken form a good average sample of the mine. These should be used for metallurgical testing to determine the type of mill necessary, its cost of erection, the extraction to be obtained and the cost of milling.

With the foregoing work completed, as outlined, and the information available, the size and type of mill may be decided upon to yield the most profits. There is sufficient ore assured at present for a profitable operation, but how fast it should be mined and the method of milling has yet to be determined. A moderate expenditure will complete this work and then a more complete and definite report can be made regarding the profits to be expected from the project.

Respectfully submitted,

Mining and Metallurgical Engineer

Supplement to Report
on
Vera Cruz Mine
Carrizozo, New Mexico
By
F. C. Bowman, E.M.&M.
November 1938

| Sample No. | Width Feet | Description | Assay oz. Gold per ton |
|---|---|---|---|
| 1 | 10.0 | Taken at Skero Sample No. 37. 11 Ft sub-level, beginning at west side of shaft and continuing west, brecciated. | .10 |
| 2 | 10.0 | At Skero Sample No. 7, 11 Ft sub-level, w. face of pillar beginning 10 ft south of shaft, brecciated material. | .20 |
| 3 | 10.0 | At Skero sample No. 6, 11 Ft sub-level, along pillar between Skero sample No. 73 & 74, brecciated material | .84 |
| 4 | 10.0 | At Skero sample No. 2, Upper Tun. Lev. about 10' S. of Sur. Sta.U-7, loose brecciated material | .25 |
| 5 | 10.0 | At Skero No. 11, along E. wall about 25 ft S.E. of shaft, U. Tun. Lev., light colored brecciated material | .01 |
| 6 | 10.0 | At Skero No. 63, beginning at N. end of 5 and continuing N. for ten feet, light colored brecciated material | .30 |
| 7 | 10.0 | At Skero No. 10, continuing N. from No.6 along wall, light colored breccia containing material that appears to be altered porphyry | .14 |
| 8 | 10.0 | At Skero No. 29, a 5 ft cut on each side of S. drift near face (vertical cuts) brecciated material | .31 |
| 10 | 10.0 | At Skero No. 87, along the west side of E. x-cut at face across some vertical fractures crossing x-cut, brecciated material tight and hard requiring moil to cut sample | .55 |
| 9 | 10.0 | At Skero No. 14, along face of pillar about 35 ft S.E. of shaft | .16 |
| 11 | 1.5 | At Skero No. 38, across streak of gouge material at corner of tunnel and N. x-out, along slip forming the foot wall of x-cut | .29 |
| 12 | 10.0 | At Skero 61. From face of N. x-cut along east side, soft brecciated material | .20 |
| 13 | 5.5 | Ten ft back from Skero 60, sample cut across back of x-cut and across fractures showing running with the x-cut sample between 154 and 155 but not shown on the map | .25 |
| 14 | 1.5 | Opp. Skero 49, cut into foot wall, brecciated and gouge material | .06 |
| 15 | 5.0 | Continuation of 14 across back for 5 ft, soft, crushed gouge material containing more iron oxides than usual | .14 |
| 16 | 10.0 | Continuation of 15 to west side of x-cut, breccia soft, light colored and finely crushed | .04 |
| 17 | 10.0 | At Skero 93 E. of Chute No. 1, breccia contains more hard quartzite, requiring moil for sampling (resample No. 136) | .02 |
| | 10.0 | Cut along N. side of tunnel starting 20 W. of No. 1 Chute, coarse brecciated zone with strong fractures crossing tunnel | .01 |
| 19 | 10.0 | Continuation of 18 W. along tunnel, same material & fracturing | .01 |

| Sample No. | Width Feet | Description | Assay oz. Gold per ton |
|---|---|---|---|
| 20 | 10.0 | Along N. side of tunnel, beginning 40 feet out from the W. end of 19, another fracture zone crossing the tunnel, breccia more decomposed and softer | .01 |
| 21 | 10.0 | Continuation of 20 for 10 ft along the N. side of tunnel, cross fracturing not so strong, breccia contains coarser chunks | .02 |
| 22 | 10.0 | Starting about 95 ft west of 21 and 30 ft out from Sta. u-5 contains open fractures with hardened talc streaks | .01 |
| 23 | 10.0 | Continuation of 22 along N. side of tunnel, solid breccia zone with extra amount of iron oxides, no fractures | .01 |
| | | Samples from Glory Hole | |
| 24 | 10.0 | Starting at point 40 ft S. of Survey Sta G-H and continuing S. 10 ft., hard brecciated material containing considerable quartzite cemented with heavy streaks of hard iron oxide, required moil for sampling. | .04 |
| 25 | 10.0 | Continuation of 24 S., same material | .02 |
| 26 | 10.0 | Beginning at a point 13 ft S. of 25, at S.W. corner of cut and continuing easterly, contains soft streaks & breccia softer | .01 |
| 27 | 10.0 | Continuation of 26, soft brecciated material, light colored | .01 |
| 28 | 10.0 | Continuation of 27, soft brecciated material | .01 |
| 29 | 10.0 | Continuation of 28, harder brecciated material and iron oxides | .03 |
| 30 | 10.0 | Continuation of 29, dropping down away from rim of cut, hard breccia cemented with red iron | .16 |
| 31 | 10.0 | Easterly along face of hump, same hard breccia as No. 30 | .03 |
| 32 | 10.0 | " along face of hump, same hard breccia as No. 31 | .02 |
| 62 | 10.0 | Beginning about 15 ft S. of the e. end of 32, brecciated material with coarse rounded boulders and vertical iron seams | .03 |
| 33 | 10.0 | Continuation of 62, breccia with more decomposed white quartzy material than 62 and less vertical oxide seams | .24 |
| 34 | 10.0 | Continuation of 33, soft breccia with small amount of cementing iron oxides | .01 |
| 35 | 10.0 | Continuation of 34, first 5 ft soft like 34 & last 5 ft with vertical fracturing and containing hard boulders, some flint | .02 |
| 36 | 10.0 | N. half of face of hole to raise from tunnel workings, strong vertical fractures, breccia cemented with heavy yellows brown iron | Tr |
| 63 | 10.0 | Continuation of 35, 5 ft along face of cut and 5 ft along face of hole to raise, strong fractures | .02 |
| 37 | 10.0 | Continuation of 36, breccia, same material as 36 without fract. | .19 |
| 38 | 10.0 | Continuation of 37, dark colored iron cementing soft altered breccia, vertical fractures filled with iron oxides | .01 |
| 39 | 10.0 | Continuation of 38 along east wall, light colored decomposed breccia cementing material fine quartz with yellow-brown oxides | .02 |

| Sample No. | Width Feet | Description | Assay oz. Gold per ton |
|---|---|---|---|
| | | Samples from Glory Hole, Continued | |
| 40 | 10.0 | Continuation of 39, east wall over x-cut, decomposed breccia with some oxide streaks of light colored iron | .01 |
| 41 | 10.0 | Continuation of 40, hard and soft breccia with red oxide streaks and cementing material; cretaceous beds above and 20 ft back | .34 |
| 42 | 10,0 | Continuation of 41, coarsely brecciated material with less oxides than 41 | .10 |
| 43 | 10,0 | Continuation of 42, coarse decomposed breccia with brown iron cementing material | .10 |
| 44 | 10.0 | Continuation of 43, breccia with some large chunks thro it 2 ft across, dark brown oxide cementing material | .01 |
| 45 | 10.0 | Continuation of 44, over x-cut tunnel portal, coarse breccia with brown oxide cementing material, few chunks of porphyritic rock, purplish with white crystals, probably andesite | .20 |
| 46 | 10.0 | Continuation of 45, coarse breccia with brown oxide cementing material along north face of cut | .16 |
| 47 | 10.0 | Continuation of 46 along N. face, same material as 46 | .01 |
| 48 | 10.0 | " of 47, along N. face as far as could be sampled, same material as 46 and 47 | .04 |
| 49 | 10.0 | N. side of x-cut tunnel at No. 45, breccia material | 0.12 |
| 50 | 10.0 | Continuation of 49 to breast of tunnel, " " | 0.02 |
| [illegible] | 10.0 | S. side of x-cut tunnel beginning at face, " " | 0.02 |
| [illegible] | 10.0 | Continuation of 51 to portal, breccia material | 0.05 |
| 53 | 10.0 | Along north side of x-cut at No.40 " " | 0.02 |
| 54 | 10.0 | Continuation of No.53 to contact of sediments | 0.03 |
| 55 | 5.5 | Across back of drift along contact, breccia material | 0.09 |
| 56 | 4.0 | " " " " 10 ft in from 55, " " | 0.05 |
| 57 | 4.8 | " " " " 10 ft in from 56 at breast, breccia | 0.10 |
| 58 | 10.0 | Along W. side drift from face, breccia material | 0.06 |
| 59 | 10.0 | " " " " continuation of 58, " " | 0.04 |
| 55B | 1.5 | East of contact, in wall. 4 ft in from 55, gouge and crushed sediments mixed with breccia material | 0.02 |
| 60 | 10,0 | Along S. side of x-cut from cor drift out, Breccia Material | 0.03 |
| 61 | 10.0 | Along S. side of x-cut, continuation of 60, breccia material | 0.02 |
| 62 | 10.0 | S. rim of cut starting above 32, fine brecciated material | 0.03 |
| 63 | 10,0 | Continuation of 35 and along W. face of hole to raise from tunnel, breccia heavy with iron oxides | 0.02 |
| 64 | 10.0 | Along S. side of hole at 63, breccia material | 0.18 |
| 65 | 10.0 | " " " " " and continuation of 64 | 0.02 |
| 66 | 7.0 | Across E face of hole from 65 N. breccia material | 0.04 |
| 67 | 10.0 | E. side of S. tunnel, bottom Glory Hole, from face out | 0.03 |
| 68 | 10.0 | " " " " ", continuation of 67 to portal | 0.09 |
| | | Breccia in tunnel mostly fine with yellowish brown matrix. | |
| [illegible] | 10.0 | Along wall E. of tunnel portal, breccia with dark matrix | .04 |
| [illegible] | 10.0 | Continuation and above 69, same brecciated material | 0.03 |
| 71 | 10.0 | " of 70, similar material but east of fracture zone | 0.03 |
| 72 | 10.0 | " " 71, breccia material | 0.01 |
| 73 | 10.0 | " " 72, " " similar to 72 | 0.02 |
| 74 | 10.0 | " " 73, " " and same fracture zone as S.Tun. | 0.04 |

| Sample No. | Width Feet | Description | Assay oz. Gold per ton |
|---|---|---|---|
| | | Samples from Glory Hole, Continued | |
| 75 | 10.0 | Continuation of 74, breccia material and same fracture zone as S. Tun. | 0.20 |
| 76 | 10.0 | Continuation of 75 to E. side of N. Tun. breccia more rounded and matrix contains more decomposed and altered white rock | 0.05 |
| 77 | 10.0 | Across portal of N. Tun. similar material to 76 | 0.04 |
| 78 | 10.0 | From end of 77 & along w. face of cut S., similar to 76 | 0.05 |
| 79 | 10.0 | Continuation of 78, marked wrong on map (original), looks like conglomerate, matrix very much altered and decomposed, light colored, | 0.02 |
| 80 | 10.0 | Continuation of 79 South but lower in cut, breccia material | 0.02 |
| 81 | 10.0 | Continuation of 80 along west side of cut, breccia material | 0.02 |
| 82 | 10.0 | Continuation of 81, coarse and fine breccia, matrix more brown iron | 0.20 |
| 83 | 10.0 | Bottom S. end, breccia more rounded | 0.46 |
| 84 | 10.0 | Along S. wall of cut & bottom, same material as S. Tun. | 0.05 |
| 85 | 5.0 | Continuation of 84 to W. side of portal of S. Tun. | 0.04 |
| 86 | 6.0 | Across breast and W. side of S. Tun. | 0.02 |
| 87 | 10.0 | From portal, E. side of N. Tun. bottom of Glory Hole | 0.03 |
| 88 | 10.0 | Continuation of 87, E. side & face of N. Tun. | 0.03 |
| 89 | 10.0 | " of 88 along W. side of N. Tun. rounded breccia with light matrix much altered and decomposed | 0.08 |
| 90 | 5.0 | Continuation of 89 to portal, same material as 87, 88, 89 | 0.02 |
| 91 | 10.0 | Beginning at the W. cor. inside rim, continuing S. | 0.01 |
| 92 | 10.0 | Continuation of 91, fractured breccia material | 0.02 |
| 93 | 10.0 | " of 92, breccia yellowish brown matrix, strong | 0.03 |
| 94 | 10.0 | " " 93, " dark red & " " ", strong fracture zone | 0.08 |
| 94S | 10.0 | Resample of 94 taking larger sample | 0.27 |
| 95 | 10.0 | Along S. wall of cut about 20 ft below 94 | 0.42 |
| 96 | 7.0 | Continuation of 95 up to east wall of cut | 0.19 |
| 97 | 10.0 | " of 91 along rim going north | Tr |
| 98 | 10.0 | " of 97 " " " " | 0.01 |
| 99 | 10.0 | " " 98 " " " " | 0.12 |
| 100 | 12.0 | " W. from N. end of 99, breccia with brown matrix | 0.06 |
| 101 | 10.0 | Beginning with N.W. cor. & running E. along rim | 0.01 |
| 102 | 10.0 | Continuation of 101, same material as in N.Tun below | 0.01 |
| 103 | 10.0 | " of 102 and same material | 0.04 |
| 104 | 10.0 | " " 103 and same material as 102 | 0.10 |
| 105 | 10.0 | " " 104, breccia changes to brown matrix and harder | 0.04 |
| 106 | 10.0 | " " 105 to the N. along outcrop of breccia | 0.01 |
| 107 | 10.0 | " " 106 " " " " " " " | Tr. |
| 108 | 10.0 | " " 107 " " " " " " " | 0.02 |
| 109 | 10.0 | " " 108 across breccia outcrop and fractured quartzite | 0.02 |
| 110 | 10.0 | Across fractured quartzite outcrop at N. end of breccia zone | Tr. |
| 111 | 10.0 | Across fractured quartzite continuation of 110 | 0.01 |

| Sample | Width Feet | Description | Assay oz. Gold per ton |
|---|---|---|---|
| | | Samples along old skip line toward mill | |
| 112 | 10.0 | Breccia outcrop 90 feet below W.rim of Glory Hole and continuing toward the G.H. | 0.02 |
| 113 | 10.0 | Continuation of 112 toward the Glory Hole | 0.05 |
| 114 | 10.0 | " of 113 toward the Glory Hole | 0.01 |
| 115 | 10.0 | Breccia Outcrop near W. contact about 90 ft E. of Tun. Portal | 0.05 |
| 116 | 10.0 | Breccia Outcrop continuation of 115 | 0.02 |
| 117 | 10.0 | " " continuation of 116 | 0.33 |
| 118 | 10.0 | Same outcrop as 117 and about 25 ft up toward raise from Tun. | 0.06 |
| 119 | 10.0 | Continuation of 118 easterly along outcrop | 0.14 |
| 120 | 10.0 | " of 119 easterly along outcrop | Tr. |
| | | Samples from Upper or Mill Tunnel | |
| 121 | 4.0 | In old drift to the N. of Raise to surface from Tun. and about 25 ft above the tunnel, in highly fractured zone | 0.02 |
| 122 | 10.0 | Continuation of 121, breccia, fractured zone | 0.01 |
| 123 | 10.0 | Sample across the back, 11 ft to S. of 121 | 0.10 |
| 124 | 7.0 | Continuation of 123 to end of short x-cut | 0.02 |
| 125 | 10.0 | Sample across back of drift to North from Sta U-2 | 0.20 |
| 126 | 10.0 | Continuation of sample 23 West, breccia fine and solid | 0.22 |
| 127 | 10.0 | " of sample 126, breccia fine and free from fractures | 0.10 |
| [illegible] | 10.0 | " " " 127, " " " " " " | 0.16 |
| 129 | 10.0 | " " " 128, cross fractures north easterly | 0.14 |
| 130 | 10.0 | " " " 129, " " " " | 0.17 |
| 131 | 10.0 | " " " 130, " " " " | 0.34 |
| 132 | 10.0 | " " " 131, " " " " | 0.14 |
| 133 | 5.0 | " " " 132, free from fractures, change at end of 133 | 0.09 |
| 134 | 10.0 | Continuation of #18 to the East, strong slip at end of #18 | 0.20 |
| 135 | 5.0 | Continuation of 134 up to edge of pillar along #1 chute | 0.30 |
| 136 | 6.0 | Begins 6 feet from center of #1 chute | 0.09 |
| 137 | 10.0 | Continuation of 136 at Skero #92 | 0.01 |
| 138 | 10.0 | " of 137 along N. side to corner | 0.14 |
| 139 | 10.0 | Across back between pillars N. of #2 Chute, coarse breccia | 0.06 |
| 140 | 10.0 | " back from end 139 to #170 | 0.13 |
| 141 | 10.0 | " N. face of first stope N. breccia fractured & crossed | 0.07 |
| 142 | 10.0 | Across back of tunnel 7 ft W. of #3 chute | 0.02 |
| 144 | 10.0 | Along E. side of 2nd N. stope beginning with face | 0.06 |
| 143 | 10.0 | " " " " " " " from #144 to #142 | 0.26 |
| 145 | 10.0 | " S. side of tunnel near face, Ft Wall slip west | 0.01 |
| 146 | 10.0 | " " " " " continuation of 145,64 ft to Sta # 7 | 0.42 |
| 147 | 10.0 | " E. wall, 1st x-cut N. from N. drift, face out | 0.04 |
| [illegible] | 10.0 | " E. side, " " " " " ", continuation #147 | 0.34 |
| [illegible] | 10.0 | Continuation of 148 across back of N. drift | 3.76 |
| 150 | 2.0 | " of 149 into ft. wall slip | 2.18 |
| 151 | 10.0 | Across back, 13 ft. N. of 149, N.drift all breccia | 0.04 |
| 152 | 8.0 | " " , 27 ft N. of 151 | 0.01 |
| 153 | 7.0 | " " , 23 ft from the face | 0.34 |

| Sample No. | Width Feet | Description | Assay oz. Gold per ton |
|---|---|---|---|
| 154 | 5.0 | Across back, 10 ft N. of 153 | 0.05 |
| 155 | 5.0 | " ", 5 ft from face, distinct fractures into S. wall, apparently parallel to Ft. Wall slip | 0.06 |
| 156 | 10.0 | Drift S. from #2 chute, W. side x-cut, along N. side | 0.42 |
| 157 | 5.5 | Across back, 10 ft from face, breccia highly altered | 0.12 |
| 158 | 10.0 | Beginning S. of Sta 7 & continuing E. along pillar | 0.10 |
| 159 | 10.0 | Continuation of 159 to cor. of pillar | 0.04 |
| 160 | 10.0 | " of #9, along N. face of pillar and north of #156 | 1.08 |
| 161 | 10.0 | Along S. wall of stope, S. of chute #2 | 0.09 |
| 162 | 10.0 | " " " " ", continuation of 161 | 0.32 |
| 163 | 10.0 | " W. wall of stope beginning with N.E. cor. S. of Sta 7 | 0.38 |
| 164 | 10.0 | " " " " ", continuation of 163 | 2.22 |
| 165 | 6.0 | " " side of winze, S. of tunnel at No. 2 chute | 0.21 |
| 166 | 6.0 | " E. side of winze, opp. 165 and 19 ft below tunnel | 0.13 |
| 167 | 10.0 | Continuation of #125 to the west at Sta U-2 | 0.10 |
| 168 | 10.0 | " of #125 to the east at Sta U-2 | 0.10 |
| 169 | 10.0 | " " #138, along W. side of first stope north of Tun. | 0.18 |
| 170 | 10.0 | " " #169, " " " " " " " " | 0.03 |
| 171 | 10.0 | " " #170, " " " " " " to #141 | 0.03 |
| | | Samples in Lower Tunnel | |
| 172 | 5.7 | Along S. side at 1033 to 1039' from portal, highly altered and fractured, talc streaks on slips | 0.01 |
| 173 | 6.0 | Vertical sample across flat slips pitching into S. wall 1015 feet from portal | 0.02 |
| 174 | 7.0 | Vertical sample 1005 ft. from portal, S. wall | 0.01 |
| 175 | 8.0 | " sample, S. side, highly fractured, iron & manganese stains, 995 feet from portal | 0.02 |
| 176 | 7.3 | Vertical on S. side, 985 feet from portal, oxidized | 0.02 |
| 177 | 5.0 | " sample, N. side, 942' from portal, brown sandy streak | 0.03 |
| 178 | 10.0 | Across back & down N. side at 926 ft from portal. | 0.02 |
| 179 | 6.0 | N. side, 891' from portal, vertical across flat slips | 0.01 |
| 180 | 4.0 | Across back at 179, brecciated material with both walls pitching toward center of tunnel | 0.03 |
| 181 | 6.5 | 786' from portal, vertical sample on North side highly fractured material | 0.02 |
| 182 | 5.5 | 772' from portal at N. side of tunnel across back, at E. end of receiver, highly fractured material | 0.01 |
| 183 | 3.8 | At 182, from S. side of tunnel across back, prominent slips pitching into S. wall | 0.03 |
| 185 | 6.0 | Beginning 16 ft from portal, S. side of tunnel and horizontal part of a dike, light colored, highly shattered | 0.03 |
| 186 | 10.0 | Continuation of 185, dark colored greenish dike rock coarsely shattered | 0.01 |
| 187 | 10.0 | Continuation to east side of dike, light green rock, shattered and decomposed, stands almost vertical and apparent strike almost north and south, sediments on both sides of the dike | 0.08 |
| | | Coarse reject dump S. of mill | |
| 184 | Grab | Clean white or light colored sand rock | 0.06 |
| 184 | xGrab | Clean chunks but with slight brown stains on one side | 0.96 |

* * * * * * * *

Chicago, Ill., March 11, 1939

EXTRACT FROM DENVER EQUIPMENT COMPANY'S BID OF SEPT. 16, 1938, ON 125 TO 150 TON MILL. COST OF MILLING 300 TON MILL OF COURSE WOULD BE SOMETHING

* * * * * * * * * * * * *

As regards the cost per ton to mill the ore it is greatly dependent upon the personnel of your operating crew, its efficiency and ability to attain the utmost from the machinery. Also there are factors such as the hardness and the abrasiveness of the ore and the final grind that is necessary for the most profitable liberation of the values. However, for estimating purposes and considering that the conditions will be about as we have assumed, we estimate that a round figure of approximately $1.25 per ton over all cost should be ample for the milling of the ore.

CHEMISTS, ASSAYERS, ENGINEERS

Denver, Colo.

Folio 1925
Date July 30, 1937

J. Pratt

We hereby certify, that the samples assayed for you gave the following results:

| DESCRIPTION | Gold Ounces Per Ton | Silver Ounces Per Ton |
|---|---|---|
| 1C | 0.10 | 2.90 |
| 2C | 0.01 | 0.49 |
| 3C | 0.08 | 0.62 |
| 4C | 0.09 | 0.99 |
| 5C | 0.04 | 0.80 |
| 6C | 0.18 | 0.50 |
| 7C | 0.12 | 0.72 |
| 1P | 0.17 | 0.77 |
| 2P | 0.05 | 0.97 |
| 3P | 0.07 | 0.97 |
| 4P | 0.05 | 0.41 |
| 5P | 0.15 | 4.17 |
| 6P | 0.05 | 3.91 |
| 7P | 0.32 | 0.50 |
| 8P | 0.12 | 0.44 |
| 9P | 0.10 | 1.18 |
| 10P | 0.36 | 0.70 |
| 11P | 0.75 | 0.32 |
| 12P | 0.04 | 2.52 |
| 13P | 0.05 | 0.44 |
| 1B | 0.12 | 0.88 |
| 2B | 0.12 | 0.34 |
| 3B | 0.14 | 0.12 |
| 4B | 0.32 | 1.02 |
| 5B | 0.12 | 0.84 |
| 7B | 0.02 | 0.51 |
| 8B | 0.10 | 0.60 |
| 9B | 0.01 | trace |
| 10B | 0.03 | trace |
| 11B | 0.62 | 0.36 |
| 12B | 0.20 | 0.16 |
| 13B | 0.64 | 0.72 |
| 14B | 0.10 | 0.44 |
| 15B | trace | trace |
| 16B | 0.08 | 0.84 |
| 17B | 0.10 | trace |
| 18B | 0.07 | 0.57 |
| 19B | 0.07 | 0.85 |

old at $35.00 per ounce

Charges $107.00

CHARLES O. PARKER & CO.
Chemists, Assayers and
Engineers.

