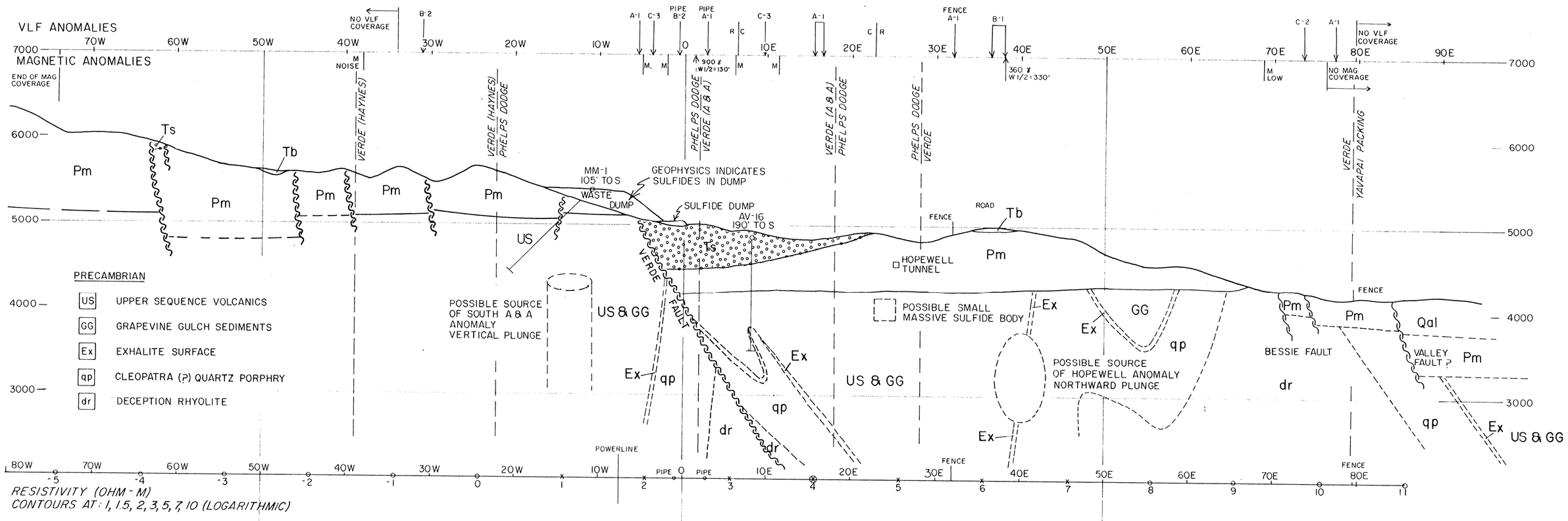
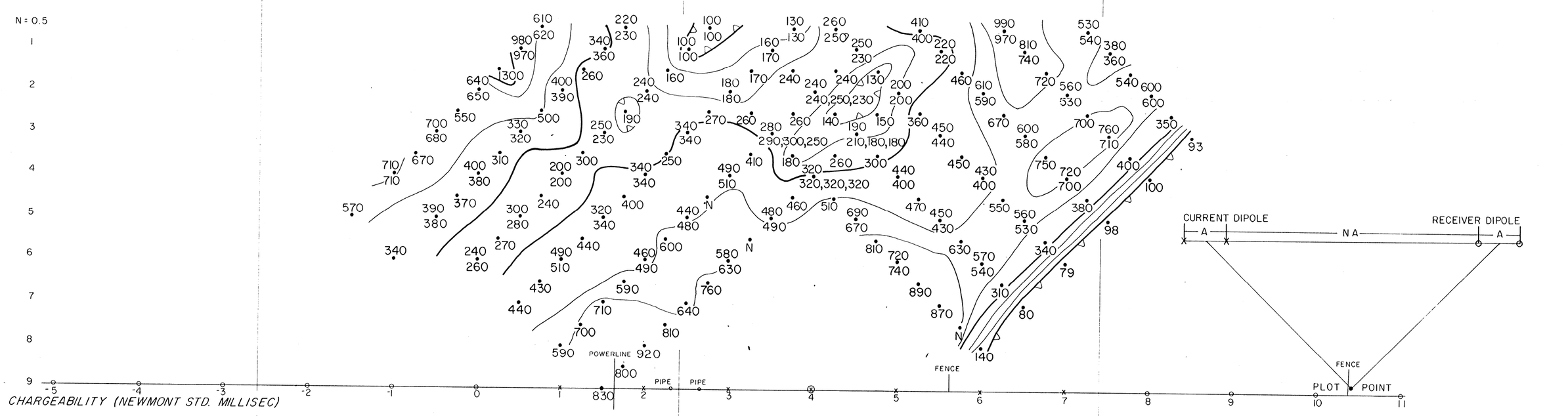
Plates 5a-d

CHAMPION CLASP NO. 87
8¾ x 11⅛

LINE 38N





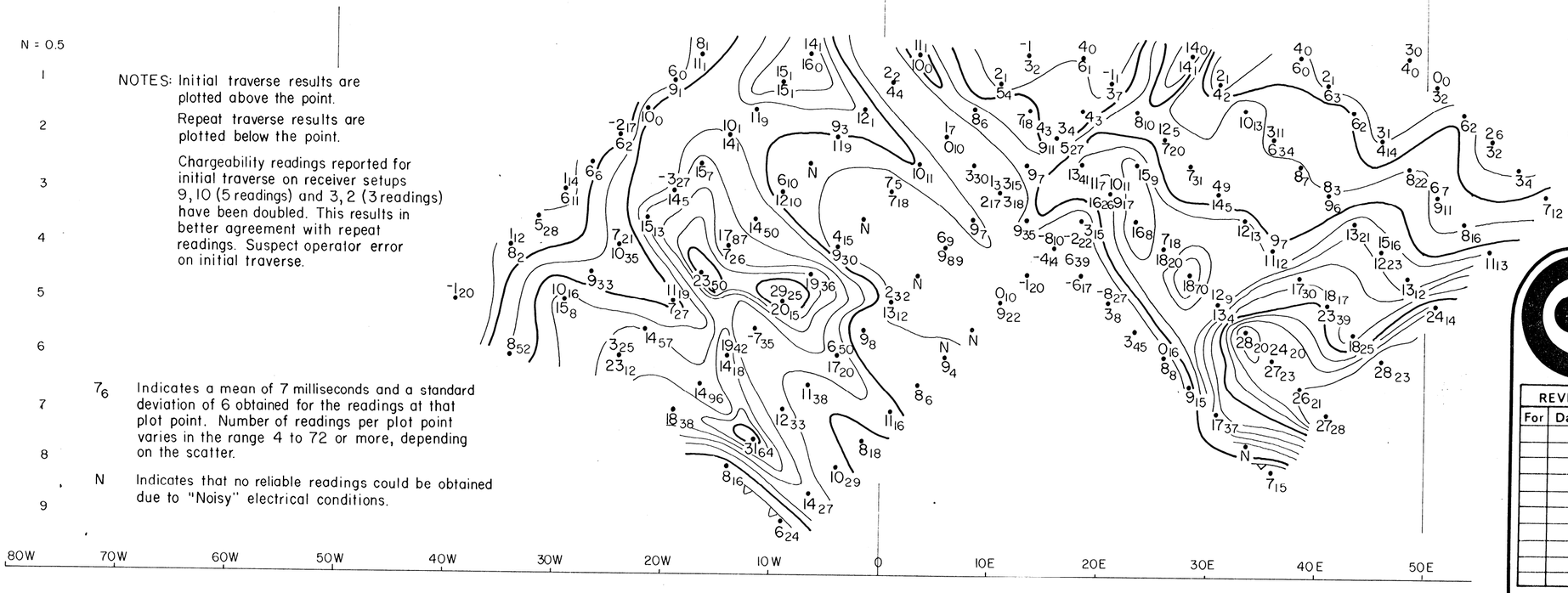
Survey conducted by Mining Geophysical Surveys, Inc. of Tucson, AZ using Elliot Geophysical Company time domain equipment. The collinear dipole-dipole array was used on surveyed lines with an electrode spacing "A" of 1000 feet and dipole separations "N" as indicated.