APPENDIX B

# VERA CRUZ GOLD PROPERTY

Lincoln County, New Mexico

Commodities:
Au, Ag

C.F. Bauer
September, 1974

TABLE OF CONTENTS

# LIST OF ILLUSTRATIONS

Abstract

The Vera Cruz property, located in the Vera Cruz Mountains, is about 11 miles east of Carrizozo, New Mexico within Lincoln County. Patented and unpatented lode claims which cover the area comprise about 150 acres.

Significant mineralization occurs in a zone of intense brecciation thought to be a breccia pipe. Visible breccia contacts on the east, west and south and geophysical data indicates the breccia zone to be enlarging with depth.

This report discusses two general stages of exploration. The first stage involves two objectives, one of which is the proving of ore reserves within the old workings. It has been reported there exists in the workings 207,450 to 1,577,250 tons of mineralized breccia containing 0.123 to 0.144 ounces of gold per ton. Delineating extensions of the known ore zone is the second prime exploration objective.

Second stage exploration consists of mining and metallurgy feasibility studies. The objective of these studies is to establish the most applicable mining and milling techniques for the recovery of gold from the Vera Cruz ore.

Introduction

The Vera Cruz Mine was first examined on November 30, 1973. In March of 1974 the property was acquired and preliminary exploration began in May. This report is based upon data obtained from geological and geophysical exploration and from a report to the Carrizozo Mining Company written by F.C. Bowman in 1938. Information was also gained from other references, including those by Griswold and Lindgren.

The primary purpose of this report is: 1) to outline the information previously reported about the Vera Cruz Mine 2) to discuss the exploration work which has been conducted upon the property and 3) to discuss the exploration necessary to delineate the reserves and, if justified, place the property into production.

## Location and Accessibility

The Vera Cruz property is situated on the southwest slope of the Vera Cruz Mountains, 115 air miles to the southeast of Albuquerque, New Mexico. More specifically, the property is located in the Nogal Mining District of Lincoln County, New Mexico, in Sections 17, 19 and 20 of T8S, R13E.

From Carrizozo, New Mexico, the old mine workings can be reached by traveling east on Highway 380 about 11 miles, then turning north and proceeding through the O Bar O Ranch pasture for about 2 miles to the old mill site. From the mill site, the glory hole is visible to the east on the hillside. The general location is shown in Figure 1.

The Vera Cruz Mountains rise abruptly above the plains to an elevation of 7,800 feet. The mountain terrain is moderately steep to rugged, with an elevation that varies from 6,300 feet to 7,800 feet on the property. Mountainous areas are moderately timbered, with scrubby growths of pinion and juniper-like vegetation.

The recorded maximum and minimum temperatures for Carrizozo are 110°F and -9°F. The growing season averages 192 days. Most of the annual 15 inches of precipitation occurs as summertime rainfall.

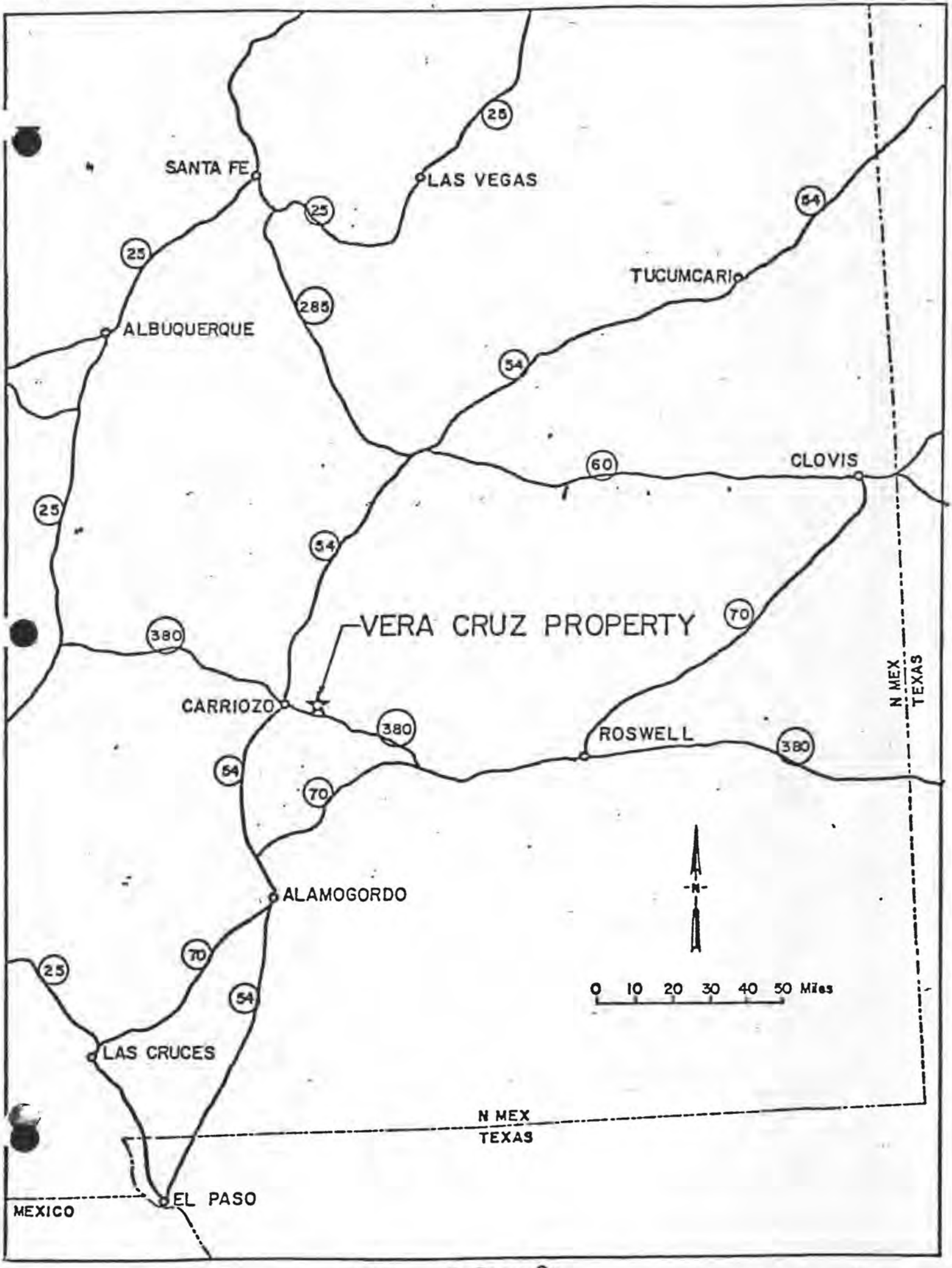
Surface exploration in the wintertime should not be difficult, with only occasional minor snowstorms. These winter storms would have little effect on yearly mining operations.

## Property Status

Both patented and unpatented lode mining claims comprise the Vera Cruz property. The following are the patented claims which cover a total of 64.89 acres:

| | |
|---|---|
| Vera Cruz | Survey No. 141 |
| Golden Eagle | Survey No. 157 |
| Bustamente | Survey No. 271 |
| Washoe | Survey No. 272 |

An additional 86.59 acres are contained in the five unpatented claims, Eagle 1 through Eagle 5.


SANTA FE
LAS VEGAS
TUCUMCARI
ALBUQUERQUE
CLOVIS
VERA CRUZ PROPERTY
CARRIOZO
ROSWELL
ALAMOGORDO
LAS CRUCES
EL PASO
MEXICO
N MEX
TEXAS
N MEX
TEXAS
N
0 10 20 30 40 50 Miles
25
285
54
60
70
380

These claims are all controlled by GeoSurveys, Inc. See Figure 2 for claim map.

History and Production

Spaniards were undoubtedly the first prospectors and gold miners of this region; however, little information is available on their operations. Evidently, early prospectors were attracted by the large outcrop of brecciated material at the site of the present-day glory hole and its contents in free gold.

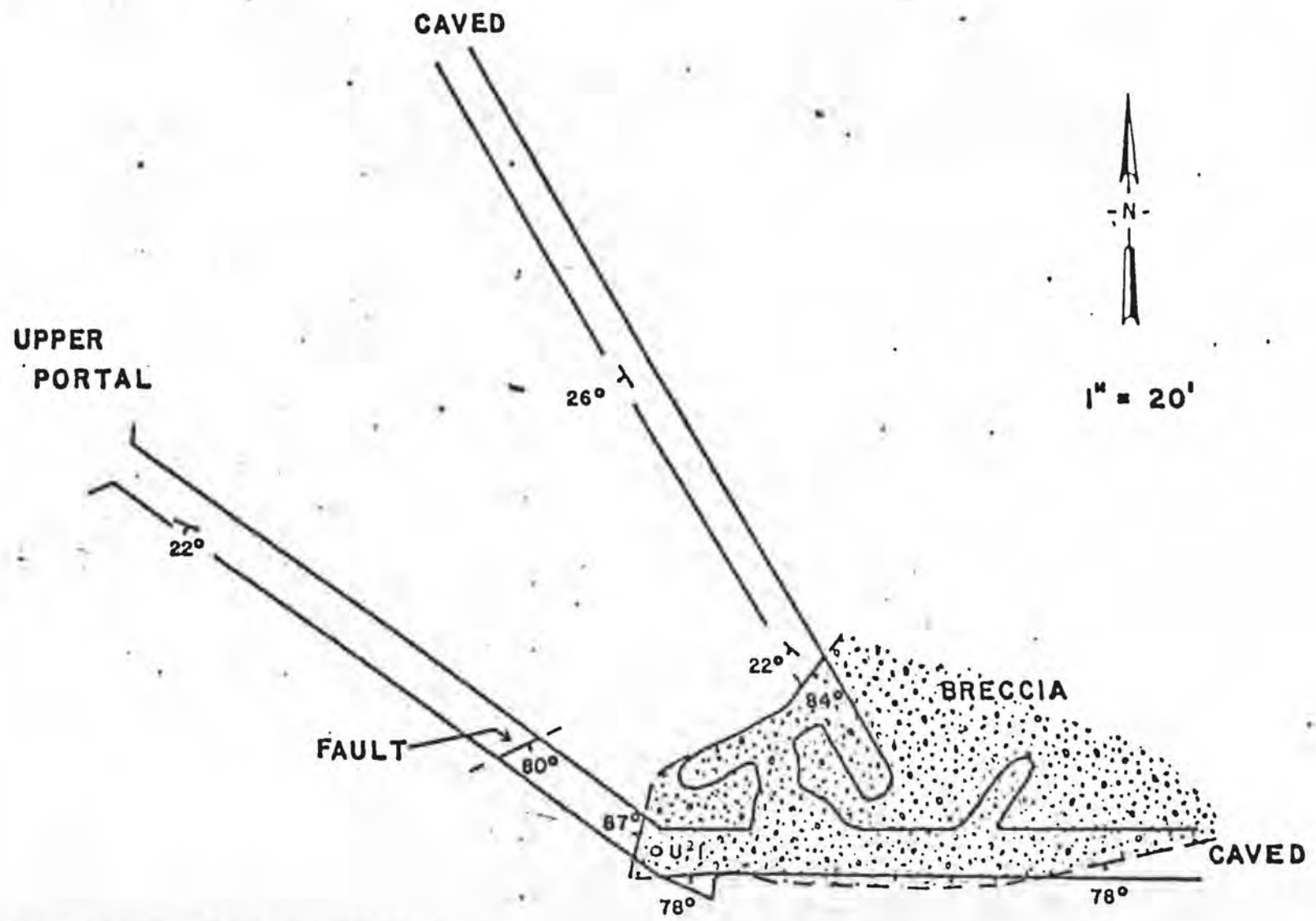
The claims were located in the early 1880's and patented in 1889. The first mining was by open pit and the ore transported by tramway to the mill. Later, the upper tunnel was driven 700 feet and connected to the pit by raises.

No record is available as to when a mill was constructed. However, Lindgren (1910) states: "The mill contained in 1908 a crusher, rolls, six Huntington mills and amalgamation plates. It was said that the Huntington mills and plates were to be at once replaced by cyanide leaching tanks to treat the coarse product from the rolls." The only record of production is from 1907 to 1909. According to Griswold (1959): "During this period, a cyanide mill was constructed to concentrate the ore after amalgamation had proved unsuccessful. The mill probably was used in later years to treat custom ores from other mines of the district but the record seems to indicate that the mill treated its own ore only during the years 1907 to 1909. The grade and tonnage of the ore mined is not known.

Regional Geology

The geology of Lincoln County is complex, with an intense faulting system trending north-south, accompanied by many varied types of intrusive and extrusive rocks. Aside from the ever-present Quaternary alluvial deposits, the exposed sedimentary rock sequence in this region ranges in age from Ordovician to Tertiary periods. See the stratigraphic section shown as Figure 3.

# UPPER LEVEL MAP




VERA CRUZ PROPERTY

GEO SURVEYS, INC.

MESAVERDE SEDIMENTS

JULY 17, 1974

C.F.B.

Figure 4 Page 6a

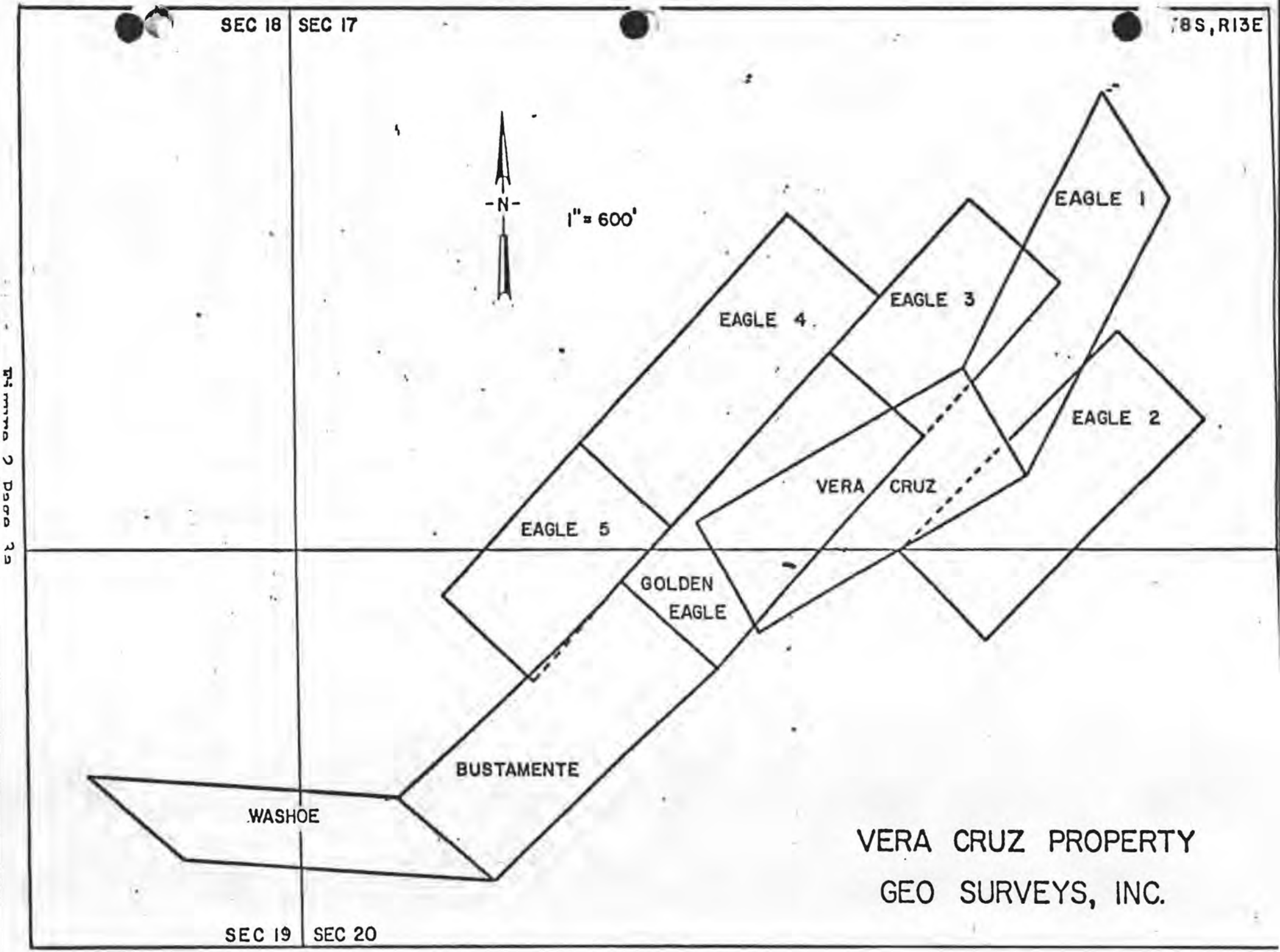



Exhibit 2 Page 32

GENERALIZED SECTION OF GEOLOGIC FORMATIONS IN THE RIO HONDO DRAINAGE BASIN, CHAVES, LINCOLN, AND OTERO COUNTIES, NEW MEXICO

| *System* | *Stratigraphic Unit* | *Thickness (feet)* | *Physical Character* |
|---|---|---|---|
| Quaternary | Alluvium | 0-210± | Poorly sorted to well-sorted sand, gravel, and clay in lenses, stringers, and parallel beds. |
| | Alluvial fans | | Mainly boulders and unsorted finer rock debris from intrusive igneous rocks. |
| Quaternary (?) and Tertiary (?) | Pediment gravel | 0-50± | Unsorted angular to rounded fragments of igneous, sedimentary, and metamorphic rocks. |
| | Unconformity | | |
| Tertiary (?) | Intrusive and extrusive igneous rocks | | Andesite, diorite, microgranite, and rhyolite dikes, sills, and stocks. |
| | Cub Mountain Formation | 0-500± | Red and white sandstone and chert pebble conglomerate; varicolored shale. |
| | Unconformity | | |
| Cretaceous | Mesaverde Formation | 0-540± | Gray, yellow, and buff quartzose sandstone; gray shale; coal; and carbonaceous shale. |
| | Mancos Shale | 0-400± | Black fissile shale, thin-bedded limestone, and intercalated limestone and sandstone. |
| | Dakota Sandstone | 0-130± | Ferruginous quartzose sandstone interbedded with gray shale and conglomerate. |
| | Unconformity | | |
| Triassic | Chinle Formation | 0-180± | Red and gray shale and white and gray dense limestone. |
| | Santa Rosa Sandstone | 0-380± | Gray, yellow, and tan sandstone; thin-bedded limestone; red and gray shale; and chert pebble conglomerate. |
| | Artesia Formation | 0-450± | Gypsum, anhydrite, dolomite, impure limestone, siltstone, red shale and sandstone. |
| | Unconformity | | |
| Permian | San Andres Limestone | 0-1,200 | Mainly cherty limestone and dolomite; minor siltstone, sandstone, gypsum, anhydrite, and shale. |
| | Glorieta Sandstone | 0-160 | Mainly light-tan to dark-red, medium-grained quartz sandstone; minor silty limestone, siltstone, gypsum, and anhydrite. |
| | Yeso Formation | 1,000± to 2,000± | Thin-bedded red and yellow siltstone; some limestone, sandstone, shale, gypsum, anhydrite, and salt. |

During Tertiary time, laccolithic intrusives invaded and domed the earlier overlying sediments, forming the mountainous regions. In the Vera Cruz Mountains, an alaskite laccolith arched the Mesaverde sediments of Cretaceous age into an irregular domal structure.

The Mesaverde group is composed of white, gray, yellow and buff sandstones and gray shale, with several coal-bearing horizons. A detailed study of the group in the vicinity of Capitan has been made by Bodine (1956), who divides the group into three sections: 1) the lower sandstone unit, composed of massive white sandstone near the base and interbedded sandstone and fissile shale at the top (approximately 165 feet thick) 2) the middle shale unit, composed of 95 feet of dark gray marine shale with intercalated beds of thin limestone at the base, overlain by 180 feet of carbonacious shale, coal and thin beds of silty sandstone and 3) the upper sandstone unit of thick bedded buff to white sandstone (30 to 60 feet thick). The total thickness varies throughout the region.

Besides the laccolithic intrusions, numerous dikes are exposed within the area, usually forming long, slender ridges. Bodine (1956) states: "In general, the dikes are of dioritic composition and of fine to medium grained texture."

Sills are also present and, in general, are the same composition as the dikes. Presumably, they are of the same age as the dikes and were associated with their intrusion.

In addition to the fault system which trends north-northeast, the dike swarms have the same general alinement. It is interesting to note that the long axes of the Sierra Blanca, Jicarilla Mountains and Vera Cruz Mountains are oriented in a north-northeast direction. This zone of faulting and intrusion lies along the eastern side of the Cordilleran Front lineament.

Geology of the Deposit

The property is situated near the southern border of the Vera Cruz laccolith, an intrusion classified as a fine grained alaskite. (Griswold, 1959, p. 50) This alaskite outcrops only along the most northern reaches of the claim property.

Very few outcrops of the Mesaverde shales and sandstones exist as a result of the relatively easy weathering of these fractured sediments. The sediments are highly fractured due to the laccolithic intrusion and a well defined post mineral fault system trending a little east of north. Griswold (1959) states: "Most of these faults are downdropped on the west. Outcrops in the mine area are insufficient to determine the exact location of the faults."

Numerous dikes and sills within the claim area further complicate the geology. Most all ridges appear to be composite dikes with complex cross-cutting relationships. Only a few poor outcrops of these dikes exist because of spheroidal weathering, leaving innumerable float boulders. Associated with some of the dikes is considerable magnetite.

No attempt has been made to differentiate among the different mafic rock types composing these dikes and sills which are mostly trending in the prominent north-northeast direction. However, twenty-one thin sections have been studied by Elston and Snider (1964, p. 140) in distinguishing seven major types of dikes in this region. They are: 1) labradorite-olivine diabase porphyry 2) olivine diabase porphyry 3) diabase 4) hornblende-biotite diabase 5) rhyolite 6) latite and 7) phonolite.

The ore body is an aggregation of highly altered porphyry, sandstone and shale brecciated and recemented. Most of the fragments have been kaolinized to the extent that the original rock texture has been destroyed. Silicification of the fragments is also evident and varies throughout the breccia which has a matrix composed almost entirely of clay alteration productions, limonite and silica.

The presence of much limonite throughout the breccia seems to indicate the former presence of sulfides; however, no residual sulfides are found on the dumps. Griswold (1959) states: "It seems plausible to assume that the original breccia was subjected to hydrothermal solutions which deposited considerable pyrite in the vugs of the breccia and that the pyrite was probably auriferous. Oxidation of the ore zone has converted the original pyrite to limonite and the gold remained unchanged."

Traversing the breccia are fracture planes running about N20°E. Iron stained zones run parallel to these fracture planes. In the upper adit, the breccia is terminated to the west against a fault plane of this direction and dipping to the west. (See Figure 4).

Due to insufficient outcrops and the inaccessibility of most of the underground workings, the shape of the brecciated zone is not exactly known. However, the principal breccia outcrop in and around the glory hole has contacts with the surrounding rocks on the west, east and south that appear to be arcuate. Griswold (1959) states: "Owing to the apparently elliptical shape of the main breccia zone, the writer believes that the structure is a breccia pipe. The fragments give definite indication of rotation and displacement." Geophysical exploration has confirmed this shape with an elliptical magnetic anomaly around the known breccia zone. (See magnetic anomaly as shown in Figure 5)

In the uppermost eastern extent of the glory hole, the breccia contact is a northeast fracture plane showing vertical slickensides. This fault is dipping to the east at 75°.

A small breccia outcrop exists between the glory hole and the upper adit. The breccia contact is exposed on the south side in a stope which holed through to the surface. The contact here is dipping 80° to the south. See Figure 5 for partial geology map.