0 1000 2000 3000 4000 FEET

NOTES: Initial traverse results are plotted above the point.

Repeat traverse results are plotted below the point.

Chargeability readings reported for initial traverse on receiver setups 9, 10 (5 readings) and 3, 2 (3 readings) have been doubled. This results in better agreement with repeat readings. Suspect operator error on initial traverse.



7_6 Indicates a mean of 7 milliseconds and a standard deviation of 6 obtained for the readings at that plot point. Number of readings per plot point varies in the range 4 to 72 or more, depending on the scatter.

N Indicates that no reliable readings could be obtained due to "Noisy" electrical conditions.

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REVISIONS		
For	Date	By

PLATE 5d

JEROME PROJECT

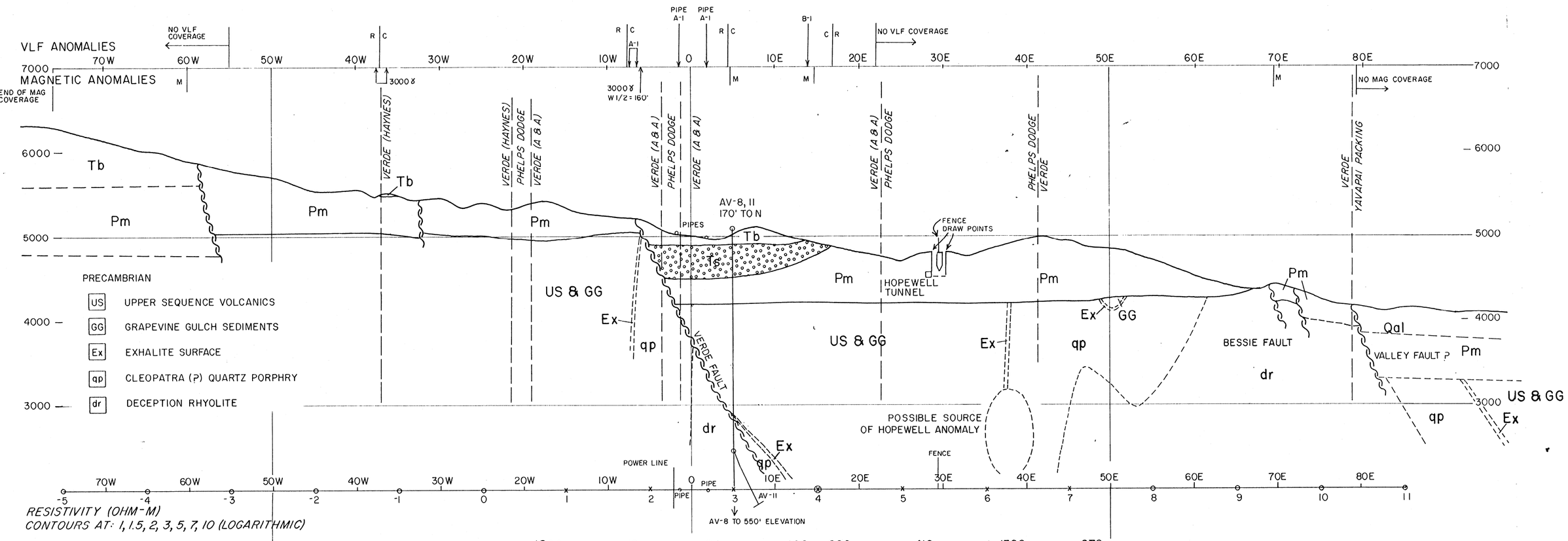
INDUCED POLARIZATION SURVEY OF JAN.-FEB., 1982