## Summary

The gold mineralization of the Vera Cruz property occurs primarily within the breccia pipe, a zone of intense brecciation with angular fragments of porphyry, sandstone and shale. The breccia has been highly altered as the result of hydrothermal solutions permeating the breccia and depositing considerable pyrite and is thought to be auriferous. Through oxidation, the original pyrite was converted to limonite and the gold remained unchanged.

The breccia is found to be dipping away and enlarging with depth to the east, south and west. The northern contact is concealed with no visible evidence on its location or dip. However, interpretation of geophysical data indicates the zone of brecciation is also dipping to the north and enlarging in this direction. Therefore, the actual breccia zone could be considerably larger than the surface data indicates.

## Ore Reserves

At this stage of investigation, it is impossible to make meaningful estimates on the ore reserves in the Vera Cruz property. However, F.C. Bowman, in his report in 1938 to the Carrizozo Mining Company, gives an indication as to the amount of breccia within the existing workings which was determined by his investigation of the underground workings accessible at that time.

From his report, an indication as to the breccia grade can be gained from his extensive sampling program in which he collected over 180 samples. However, Bowman states: "Only the gold content was determined as previous samples show the silver content, of minor importance, as it only averages about half ounce."

Bowman (1938, pp. 6&7) concludes through his investigation and sampling that there exists 207,450 tons to 1,577,250 tons of brecciated material, with an average grade of 0.123 to 0.144 ounces of gold per ton in the workings he examined.

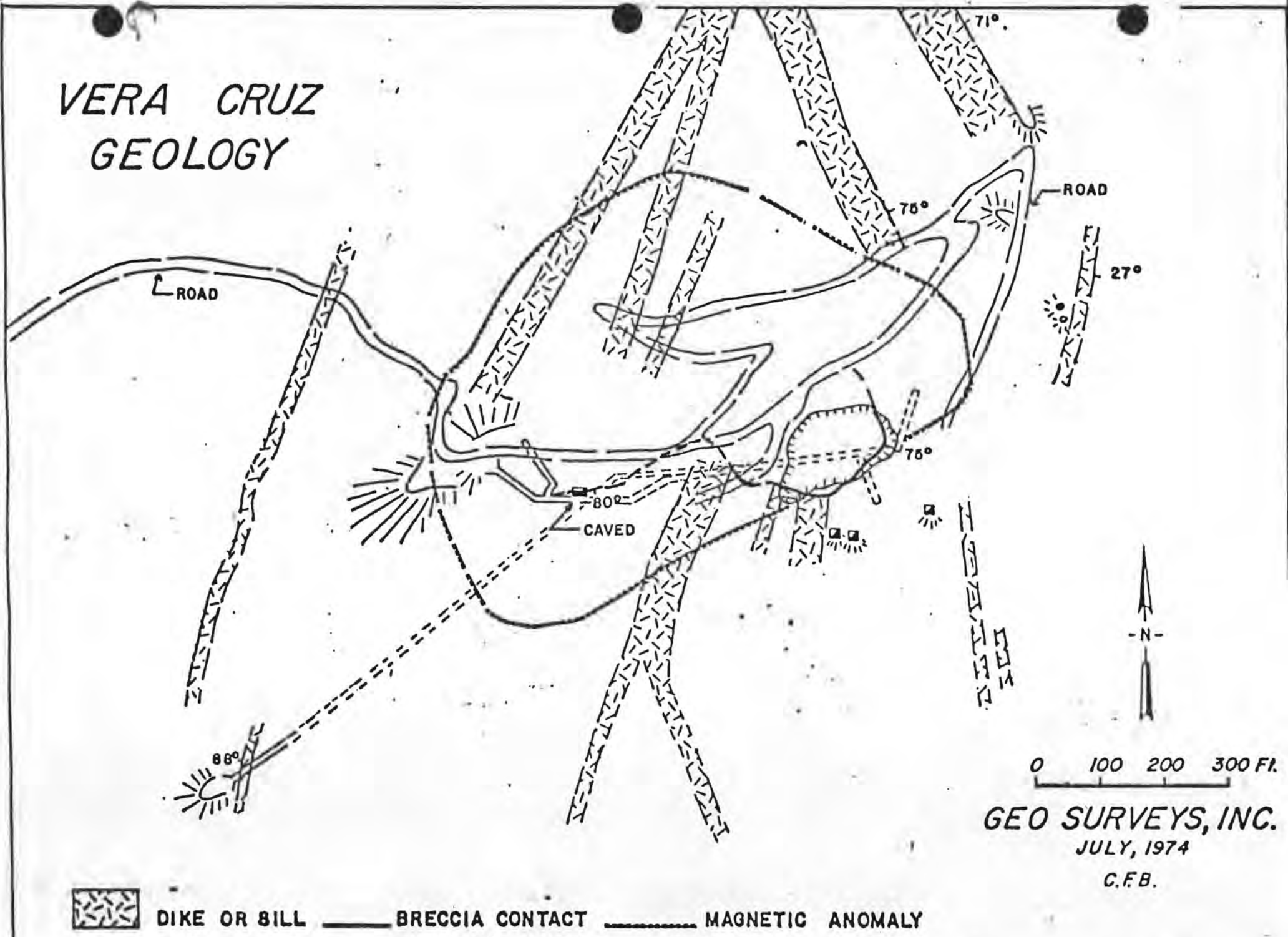



Figure 5 Page 6b

Underground, the only limits of the breccia zone presently visible is the southwestern limit, where the breccia is in contact with the sediments. (See Figure 4) From a point which is approximately 235 feet from the upper portal, Bowman (1938) states: "Beyond this point, the upper tunnel workings are all in the brecciated zone."

Bowman (1938) also reports: "The only evidence of the extent of the brecciated zone below the tunnel is in two winzes. The first one is reported to have been 65 feet deep all in breccia but as previously stated, the winze has been filled so it cannot be examined. The second winze which is reported to be 140 feet deep has been filled to within 20 feet of the top where breccia is still showing and was sampled. It is reported that the bottom of the shaft shows sediments on one side."

Bowman concludes: "In other words, the extent of the partially determined ore zone is 600 feet in length by 100 feet in width and 150 feet thick at one end (west) and increasing to 250 feet thick at the other end (east), having a top width of 125 feet, a center width of over 200 feet, and a bottom width yet to be determined."

Development of the lower tunnel as reported by Bowman (1938, p. 5) has not indicated the downward continuation of the brecciated zone. However, several hundred feet of a highly fractured, altered and faulted zone were crossed. The breccia zone may still be found in depth to the north or northeast of the present lower tunnel.

## Exploration Possibilities

The exploration program will consist of two general stages, both with the objective of delineating and developing the ore reserves so that the Vera Cruz can be placed into production. The first stage will involve the exploration of the breccia zone in the old workings and the delineating of extensions of this breccia. Second stage work will involve the mining and metallurgy feasibility studies.

## Vera Cruz Property

As stated previously, the objective of exploration of Vera Cruz will be to delineate the ore reserves and comprehensively study the mining and milling techniques best applicable to these reserves. To realize this objective, geologic mapping, geophysics, bulk sampling and drilling have been and will be employed.

Geologic mapping has shown the brecciated material to be easily recognized. However, the characterisitics, if visible, which determine the value of the ore have not been discovered.

Geophysics has been useful in providing good surface drilling targets. A magnetic survey has delineated a linear magnetic anomaly around the known breccia zone. Within the magnetic anomalous area, electrical resistivity has indicated an area of about four acres which is thought to be breccia. Geophysical data is shown in Figure 6. See the geophysical reports of June 21 and July 31, 1974 by Charles B. Reynolds.

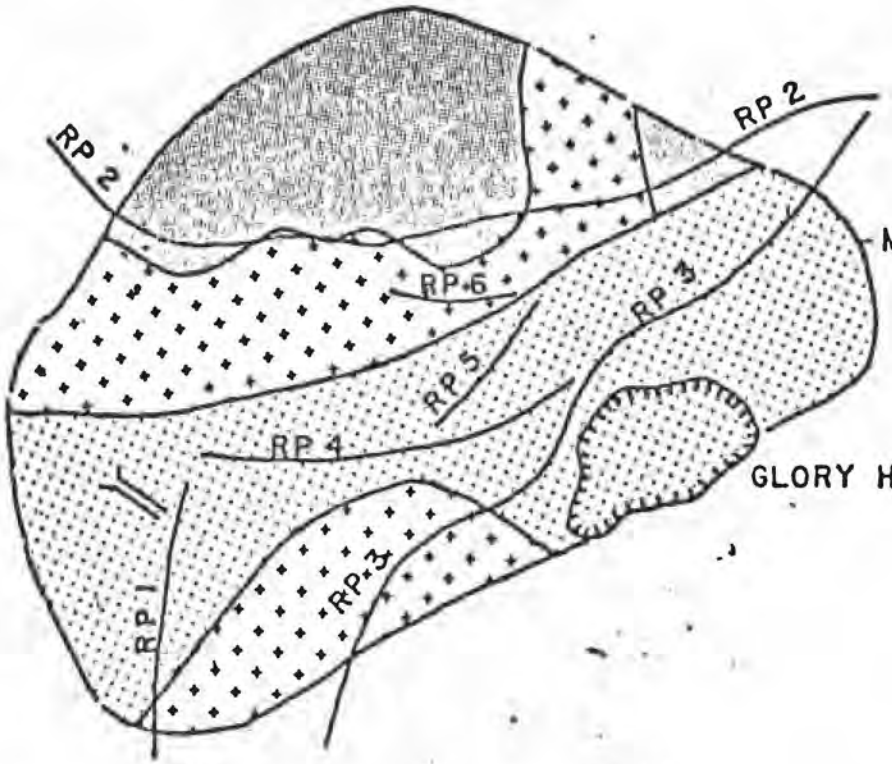
Drilling of the geophysical targets should be commenced as soon as possible. Drill sites are located, as topography permits, on a 100 foot grid. F.C. Bowman, (1938, p. 5) reports the breccia exists to a depth of 250 feet. Therefore, drilling will most likely be to a depth of 300 to 400 feet.

In addition to the drilling program, further exploration may be done by reopening and gaining access to the underground workings. Once accessible, underground sampling and drilling would be initiated.

## Other Properties

If the Vera Cruz exploration is successful and development proceeds, then the other smaller breccia deposits of Lincoln County would possibly become commercial. With the milling facilities available, the mining of these deposits may be economically feasible. The processing of this additional ore could provide added income for the Vera Cruz operators, even if no interest is obtained in these properties.

# VERA CRUZ GEOPHYSICS




SHALLOW BRECCIA (LESS THAN 200 OHMS)

BRECCIA AND METAMORPHIC ROCK (200 TO 400 OHMS)

NO SHALLOW BRECCIA (GREATER THAN 400 OHMS)

-N-

0 100 200 300 Ft.

GEO SURVEYS, INC.

JULY, 1974

## Economic Considerations

### Facilities

The nearest supply point is located about 12 miles by road to the west at Carrizozo. The county seat is located at Carrizozo which has a population of about 1,500. The dominant industry is cattle. The nearest large city is Alamogordo which is about 60 miles to the south via Highway 54. Albuquerque is located about 145 miles to the north and El Paso, Texas is the same distance to the south. Heavy mining equipment, if not available in Albuquerque or El Paso, could be obtained about 400 miles from Carrizozo in Tuscon.

Carrizozo is served by the Southern Pacific Railroad which has a short spur on the east side of town. At one time, this spur connected Carrizozo and Capitan, passing about 2 miles below the Vera Cruz.

Timber is not available on the property. However, little timber should be required, since mining will be open pit. If timber is needed, it should be available in Ruidoso which is about 30 miles from the property.

There is no electric power or gas on the Vera Cruz property. Both power and natural gas lines are available only two miles from the old mill site.

Bowman reports (1938, p. 8) that there is plenty of water available in a well along the highway. This well is about 2 miles from the old mill and is located on an old mill site claim.

### Present State of Development

There are no buildings or equipment remaining on the Vera Cruz property. The underground workings are not readily accessible. Only the first 145 feet of the upper tunnel and 600 feet of the lower tunnel are open. Access might possibly be gained via a rope down the open stope just above the upper adit.

## Mining Methods Indicated

The Vera Cruz Mine is best suited to open pit techniques of mining. Gold mineralization is found in the near surface breccia.

Mining in the past was apparently done by open cut and underground workings. The upper tunnel was driven to connect with the bottom of the open cut by raises. The operators then used the glory hole system, whereby ore was blasted and moved by gravity down the raises to the upper tunnel which was used for haulage.

## Metallurgy

A complete study of the metallurgy has never been done. Apparently, the ore mined was all oxidized and the gold was free milling. The second stage exploration will include a complete metallurgical study made from bulk samples taken from the Vera Cruz glory hole.

According to Lindgren, (1910, p. 178) the initial milling was done by amalgamation plate. Later, the gold recovery was accomplished by use of cyanide leaching tanks. The foundations of the old cyanide mill are still standing. From what remains, it appears the mill had a capacity of about 200 tons per day.

Water for the mill was obtained from wells located about 2 miles away on the plains and pumped up to storage tanks at the mill.

Very little can be found of the tailings material. Apparently, flash floods which are said to be common in this area have eroded most of the tailings. What does remain was crushed to about 3/8 inch.

## Marketing Conditions

The marketing of gold has never presented problems in the past. While the price of gold has risen to the $150 level, some economists are predicting a continuing market improvement. Evaluation of the various projections and

speculation on the gold market is beyond the scope of this report. However, the current marketing conditions for domestic gold are more favorable now than at any time in the past.

## Conclusions and Recommendations

Within Lincoln County, New Mexico, three types of gold deposits exist: 1) fissure veins 2) breccia pipe deposits and 3) placer accumulations. The vein and breccia deposits were hydrothermally emplaced. Mineralization of the breccia pipes is probably related in origin to the fissure vein deposits of the other mines.

The Vera Cruz deposit is an elliptically shaped breccia pipe that was incompletely developed during mining operations in the early 1900's. Therefore, considerable mineralized rock remains in the old workings and the possibility exists that significant reserves can be delineated in and adjacent to the old Vera Cruz workings.

Exploration should be conducted in two general stages. The objective of the first stage will involve the direct exploration of the Vera Cruz property towards delineation of reserves. Geophysics has provided good targets for a surface drilling program which should be commenced as soon as possible.

The second stage exploration would consist of the comprehensive mine and metallurgy studies necessary in the determination of the economic feasibility of Vera Cruz.

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Reynolds, Charles B., 1974, Report on Resistivity Survey of Vera Cruz Property: Private Report - GeoSurveys files.

Charles B. Reynolds & Associates

Consulting Geophysicists and Geologists
11909 Allison Court N.E.
Albuquerque, New Mexico 87112

June 21, 1974

Geo Surveys, Inc.
415 Mining Exchange Building
Colorado Springs, Colorado 80902

Gentlemen:

The geophysical experimental program at your Vera Cruz Mine property began May 9 and 10, 1974 (see our report to yourselves dated May 13, 1974) and was continued June 13 and 14, 1974.

The linear magnetic anomaly discovered during the earlier (May) investigations was carried completely around the known breccia body, and was found to enclose an area of about 15 acres (see Figure No. 1). As before, the anomaly was traced by means of many short (about 40 meters long) profiles spaced about 10 meters apart, with 1 meter to two meter station spacing. The intensity of the anomaly was observed to vary from as little as 20 gammas to as much as 600 gammas. The earlier supposition that the anomaly is the expression of a thin magnetite-rich contact zone circling the breccia pipe appears to be correct; careful scouting downslope from the anomaly turned up in float occasional slabs of hematite 1-5 cm. thick with considerable magnetite content. A few of these slabs, in fact, had breccia adhering to one side and metamorphosed sedimentary rock on the other.

In the northern part of the area outlined by the magnetic anomaly, a large area of considerable breccia float was found (see Figure No. 1). Lesser amounts of breccia float were also found scattered elsewhere within the area surrounded by the magnetic anomaly. Very little or no breccia float was found in place outside the magnetic anomaly. Even discounting the fact that float near the old workings and in the arroyo could be tailings, it appears strongly suggested that the magnetic anomaly represents a magnetite-rich contact zone in a ring-fault surrounding the breccia pipe. Whether this potentially very useful phenomenon is present at other gold-bearing breccia pipes remains to be determined.

To make it possible to survey accurately the magnetic anomaly, its crest (maximum point) was flagged in many locations with chartreuse and black flagging. Chartreuse flagging alone was used at some other locations for geophysical positioning and does not mark the anomaly crest.

After completion of the magnetic survey, experimentation with shallow electrical resistivity was begun. It was postulated that the breccia, being porous, should have lower apparent resistivity than the surrounding dense sedimentary and igneous country rock. In testing this, a first resistivity sounding (Wenner configuration) was located ENE of the old shaft east of the upper adit mouth (see RS-1, Figure No. 1). This sounding is almost certain to be over breccia; in fact, the more westerly electrode positions were among breccia outcrops. At RS-1 it was determined that a body of approximately 100 ohm-meters apparent resistivity lies at a depth of about 2 meters. This is probably as good a determination of the apparent resistivity of the breccia as can be obtained at the Vera Cruz Mine.

Next, another resistivity sounding (see RS-2, Figure No. 1) was located outside the area encircled by the magnetic anomaly, in an area of outcrops of metamorphosed sedimentary rocks and igneous (dike) rocks. Here it was determined that the apparent resistivity of the country rock is indeed much higher than that of the breccia.

A third resistivity sounding was then located 60 meters north of RS-2. This sounding, RS-3, was again inside the magnetic anomaly and over an area mapped by Griswold and Allen as breccia (see Figure No. 1). Like RS-1, this sounding showed a body of lower (about 100 ohm-meters) apparent resistivity at a depth of about 4 meters. This tentatively confirms that the breccia has a lower apparent resistivity (of about 100 ohm-meters).

The three resistivity soundings were marked by chartreuse and orange flagging so that they might if desired be located accurately by surveying.

Finally, an electrode spacing was selected (8 meters) and a resistivity profile between RS-2 and RS-3 was run using this spacing. This profile (RP-1) is shown by figure No. 2. Note that a substantial change in apparent resistivity takes place within a few meters of the position of the magnetic anomaly (near center of profile). To the north, in an area

of known breccia, the apparent resistivity is about 100 ohm-meters. To the south, in an area almost certainly outside the breccia pipe, the apparent resistivity is about 300 ohm-meters. It would appear that shallow resistivity profiling may be a good way to obtain an indication as to where the breccia is shallow, and thus aid in the design of a drilling program.

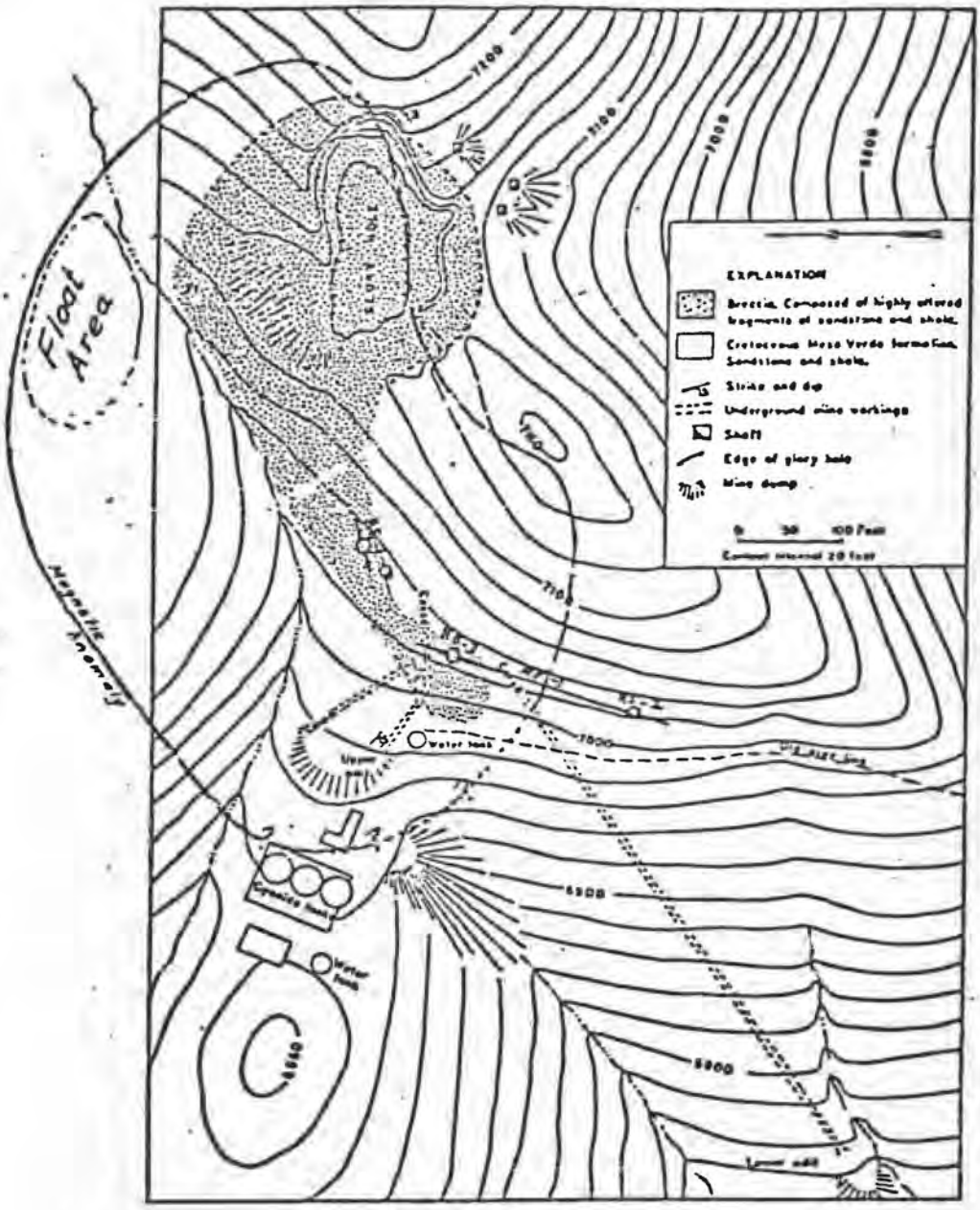
We suggest that several shallow (8 meter electrode spacing) resistivity profiles be run across the indicated area of the breccia pipe before an extensive drilling or development program is begun.

Respectfully submitted,

Charles B. Reynolds

Charles B. Reynolds
Registered Geophysicist (Calif.)
Certified Professional Geologist

2 Figures



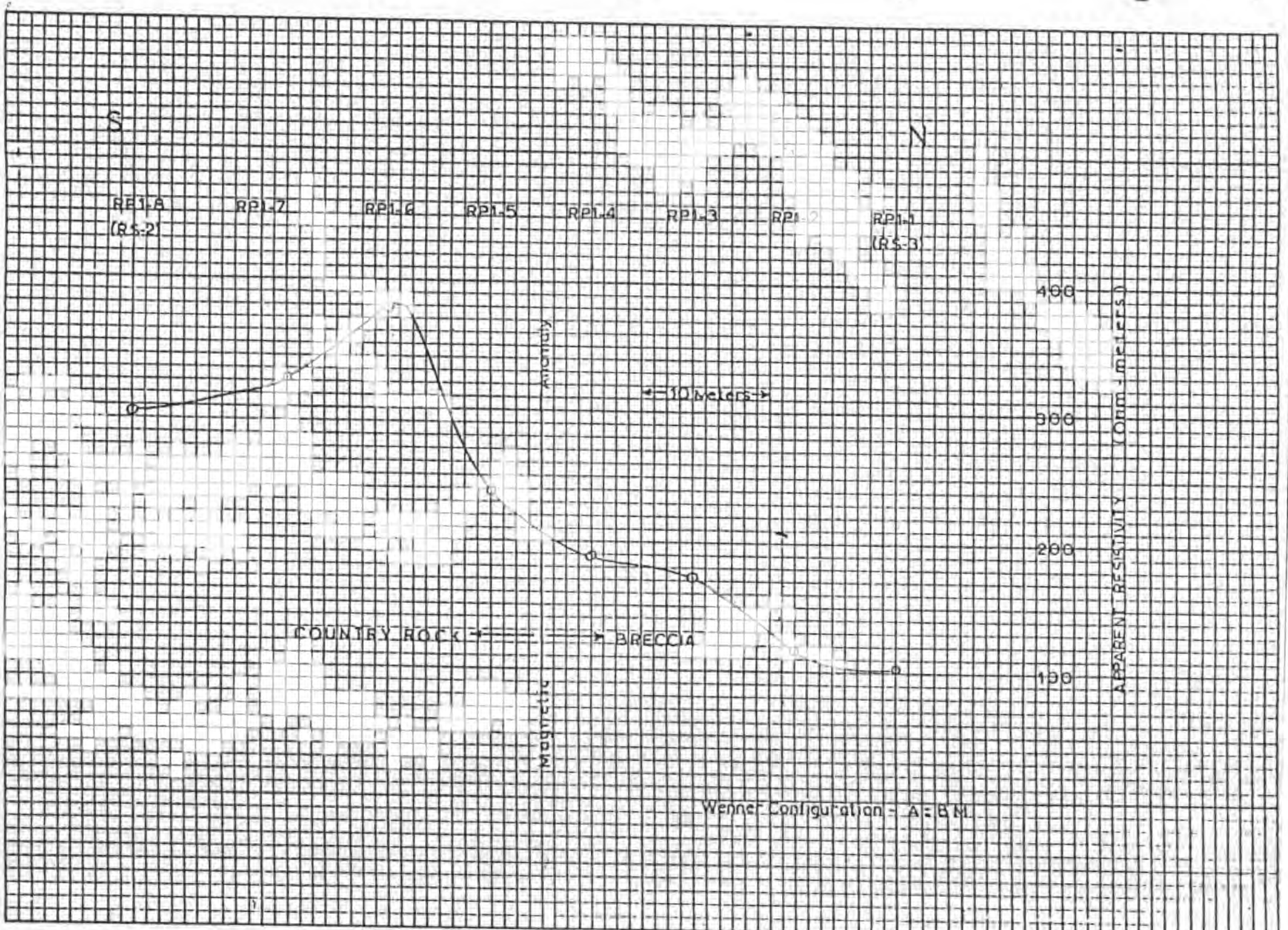

After Figure 12

GEOLOGIC MAP OF THE VERA CRUZ MINE

Geology and topography by G. B. Griswold and J. E. Allen, 1957.

Figure No. 1 - Map Showing Ring Magnetic Anomaly and Locations of Electrical Resistivity Soundings and Profile.

Charles B. Reynolds
6/21/74


S
N
RP1-8
(RS-2)
RP1-7
RP1-6
RP1-5
RP1-4
RP1-3
RP1-2
RP1-1
(RS-3)
400
300
200
100
APPARENT RESISTIVITY (Ohm-meters)
10 Meters
Kimberly
Magnetic
COUNTRY ROCK
BRECCIA
Wenner Configuration - A=B M

Telephone (505) 294-05

Charles B. Reynolds & Associates

Consulting Geophysicists and Geologists
11909 Allison Court N.E.
Albuquerque, New Mexico 87112

July 31, 1974

Geo Surveys, Inc.
415 Mining Exchange Building
Colorado Springs, CO 80902

Gentlemen:

A third visit to your Vera Cruz Mine property in Lincoln County, New Mexico, was made during the period July 24 to July 27, 1974, as part of the geophysical investigation of the property (see previous reports dated May 13, 1974, and June 21, 1974).

The electrical resistivity profile program, begun during June with profile RP-1, was continued with profiles RP-2, RP-3, RP-4, RP-5, RP-6, and completion and tying-in of RP-1. As before, a Wenner configuration was used with 8 meter electrode spacing. This method for practical purposes gives us an average apparent resistivity for the rocks and soil which are shallower than the electrode spacing of 8 M (about 26 feet). In fact, the principal effect probably comes from rocks above, say, 5 meters (about 16 feet).

Profiles RP-2 through RP-6 were run on roads recently cut by Geo Surveys. The northwest end of RP-2 and the southwest (or south) end of RP-3 extended beyond the ends of the roads which these profiles largely followed.

The resistivity profiles are shown by Enclosures Nos. 1, 2, and 3. The apparent resistivity values recorded varied from less than 50 ohm-meters to over 500 ohm-meters.

The north end of Profile RP-1 (station 9) is near breccia outcrop and shows low (less than 200 ohm-meters) apparent resistivities. Further south, just beyond the magnetic anomaly which appears to limit the breccia pipe, the profile crosses a dense igneous dike and shows values over 300 ohm-meters.

Profile RP-2 was recorded along (and beyond) the upper road cut on the north side of the canyon. Within the area bounded by the magnetic anomaly the apparent resistivity values exceed 400 ohm-meters except in two areas: (1) stations 10 and 12, where apparent weathered breccia is exposed in the road cut and (2) stations 20-24 incl., which are directly downhill from an extensive area of breccia float (and hence, probably shallow breccia).

Profile RP-3 shows low (less than 200 ohm-meters) apparent resistivity values from the bounding magnetic anomaly (between stations 3 and 4) southwestward past the glory hole to station 21. Exposures of breccia in the glory hole and road cut are common in this interval; however, southwest of station 21, breccia is only as a few small injections into metamorphosed sedimentary rock near station 22. From station 22 southwest to the bounding magnetic anomaly, the apparent resistivity values remain above 200 ohm-meters.

Profile RP-4 was recorded from near the northwest edge of the glory hole westward along the (restored) old mine railway grade. There are road cut exposures of breccia or nearby breccia outcrops throughout the length of the road. The corresponding apparent resistivity values are less than 200 ohm-meters.

Profiles RP-5 and RP-6 were recorded along the two short lower roads crossing the arroyo and joining the railroad grade road on the south to the upper road on the north. The apparent resistivity values on the south (RP-5) are quite low whereas those on the north (RP-6) are much higher.

Careful comparison of apparent resistivity values with adjacent exposures of breccia and metasediment within the magnetic anomaly boundary reveals that, where the breccia is abundant at shallow depth, the apparent resistivity values are less than 200 ohm-meters. Where smaller amounts of breccia are injected into metasediments at shallow depth, the apparent resistivity values generally range between 200 and 400 ohm-meters. Where only metasediments are exposed (within the magnetic anomaly boundary), the apparent resistivity values generally exceed 400 ohm-meters.

On the basis of these observations, the area within the bounding magnetic anomaly has been subdivided into three intentionally generalized area types (see Apparent Resistivity Map, Enclosure No. 4). These are (1) the area shown in pink, considered largely shallow breccia (less than 200 ohm-meters), (2) area shown in orange, considered mixed breccia and metamorphic rock (200-400 ohm-meters), and (3) area shown in blue, considered to have little or no breccia at shallow depth (greater than 400 ohm-meters). Please keep in mind that these indications have no application below shallow (5-8 M, or 16-26 feet) depth. It is therefore possible that at a depth of, say, 40 feet, the entire area within the bounding magnetic anomaly might be breccia. Perhaps the best way to look at this map would be to regard the pink area as requiring very little overburden removal; the orange area, more overburden removal; and the blue area, the most overburden removal. The possibility that the arroyo may follow a shallow

fault zone (down to the north) should be noted; this possibility has been pointed out by Mr. Charles Bauer of Geo Surveys and would fit the observed data very well.

It is clear that because we are developing new geophysical applications here, these results should be checked by core drilling. A suggested drilling program might include the following locations:

(1) RP-2-26 - on the upper road on the north side of the canyon, 80 feet east of "D.H. 75" stake.

(2) RP-2-22 - on the upper road on the north side of the canyon, by orange stake marked "157 GE Eagle 3."

(3) RP-2-17 - on the upper road on the north side of the canyon 130 feet west of orange stake marked "157 GE Eagle 3."

(4) RP-2-12 - on the upper road on the north side of the canyon 60 feet east of the present end of the upper road (which is at intersection with the lower road).

(5) RP-2-8 - 50 feet west of junction of upper and lower roads on north side of canyon.

(6) RP-6-5 - on lower road on the north side of the canyon, at "D.H. 77" stake.

(7) RP-5-3 - on the lower road on the south side of the canyon, about 140' ENE from the intersection with the railroad grade road.

(8) RP-3-7 - on the road from the glory hole to the northeast, and due south of orange stake "BL Pt. 32."

(9) D.H. 80.

(10) D.H. 79.

(11) RP-3-27 - about 95 feet SSW from the (present) southwest end of the upper road on the south side of the canyon.

(12) RP-4-9 - on the old railroad grade road, due south of orange stake "BL 36."

(13) RP-4-15 - on the old railroad grade road about 160 feet west of orange stake "BL 36."

(14) RP-1-1 - at a drill hole stake (number not known) about 130 feet south of the old railroad grade road.

Respectfully submitted,

Charles B Reynolds

Charles B. Reynolds
Registered Geophysicist (Calif.)
Certified Professional Geologist

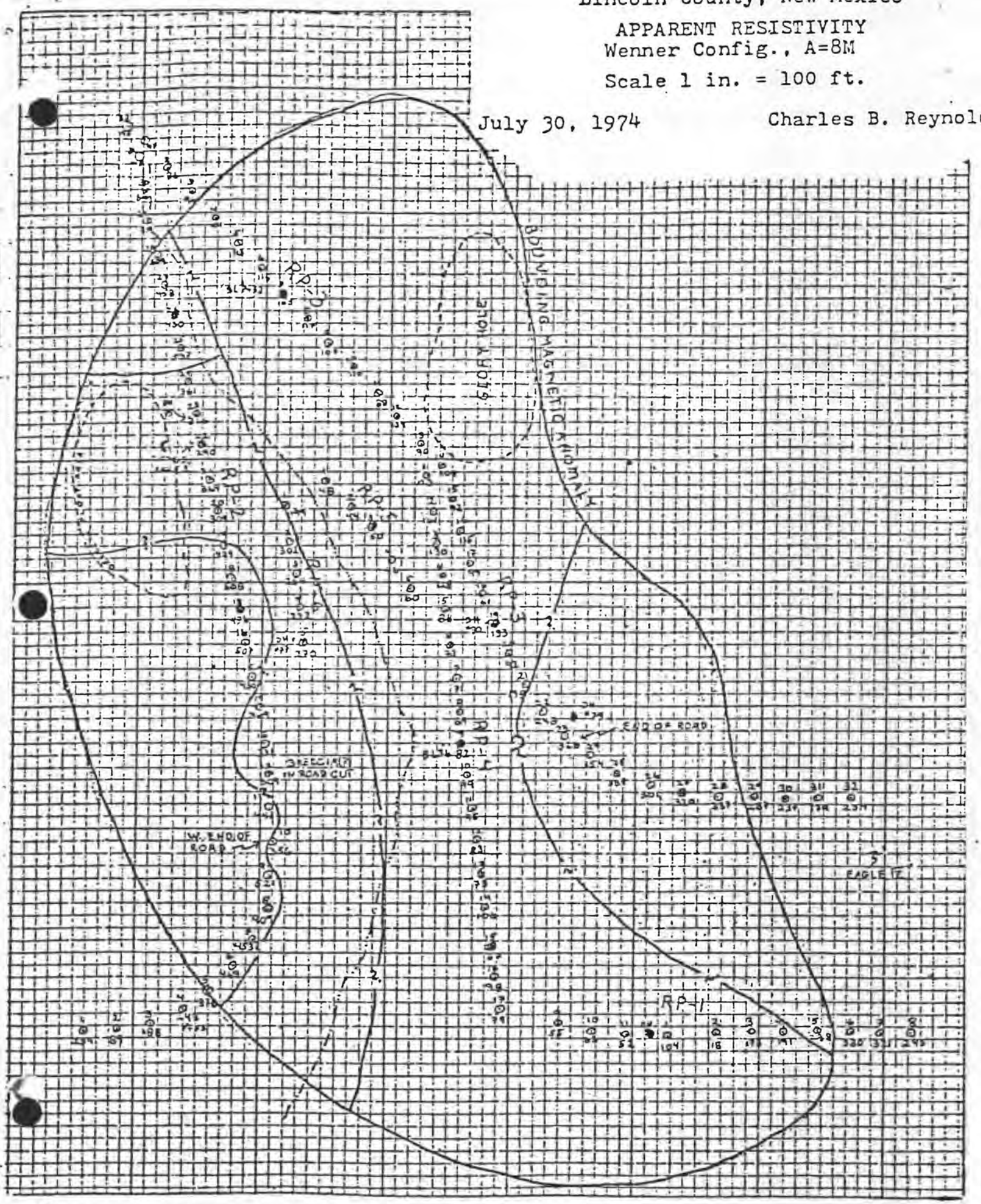
Enclosures: 4

VERA CRUZ MINE
Lincoln County, New Mexico

APPARENT RESISTIVITY
Wenner Config., A=8M

Scale 1 in. = 100 ft.

July 30, 1974 Charles B. Reynol




... ENCLOSURE NO. 4

APPENDIX C

GEO SURVEYS® INC.
115 MINING EXCHANGE BLDG.
COLORADO SPRINGS, COLO. 80902
(303) 632-8869

September 23, 1974

Mr. Robert Iden
1715 Chacoma Place, SW
Albuquerque, NM 87017

Dear Bob:

I am including for your perusal and files a copy of our most recent report concerning the Vera Cruz Gold Property. Please feel free to excerpt any portion or all of it for the other property owners as you see fit. Also, if you have any questions concerning the project, please feel free to talk with the Project Manager, Chuck Bauer, here in our home office at your convenience.

We are encouraged with the results obtained in the Phase 1 program and are still confident of developing a small open pit gold mine in the immediate future. To date, we have expended in excess of $40,000 directly for the benefit of the property and are intending to spend another $100,000 before the end of the year in a saturation drilling program which will largely determine the economic viability of the property.

Our drilling program has been delayed to this point in time because we could not obtain the proper drilling equipment. We hope to have a "down-the-hole" rotary percussion hammer drill on the property during the first half of October.

We will keep you informed as additional results are available.

Best regards,

John

John R. Haigh
Vice President

JRH/ms

USTOMER:

Geo Surveys Inc.
415 Mining Exchange Bldg.
Colorado Springs, Colorado 80903

AAL IDENTIFICATION NO. [illegible]
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: April 26, 1975

1 of 2

ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| AMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | D. Alan Breese, checks | | | | |
|---|---|---|---|---|---|---|---|---|
| VC-1 0-5 | 0.003 | 0.13 | | | | | | |
| 5-10 | .007 | .29 | | | | | | |
| 10-15 | .010 | .29 | | | | | | |
| 15-20 | .004 | .45 | | | | | | |
| 20-25 | .009 | .25 | | Au-.02oz | Ag- Tr | | | |
| 25-30 | .003 | .19 | | | | | | |
| 30-35 | .059 | .15 | | | | | | |
| 35-40 | .072 | .72 | | | | | | |
| 40-45 | .004 | .35 | | | | | | |
| 45-50 | .024 | .44 | | Au-.032 | Ag-.5 | | | |
| 50-55 | .003 | .19 | | | | | | |
| 55-60 | .004 | .13 | | | | | | |
| 60-65 | .001 | .16 | | | | | | |
| 65-70 | .004 | .26 | | | | | | |
| 70-75 | .003 | .28 | | Au-.02 | Ag-.15 | | | |
| 75-80 | .002 | .18 | | | | | | |
| 80-85 | .003 | .18 | | | | | | |
| 85-90 | .001 | .32 | | | | | | |
| 90-95 | .004 | .47 | | | | | | |
| 95-100 | .002 | .16 | | Au-.01 | Ag-Tr | | | |

COM TS:

THANK YOU

CHARGES $ 131.04 (on acc't)

BY [signature], PhD
ASSAYER-CHEMIST

CUSTOMER:

Geo Surveys Inc.

AAL IDENTIFICATION NO. 5243
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: April 26, 1975

2 of 2

## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| 100-105 | 0.002 | 0.29 | | | | | | |

ENTS:

THANK YOU

CHARGES $ _____

BY _____ Ph.D
ASSAYER–CHEMIST

TOMER:

Geo Surveys Inc.

415 Mining Exchange Bldg

Colorado Springs, CO 80903

AAL IDENTIFICATION NO. 5266
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 6, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| PLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | D. Alan Breese, checks | | | | |
|---|---|---|---|---|---|---|---|---|
| C-2 0-5 | 0.001 | trace | | | | | | |
| 5-10 | trace | trace | | | | | | |
| 10-15 | .002 | 0.03 | | | | | | |
| 15-20 | .001 | .03 | | | | | | |
| 20-25 | trace | trace | | Au-Tr | Ag-Tr | | | |
| 25-30 | trace | trace | | | | | | |
| 30-35 | trace | trace | | | | | | |
| 35-40 | .001 | trace | | | | | | |
| 40-45 | trace | .03 | | | | | | |
| 45-50 | .001 | trace | | Au-.01oz | Ag-Tr | | | |
| 50-55 | trace | trace | | | | | | |
| 55-60 | none | trace | | | | | | |
| 60-65 | none | trace | | | | | | |
| 65-70 | trace | trace | | | | | | |
| 70-75 | .001 | trace | | Au-Tr | Ag-Tr | | | |
| 75-80 | trace | trace | | | | | | |
| 80-85 | trace | trace | | | | | | |
| 85-90 | none | .06 | | | | | | |
| 90-95 | .001 | .04 | | | | | | |
| 95-100 | .002 | .03 | | Au-Tr | Ag-Tr | | | |

CHARGES $ 499.20 (on account)

THANK YOU

BY David A. Schwab
ASSAYER-CHEMIST

Geo Surveys Inc.
415 Mining Exchange Bldg
Colorado Springs, CO 80903

PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 6, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | D. Alan | Breese, | checks | | |
|---|---|---|---|---|---|---|---|---|
| 100-105 | none | 0.09 | | | | | | |
| 105-110 | trace | .03 | | | | | | |
| 110-115 | trace | trace | | | | | | |
| 115-120 | 0.001 | .06 | | | | | | |
| 120-125 | .002 | .18 | | Au-Tr | Ag-Tr | | | |
| 125-130 | .003 | .13 | | | | | | |
| 130-135 | .002 | .13 | | | | | | |
| 135-140 | trace | .13 | | | | | | |
| 140-145 | .001 | .06 | | | | | | |
| 145-150 | .002 | .12 | | Au-Tr | Ag-Tr | | | |
| 150-155 | .004 | .16 | | | | | | |
| 155-160 | .002 | .12 | | | | | | |
| 160-165 | .002 | .13 | | | | | | |
| 165-170 | .002 | .06 | | | | | | |
| 170-175 | .004 | .06 | | Au-Tr | Ag-Tr | | | |
| 175-180 | .002 | .06 | | | | | | |
| 180-185 | .001 | .04 | | | | | | |
| 185-190 | .002 | .07 | | | | | | |
| 190-195 | .002 | .06 | | | | | | |
| 195-200 | .001 | .04 | | Au-Tr | Ag-Tr | | | |

COMMENTS:

CHARGES $ _____

THANK YOU

BY Donald R. Schwab
ASSAYER-CHEMIST

STOMER:
Geo Surveys Inc.
415 Mining Exchange Bldg
Colorado Springs, CO 80903

AAL IDENTIFICATION NO. 5266
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 6, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| MPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | D. Alan Breese, checks | | | | |
|---|---|---|---|---|---|---|---|---|
| 200-205 | 0.003 | 0.06 | | | | | | |
| 205-210 | .001 | .03 | | | | | | |
| 210-215 | .017 | .03 | | | | | | |
| 215-220 | .004 | .03 | | | | | | |
| 220-225 | .002 | .04 | | Au-Tr | Ag-Tr | | | |
| 225-230 | .008 | .03 | | | | | | |
| 230-235 | .016 | .06 | | | | | | |
| 235-240 | .005 | .06 | | | | | | |
| 240-245 | .005 | trace | | | | | | |
| 245-250 | .002 | .03 | | Au-Tr to possible .005 oz | Ag-Tr | | | |
| 250-255 | .003 | .16 | | | | | | |
| 255-260 | .007 | .09 | | | | | | |
| 260-265 | .003 | .09 | | | | | | |
| 265-270 | .008 | .03 | | | | | | |
| 270-275 | .007 | .04 | | Au-.01 | Ag-Tr | | | |
| 275-280 | .008 | .10 | | | | | | |
| 280-285 | .016 | .13 | | | | | | |
| 285-290 | .008 | .15 | | | | | | |
| 290-295 | .004 | .13 | | | | | | |
| 295-300 | .006 | .26 | | Au-Tr | Ag-Tr | | | |

IF

CHARGES $ _____

THANK YOU

BY David A Ashwell
ASSAYER-CHEMIST

CUSTOMER:

Geo Surveys Inc.

415 Mining Exchange Bldg

Colorado Springs, CO 80903

AAL IDENTIFICATION NO. 5266
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 6, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % * | D. Alan Breese, checks | | | |
|---|---|---|---|---|---|---|---|
| 300-305 | .004 | 0.15 | | | | | |
| 305-310 | .003 | .16 | | | | | |
| 310-315 | .005 | .28 | | | | | |
| 315-320 | .006 | .20 | | | | | |
| 320-325 | .002 | .13 | | Au-Tr to a possible .008 oz | Ag-.1 | | |
| 325-330 | .012 | .10 | | | | | |
| 330-335 | .008 | .15 | | | | | |
| 335-340 | .001 | .06 | | | | | |
| 340-345 | .001 | .06 | | Au-Tr | Ag-.1 | | |
| 345-350 | .002 | .06 | | | | | |
| 350-355 | .001 | .15 | .17 | | | | |
| 355-360 | .009 | .57 | 2.40 | | | | |
| 360-365 | .002 | .34 | 1.77 | | | | |
| 365-370 | .003 | .31 | 1.15 | | | | |
| 370-375 | .003 | .15 | .48 | Au-Tr | Ag-.2 | Cu ±1% | |
| 375-380 | .002 | .12 | .30 | | | | |
| 380-385 | .006 | .13 | .44 | | | | |
| 385-390 | .001 | .16 | 1.05 | | | | |
| 390-395 | .001 | .25 | 1.70 | | | | |
| 395-400 | .002 | .44 | 1.81 | Au-Tr to possible .005 oz | Ag-.3 | Cu ±1% | |

COMMENTS: * No additional charge for these copper analyses as they may be of interest.

THANK YOU

CHARGES $ _____

BY David A. Schwartz
ASSAYER—CHEMIST

CUSTOMER:

GeoSurveys, Inc.
415 Mining Exchange Bldg.
Colorado Springs, CO 80903

AAL IDENTIFICATION NO. 5350
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 29, 1975

## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % |
|---|---|---|---|
| VC-2, 400 - 405 | 0.004 | 0.13 | 0.29 |
| 405 - 410 | .002 | .06 | .10 |
| 410 - 415 | .003 | .09 | .09 |
| 415 - 420 | .002 | .12 | .35 |
| 420 - 425 | trace | .16 | .59 |
| 425 - 430 | .001 | .15 | .47 |
| 430 - 435 | .001 | .29 | .15 |
| 435 - 440 | .002 | .25 | .12 |
| 440 - 445 | .002 | .16 | .053 |
| 445 - 450 | .001 | .10 | .045 |
| 450 - 455 | trace | .09 | .023 |
| 455 - 460 | .001 | .12 | .016 |
| 460 - 465 | none | .10 | .018 |
| 465 - 470 | .001 | .06 | .012 |
| 470 - 475 | trace | .12 | .021 |
| 475 - 480 | .001 | .13 | .043 |

COMMENTS:

THANK YOU

CHARGES $ 133.12 (on account)

BY David A. Johnson
ASSAYER-CHEMIST

SENDER:

GeoSurveys, Inc.
415 Mining Exchange Bldg.
Colorado Springs, CO 80903

AAL IDENTIFICATION NO. 5351
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 29, 1975

## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| PLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| -2, 320 - 325 | | | 0.022 | | | | | |
| 325 - 330 | | | .035 | | | | | |
| 330 - 335 | | | .046 | | | | | |
| 335 - 340 | | | .062 | | | | | |
| 340 - 345 | | | .028 | | | | | |
| 345 - 350 | | | .036 | | | | | |
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EN

THANK YOU

HARGES $ 15.60 (on account)

BY David A. Schwab
ASSAYER–CHEMIST

CUSTOMER:
Geo Surveys Inc.
415 Mining Exchange Bldg
Colorado Springs, CO 80903

AAL IDENTIFICATION NO. 5279
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 9, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| C-3, 0'-5' | trace | trace | | | | | | |
| 5'-10' | 0.003 | 0.03 | | | | | | |
| 10'-15' | .002 | trace | | | | | | |
| 15'-20' | .001 | trace | | | | | | |
| 20'-25' | trace | trace | | | | | | |
| 25'-30' | .001 | trace | | | | | | |
| 30'-35' | trace | trace | | | | | | |
| 35'-40' | .012 | .16 | | | | | | |
| 40'-45' | .004 | .69 | | | | | | |
| 45'-50' | .001 | .42 | | | | | | |
| | | | | | | | | |
| C-3A, 0'-5' | .001 | trace | | | | | | |
| 5'-10' | .001 | .03 | | | | | | |
| 10'-15' | .007 | .06 | | | | | | |
| 15'-20' | trace | .06 | | | | | | |
| 20'-25' | none | .06 | | | | | | |
| | | | | | | | | |
| C-4, 0'-5' | .006 | .25 | | | | | | |
| 5'-10' | .007 | .16 | | | | | | |
| 10'-15' | .002 | .26 | | | | | | |

COMMENTS:

THANK YOU

CHARGES $ 542.88 (on account)

BY _____
ASSAYER-CHEMIST

Geo Surveys Inc.
415 Mining Exchange Bldg
Colorado Springs, CO 80903

PLEASE REFER TO ABOVE NUMBER ALL CORRESPONDENCE.