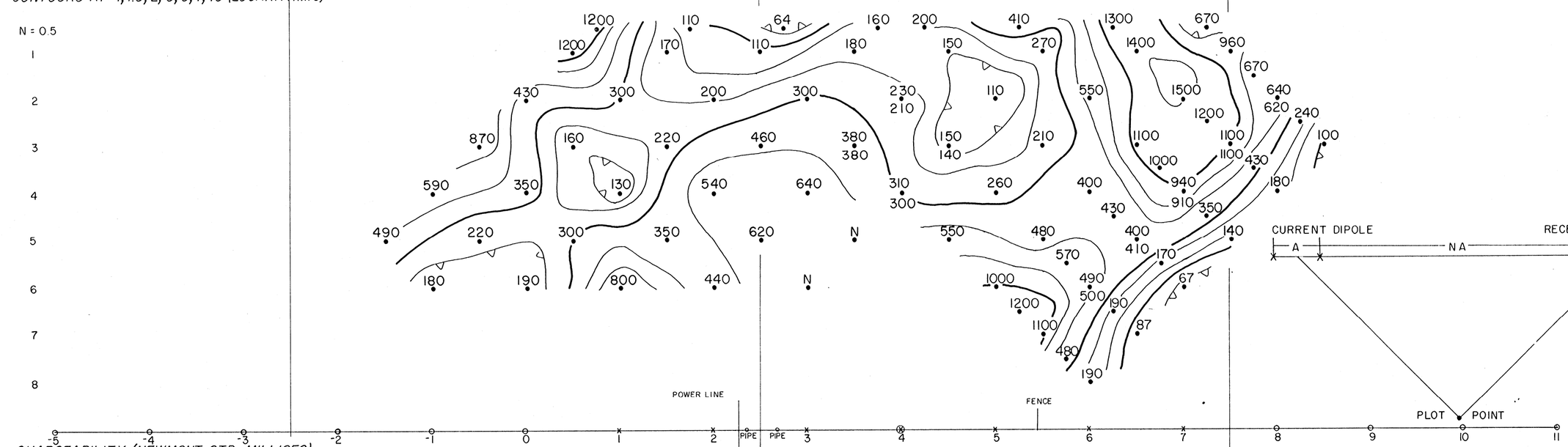
PSEUDO-SECTION OF LINE 38 N

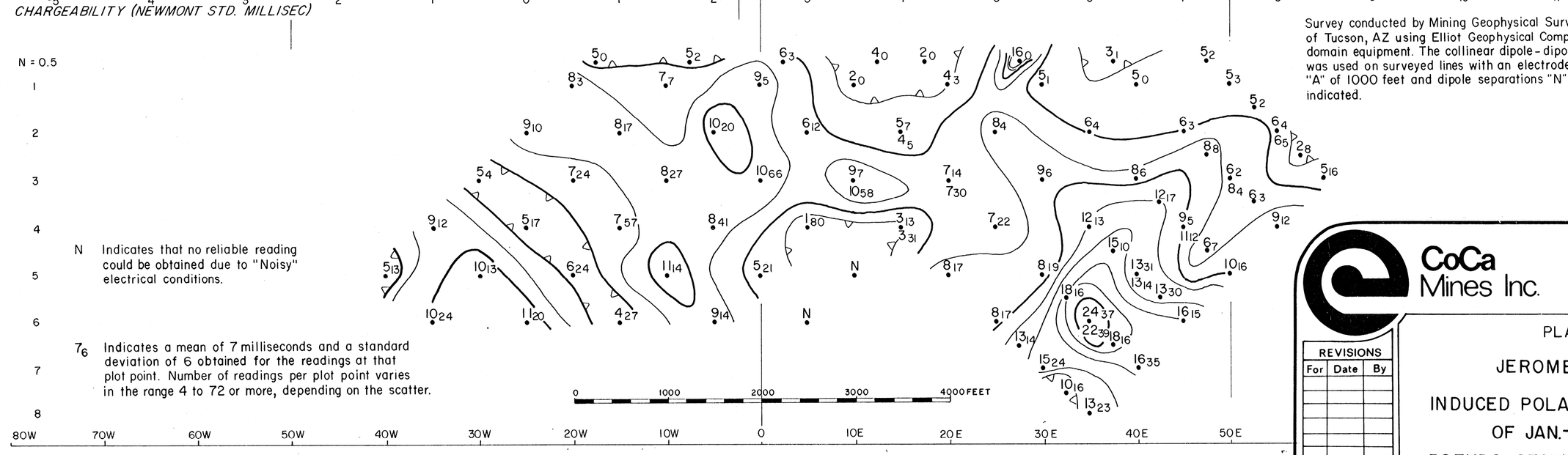
YAVAPAI COUNTY ARIZONA

for: RAR date: 4·5·82 by: TRL serial no. 1307

LINE 42N







Survey conducted by Mining Geophysical Surveys, Inc. of Tucson, AZ using Elliot Geophysical Company time domain equipment. The collinear dipole-dipole array was used on surveyed lines with an electrode spacing "A" of 1000 feet and dipole separations "N" as indicated.

N Indicates that no reliable reading could be obtained due to "Noisy" electrical conditions.

7_6 Indicates a mean of 7 milliseconds and a standard deviation of 6 obtained for the readings at that plot point. Number of readings per plot point varies in the range 4 to 72 or more, depending on the scatter.

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REVISIONS		
For	Date	By

PLATE 5c

JEROME PROJECT

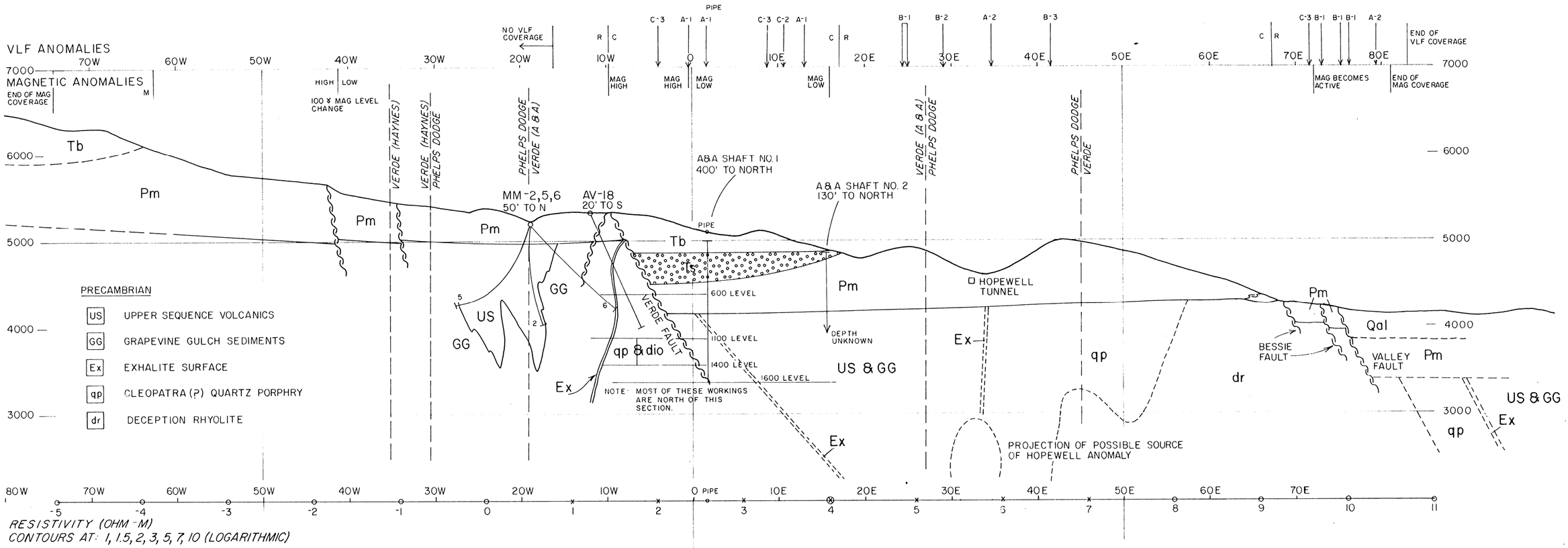
INDUCED POLARIZATION SURVEY OF JAN.-FEB., 1982

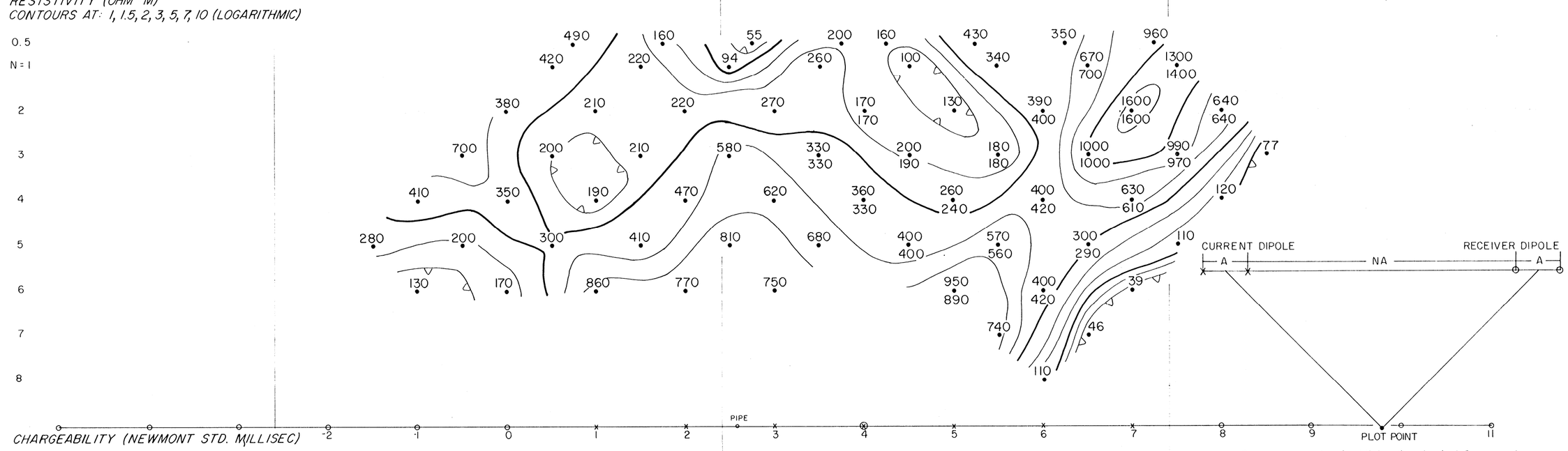
PSEUDO-SECTION OF LINE 42N

YAVAPAI COUNTY ARIZONA

for: RAR date: 4·5·82 by: TRL serial no. 1306

LINE 46N





Survey conducted by Mining Geophysical Surveys, Inc. of Tucson, AZ using Elliot Geophysical Company time domain equipment. The collinear dipole-dipole array was used on surveyed lines with an electrode spacing "A" of 1000 feet and dipole separations "N" as indicated.

7_6 Indicates a mean of 7 milliseconds and a standard deviation of 6 obtained for the readings at that plot point. Number of readings per plot point varies in the range 4 to 72 or more, depending on the scatter.

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REVISIONS		
For	Date	By

PLATE 5b

JEROME PROJECT

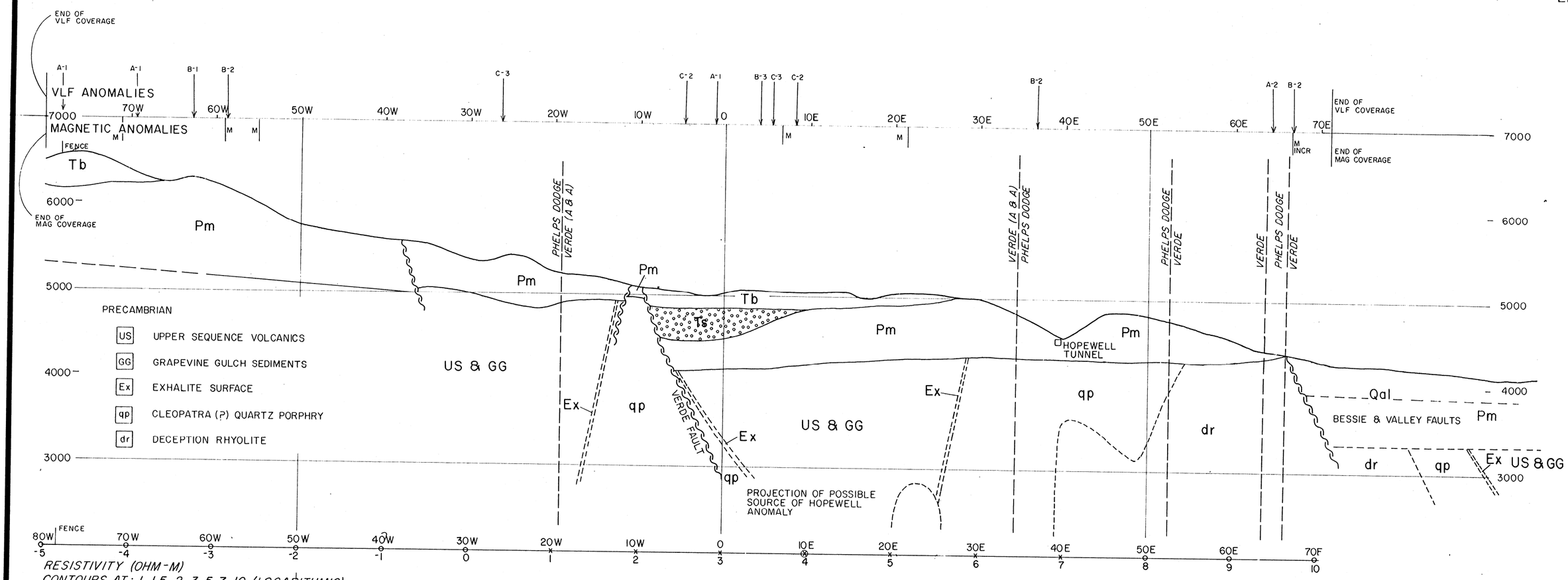
INDUCED POLARIZATION SURVEY OF JAN.-FEB., 1982