DATE: May 9, 1975



## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| HC-4, 0'-5' | 0.004 | 0.47 | | | | | | |
| 5'-10' | .009 | .13 | | | | | | |
| 10'-15' | .001 | .15 | | | | | | |
| 15'-20' | .009 | .17 | | | | | | |
| 20'-25' | .001 | .15 | | | | | | |
| 25'-30' | .003 | .15 | | | | | | |
| 30'-35' | .002 | .15 | | | | | | |
| 35'-40' | .005 | .15 | | | | | | |
| 40'-45' | .013 | .15 | | | | | | |
| 45'-50' | .008 | .16 | | | | | | |
| 50'-55' | .006 | .15 | | | | | | |
| 55'-60' | .005 | .15 | | | | | | |
| 60'-65' | .004 | .13 | | | | | | |
| 65'-70' | .004 | .12 | | | | | | |
| 70'-75' | .004 | .10 | | | | | | |
| 75'-80' | .008 | .13 | | | | | | |
| 80'-85' | .018 | .15 | | | | | | |
| 85'-90' | .006 | .12 | | | | | | |
| 90'-95' | .009 | .04 | | | | | | |
| 95'-100' | .004 | .06 | | | | | | |

COMMENTS:

THANK YOU

CHARGES $ _____

BY _____
ASSAYER-CHEMIST

OMER:
Geo Surveys Inc.
415 Mining Exchange Bldg
Colorado Springs, CO 80903

AAL IDENTIFICATION NO. 5279
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.
DATE: May 9, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| LE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| 100'-105' | 0.002 | 0.09 | | | | | | |
| 105'-110' | .003 | .03 | | | | | | |
| 110'-115' | .001 | .13 | | | | | | |
| 115'-120' | .003 | .10 | | | | | | |
| 120'-125' | .027 | .12 | | | | | | |
| 125'-130' | .002 | .15 | | | | | | |
| 130'-135' | .002 | .16 | | | | | | |
| 135'-140' | .003 | .12 | | | | | | |
| 140'-145' | trace | .12 | | | | | | |
| 145'-150' | trace | .10 | | | | | | |
| 150'-155' | .001 | .15 | | | | | | |
| 155'-160' | .001 | .07 | | | | | | |
| 160'-165' | .002 | .06 | | | | | | |
| 165'-170' | none | .04 | | | | | | |
| 170'-175' | .001 | trace | | | | | | |
| 175'-180' | .001 | .06 | | | | | | |
| 180'-185' | none | .06 | | | | | | |
| 185'-190' | .001 | .04 | | | | | | |
| 190'-195' | .003 | .12 | | | | | | |
| 195'-200' | .004 | .12 | | | | | | |

NTS

THANK YOU

ARGES $ _____

BY _____
ASSAYER—CHEMIST

Ceo Surveys Inc.
415 Mining Exchange Bldg
Colorado Springs, CO 80903

PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 9, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| AMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| 200'-205' | 0.002 | 0.13 | | | | | | |
| 205'-210' | .013 | .15 | | | | | | |
| 210'-215' | .003 | .25 | | | | | | |
| 215'-220' | .001 | .15 | | | | | | |
| 220'-225' | .010 | .19 | | | | | | |
| 225'-230' | .004 | .15 | | | | | | |
| 230'-235' | .008 | .13 | | | | | | |
| 235'-240' | .002 | .13 | | | | | | |
| 240'-245' | .001 | .09 | | | | | | |
| 245'-250' | .002 | .10 | | | | | | |
| 250'-255' | .002 | .09 | | | | | | |
| 255'-260' | .004 | .10 | | | | | | |
| 260'-265' | .006 | .13 | | | | | | |
| 265'-270' | .006 | .10 | | | | | | |
| 270'-275' | .010 | .16 | | | | | | |
| 275'-280' | .001 | .06 | | | | | | |
| 280'-285' | none | .13 | | | | | | |
| 285'-290' | trace | .06 | | | | | | |
| 290'-295' | .001 | .04 | | | | | | |
| 295'-300' | .001 | .13 | | | | | | |

MMENTS:

CHARGES $ _____

THANK YOU

BY _____
ASSAYER-CHEMIST

STOMER:

Geo Surveys Inc.

415 Mining Exchange Bldg

Colorado Springs, CO 80903

AAL IDENTIFICATION NO. 5279
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 9, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| MPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| 300'-305' | .001 | .10 | | | | | | |
| 305'-310' | trace | .12 | | | | | | |
| 310'-315' | .001 | .09 | | | | | | |
| 315'-320' | trace | .06 | | | | | | |
| 320'-325' | .002 | .04 | | | | | | |
| 325'-330' | trace | .09 | | | | | | |
| 330'-335' | trace | .09 | | | | | | |
| 335'-340' | .001 | .12 | | | | | | |
| 340'-345' | trace | .13 | | | | | | |
| 345'-350' | .001 | .25 | | | | | | |
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THANK YOU

CHARGES $ _____

BY _____
ASSAYER / CHEMIST

GeoSurveys, Inc.
415 Mining Exchange Bldg.
Colorado Springs, CO 80903

PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 19, 1975



## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | |
|---|---|---|---|---|---|---|---|
| VC-5, 0 - 5 | 0.004 | 0.04 | | | | | |
| 5 - 10 | .037 | .07 | | | | | |
| 10 - 15 | .007 | .10 | | | | | |
| 15 - 20 | .007 | .15 | | | | | |
| 20 - 25 | .003 | .15 | | | | | |
| 25 - 30 | .007 | .18 | | | | | |
| 30 - 35 | .003 | .13 | | | | | |
| 35 - 40 | .001 | .10 | | | | | |
| 40 - 45 | .002 | .12 | | | | | |
| 45 - 50 | .003 | .15 | | | | | |
| | | | | | | | |
| 55 - 60 | .005 | .13 | | | | | |
| 60 - 65 | .003 | .13 | | | | | |
| 65 - 70 | .002 | .09 | | | | | |
| 70 - 75 | .003 | .13 | | | | | |
| 75 - 80 | .004 | .16 | | | | | |
| 80 - 85 | .20 | .15 | | | | | |
| 85 - 90 | .002 | .15 | | | | | |
| 90 - 95 | .003 | .18 | | | | | |
| 95 - 100 | .003 | .12 | | | | | |

COMMENTS:

CHARGES $ 461.76 (on account)

THANK YOU

BY _____
ASSAYER-CHEMIST

CUSTOMER:

GeoSurveys

AAL IDENTIFICATION NO. [illegible]
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 19, 1975

2 of 4

## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| VC-5, 100 - 105 | .003 | .12 | | | | | | |
| 105 - 110 | .003 | .07 | | | | | | |
| 110 - 115 | trace | .04 | | | | | | |
| 115 - 120 | none | trace | | | | | | |
| 120 - 125 | .002 | .03 | | | | | | |
| 125 - 130 | .001 | .03 | | | | | | |
| 130 - 135 | .001 | .03 | | | | | | |
| 135-- 140 | .002 | .08 | | | | | | |
| 140 - 145 | .001 | .15 | | | | | | |
| 145 - 150 | .003 | .15 | | | | | | |
| 150 - 155 | none | .09 | | | | | | |
| 155 - 160 | none | .12 | | | | | | |
| 160 - 165 | .001 | .15 | | | | | | |
| 165 - 170 | none | .15 | | | | | | |
| 170 - 175 | .001 | .15 | | | | | | |
| 175 - 180 | .001 | .15 | | | | | | |
| 180 - 185 | none | .07 | | | | | | |
| 185 - 190 | trace | .03 | | | | | | |
| 190 - 195 | none | .04 | | | | | | |
| 195 - 200 | .001 | .04 | | | | | | |

COMMENTS:

THANK YOU

CHARGES $ _____

BY _____
ASSAYER-CHEMIST

CUSTOMER:

GeoSurveys

AAL IDENTIFICATION NO. 5300
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 19, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % |
|---|---|---|---|
| VC-5, 200 - 205 | trace | .03 | |
| 205 - 210 | none | trace | |
| 210 - 215 | trace | .04 | |
| 215 - 220 | .003 | trace | |
| 220 - 225 | .002 | trace | |
| 225 - 230 | .001 | trace | |
| 230 - 235 | trace | trace | |
| | | | |
| VC-6, 0 - 5 | .004 | .03 | |
| 5 - 10 | .021 | .10 | |
| 10 - 15 | .003 | .09 | |
| 15 - 20 | .001 | .09 | |
| 20 - 25 | .001 | .09 | |
| 25 - 30 | .001 | .06 | |
| 30 - 35 | .001 | .13 | |
| 35 - 40 | .001 | .16 | |
| 40 - 45 | .001 | .13 | |
| 45 - 50 | .003 | .13 | |
| 50 - 55 | .002 | .07 | |
| 55 - 60 | .002 | .10 | |

COMMENTS:

THANK YOU

CHARGES $ _____

BY _____
ASSAYER—CHEMIST

R:

GeoSurveys

AAL IDENTIFICATION NO. 5300
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 19, 1975



## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| DENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5, 60 - 65 | .003 | .12 | | | | | | |
| 65 - 70 | none | .06 | | | | | | |
| 70 - 75 | .002 | .13 | | | | | | |
| 75 - 80 | .001 | .09 | | | | | | |
| 80 - 85 | .004 | .13 | | | | | | |
| | | | | | | | | |
| 0 - 5 | .002 | .12 | | | | | | |
| - 10 | .001 | .15 | | | | | | |
| 10 - 15 | .002 | .12 | | | | | | |
| 15 - 20 | .002 | .15 | | | | | | |
| 20 - 25 | .001 | .13 | | | | | | |
| 25 - 30 | .001 | .15 | | | | | | |
| 30 - 35 | .002 | .15 | | | | | | |
| 35 - 40 | .004 | .15 | | | | | | |
| 40 - 45 | .001 | .16 | | | | | | |
| 45 - 50 | none | .16 | | | | | | |
| 50 - 55 | .006 | .16 | | | | | | |
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| | | | | | | | | |

THANK YOU

RGES: $ _____

BY _____
ASSAYER–CHEMIST

ER:

GeoSurveys

AAL IDENTIFICATION NO. 5315
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: May 21, 1975

2 of 4

ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| 100 - 105 | 0.014 | 0.09 | | | | | | |
| 105 - 110 | .002 | .12 | | | | | | |
| 110 - 115 | .003 | .10 | | | | | | |
| 115 - 120 | .002 | .13 | | | | | | |
| 120 - 125 | .004 | .04 | | | | | | |
| 125 - 130 | .003 | .04 | | | | | | |
| 130 - 135 | .003 | .13 | | | | | | |
| [illegible] - 140 | .003 | .15 | | | | | | |
| 140 - 145 | .003 | .18 | | | | | | |
| 145 - 150 | .004 | .16 | | | | | | |
| 150 - 155 | .004 | .29 | | | | | | |
| 155 - 160 | .004 | .19 | | | | | | |
| 160 - 165 | .006 | .15 | | | | | | |
| 165 - 170 | .004 | .38 | | | | | | |
| 170 - 175 | .003 | .15 | | | | | | |
| 175 - 180 | .003 | .12 | | | | | | |
| 180 - 185 | .002 | .06 | | | | | | |
| 185 - 190 | .002 | .15 | | | | | | |
| 190 - 195 | .003 | .15 | | | | | | |
| 195 - 200 | .002 | .10 | | | | | | |

THANK YOU

GES $ _____

BY David A. Schwab
ASSAYER–CHEMIST

IER:

GeoSurveys

AAL IDENTIFICATION NO. 5315
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONOENCE.

DATE: May 21, 1975

4 of 4

## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| .E IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| .9, 70 -75 | 0.004 | 0.10 | | | | | | |
| 75 - 80 | .003 | .13 | | | | | | |
| 80 - 85 | .006 | .06 | | | | | | |
| | | | | | | | | |
| -10, 0 - 5 | .002 | .03 | | | | | | |
| 5 - 10 | .008 | .06 | | | | | | |
| 10 - 15 | .008 | .07 | | | | | | |
| 15 - 20 | .006 | .03 | | | | | | |
| 20 - 25 | .005 | .03 | | | | | | |
| 25 - 30 | .13 | .04 | | | | | | |
| 30 - 35 | .003 | .03 | | | | | | |
| 35 - 40 | .004 | .03 | | | | | | |
| 40 - 45 | .002 | trace | | | | | | |
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| | | | | | | | | |

THANK YOU

CHARGES $ _____

BY David A. Schwartz
ASSAYER–CHEMIST

CUSTOMER:

GeoSurveys, Inc.
415 Mining Exchange Bldg.
Colorado Springs, CO 80903

AAL IDENTIFICATION NO. [illegible]
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: June 9, 1975



## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| VC - 11A 0 - 5 | 0.001 | trace | | | | | | |
| 5 - 10 | .001 | trace | | | | | | |
| 10 - 15 | none | trace | | | | | | |
| 15 - 20 | none | trace | | | | | | |
| 20 - 25 | none | trace | | | | | | |
| 25 - 30 | none | trace | | | | | | |
| 30 - 35 | none | trace | | | | | | |
| 35 - 40 | none | trace | | | | | | |
| 40 - 45 | none | trace | | | | | | |
| 45 - 50 | .001 | trace | | | | | | |
| 50 - 55 | none | trace | | | | | | |
| 55 - 60 | .001 | trace | | | | | | |
| 60 - 65 | none | trace | | | | | | |
| 65 - 70 | .001 | trace | | | | | | |
| 70 - 75 | .001 | trace | | | | | | |
| 75 - 80 | .001 | trace | | | | | | |
| 80 - 85 | .001 | trace | | | | | | |
| 85 - 90 | none | trace | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

COMMENTS:

THANK YOU

CHARGES $ 162.24 (on account)

BY David A. Schwartz
ASSAYER-CHEMIST

STOMER:

GeoSurveys, Inc.

AAL IDENTIFICATION NO. 5388
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: June 9, 1975

2 of 2

## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| MPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % |
|---|---|---|---|
| C-11 0 - 5 | trace | 0.03 | |
| 5 - 10 | none | .03 | |
| 10 - 15 | none | trace | |
| 15 - 20 | trace | trace | |
| 20 - 25 | 0.001 | .03 | |
| 25 - 30 | .003 | .03 | |
| 30 - 35 | trace | .03 | |

S:

CHARGES $ _____

THANK YOU

BY David A. Schwab
ASSAYER-CHEMIST

CUSTOMER:

GeoSurveys, Inc.
415 Mining Exchange Bldg.
Colorado Springs, CO 80903

AAL IDENTIFICATION NO. 5442
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: June 20, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| VC-12, 0 - 5 | 0.010 | 0.06 | | | | | | |
| 5 - 10 | .004 | .04 | | | | | | |
| 10 - 15 | 0.001 | .03 | | | | | | |
| 15 - 20 | none | .03 | | | | | | |
| 20 - 25 | 0.001 | .03 | | | | | | |
| 25 - 30 | .31 | .03 | | | | | | |
| 30 - 35 | .001 | trace | | | | | | |
| 35 - 40 | .001 | trace | | | | | | |
| 40 - 45 | none | trace | | | | | | |
| 45 - 50 | .001 | trace | | | | | | |
| 50 - 55 | .002 | trace | | | | | | |
| 55 - 60 | .001 | trace | | | | | | |
| 60 - 65 | .001 | trace | | | | | | |
| 65 - 70 | .001 | .03 | | | | | | |
| 70 - 75 | .001 | .03 | | | | | | |
| 75 - 80 | .001 | .03 | | | | | | |
| 80 - 85 | .001 | .03 | | | | | | |
| 85 - 90 | .001 | .04 | | | | | | |
| 90 - 95 | .001 | .04 | | | | | | |
| 95 - 100 | .001 | .03 | | | | | | |

COMMENTS:

THANK YOU

CHARGES $ 484.64 (on account)

BY [signature] PhD
ASSAYER-CHEMIST

CUSTOMER:

GeoSurveys

AAL IDENTIFICATION NO. 3442
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: June 20, 1975

2 of 4

## ALBUQUERQUE ASSAY LAB

4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % | | | | | |
|---|---|---|---|---|---|---|---|---|
| VC-12, 100 - 105 | trace | 0.16 | | | | | | |
| 105 - 110 | 0.001 | .03 | | | | | | |
| 110 - 115 | trace | .03 | | | | | | |
| 115 - 120 | trace | .03 | | | | | | |
| 120 - 125 | .001 | .03 | | | | | | |
| 125 - 130 | .001 | .03 | | | | | | |
| 130 - 135 | trace | .04 | | | | | | |
| 135 - 140 | trace | .03 | | | | | | |
| 140 - 145 | .001 | .04 | | | | | | |
| 145 - 150 | .001 | .04 | | | | | | |
| 150 - 155 | .001 | .06 | | | | | | |
| 155 - 160 | .001 | .04 | | | | | | |
| 160 - 165 | .001 | .15 | | | | | | |
| 165 - 170 | .001 | .06 | | | | | | |
| 170 - 175 | .004 | .15 | | | | | | |
| 175 - 180 | .001 | .06 | | | | | | |
| 180 - 185 | .001 | .04 | | | | | | |
| 185 - 190 | .001 | .06 | | | | | | |
| 190 - 195 | trace | .03 | | | | | | |
| 195 - 200 | .003 | .03 | | | | | | |

COMMENTS:

CHARGES $ _____

THANK YOU

BY _____ PhD
ASSAYER-CHEMIST

CUSTOMER:

GeoSurveys

AAL IDENTIFICATION NO. 5442
PLEASE REFER TO ABOVE NUMBER O
ALL CORRESPONDENCE.

DATE: June 20, 1975

3 of 4

ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % |
|---|---|---|---|
| VC-12, 200 - 205 | 0.001 | 0.03 | |
| 205 - 210 | .001 | .03 | |
| 210 - 215 | .001 | trace | |
| 215 - 220 | .001 | trace | |
| 220 - 225 | .001 | trace | |
| 225 - 230 | .001 | trace | |
| 230 - 235 | .001 | .03 | |
| 235 - 240 | .001 | .03 | |
| 240 - 245 | .001 | trace | |
| 245 - 250 | .003 | .03 | |
| 250 - 255 | trace | .03 | |
| 255 - 260 | .001 | .03 | |
| 260 - 265 | .001 | trace | |
| 265 - 270 | .001 | trace | |
| 270 - 275 | .001 | .03 | |
| 275 - 280 | .001 | .06 | 0.012 |
| 280 - 285 | .001 | .04 | .015 |
| 285 - 290 | .002 | .03 | .0037 |
| 290 - 295 | none | .03 | .0020 |
| 295 - 300 | .002 | .03 | .0015 |

MENTS:

THANK YC

CHARGES $ _____

BY _____ PhD
ASSAYER-CHEMIST

CUSTOMER:

GeoSurveys

AAL IDENTIFICATION NO. 5442
PLEASE REFER TO ABOVE NUMBER ON ALL CORRESPONDENCE.

DATE: June 20, 1975



ALBUQUERQUE ASSAY LAB
4115 SILVER S.E.
Albuquerque, New Mexico 87108
Phone: (505) 268-5776

| SAMPLE IDENTIFICATION | GOLD Troy oz/ton | SILVER Troy oz/ton | COPPER % |
|---|---|---|---|
| VC-12, 300 - 305 | trace | trace | 0.0027 |
| 305 - 310 | none | trace | .0090 |
| 310 - 315 | trace | trace | .012 |
| 315 - 320 | none | trace | .0040 |
| 320 - 325 | 0.001 | trace | .0030 |
| 325 - 330 | trace | trace | .018 |
| 330 - 335 | 0.26 | trace | .12 |
| 335 - 340 | .99 | 0.06 | .29 |
| 340 - 345 | .003 | trace | .011 |
| 345 - 350 | 0.001 | .03 | .0060 |
| 350 - 355 | .005 | trace | .0017 |
| 355 - 360 | .041 | trace | .0060 |

COMMENTS:

THANK YOU

CHARGES $ _____

BY _____ PhD
ASSAYER–CHEMIST

5

Telephone 363-3302

Hand
Sample Serial.....13923-13948

ASSAY REPORT

# UNION ASSAY OFFICE, Inc.

BRYANT L. LARSEN, President
G. P. WILLIAMS, Vice President
JAMES G. STRATTON, Secretary
A. S. JOLLIFFE, Treasurer
P. O. Box 1528
Salt Lake City, Utah 84110
(801) 363-3302

Red
5/22/79

Mine ..... Armco, Inc.
2876 So Race St
Denver, CO

RESULTS PER TON OF 2000 POUNDS

May 16, 1979

| NUMBER | GOLD Ozs. per Ton | SILVER Ozs. per Ton | LEAD Per Cent | COPPER Per Cent | INSOL Per Cent | ZINC Per Cent | SULPHUR Per Cent | IRON Per Cent | LIME Per Cent | Per Cent | Per Cent |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | W03 | |
| SUP-1 | none | 4.2 | 6.95 | 0.094 | | 2.50 | | | | | |
| SUP-2 | Trace | 4.1 | 4.40 | 0.396 | | 3.50 | Nevada | | | | |
| SUP-3 | Trace | 4.1 | 5.55 | 1.081 | | 0.20 | | | | | |
| IM-1 | Trace | 5.9 | 3.75 | 0.107 | | 2.10 | | | | | |
| SZ-1 | Trace | 1.7 | | | | | | | | 5.20 | |
| LOG-1 | Trace | 20.3 | | 5.014 | | — | G. Allen | | | | |
| VC-2 295-300 | Trace | 0.4 | | 0.018 | | | | | | | |
| " 300-305 | 0.020 | 0.4 | | 0.037 | | | | | | | |
| " 305-310 | 0.010 | 1.2 | | 0.126 | | | | | | | |
| " 310-315 | 0.010 | 0.5 | | 0.037 | | | | | | | |
| " 315-320 | 0.010 | 0.3 | | 0.012 | | | | | | | |
| " 320-325 | 0.010 | 0.3 | | 0.018 | | | | | | | |
| " 325-330 | 0.005 | 0.5 | | 0.075 | | | | | | | |
| " 330-335 | Trace | 0.1 | | 0.037 | | | | | | | |
| " 335-340 | Trace | 0.2 | | 0.025 | | | | | | | |
| " 340-345 | Trace | 0.1 | | 0.025 | | | | | | | |
| " 345-350 | Trace | 0.1 | | 0.037 | | | | | | | |
| " 350-355 | Trace | 0.7 | | 0.163 | | | | | | | |
| " 355-360 | 0.010 | 0.4 | | 2.217 | | | | | | | |
| " 360-365 | 0.010 | 0.5 | | 1.512 | | | | | | | |
| " 365-370 | 0.010 | 0.4 | | 1.058 | | | | | | | |
| " 370-375 | Trace | 0.2 | | 0.522 | | | | | | | |
| " 375-380 | 0.010 | none | | 0.321 | | | | | | | |
| " 380-385 | 0.010 | 0.2 | | 0.466 | | | | | | | |
| " 385-390 | 0.010 | 0.2 | | 0.982 | | | | | | | |
| " 390-395 | 0.007 | 0.3 | | 1.512 | | | | | | | |

Remarks.....

Charges $ 302.00

Glen G. Williams

APPENDIX D

SKYLINE LABS, INC.
SPECIALISTS IN EXPLORATION GEOCHEMISTRY
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033 • TEL.: (303) 424-7718

# REPORT OF ANALYSIS

JOB NO. MBN 022
FEBRUARY 28, 1980
Recd 3/3/80

Armco, Inc.
Attn:Stephen G. Zahony
2876 South Race Street
Denver, Colorado 80210

Analysis of 40 Core Samples

| ITEM | SAMPLE NUMBER | Au (ppm) | Ag (ppm) | Cu (ppm) |
|---|---|---|---|---|
| 1 | VCD#1 320-325 | <.02 | <.2 | 5. |
| 2 | VCD#1 490-495 | <.02 | <.2 | 20. |
| 3 | VCD#1 530-535 | <.02 | <.2 | 40. |
| 4 | VCD#1 555-560 | <.02 | <.2 | 25. |
| 5 | VCD#1 570-575 | <.02 | <.2 | 5. |
| 6 | VCD#1 615-620 | <.02 | <.2 | <5. |
| 7 | VCD#1 660-665 | <.02 | <.2 | 5. |
| 8 | VCD#1 670-675 | <.02 | <.2 | 15. |
| 9 | VCD#1 680-685 | <.02 | <.2 | 10. |
| 10 | VCD#1 715-720 | <.02 | <.2 | 5. |
| 11 | VCD#1 770-775 | <.02 | <.2 | 5. |
| 12 | VCD#1 805-810 | <.02 | <.2 | 5. |
| 13 | VCD#1 820-825 | <.02 | <.2 | 5. |
| 14 | VCD#1 850-855 | <.02 | <.2 | 10. |
| 15 | VCD#1 867-877 | <.02 | <.2 | 5. |
| 16 | VCD#1 870-875 | <.02 | <.2 | 15. |
| 17 | VCD#1 890-895 | <.02 | .2 | <5. |
| 18 | VCD#1 925-930 | <.02 | <.2 | 5. |
| 19 | VCD#1 950-955 | <.02 | <.2 | 5. |
| 20 | VCD#1 975-980 | <.02 | <.2 | 10. |
| 21 | VCD#1 1005-1010 | <.02 | <.2 | 5. |
| 22 | VCD#1 1035-1040 | <.02 | <.2 | <5. |
| 23 | VCD#1 1050-1055 | .33 | 1.4 | 15. |
| 24 | VCD#1 1100-1105 | <.02 | <.2 | 15. |
| 25 | VCD#1 1130-1135 | <.02 | <.2 | 5. |

Telephone 363-3302

*Hand Sample Serial*.....1231-1250.

ASSAY REPORT

# UNION ASSAY OFFICE, Inc.

BRYANT L. LARSEN, President
G. P. WILLIAMS, Vice President
JAMES G. STRATTON, Secretary
A. S. JOLLIFFE, Treasurer
P. O. Box 1528
Salt Lake City, Utah 84110
(801) 363-3302

*Mine* .....Armco, Inc.
2876 So Race St
Denver, CO
RESULTS PER TON OF 2000 POUNDS

Jan 10, 1980

| NUMBER | GOLD Ozs. per Ton | SILVER Ozs. per Ton | LEAD Per Cent | COPPER Per Cent | INSOL Per Cent | ZINC Per Cent | SULPHUR Per Cent | IRON Per Cent | LIME Per Cent | Per Cent | Per Cent |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VCD-1 20-25 | none | 0.2 | | | | | | | | | |
| " 30-35 | Trace | 0.2 | | | | | | | | | |
| " 35-40 | none | 0.1 | | | | | | | | | |
| " 45-50 | Trace | none | | | | | | | | | |
| " 80-85 | 0.010 | 0.2 | | | | | | | | | |
| " 105-110 | none | none | | | | | | | | | |
| " 135-140 | Trace | 0.1 | | | | | | | | | |
| " 150-157 | Trace | none | | | | | | | | | |
| " 214.5-215.5 | none | none | | | | | | | | | |
| " 240-245 | none | 0.1 | | | | | | | | | |
| " 260-265 | none | none | | | | | | | | | |
| " 265-270 | none | 0.1 | | | | | | | | | |
| " 287-290 | none | none | | | | | | | | | |
| " 290-295 | none | none | | | | | | | | | |
| " 300-305 | Trace | 0.1 | | | | | | | | | |
| " 330-335 | none | 0.4 | | | | | | | | | |
| " 370-375 | none | none | | | | | | | | | |
| " 400-405 | none | none | | | | | | | | | |
| " 425-430 | none | none | | | | | | | | | |
| " 460-465 | none | none | | | | | | | | | |

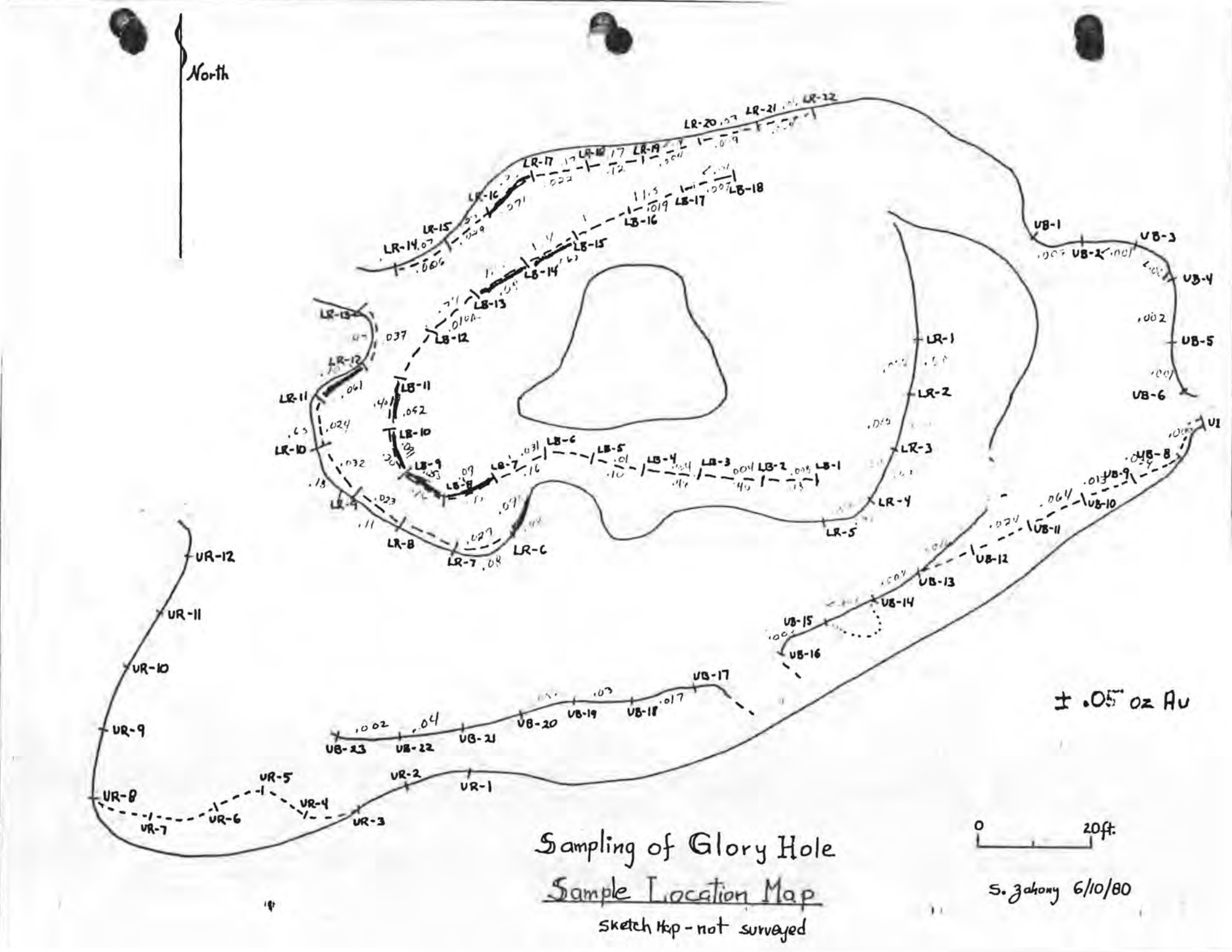
*Remarks*.....

Charges $ 150.00

G. P. Williams

APPENDIX E

| ITEM | SAMPLE NUMBER | Zn (ppm) | Mo (ppm) | W (ppm) |
|---|---|---|---|---|
| 1 | VCD#1 320-325 | 670. | 2. | <2. |
| 2 | VCD#1 490-495 | 95. | 12. | 3. |
| 3 | VCD#1 530-535 | 45. | 16. | 3. |
| 4 | VCD#1 555-560 | 20. | 6. | 5. |
| 5 | VCD#1 570-575 | 20. | 4. | 4. |
| 6 | VCD#1 615-620 | 15. | 2. | <2. |
| 7 | VCD#1 660-665 | 100. | 6. | 8. |
| 8 | VCD#1 670-675 | 170. | 65. | 7. |
| 9 | VCD#1 680-685 | 155. | 6. | <2. |
| 10 | VCD#1 715-720 | 110. | 4. | <2. |
| 11 | VCD#1 770-775 | 65. | 2. | <2. |
| 12 | VCD#1 805-810 | 85. | 4. | 8. |
| 13 | VCD#1 820-825 | 85. | 2. | 3. |
| 14 | VCD#1 850-855 | 80. | 4. | 4. |
| 15 | VCD#1 867-877 | 65. | 2. | 3. |
| 16 | VCD#1 870-875 | 65. | 2. | 4. |
| 17 | VCD#1 890-895 | 55. | 2. | 5. |
| 18 | VCD#1 925-930 | 75. | 6. | 8. |
| 19 | VCD#1 950-955 | 55. | 2. | 7. |
| 20 | VCD#1 975-980 | 80. | 2. | 4. |
| 21 | VCD#1 1005-1010 | 70. | 4. | <2. |
| 22 | VCD#1 1035-1040 | 60. | 2. | 4. |
| 23 | VCD#1 1050-1055 | 95. | 4. | 5. |
| 24 | VCD#1 1100-1105 | 55. | 4. | 4. |
| 25 | VCD#1 1130-1135 | 40. | <2. | 5. |
| 26 | VCD#1 1170-1175 | 65. | 4. | 3. |
| 27 | VCD#1 1200-1205 | 790. | 6. | 7. |
| 28 | VCD#1 1235-1240 | 480. | 4. | 4. |
| 29 | VCD#1 1260-1265 | 55. | <2. | 3. |
| 30 | VCD#1 1290-1295 | 150. | 4. | 4. |
| 31 | VCD#1 1340-1345 | 60. | <2. | 4. |
| 32 | VCD#1 1380-1385 | 50. | 4. | 3. |
| 33 | VCD#1 1420-1430 | 35. | 2. | <2. |
| 34 | VCD#1 1460-1470 | 60. | 2. | 7. |
| 35 | VCD#1 1500-1505 | 45. | <2. | 4. |




# Sampling of Glory Hole

## Sample Location Map

Sketch Map - not surveyed

S. Zahony 6/10/80

SKYLINE LABS, INC.
SPECIALISTS IN EXPLORATION GEOCHEMISTRY
12090 WEST 50TH PLACE • WHEAT RIDGE, COLORADO 80033 • TEL.: (303) 424-7718

# REPORT OF ANALYSIS

JOB NO. MBN 028
JUNE 9, 1980

Stephen G. Zahony
2876 South Race Street
Denver, Colorado 80210

Rec 6/12/80

Analysis of 80 Rock Samples

| ITEM | SAMPLE NUMBER | FIRE ASSAY Au (oz/T) | Ag (oz/T) |
|---|---|---|---|
| 8 | LB1-LB2 | .008 | .18 |
| 9 | LB2-LB3 | .004 | .40 |
| 10 | LB3-LB4 | .004 | .46 |
| 11 | LB4-LB5 | .010 | .10 |
| 12 | LB6-LB7 | .031 | .16 |
| 13 | LB7-LB8 | .090 | .15 |
| 14 | LB8-LB9 | .055 | .16 |
| 15 | LB9-LB10 | .091 | .30 |
| 16 | LB10-LB11 | .052 | .40 |
| 17 | LB12-LB13 | .010 | .74 |
| 18 | LB13-LB14 | .080 | 1.04 |
| 19 | LB14-LB15 | .062 | .40 |
| 20 | LB16-17 | .019 | 1.56 |
| 21 | LB17-LB18 | .007 | <.01 |
| 22 | LR1-LR2 | .002 | .48 |
| 23 | LR2-LR3 | .012 | .32 |
| 24 | LR3-LR4 | .030 | .42 |
| 25 | LR4-5 | .023 | .70 |

| ITEM | SAMPLE NUMBER | FIRE ASSAY Au (oz/T) | Ag (oz/T) |
|---|---|---|---|
| 26 | LR5-LR6 | .090 | .48 |
| 27 | LR6-7 | .029 | .08 |
| 28 | LR8-LR9 | .023 | .11 |
| 29 | LR9-10 | .032 | .18 |
| 30 | LR10-11 | .024 | .65 |
| 31 | LR11-12 | .061 | .10 |
| 32 | LR12-13 | .037 | .47 |
| 33 | LR13-14 | .012 | .11 |
| 34 | LR14-15 | .006 | .07 |
| 35 | LR15-16 | .028 | .27 |
| 36 | LR16-17 | .071 | .26 |
| 37 | LR17-18 | .022 | .17 |
| 38 | LR18-19 | .012 | .17 |
| 39 | LR19-20 | .004 | <.01 |
| 40 | LR20-21 | .009 | .03 |
| 41 | LR21-22 | .004 | .06 |
| 43 | UB1-UB2 | .009 | .06 |
| 44 | UB2-UB3 | <.001 | .03 |
| 45 | UB3-4 | <.001 | <.01 |
| 46 | UB4-5 | .002 | .19 |
| 47 | UB5-6 | .001 | .24 |
| 48 | UB6-UB7 | <.001 | .13 |
| 49 | UB7-UB8 | .002 | .35 |
| 50 | UB8-9 | .034 | .12 |
| 51 | UB9-10 | .013 | .20 |
| 52 | UB10-11 | .064 | .64 |
| 53 | UB11-UB12 | .024 | .29 |
| 54 | UB12-UB13 | .016 | 1.98 |
| 55 | UB13-UB14 | .004 | .34 |

| ITEM | SAMPLE NUMBER | FIRE ASSAY Au (oz/T) | Ag (oz/T) |
|---|---|---|---|
| 56 | UB14-UB15 | <.001 | .22 |
| 57 | UB15-UB16 | .003 | .11 |
| 58 | UB17-18 | .017 | .68 |
| 59 | UB18-19 | .030 | .20 |
| 60 | UB19-20 | .005 | .19 |
| 61 | UB21-22 | .040 | .12 |
| 62 | UB22-23 | .002 | .21 |
| 63 | UR1-UR2 | .004 | .02 |
| 64 | UR2-UR3 | .004 | <.01 |
| 65 | UR3-UR4 | .003 | .03 |
| 66 | UR4-UR5 | .003 | .42 |
| 67 | UR5-UR6 | .010 | .16 |
| 68 | UR6-UR7 | .004 | .01 |
| 69 | UR7-UR8 | .004 | <.01 |
| 70 | UR9-UR10 | .023 | .02 |
| 71 | UR10-UR11 | .003 | .08 |
| 72 | UR11-UR12 | .006 | .08 |
| 80 | VerC | .081 | .32 |

cc: S. G. Zahony - Nogal

SKYLINE LABS, INC.
SPECIALISTS IN EXPLORATION GEOCHEMISTRY

Edwin V. Post
for Gordon H. VanSickle
Manager

| ITEM | SAMPLE NO. | FIRE ASSAY Au (oz/T) | Ag (oz/T) |
|---|---|---|---|
| 30 | VCP-01 | .010 | .41 |
| 31 | VCP-02 | .570 | .65 |
| 32 | 11FT | .067 | .33 |
| 33 | HSS-01 | <.005 | <.01 |
| 34 | HSS-02 | .140 | 1.04 |
| 35 | HSS-03 | .011 | <.01 |
| 36 | HSS-04 | <.005 | <.01 |
| 37 | S1-W | .045 | 1.44 |
| 38 | S1-N | .079 | 2.08 |
| 39 | S1-S | .130 | 1.14 |
| 40 | S2-01 | .010 | .16 |
| 41 | S2-02 | .110 | .77 |
| 42 | S2-03 | .005 | .14 |
| 43 | S3-01 | .290 | .56 |
| 44 | S3-02 | .370 | .47 |
| 45 | S3-03 | .330 | .71 |
| 46 | S3-04 | .093 | .19 |
| 47 | S3-05 | .077 | .78 |
| 48 | S3-06 | .038 | .42 |
| 49 | S3-07 | .022 | .37 |
| 50 | U3-E-01 | <.005 | .44 |
| 51 | U3-E-02 | <.005 | .11 |
| 52 | U3-E-03 | <.005 | .09 |
| 53 | U3-E-04 | .008 | .43 |
| 54 | U3-E-05 | <.005 | .29 |
| 55 | U3-E-06 | .026 | .17 |

| ITEM | SAMPLE NO. | FIRE ASSAY Au (oz/T) | Ag (oz/T) |
|---|---|---|---|
| 56 | U3-E-07 | <.005 | .03 |
| 57 | U3-E-08 | .008 | <.01 |
| 58 | U3-E-09 | <.005 | <.01 |
| 59 | U3-E-10 | <.005 | <.01 |
| 60 | U3-E-11 | <.005 | .19 |
| 61 | U3-E-12 | <.005 | <.01 |
| 62 | U3-E-13 | .005 | <.01 |
| 63 | U3-E-14 | .006 | .03 |
| 64 | U3-W-01 | .006 | .20 |
| 65 | U3-W-02 | .006 | .45 |
| 66 | U3-W-03 | .006 | .67 |
| 67 | U3-W-04 | .006 | .52 |
| 68 | U3-W-05 | .006 | .83 |
| 69 | U9-01 | .008 | <.01 |
| 70 | U9-02 | .014 | .04 |
| 71 | U9-03 | .009 | .01 |
| 72 | U9-04 | <.005 | .06 |
| 73 | U9-05 | <.005 | <.01 |
| 74 | U9-06 | <.005 | .04 |

Gordon H. VanSickle
Manager

APPENDIX G

Project Vera Cruz Project No. _____ Drill Hole No. VCD-1 Collar Coords. _____ T.D. 1757' Page No. 1 of 10

Location _____ Elevation _____ Bearing _____ Inclination -75° Logged by S. Zahony Date 12/87

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | | | Mineralization | | | Vis log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 17' | Tricone | | | | | | | | | | Overburden. | | | |
| 17 | 20 | Tricone | | | | | | | | | | Bedrock - no recovery | | | |
| 20 | 25 | 45% HQ | | | | | | | | | | Argillized massive mudstone bleached white w/ many fractures, mostly @ 45-60° to c.a., locally pink hematite staining - no $CaCO_3$ or magnetite locally black $Mn_xO_x$ stain and limonite along fractures. | | | |
| 25 | 37' | 102 " | | | | | | | | | | Pink to light tan clayey sandstone with bedding @ 31' @ 53° to c.a. about one fracture/in. w/ limonitic clay and $Mn_xO_x$ on fractures - most @ 25°-30° to c.a. One limonite drusy qtz. vein @ 30' @ 5° to c.a. | | | |
| 37 | 43 | 55% " | | | | | | | | | | Gouge fault zone. w/ much limonite, most fractures either @ 0° to c.a. or 70° to c.a. Rock is very altered but is probably a diorite dike | | | |
| 43 | 55.4 | 85% " | | | | | | | | | | Grey fine-grained diorite intrusive; magnetite bearing and locally pyritized. Lower contact is @ 55° to c.a. Abundant limonite & clay coated fractures mostly @ 0-5° to c.a., but higher angles up to 70° are common. | | | |
| 55.4 | 101.4 | 85% " | | | | | | | | | | Crackled hornfels w/ local zones of pyrite and epidote as @ 77 ft. Overall < 1% pyrite. Fractures filled w/ qtz & magnetite, no calcite. Locally mottled appearance w/ magnetite. @ 88.5' bedding is @ 60° to c.a. @ 85.5' $FeO_x$ - $Mn_xO_x$ stained fracture @ 135° to bedding @ 70° to c.a. @ 103' bedding @ 68° to c.a. w/ a fracture @ 120° to bedding @ 30° to c.a. Some sand layers @ bottom of run. Two limonite coated fractures/ft @ 10° to c.a. | | | |

Project Vera Cruz Project No. ____ Drill Hole No. VCD-1 Collar Coords. ____ T.D. 1757 Page No. 2 of 10

Location ____ Elevation ____ Bearing ____ Inclination ____ Logged by S. ANTHONY Date 12/78

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | | | Mineralization | | | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 104.4 | 138 | 75% HQ | | | | | | | | | | Sandstone w/ irregular upper contact. Leisegang banding w/ about 8 fractures per ft. of FeOx & MnOx; no pyrite, magnetite or calcite. Bedding @ 128 ft. is @ 65° to c.a. w/ 5 fractures / ft. Fractures @ 135° to c.a. and 58°. Where unoxidized ss. has black metallic specks that are not magnetic. @ 136 ft. one FeOx coated fracture still has unoxidized pyrite left. | | | |
| 138 | 140 | 40% " | | | | | | | | | | Gouge fault zone w/ much FeOx, especially @ 159 ft. Local unoxidized areas contain much pyrite - but rare to see. Gouge has no attitude. most recognizable fractures are still ss. | | | |
| 140 | 146(?) | 0 " | | | | | | | | | | loss of core, only a few pebbles of hornfels were recovered. | | | |
| 146(?) | 152 | 25% " | | | | | | | | | | Metamorphosed sandy argillite (sandy hornfels), much fallen in rock from above. Bedding @ 147 ft. is @ 45° to c.a. w/ a limonite coated fracture @ 150° to bedding @ 40° to c.a. | | | |
| 152 | 160 | 15% " | | | | | | | | | | Gouge & pebbles of hornfels | | | |
| 160 | 169 | 20% " | | | | | | | | | | Hornfels w/ gouge zones, @ 162 ft. bedding is @ 57° to c.a. Gouge zone @ 163 ft. Much of this run is ground & polished core from above | | | |
| Tricone drilling to 214.5 ft. no core recovery | | | | | | | | | | | | | | | |
| 214.5 | 215.5 | 90% HQ | | | | | | | | | | Core for one ft. to check rake. Rock is a sandy hornfels resembling a flow banded rhyolite w/ local sandstone layers. Six FeOx stained fractures/ft at all angles to c.a. | | | |

Project Vera Cruz Project No. ____ Drill Hole No. VCD-1 Collar Coords. ____ T.D. 1757 Page No. 3 of 10

Location ____ Elevation ____ Bearing ____ Inclination ____ Logged by S. ZAHONY Date 12/79