PSEUDO-SECTION OF LINE 46N

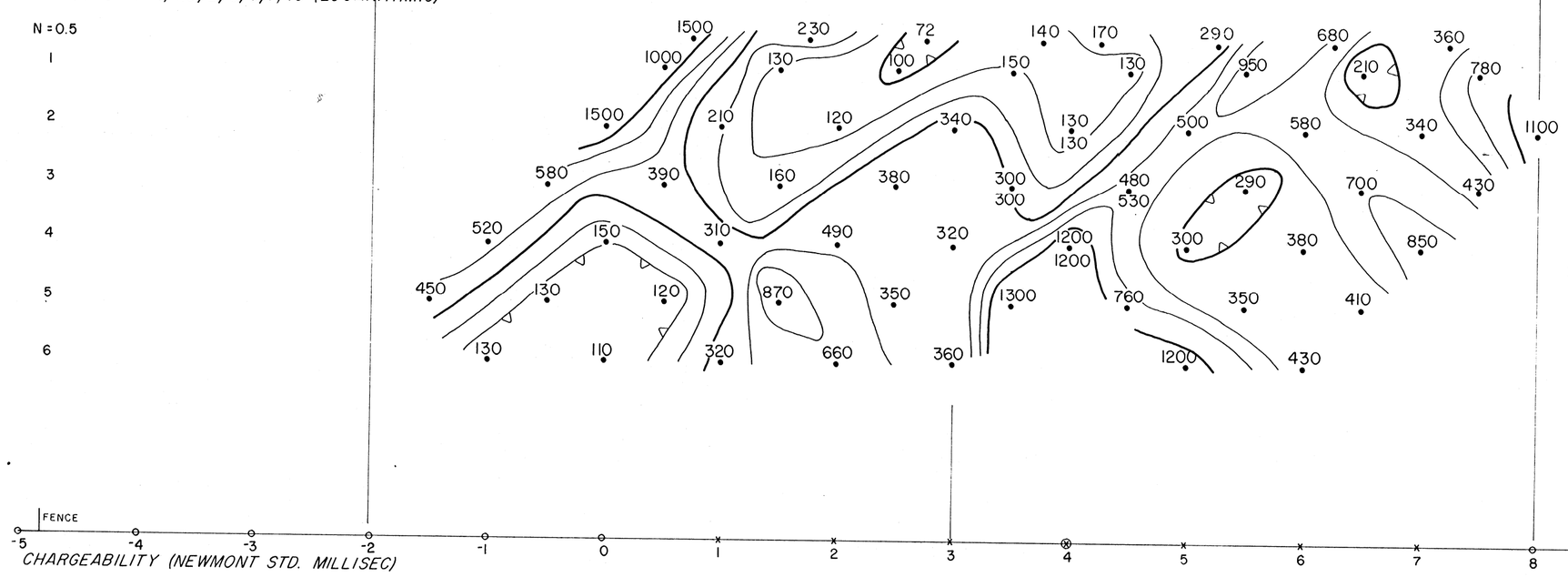
YAVAPAI COUNTY ARIZONA

for: RAR date: 4-5-82 by: TRL serial no. 1305

LINE 54N

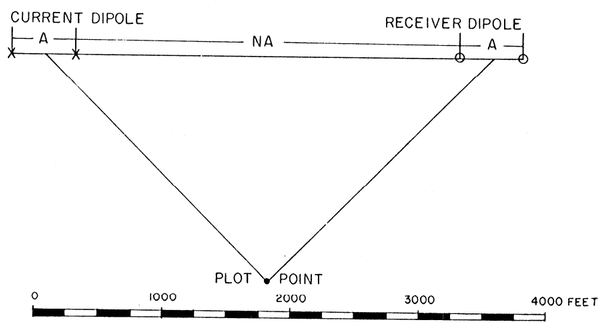


RESISTIVITY (OHM-M)
CONTOURS AT: 1, 1.5, 2, 3, 5, 7, 10 (LOGARITHMIC)



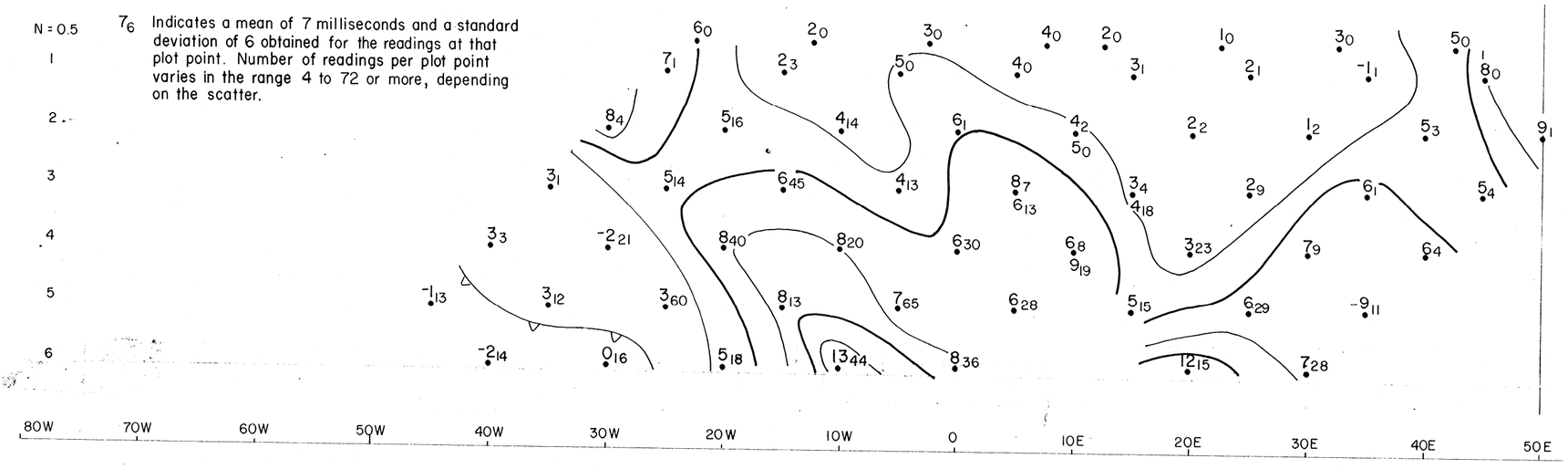
CHARGEABILITY (NEWMONT STD. MILLISEC)

Survey conducted by Mining Geophysical Surveys, Inc. of Tucson, AZ using Elliot Geophysical Company time domain equipment. The collinear dipole - dipole array was used on surveyed lines with an electrode spacing "A" of 1000 feet and dipole separations "N" as indicated.



N = 0.5

7_6 Indicates a mean of 7 milliseconds and a standard deviation of 6 obtained for the readings at that plot point. Number of readings per plot point varies in the range 4 to 72 or more, depending on the scatter.