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Tricone | drilling | from 215.5 - 229 | Mud core | hole & begin NQ drilling after setting NQ casing | | | | | | | |
| 229 | 251' | 50% NQ | | | | | | Sandstone, highly fractured w/ bedding @ 245 ft @ 56° to c.a. Last 3 ft of this run has white clay and hematite coating fractures most @ 48° to c.a. | | | |
| 251 | 265 | 80% " | | | | | | Clay gouge - fault zone, w/ some recognizable pebbles of argillite. Several FeOx stained post gouge slicks @ 60°-0 to c.a. | | | |
| 265 | 271 | 50% " | | | | | | Argillized and broken sediments, mostly hornfels. about 3 fractures/ft @ 45° to c.a. Some magnetite @ 269 ft. Local specs of MnOx dendrites on argillized rock. | | | |
| 271 | 287 | 10% " | | | | | | Ground core, pebbles of hornfelsed argillite, caved in? | | | |
| 287 | 292 | 65% " | | | | | | Gougey fault with most fractures parallel w/ c.a. Some prominent brown yellow FeOx locally. Much coarse biotite @ 287 ft. but most of this gouge is of sedimentary rock | | | |
| 292 | 318 | 100% " | | | | | | Diorite dike, upper contact strongly FeOx stained w/ prominent black MnOx staining (possibly after hornblende as @ White Oaks) about 3 fractures/ft @ 20° to c.a. Contact zone of this rock unit is white to 294.5 ft., rest is dark green to gray w/ mottled texture. Minerals are too fine-grained to identify but appear to be equally plagioclase and mafics. Some epidote along rare veinlets. Rock is magnetic and will attract a hand magnet. Lower cht. @ 20° to c.a. Dike is fresh and must be a late feature! | | | |

Project Vera Cruz Project No. ____ Drill Hole No. VCD-1 Collar Coords. ____ T.D. 1757 Page No. 4 of 10

Location ____ Elevation ____ Bearing ____ Inclination ____ Logged by S. ZAHONY Date 12/11

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 318 | 329 | NQ 100% | | | | | | Hornfels, crackled and locally silicified and potash-metasomatized appearing pink. Prominent 3cm wide slip w/ clay and FeOx zones @ 318.5ft and 319.5ft. Hornfels contains epidote, hornblende, and some magnetite - no sulfides seen. Banding is @ 75-80° to c.a @ 323ft | | | |
| 329 | 459 | 100% NQ | | | | | | Hornfels, banded green to pink, appears to be high-T as if approaching intrusive contact. Hornfels has visible epidote, chlorite, blue-green amphibole, magnetite and disseminated pyrite - locally up to 2% but generally <1%. Pyrite is in cubes <1mm in d. Late chlorite-pyrite bearing slicked fractures @ 337-347 ft., about one/ft. @ 377-403 there are abundant chlorite rich (pyrite bearing) veins @ 0-10° to c.a. - these are late post hornfelsing in age. Banding throughout was @ 80° to c.a. | | | |
| 459 | 539.8 | 100% NQ | | | | | | Hornfels, siliceous pink and green alternating bands @ 75° to c.a - composition banding. Begin some blebs of pyrrhotite, sulfides are still strong and finely disseminated. About 10 micro veins/ft w/ chlorite and pyrrhotite-pyrite @ 32° to c.a. @ 190° to bedding. No open fractures in rock, 10ft solid core common in core barrel. | | | |
| 539.8 | 592.0 | 100% NQ | | | | | | Dark brown hornfels (biotite bearing?) - no banding - blebs of ferrug minerals biotite and hornblende. | | | |

Project Vega Cruz Project No. ____ Drill Hole No. VCD-1 Collar Coords. ____ T.D. 1757 Page No. 5 of 10

Location ____ Elevation ____ Bearing ____ Inclination ____ Logged by S. Zahony Date 12/19

| Footage From | Footage To | Core Rec Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 542.8 | 551 | 100% / NQ | | | | | | Hornfels, alternating light and dark green bands w/ green color intensifying to bottom of run. This was a mudstone prior to metamorphism. A prominent green epidote-hornblende vein, irregular @ 549 ft | | | |
| 551 - 554.5 | | 100% / " | | | | | | Intrusive, pink aphanitic rhyolite or trachyte. Contact and flow banding at top is @ 56° to c.a. parallel w/ bedding. Some 3mm K-felds por (< 2%) phenos and much disseminated epidote. | | | |
| | | | | | | | | Lower contact @ 72° to c.a. @ 20° to foliation of sediments (hornfels). | | | |
| 554.5 | 563 | 100% / " | | | | | | Green hornfels, cracked and rehealed by green chlorite(?) and epidote. Bedding @ 75° to c.a. Green color gives way to biotite rich hornfels at bottom of interval. | | | |
| 563 | 577 | 100% / " | | | | | | Quartz porphyry dike, flow banded w/ 3% 2mm mm. subhedral quartz phenos and 3% white feldspar phenos of same size. Some siliceous silica veining. Contact and flow banding are parallel w/ bedding at 73° to c.a. Dike has scattered specks of black mineral w/ radioactive damage, halo - probably brannerite. Locally dike takes on a graphic texture, especially at lower contact where it fingers out into the siliceous host rock. Contact w/ meta argillite @ 33° to c.a. Dike is well chilled so it must post date hornfelsing. | | | |

Project Vera Cruz Project No. _____ Drill Hole No. VCD-1 Collar Coords. _____ T.D. 1757 Page No. 6 of 10

Location _____ Elevation _____ Bearing _____ Inclination _____ Logged by S. ZAITONY Date 12/19

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 575 | 575.8 | 100% NQ | | | | | | Siliceous hornfels w/ green chlorite | | | |
| 575.8 | 579 | 100% " | | | | | | Aplite fine-grained intrusive w/ some larger phenos of K-feldspar rock is light green, sericitized, and has a micrographic texture. @ 578.4 ft a 2in. rhyolite dike cuts the aplite and is chilled against it w/ siliceous chill margins. It cuts the aplite @ 40° to c.a @ 180° to the aplite attitude. This rhyolite is the same type as in the interval 563-575ft., it contains radioactive minerals here also. | | | |
| 579 | 581 | 100% " | | | | | | Green to brown banded hornfels w/ bedding @ 80° to c.a and twenty hairline chlorite-magnetite veinlets/ft @ 15° to c.a & 110° to bedding. | | | |
| 581 | 624 | 100% " | | | | | | Green hornfels w/ about 10 hairline magnetite veinlets/ft @ 340° to foliation @ 75° to c.a. Bedding is @ 85° to c.a @ 610 ft, almost 90° to c.a. @ 624 ft. | | | |
| 624 | 907.5 | | | | | | | Aplite intrusive @ 45° to c.a. @ 320° to bedding of sediments above the contact. Intense magnetite veining above contact stops @ contact. This rock unit may have been the heat source for the hornfelsing above. A thin-section of this rock taken @ 638ft indicates the original composition of the rock to be 40 to 60% plagioclase, 20 to 30% K-feldspar, and 25% quartz. Thus the | | | |

Project Vera Cruz Project No. _____ Drill Hole No. VCD-1 Collar Coords. _____ T.D. 1757 Page No. 7 of 10

Location _____ Elevation _____ Bearing _____ Inclination _____ Logged by S. ZAHOUY Date 1/80

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 624 | cntd. | 100 NQ | | | | | | rock is a qtz. monzonite to qtz. diorite in composition. The rock is very very altered and consists mostly of secondary K-feldspar, sericite, and silica. Alteration appears to be from overlying source below, not quite alteration, possibly the rhyolite body below. Aplite has from 0 to 3% pyrite disseminated, generally < 1.5% @ 668 & 671 ft. ¼ in veinlets of grey bluish qtz. @ 80° to c.a. w/ possibly some molybdenite, but probably specularite. | | | |
| | 907.5 | | | | | | | @ 683 ft - ½ in qtz - carbonate vein @ 90° to c.a. w/ $MoS_2$ or specularite. Locally 2 cm. inclusions of round brownish pebbles. @ 687 ft the flow banding appears to be @ 40° to c.a. Some argillation @ 704-707 ft. Core is fresh and pink @ 85-90 760-775. Several ¼ in. qtz. feldspar pyrite veinlets @ 85-90° to c.a. @ 790-791 ft @ 835 @ ½ in qtz.-pyrite-calcite vein @ 90° to c.a. Below 800 ft the core is more pyritic (≈ 1.5%) and well altered although fresh pink areas are quite common. But something has definitely altered the rock from below. Below 835 alteration continues but prominant metallic is magnetite (1.5% disseminated) Pyrite is some around veinlets of qtz + calcite (most @ 30° to c.a.) Thru @ 872 ft laminative pyrite veins are common. | | | |

Project Vera Cruz Project No. Drill Hole No. VCD-1 Collar Coords. T.D. 1757' Page No. 8 of 10

Location Elevation Bearing Inclination Logged by S ZAHONY Date 1/80

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 624 (continued) | 907.5 | 100% AXB | | | | | | 875-907.5' 1.5% pyrite in sericitized aplitic quartz monzonite | | | |
| | | | | | | | | 876-877' Blue chalcedonic qtz vein @ 13° to c.a. | | | |
| | | 30% | | | | | | 882' Fault zone @ 32° to c.a. w/ 30% recovery and abundant clay. No predominant attitude along FeOx coated gouge planes – some pebbles. This must be a predominant structure as oxygenated waters extend down it. FeOx stained fractures can be found 10ft above it and 40ft below it in core. | | | |
| 907.5 | 1006.5 | | | | | | | Spotty sericitic alteration w/ about 10% of rock being pink and only slightly altered; about two hairline pyrite veinlets/ft @ 947 foliation is @ 50° to c.a., 915-920' two FeOx coated fractures/ft 921-929 calcite coated fractures @ 20-30° to c.a. – late fractures. Where rock is fresher magnetite is common – when not pink, pyrite is the common disseminated mineral. | | | |
| | | | | | | | | 985' 3in broken zone, in last 6ft of interval (to 1006.5), 2 hairline pyrite sericite veins/ft @ 75° to c.a. | | | |
| 1006.5 | 1052 | | | | | | | Sericitized aplitic qtz monzonite as above but w/ some zones of intense qtz-sericite-pyrite especially @ 1006.5-1011, most @ 70° to c.a. Two 1in. wide qtz, pyrite sericite veins @ 12-22° to c.a. @ 1039 ft. | | | |

Project Vera Cruz Project No. ____ Drill Hole No. VCD-1 Collar Coords. ____ T.D. 1757' Page No. 9 of 10

Location ____ Elevation ____ Bearing ____ Inclination ____ Logged by S. ZANONY Date 1/80

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1052 | 1057.5 | 100% MP | | | | | | Massive sericite, quartz & pyrite w/ pyrite laced through the zone not on planar features as if host rock did not rupture easily. @ 1056' slickensided fault cuts sericite zone @ 15° to c.a. @ 1057 several 4-5 mm. crystals of chalcopyrite. Bottom of zone @ 35° to c.a. | | | |
| 1057.5 | 1062 | | | | | | | Quartz pyrite sericite veins get thinner and fewer away from zone above but still ~ 2/ft. on the average ⅛" in wide @ 20° to c.a. Host is moderately sericitized. | | | |
| 1062 | 1196 | | | | | | | Moderately sericitized intrusive w/ 1-2% $FeS_2$ mostly as disseminations but also some veins @ 1165 a 6" pyrite-sericite zone @ 70° to c.a. | | | |
| 1196 | 1204 | | | | | | | Sericite, qtz, pyrite zone w/ chalcopyrite & sphalerite in a central carbonate zone @ 10° to c.a. | | | |
| 1204 | 1229 | | | | | | | Sericitized aplitic porphyry - light green to gray w/ ~ 2% pyrite | | | |
| 1229 | 1238 | 95% | | | | | | Zone of intense pyrite, sericite & qtz. w/ some sphalerite & chalcopyrite @ 10° to c.a. About 4 veins (thick)/ft in this zone. | | | |
| 1238 | 1279 | | | | | | | Moderately sericitized aplitic porphyry w/ 2% pyrite. | | | |
| 1279 | 1296 | | | | | | | Crackled sericitized aplitic porphyry w/ 3 veinlets of pyrite sericite /ft @ 10-20° to c.a. | | | |
| 1296 | 1323 | | | | | | | Unveined sericitized aplitic rock. @ 1303-1303.5 a chalcopyrite, sphalerite, calcite vein @ 15° to c.a. | | | |

Project Vera Cruz Project No. ____ Drill Hole No. VCD-1 Collar Coords. ____ T.D. 1757' Page No. 10 of 10

Location ____ Elevation ____ Bearing ____ Inclination ____ Logged by S. ZAHONY Date 1/80

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | | | Mineralization | | | Vis. log | Geology | Sample No. | Analyses From | Analyses To | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1323 | 1386 | NQ | | | | | | | | | | Well sericitized aplitic qtz monzonite w/ 3% $FeS_2$ and numerous veins of pyrite, near parallel w/ c.a.. Alternating altered and fresh rock locally - a contact of this type @ 1357 ft is @ 20° to c.a. Flow banding is @ 90° to c.a. | | | | | | |
| | | | | | | | | | | | | 1358-1359 ft strong pyrite veining mostly parallel w/ core axis | | | | | | |
| 1386 | 1451 | | | | | | | | | | | Moderately to weakly sericitized unveined aplite qtz-monzonite w/ 1% $FeS_2$ | | | | | | |
| 1451 | 1534 | | | | | | | | | | | Moderately to well sericitized aplitic qtz-monzonite w/ stray pyrite and some epidote @ 1492-1490, veins in center of zone @ 5° to c.a. Some calcite veins locally parallel w/ core axis, especially well developed from 1490-to end of run. | | | | | | |
| 1534 | 1687 | | | | | | | | | | | Moderately to weakly sericitized aplitic rock w/ 20% of core being pink and weakly sericitized. These pink runs have fresh K-feldspar although the biotite and plagioclase phases are totally sericitized. | | | | | | |
| 1687 | 1757 | (End of hole) | | | | | | | | | | Moderately to weakly sericitized aplitic qtz. monzonite. Poorly developed flow foliation @ 60 to 80° to c.a. Pyrite-clay veins @ 1689 @ 10° to c.a. Hole shut down because strong alteration is spotty and although pyrite is still common, it is usu. in veins but disseminated. Veins prominent up the hole have disappeared. | | | | | | |

Project Vera Cruz Project No. ____ Drill Hole No. VCD-2 Collar Coords. ____ T.D. 972 ft. Page No. 1 of 7

Location ____ Elevation ____ Bearing ____ Inclination ____ Logged by J. Zabony Date 3/80

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | | | Mineralization | | | Vis. log | Geology | Sample No. | Analyses From | Analyses To | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 40' | O Talus | | | | | | | | | | Drilled until rock became firm, should have been ~15ft of overburden | | | | | | |
| 40 | 102' | HQ 55% | | | | | | | | | | Pebble breccia, most pebbles are rounded to sub rounded, average diameter is 3 in., matrix is generally clay with limonite - hematite w/ local vugs lined by quartz - no calcite. Pebbles are 70% sandstone (quartzite), 30% mudstone and <1% felsite. Largest pebbles are quartzite because of rock competancy, up to 10 in diameter | | | | | | |
| 102 | 124 | HQ 70% | | | | | | | | | | Highly argillized gouguey pebble breccia w/o planar breaks. | | | | | | |
| 124 | 135 | 90% | | | | | | | | | | Clayey material, mostly argillized sandstone - possibly some breccia but no obvious rounded pebbles as above. | | | | | | |
| | | | | | | | | | | | | 131-135 clay w/ sticks @ 50-65° to c.a. | | | | | | |
| 135 | 139 | 95% | | | | | | | | | | Sandstone - possibly a large boulder within the breccia | | | | | | |
| 139 | 158 | 90% | | | | | | | | | | Clayey pebble breccia w/ abundant limonite - hematite. Average pebble size is 3 in. diameter. | | | | | | |
| 158 | 253 | 75% | | | | | | | | | | Strongly argillized and FeOx stained pebble breccia, some late argillized fracture planes at random angles to c.a, most @ 45° to c.a. These late fractures could be rock readjustments to volume changes during oxidation and dissolution of pyrite resulting in supergene argillation. | | | | | | |

Project Vera Cruz Project No. ____ Drill Hole No. VCD-2 Collar Coords. ____ T.D. 972 ft. Page No. 2 of 7

Location ____ Elevation ____ Bearing ____ Inclination ____ Logged by S. Zahony Date 2/80

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 253 | 260 | 30% | | | | | | Clay gouge and mud, recognizable breccia at the beginning of interval, no planar features; 256-257 pure clay gouge (may even be stope fill) with cafe au lait color from limonitic clay. | | | |
| 260 | 268 | ~75% | | | | | | Completely argillized hematite stained pebble breccia. | | | |
| 268 | 273.5 | | | | | | | Banded hornfels (w/alternating ½ in wide bands of sandstone and shale) Intense oxidation ends here. | | | |
| 273.5 | | | | | | | | 4 in. wide clay gouge seam. | | | |
| 273.5 | 278.5 | | | | | | | Fractured feldspar porphyry, white aphanitic rock w/ 3% white euhedral feldspar phenos. Rock is silicified and has spherulite like texture. Sulfides begin to become apparent here (disseminated pyrite) Towards the bottom of the interval there is chalcocite on pyrite. | | | |
| 278.5 | 287.5 | | | | | | | Begin silicified & highly pyritic sediment (or aphanite?) w/ 20-½ in wide pyrite veins/ft, most @ 50° to c.a. Chalcocite coats the pyrite forming a chalcocite blanket. Banding in rock (bedding?) @ 45° to c.a - This run appears to be ore-grade copper enrichment | | | |
| 287.5 | 310 | 95% | | | | | | Sandstone with much disseminated pyrite and six ½ in. veins/ft @ 40° to c.a less pyrite and more limonite down the hole, limonite boxwork from 305-308. 10% $FeS_2$ at top of interval -> all limonite | | | |

Project Vera Cruz Project No. ____ Drill Hole No. VCD-2 Collar Coords. ____ T.D. 972 ft Page No. 3 of 7

Location ____ Elevation ____ Bearing ____ Inclination ____ Logged by S. Zahony Date 2/80

| Footage From | Footage To | Core Rec. Site | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 310 | 311 | 80% | | | | | | Limonite stained breccia zone @ 15° to c.a. – fault. | | | |
| 311 | 335 | 95% | | | | | | Begin a highly argillized claystone w/ some sandstone layers. Bedding @ 313' is @ 25° to ca. w/ much pyrite coated by chalcocite – again this is the chalcocite blanket – restricted to the argillized claystone. The sandstone above (287'–310') is oxidized and may have been an aquifer with reduction within the claystone below. This run is unoxidized and has 5% $FeS_2$ with local strong Cu stain (chalcocite) @ 319' banding (bedding?) is @ 30° to c.a. 327–328' is a gouge zone w/ 10% $FeS_2$. | | | |
| 335 | 371 | 95% | | | | | | Sandstone w/ most fracture coating pyrite oxidized down to 351 ft. – no oxidation below. Much disseminated $FeS_2$ (+5%) and about five ½ mm. veins/ft. most @ 20–30° to c.a. Locally abundant chalcocite on pyrite. Zone ends with gouge @ 20° to c.a. | | | |
| 371 | 377 | | | | | | | Crackled hornfels (sandstone), pink to tan w/ some bright aquamarine copper sulfates coating fractures. Local brecciation and 5 to 10 % $FeS_2$ w/ much chalcocite coating. | | | |
| 377 | 387 | | | | | | | Flow-banded siliceous "rhyolite" w/ alternating bands of gray silica and white feldspar rich layers; texture is spherulitic with some 1–2 mm. white feldspar phenos. Upper contact @ @ 48° | | | |

Project Vera Cruz Project No. _____ Drill Hole No. VCD-2 Collar Coords. _____ T.D. 972 ft. Page No. 4 of 7

Location _____ Elevation _____ Bearing _____ Inclination _____ Logged by S. Zahony Date 2/80

| Footage From | Footage To | Core Rec Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | to contacts, parallel w/ banding. Very little vein pyrite, some clay veins cut this rock. | | | |
| 387 | 388 | | | | | | | Fluidized breccia, lower contact @ 30° to c.a. with a silicified aphanitic porphyry(?) Breccia has no veins cutting through it and fragments are mostly 2 cm in diameter of pink banded, sandstone, dark shale, and a white argillized intrusive. Breccia cuts banding of porphyry(?) at bottom of run. — contact @ 340° clockwise rotation; bedding (banding) is @ 50° to c.a. in porphyry(?). All fragments are well pyritized as is the matrix of the breccia — some chalcocite. | | | |
| 388 | 399 | | | | | | | Brecciated and completely silicified felsite porphyry(?) or sediment w/ some banding @ 45° to c.a. 5% $FeS_2$, some clay (10% rock) | | | |
| 399 | 400 | | | | | | | some chalcocite on pyrite. Some of rock appears to be banded so entire run, above, may be altered mudstone. @ 3in wide gouge zone @ the bottom of the run @ 60° to c.a. | | | |
| 400 | 406 | | | | | | | Silicified sandstone w/ about +10% $FeS_2$ w/ some chalcocite on pyrite | | | |
| 406 | 414 | | | | | | | Fluidized breccia with irregular upper contact @ 20° to c.a. @ 408' stray chalcopyrite, sphalerite, and chalcocite mineralization — not a vein but a linear zone of breccia matrix @ 25° to c.a. | | | |

Project Vera Cruz Project No. _____ Drill Hole No. VCD-2 Collar Coords. _____ T.D. 972 ft. Page No. 5 of 7

Location _____ Elevation _____ Bearing _____ Inclination _____ Logged by S. Zahony Date 2/80

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | | | Mineralization | | | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 414 | 480.5 | | | | | | | | | | | Pyritized Sandstone w/strong silicification and ~10% $FeS_2$, with about 5% white clay - in seams. Many hairline veins of pyrite @ 25° to c.a. pretty well parallel with bedding (in strike) which is @ 30° to c.a. Local chalcocite in argillic seams. Bedding @ 55° to c.a. @ 459.5', @ 45° to c.a. @ 477'. Cpy in chalcopyrite-sphalerite-drusy quartz veins parallel w/ c.a. | | | |
| 480.5 | 510 | | | | | | | | | | | Fluidized breccia with most elongate pebbles @ 15-20° to c.a., upper contact is some altitude to c.a. Most pebbles have +10% $FeS_2$ and matrix of breccia is +20% $FeS_2$. At 487-488 ft and 489-490 ft a new rock type occurs in breccia, a flow banded "dome-type" rhyolite porphyry w/ gas vesicles and 3-5% finely disseminated pyrite. No veins cut the breccia. Rhyolite porphyry is also observed as some pebbles | | | |
| 510 | 570 | HQ | | | | | | | | | | Breccia takes on a different appearance as it is very vuggy w/ abundant quartz crystals and large cubes of pyrite (upto 1cm cubes of pyrite). Sphalerite is seen locally in the vugs but not more than 1% overall. Most elongate fragments are @ 20° to c.a. No veins. Strong sphalerite shows in boxes @ 20° c.a. @ 561 & 565. | | | |

Project Vera Cruz Project No. Drill Hole No. VCD-2 Collar Coords. T.D. 972 ft Page No. 6 of 7

Location Elevation Bearing Inclination Logged by S. Zakony Date 3/10

| Footage From | Footage To | Core Rec. Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis. log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 570 | 665 | 95% NQ(Spiz) | | | | | | Fluidized breccia – much argillized and tighter here above; 20% $FeS_2$ in matrix and +10% $FeS_2$ in pebbles. Much drusy quartz w/pyrite cubes and locally sphalerite as a last phase @ 577', 587', 595', 615', 617' & 650'. Trace amounts of sphalerite can be seen in most pieces of core. Very strong sphalerite-galena zone @ 663' (Contains 5-10% ZnS) Pebbles towards the bottom of this run are commonly aplite. Galena becomes apparent w/ sphalerite @ 650'. | | | |
| 665 | 704 | NQ | | | | | | Tight breccia w/ few vuggy zones but with local disseminated sphalerite, still +10% $FeS_2$. Gassy zone @ 675 & 677 ft. | | | |
| 704 | 725 | | | | | | | Vuggy siliceous pyritic breccia w/ local rich zones sphalerite, galena, and crystalline quartz. Strong sphalerite @ 723'. | | | |
| 725 | 735 | 0 | | | | | | Misletch – lost core | | | |
| 735 | 737 | | | | | | | Much galena in breccia, drilling drusos | | | |
| 737 | 797 | | | | | | | Tight breccia w/ 10-15% pyrite; few vugs and less ZnS & PbS. Strong ZnS @ 747-748 w/ some galena. 751-753 is argillized mudstone w/ unique 2 cm long blebs of pyrite & some chalcopyrite @ 50° to c.a. Lower part of interval is predominantly a fine bleached hornfelsed shale | | | |
| 797 | 803 | | | | | | | Clayey vuggy fine-grained breccia w/upper contact @ 45° to c.a. | | | |