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REVISIONS		
For	Date	By

PLATE 5a

JEROME PROJECT

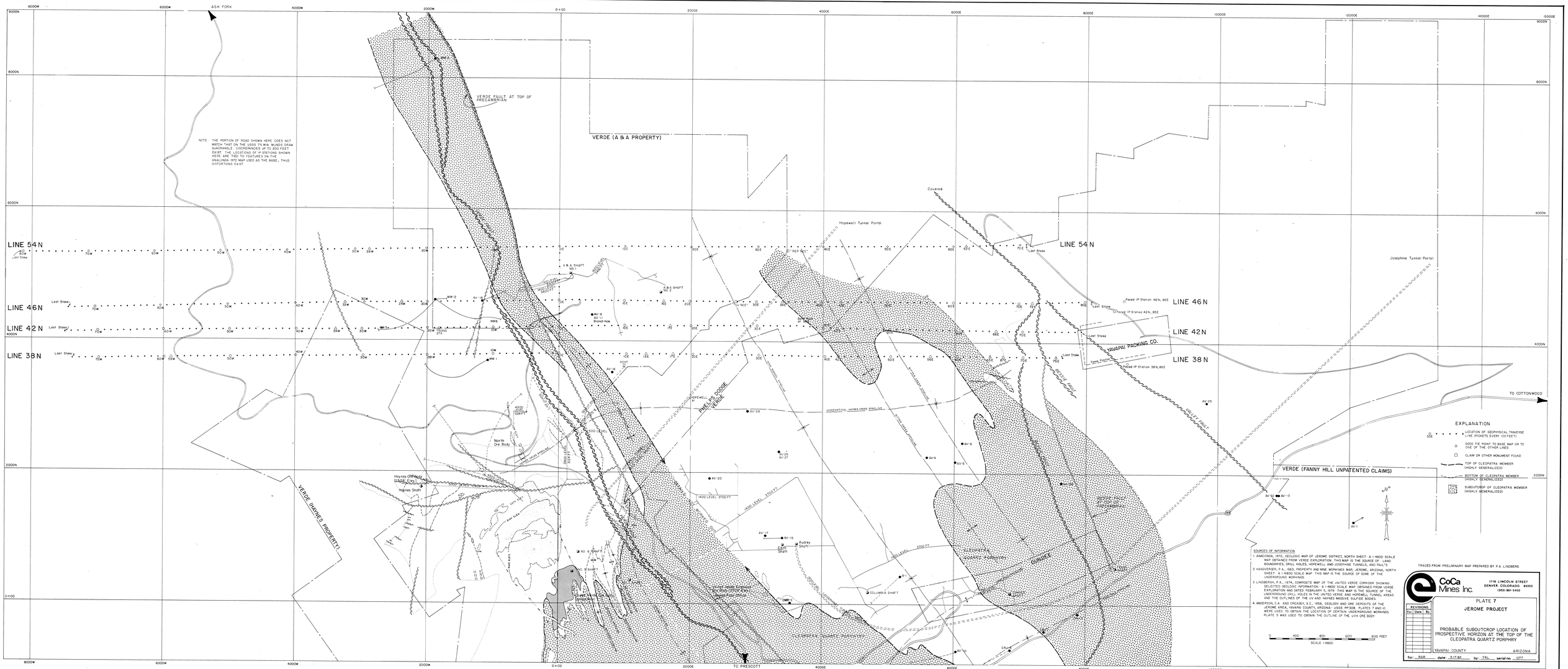
INDUCED POLARIZATION SURVEY
OF JAN.-FEB., 1982
PSEUDO-SECTION OF LINE 54 N

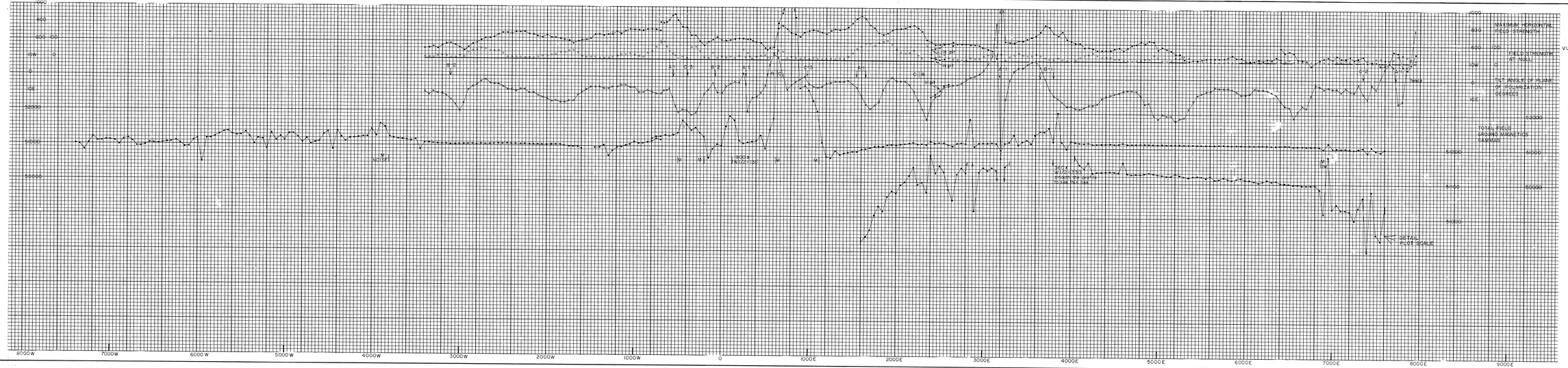
YAVAPAI COUNTY ARIZONA

for: RAR date: 4·5·82 by: TRL serial no. 1304

Plate 7

CHAMPION CLASP No. 87 8¾ x 11⅛


ASH FORK
TO PRESCOTT
TO COTTONWOOD
VERDE (A & A PROPERTY)
VERDE (HAYNES PROPERTY)
VERDE (FANNY HILL UNPATENTED CLAIMS)
YAVAPAI PACKING CO.
LINE 54 N
LINE 46 N
LINE 42 N
LINE 38 N
VERDE FAULT AT TOP OF PRECAMBRIAN
NOTE: THE PORTION OF ROAD SHOWN HERE DOES NOT MATCH THAT ON THE USGS 7.5 MIN. WUNDS DRAW QUADRANGLE. DISCREPANCIES UP TO 200 FEET EXIST. THE LOCATIONS OF IP STATIONS SHOWN HERE ARE TIED TO FEATURES ON THE ANACONDA 1972 MAP USED AS THE BASE, THUS DISTORTIONS EXIST.
Hopewell Tunnel Portal
Josephine Tunnel Portal
Covered
Packed IP Station 46N, 86E
Packed IP Station 42N, 85E
Packed IP Station 38N, 86E
Last Stake
A & A SHAFT NO. 1
A & A SHAFT NO. 2
AV-18
AV-16
Branch hole
MM-2
MM-5
MM-6
MM-1
AV-26
AV-28
AV-25
AV-20
AV-27
AV-6
AV-4
AV-5
AV-17
AV-15
AV-12
AV-13
AV-1
B1
CR-1
OMP-1
North Ore Body
Haynes Open Pit
Haynes Shaft
NO. 6 SHAFT
NO. 7 SHAFT
Audrey Shaft
Earl Shaft
COLUMBIA SHAFT
HOPEWELL
PHELPS DODGE
VERDE
DUNDEE
CLEOPATRA
CLEOPATRA QUARTZ PORPHYRY
HOPEWELL FAULT
VALLEY FAULT
BRIDGE FAULT
HYPOTHETICAL HAYNES CROSS SYNCLINE
1400 LEVEL 3700 FT
1500 LEVEL 3700 FT
1600 LEVEL 3700 FT
1700 LEVEL 3700 FT
EXPLANATION
LOCATION OF GEOPHYSICAL TRAVERSE LINE (POKETS EVERY 100 FEET)
SOOO THE POINT TO BASE MAP OR TO ONE OF THE OTHER LINES
CLAIM OR OTHER MONUMENT FOUND
TOP OF CLEOPATRA MEMBER (HIGHLY GENERALIZED)
BOTTOM OF CLEOPATRA MEMBER (HIGHLY GENERALIZED)
SUBOUTCROP OF CLEOPATRA MEMBER (HIGHLY GENERALIZED)
SOURCES OF INFORMATION
1. ANACONDA, 1972, GEOLOGIC MAP OF JEROME DISTRICT, NORTH SHEET. A 1:4800 SCALE MAP OBTAINED FROM VERDE EXPLORATION. THIS MAP IS THE SOURCE OF: LAND BOUNDARIES, DRILL HOLES, HOPEWELL AND JOSEPHINE TUNNELS, AND FAULTS
2. HANDVERGER, P.A., 1963, PROPERTY AND MINE WORKINGS MAP, JEROME, ARIZONA, NORTH SHEET. A 1:4800 SCALE MAP. THIS MAP IS THE SOURCE OF SOME OF THE UNDERGROUND WORKINGS.
3. LINDBERGH, P.A., 1974, COMPOSITE MAP OF THE UNITED VERDE CORRIDOR SHOWING SELECTED GEOLOGIC INFORMATION. A 1:4800 SCALE MAP OBTAINED FROM VERDE EXPLORATION AND DATED FEBRUARY 5, 1974. THIS MAP IS THE SOURCE OF THE UNDERGROUND DRILL HOLES IN THE UNITED VERDE AND HOPEWELL TUNNEL AREAS AND THE OUTLINES OF THE UV AND HAYNES MASSIVE SULFIDE BODIES.
4. ANDERSON, C.A. AND CREASEY, S.C., 1958, GEOLOGY AND ORE DEPOSITS OF THE JEROME AREA, YAVAPAI COUNTY, ARIZONA: USGS PP 308. PLATES 7 AND 10 WERE USED TO OBTAIN THE LOCATION OF CERTAIN UNDERGROUND WORKINGS. PLATE 5 WAS USED TO OBTAIN THE OUTLINE OF THE UVX ORE BODY.
0 400 800 1200 1600 FEET
SCALE 1:4800
TRACED FROM PRELIMINARY MAP PREPARED BY P.A. LINDBERG
CoCa Mines Inc.
1776 LINCOLN STREET
DENVER, COLORADO 80203
(303) 861-5400
PLATE 7
JEROME PROJECT
PROBABLE SUBOUTCROP LOCATION OF PROSPECTIVE HORIZON AT THE TOP OF THE CLEOPATRA QUARTZ PORPHRY
YAVAPAI COUNTY
ARIZONA
REVISIONS
For: RAR date: 3-17-82 by: TRL serial no. 1277



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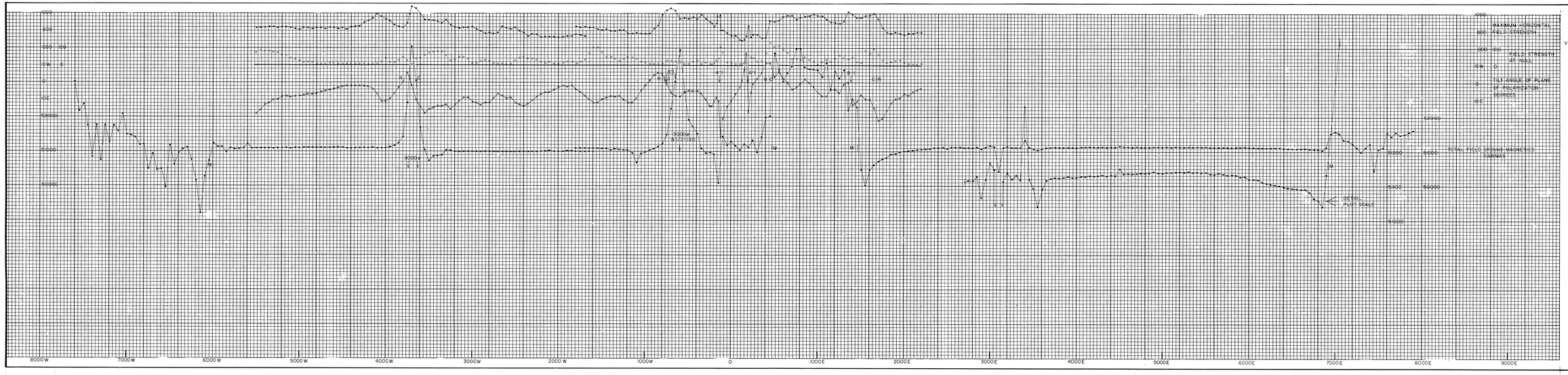
No.	Date	By

PLATE 6a
JEROME PROJECT
MAGNETIC AND VLF PROFILES
LINE 38 N
YAVAPAI COUNTY ARIZONA

for RAR date 3-31-82 by TRL serial no. 1296



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DENVER, COLORADO 80203
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REVISIONS
Fr: Date: By:

PLATE 6c

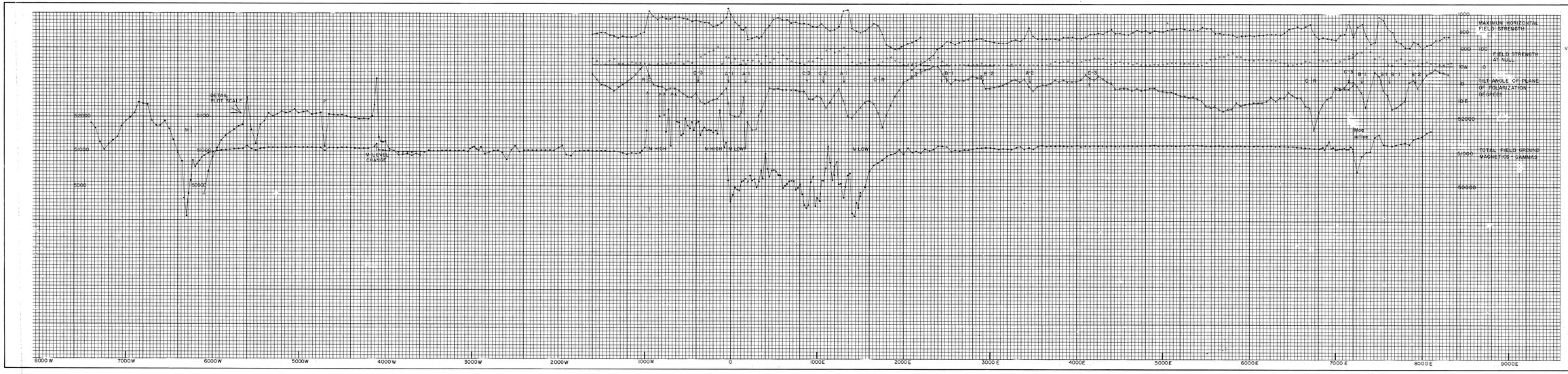
JEROME PROJECT

MAGNETIC AND VLF PROFILES

LINE 42 N

YAVAPAI COUNTY ARIZONA

for RAR date 3-31-82 by TRL serial no. 1295



CoCa Mines Inc.

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REVISION
No. Date Ty.

PLATE 46

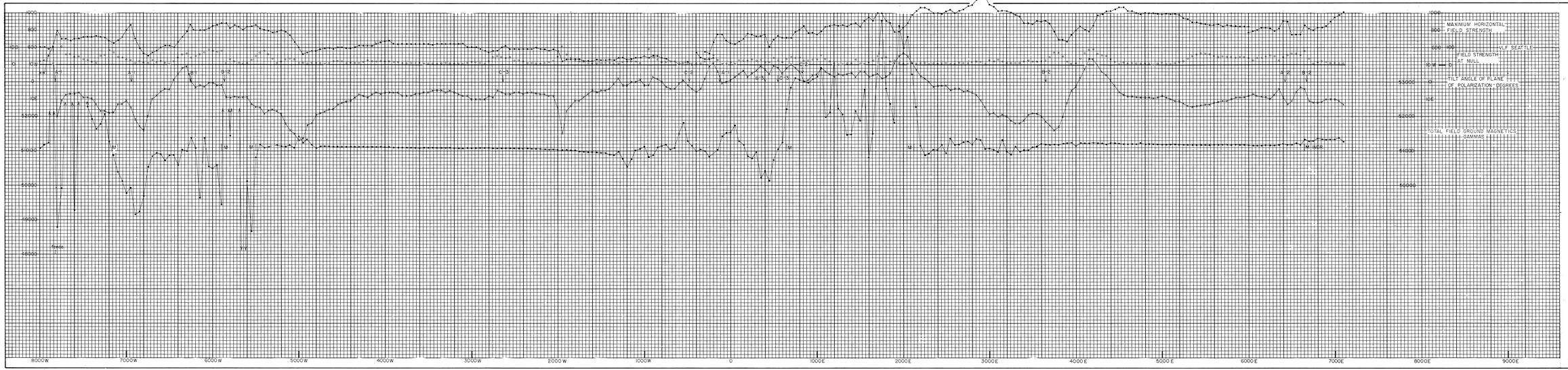
JEROME PROJECT

MAGNETIC AND VLF PROFILES

LINE 46N

YAVAPAI COUNTY ARIZONA

for RAR date 3.31.82 by TRL serial no. 1294



CoCa Mines Inc

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DENVER COLORADO 80203
(303) 861-5400

REVISIONS
Tel. Dwn. Ck.