Project: Vera Cruz  Project No.: ____  Drill Hole No.: VCD-2  Collar Coords.: ____  T.D.: 972 ft  Page No.: 7 of 7

Location: ____  Elevation: ____  Bearing: ____  Inclination: ____  Logged by: S. Zahony  Date: 3/10

| Footage From | Footage To | Core Rec Size | Ground Cond. | Rock Type | Alteration | Mineralization | Vis log | Geology | Sample No. | Analyses From | Analyses To |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 803 | 833 | | | | | | | Vuggy breccia w/ large open cavities lined w/ quartz crystals and locally w/ sphalerite & galena. 25% of fragments are a black hornfels of which little was seen up the hole. Strong sphalerite @ 807 ft.; CuFeS₂ @ 871-875' | | | |
| 833 | 837 | | | | | | | Gray hornfels, intensely veined w/ pyrite; @ 835' a 4 in dike of aplitic porphyry @ 60° to c.a. | | | |
| 837 | 888 | | | | | | | Upper gradational contact of felsite porphyry w/ greenish hornfels @ 60° to c.a. At 838' brecciation begins and continues to bottom of interval. The lower 5ft of interval is mixed fragments of aplite rock & felsite. Vuggy silicified breccia from 875 to 878'. Strong chalcopyrite veins @ 40-10° to c.a. from 860-864 ft. * The felsite may be a contact or chill variety of the aplite as seen in this drill hole it occurs at the top of the aplite. | | | |
| 888 | 904 | | | | | | | Brecciated aplite w/ pyrite veins, some vugs, but very little base metal sulfides. Sericitized, similar in appearance to aplite in VCD-1 at about 1,100 ft. Most textural planes @ 45° to c.a. Rock has 5-10% $FeS_2$. | | | |
| 904 | 954 | | | | | | | Veined & silicified aplite w/ 3% $FeS_2$, most veins @ 35-45° to c.a. Trace sphalerite | | | |
| 954 | 972 | | | | | | | Fresher aplite w/ 3 pyrite (⅛in) veins/ft., most @ 35° to c.a. - trace sphalerite in veins. No flow banding. | | | |
| | TD | | | | | | | | | | |

Telephone 363-3302

Hand Sample Serial 5493-5521

ASSAY REPORT

# UNION ASSAY OFFICE, Inc.

BRYANT L. LARSEN, President
G. P. WILLIAMS, Vice President
JAMES G. STRATTON, Secretary
A. S. JOLLIFFE, Treasurer
P. O. Box 1528
Salt Lake City, Utah 84110
(801) 363-3302

Mine Armco. Inc.
2876 So Race St
Denver, CO

RESULTS PER TON OF 2000 POUNDS

Feb 27, 1980

| NUMBER | GOLD Ozs. per Ton | SILVER Ozs. per Ton | LEAD Per Cent | COPPER Per Cent | INSOL Per Cent | ZINC Per Cent | SULPHUR Per Cent | IRON Per Cent | LIME Per Cent | Per Cent | Per Cent |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VCD-2 | | | | | | | | | | | |
| 265-270 | 0.010 | 2.6 | | 0.037 | | | | | | | |
| 275-280 | none | 0.1 | | 0.012 | | | | | | | |
| 280-285 | none | none | | 0.195 | | | | | | | |
| 285-290 | none | 0.2 | | 0.012 | | | | | | | |
| 295-300 | none | none | | 0.006 | | | | | | | |
| 305-310 | none | 0.1 | | 0.012 | | | | | | | |
| 315-320 | none | none | | 0.018 | | | | | | | |
| 325-330 | none | none | | 0.025 | | | | | | | |
| 330-335 | none | none | | 0.012 | | | | | | | |
| 340-345 | none | 0.4 | | 0.006 | | | | | | | |
| 350-355 | none | none | | 0.012 | | | | | | | |
| 360-365 | none | none | | 0.075 | | | | | | | |
| 370-375 | none | none | | 0.081 | | | | | | | |
| 380-385 | none | none | | 0.012 | | | | | | | |
| 745-750 | Trace | 0.2 | | 0.006 | | 0.15 | | | | | |
| 765-770 | 0.010 | 0.2 | | none | | Trace | | | | | |
| 795-800 | Trace | none | | none | | 0.10 | | | | | |
| 805-810 | 0.010 | 0.4 | | 0.012 | | 0.05 | | | | | |
| 815-820 | Trace | 0.1 | | 0.044 | | 0.05 | | | | | |
| 825-830 | Trace | 0.2 | | 0.170 | | none | | | | | |
| 845-850 | 0.010 | 0.1 | | 0.012 | | Trace | | | | | |
| 860-865 | Trace | none | | 0.044 | | Trace | | | | | |
| 865-870 | none | none | | none | | none | | | | | |
| 875-880 | 0.015 | 0.2 | | 0.012 | | Trace | | | | | |
| 885-890 | Trace | 0.2 | | none | | Trace | | | | | |
| 895-900 | none | 0.2 | | none | | none | | | | | |
| 930-935 | none | none | | none | | 0.05 | | | | | |
| 950-955 | none | 0.1 | | none | | none | | | | | |
| 965-970 | none | none | | none | | 0.05 | | | | | |

Remarks

Charges $ 437.50

Telephone 363-3302

*Hand Sample Serial* 4527-4551

ASSAY REPORT

# UNION ASSAY OFFICE, Inc.

BRYANT L. LARSEN, President
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JAMES G. STRATTON, Secretary
A. S. JOLLIFFE, Treasurer
P. O. Box 1528
Salt Lake City, Utah 84110
(801) 363-3302

*Mine* Armco, Inc
2876 So Race St
Denver, CO
RESULTS PER TON OF 2000 POUNDS

Feb 14, 1980

| NUMBER | GOLD Ozs. per Ton | SILVER Ozs. per Ton | LEAD Per Cent | COPPER Per Cent | INSOL Per Cent | ZINC Per Cent | SULPHUR Per Cent | IRON Per Cent | LIME Per Cent | Per Cent | Per Cent |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VCD-2 | | | | | | | | | | | |
| 387-388 | 0.010 | 0.1 | | | | | | | | | |
| 390-395 | none | none | | | | | | | | | |
| 400-405 | none | none | | | | | | | | | |
| 405-410 | none | 0.1 | | | | | | | | | |
| 410-415 | 0.010 | none | | | | | | | | | |
| 420-425 | none | 0.1 | | | | | | | | | |
| 430-435 | none | none | | | | | | | | | |
| 440-445 | none | 0.1 | | | | | | | | | |
| 450-455 | none | none | | none | | none | | | | | |
| 460-465 | none | none | | none | | none | | | | | |
| 470-475 | none | none | | 0.094 | | 0.05 | | | | | |
| 480-485 | none | 0.1 | | none | | 0.10 | | | | | |
| 485-490 | none | none | | none | | Trace | | | | | |
| 490-495 | none | none | | none | | 0.30 | | | | | |
| 495-500 | Trace | none | | none | | 0.25 | | | | | |
| 505-510 | none | none | | none | | none | | | | | |
| 515-520 | 0.010 | none | | none | | none | | | | | |
| 525-530 | 0.010 | none | | none | | 0.05 | | | | | |
| 535-540 | 0.010 | none | | none. | | Trace | | | | | |
| 545-550 | 0.010 | 0.1 | | 0.006 | | 0.45 | | | | | |
| 555-560 | 0.010 | 0.1 | | 0.044 | | Trace | | | | | |
| 560-565 | 0.010 | 0.3 | | 0.012 | | 0.10 | | | | | |
| 565-570 | Trace | none | | 0.006 | | 0.15 | | | | | |
| 575-580 | 0.010 | 0.8 | | 0.012 | | 0.60 | | | | | |
| 585-590 | 0.005 | 0.1 | | 0.006 | | 0.50 | | | | | |

*Remarks*

*Charges* $ 357.50

G. P. Williams

Telephone 363-3302

*Hand Sample Serial* 4914-4938

ASSAY REPORT

# UNION ASSAY OFFICE, Inc.

BRYANT L. LARSEN, President
G. P. WILLIAMS, Vice President
JAMES G. STRATTON, Secretary
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P. O. Box 1528
Salt Lake City, Utah 84110
(801) 363-3302

*Mine* Armco, Inc.
2876 So Race St
Denver, CO

RESULTS PER TON OF 2000 POUNDS

Feb 20, 1980

| NUMBER | GOLD Ozs. per Ton | SILVER Ozs. per Ton | LEAD Per Cent | COPPER Per Cent | INSOL Per Cent | ZINC Per Cent | SULPHUR Per Cent | IRON Per Cent | LIME Per Cent | Per Cent | Per Cent |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VCD-2 | | | | | | | | | | | |
| 160-165 | 0.010 | 0.1 | | | | | | | | | |
| 170-175 | 0.010 | 0.1 | | | | | | | | | |
| 180-185 | 0.010 | 0.3 | | | | | | | | | |
| 190-195 | 0.010 | 0.3 | | | | | | | | | |
| 200-205 | 0.010 | 0.2 | | | | | | | | | |
| 210-215 | 0.005 | 0.1 | | | | | | | | | |
| 220-225 | 0.005 | 0.2 | | | | | | | | | |
| 230-235 | 0.010 | 0.1 | | | | | | | | | |
| 240-245 | 0.010 | 0.2 | | | | | | | | | |
| 245-250 | 0.010 | 0.3 | | | | | | | | | |
| 253-257 | 0.010 | 0.9 | | | | | | | | | |
| 590-595 | 0.015 | 0.2 | | none | | Trace | | | | | |
| 600-605 | 0.010 | none | | none | | 0.10 | | | | | |
| 615-620 | Trace | none | | 0.006 | | 0.40 | | | | | |
| 625-630 | 0.010 | none | | 0.006 | | 0.20 | | | | | |
| 640-645 | Trace | none | | none | | Trace | | | | | |
| 650-655 | none | 0.7 | | none | | 0.05 | | | | | |
| 660-665 | Trace | 0.2 | | none | | 0.10 | | | | | |
| 670-675 | Trace | 0.2 | | none | | none | | | | | |
| 680-685 | none | none | | none | | none | | | | | |
| 690-695 | none | none | | none | | Trace | | | | | |
| 700-705 | Trace | none | | none | | 0.30 | | | | | |
| 710-715 | 0.020 | none | | none | | 0.35 | | | | | |
| 720-725 | Trace | 0.3 | | none | | Trace | | | | | |
| 735-740 | none | 0.2 | | none | | 0.20 | | | | | |

*Remarks*

*Charges* $ 327.50

ASSAY REPORT

# UNION ASSAY OFFICE, Inc.

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*Hand Sample Serial*.....4331-4342.....

*Mine* .....Armco, Inc.....
2876 So Race St
.....Denver, CO.....

RESULTS PER TON OF 2000 POUNDS

Feb 14, 1980

| NUMBER | GOLD Ozs. Per Ton | SILVER Ozs. Per Ton | LEAD Per Cent | COPPER Per Cent | INSOL. Per Cent | ZINC Per Cent | SULPHUR Per Cent | IRON Per Cent | LIME Per Cent | Per Cent | Per C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VCD-2 40-45 | Trace | 0.2 | | | | | | | | | |
| " 55-60 | Trace | 0.2 | | | | | | | | | |
| " 65-70 | 0.010 | 0.6 | | | | | | | | | |
| " 75-80 | Trace | 0.3 | | | | | | | | | |
| " 80-85 | Trace | 0.3 | | | | | | | | | |
| " 90-95 | 0.010 | 0.1 | | | | | | | | | |
| VCD-1 100-105 | 0.010 | 0.1 | | | | | | | | | |
| " 110-115 | 0.010 | 0.2 | | | | | | | | | |
| VCD-2 120-125 | 0.010 | 0.2 | | | | | | | | | |
| " 130-135 | 0.005 | 0.3 | | | | | | | | | |
| " 140-145 | Trace | 0.2 | | | | | | | | | |
| " 150-155 | Trace | 0.4 | | | | | | | | | |

*Remarks*.....

*Charges* $ 90.00

Glen Wanlass

VERA CRUZ MINE, LINCOLN CO., N.M.

UPPER LEVEL WORKINGS - ARMCO SAMPLE MAP

Plate V




Fault

.078 / 82-64 Sample location and value of Au (only values >0.01 are shown)

Breccia

N

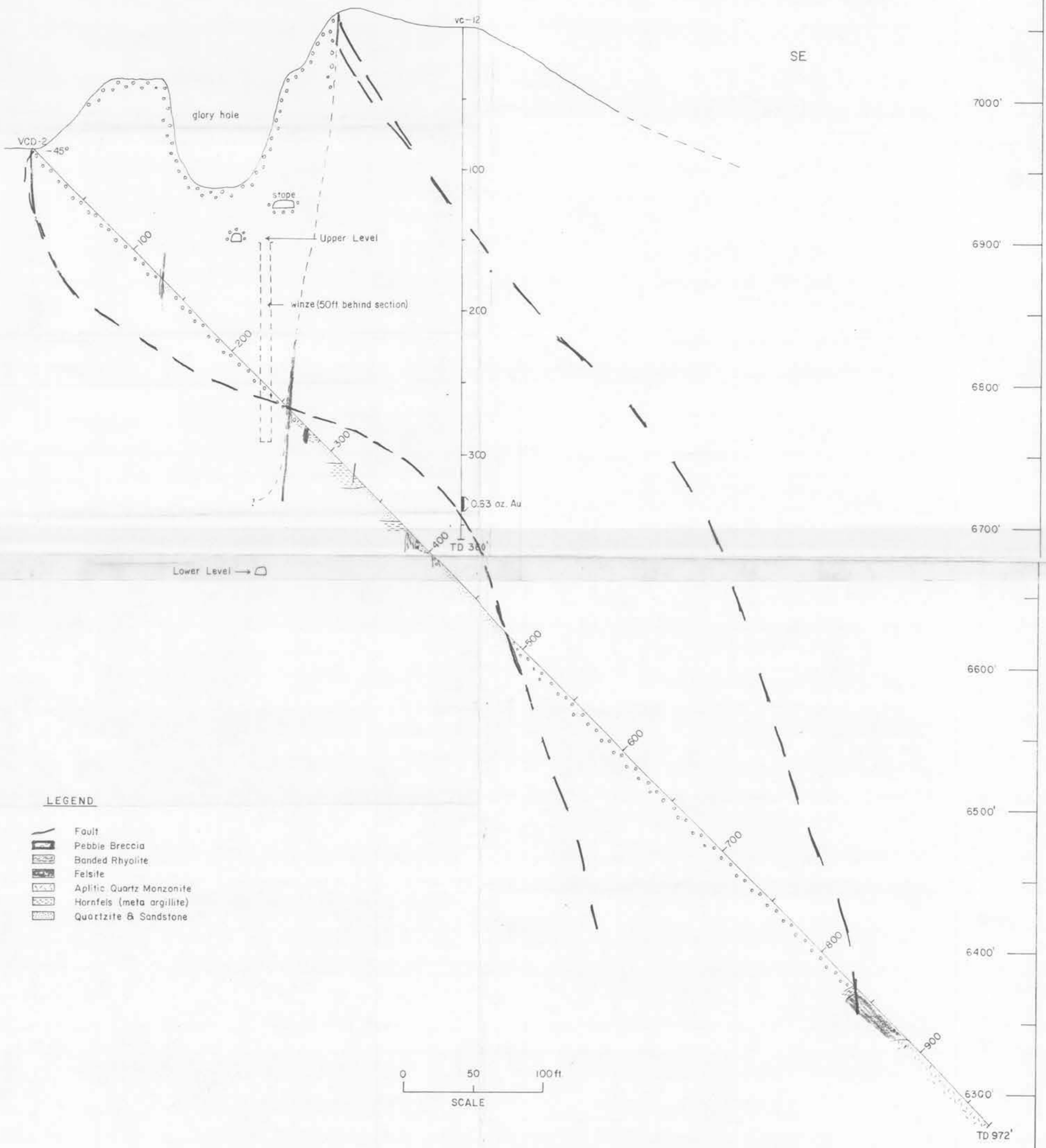
0 10 20 Ft.
SCALE

S. Zahony June 10, 1980

Outline of workings traced from C. Bowman 1938

Plate 12 - B

SECTION ALONG DIAMOND DRILL HOLE VCD-2 BEARING S.31.5°E.



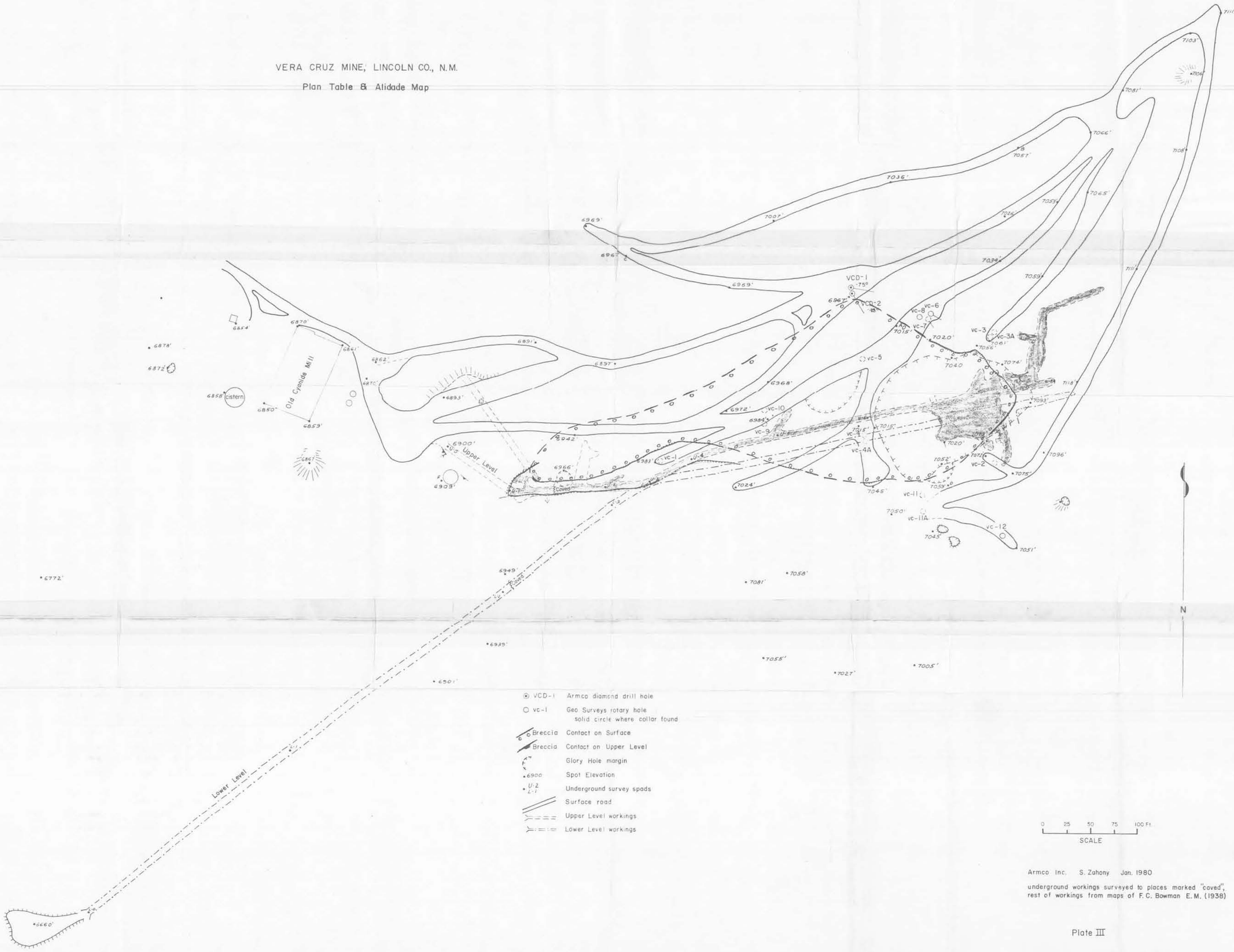

LEGEND

- Fault
- Pebble Breccia
- Banded Rhyolite
- Felsite
- Aplitic Quartz Monzonite
- Hornfels (meta argillite)
- Quartzite & Sandstone

VERA CRUZ PROJECT
ARMCO INC.
S. Zahony JUNE 1980

VERA CRUZ MINE, LINCOLN CO., N.M.

Plan Table & Alidade Map




- VCD-1 — Armco diamond drill hole
- vc-1 — Geo Surveys rotary hole, solid circle where collar found
- Breccia — Contact on Surface
- Breccia — Contact on Upper Level
- Glory Hole margin
- 6900 — Spot Elevation
- U-2 / L-1 — Underground survey spads
- Surface road
- Upper Level workings
- Lower Level workings

0 25 50 75 100 Ft.

SCALE

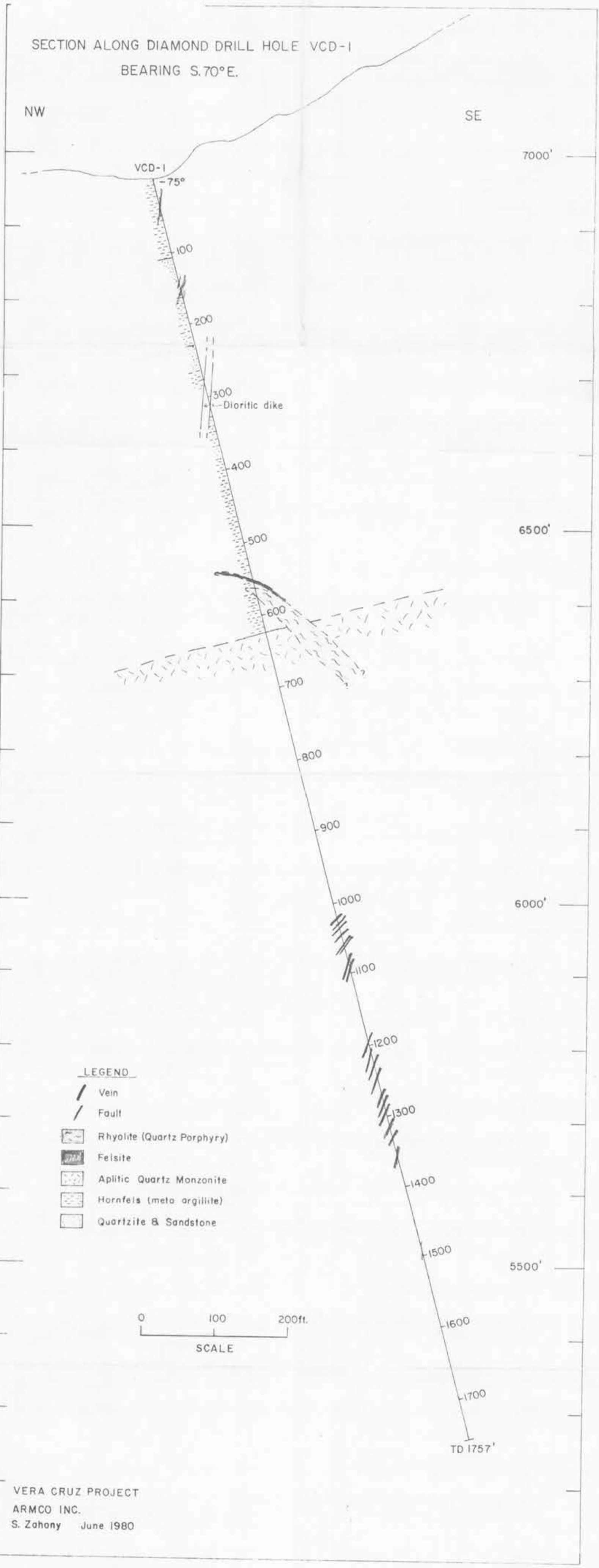
Armco Inc. S. Zahony Jan. 1980

underground workings surveyed to places marked "caved", rest of workings from maps of F.C. Bowman E.M. (1938)

Plate III

Plate IV A

# SECTION ALONG DIAMOND DRILL HOLE VCD-1
## BEARING S. 70° E.




VERA CRUZ PROJECT
ARMCO INC.
S. Zahony June 1980