PLATE 6a

JEROME PROJECT

MAGNETIC AND VLF PROFILES

LINE 54N

YAVAPAI COUNTY ARIZONA

for HAR date 3-31-82 by TRL serial no. 1293

Nicon

MEMORANDUM

DATE: December 20, 1983

TO: File

cc: HJM
P.A. Lindberg

FROM: R. A. Rivera

SUBJECT: Showing of Copper Minerals in the Haynes Area, Jerome

While investigating an exposure of Precambrian rocks mapped as rhyolite breccia by Norman, an extensive area (250x50 ft) containing small to moderate amounts of copper carbonate minerals was noted. These minerals stained both Precambrian rhyolites(?) and, in a few places, Cambrian sandstone. The area is centered at 1700N, 2900W (UV coordinates) about 800 ft due west of the Haynes Shaft.

Examination of Paul Handverger's "Haynes Mine Miscellaneous" file disclosed sketches dated 1949 indicating small surface workings at the site of the copper showing. Evidence for these workings still exists although the portal of a 250 ft adit known to be present nearby was not found.

Faulting associated with the Haynes fault nearby may be responsibile for the presence of the exotic copper minerals at this site. The ultimate source, however, is unlikely to be any of the known deposits of the area. (An upward continuation of the Haynes massive sulfide body is a possible exception.)

This copper showing is considered quite significant. It lends support to the idea that a small copper deposit, probable different from the source of the South A&A anomaly, lies somewhere nearby. Such a deposit would explain the unusually strong flow of cupriferous waters out of Haynes Gulch during wet periods.

Unfortuantely, our east-west I.P. survey lines could not be extended into this highly prospective area due to the presence of pipes, wires and a quasi-museum nearby which would have interfered with the readings. Anaconda's 1974 I.P. survey (Line 27) did cross the showing, however, in a north-south direction. Very slightly anomalous values were obtained indicating either that the target is of a small size or that the copper has migrated a substantial distance.

Study of the unpublished records on the Haynes ore pipe shows it to have had a remarkably high gold content, at least on the 3000 level. Assays of over 1 oz/s.ton are several. Thus, the small size expectation is not necessarily a draining attribute of the target.

The Haynes magnetic anomaly mentioned in the last progress report (10/30/83) has not yet been surveyed into the immediate area of the copper showing. Its closest position so far is on Line 22N at Station 3340W. If it should maintain its SSE trend for another 500 ft it will pass only 300 ft west of the copper showing.

More work is warranted on this new (for us) target area. Such, consisting of further prospecting, magnetic and VLF surveys, will be undertaken during early 1984. A short drill hole may be invested if results warrant.

Robert A. Rivera

R. A. Rivera

RAR:njb

NICON

MEMORANDUM

DATE: August 27, 1983

TO: H. J. Matheson

cc: TEC CFB JCM PJM LWF P.A. Lindberg

FROM: R. A. Rivera

SUBJECT: Progress Report for July, 1982-August 27, 1983, Jerome Project

1st Progress Rpt

GENERAL AND INTRODUCTION

The exploration situation at Jerome was brought to the attention of CoCa Mines on April 10, 1981 upon the relinquishment by Anaconda Mining Company of their lease with Verde Exploration Ltd. on a large portion of the district. Following field examinations on April 28, 1981 and again on August 17-21, 1981, an agreement was executed between CoCa and Verde covering a small portion of Verde's extensive holdings in the district (the A&A lands). This agreement operated during the period December 7, 1981 to March 11, 1982.

Geophysical work (I.P.) conducted by CoCa during the short lived agreement on the A&A lands resulted in the identification of two exceptionally fine exploration targets at distances less than 1 mile away from the two bonanza ore deposits which made the district famous. Unfortunately, the shallow portions of both targets were found to be clearly off the A&A lands held under lease. The A&A agreement was thus terminated while negotiations continued for an agreement covering additional lands where one of the two targets is located (the Hopewell Target).

Although it appeared that agreement had been reached on basic terms on April 20, 1982, such proved not to be the case. Finally, verbal agreement on terms was reached in February 1983 culminating in a new written agreement dated July 1, 1983 under which we are now operating. Unfortuantely, while a large portion of Verde's lands are thus now under lease to CoCa, the A&A lands,possibly containing deeper portions of the targets, have been separated form the package and are now believed to be held by Newmont under lease with Verde. Verde still retains large acreages not currently leased to anyone but for which it is actively seeking sponsors. This includes the Gossan zone above the UVX orebody recently dropped by Phelps Dodge Corp.

Inquiries made during 1981 and 1982 to Phelps Dodge,on whose lands parts of both identified targets lie,have thus far failed to result in an agreement. Efforts continue to add a portion of Phelps Dodge's large land position in Jerome to the CoCa Mines project area.

A large and comprehensive report on the district, dated June, 1982, was generated as part of CoCa's program. This progress report is intended to supplement the June, 1982 report. It will begin a series of short progress reports to be submitted during the course of the busy part of the 1983-84 program.

PLANNING, SCHEDULING AND MANPOWER

A work plan involving an expenditure of $0.5 to 0.8 million over an 18 month period was proposed on March 31, 1982. This plan was designed to conclusively test the two identified targets and involved completion of the geophysical surveys and six deep drill holes. The March 31, 1982 plan has now been overwhelmed by events, principally the requirement in the new Verde agreement for two drill holes in an area remote from the Hopewell Target (the Fanny Hill area).

The most recent of a series of permutations on the Jerome work plan was submitted on August 10, 1983 and is the plan currently being followed. This $0.25 million program principally involves two drill holes (only one of which tests the Hopewell Target area) and the completion of the geophysical survey started in early 1982.

Geologic data compilation work was started (on a part-time basis) by Paul Lindberg in April 1983 after a verbal agreement between Verde and CoCa had been reached in February, 1983. An additional three men were mobilized on or about August 11, 1983 as the level of work intensified. It is currently anticipated that field work under the work plan will extend into January, 1984.

Currently employed on the project are the following:

R. A. Rivera, Project Manager
Paul A. Lindberg, Consulting Geologist
Peter J. Miller, Project Geologist
Donald Metzler, Jr., Geologist
Bobby Coombs, Record Copying Clerk (part-time temp.)

Part-time, temporary positions are currently open for a laborer (re-organizing core boxes) and a draftsman.

Verde has no full time representative on the project at present; but, both Dale Armstrong and Paul Handverger are serving in this capacity on an irregular basis.

The CoCa Mines crew is domiciled in the home of Paul Handverger, rented for that purpose until his expected return from Alaska in January 1984.

DRILLING

CoCa Mines' first hole (CM-1) is currently in progress in the Fanny Hill unpatented claim area. The hole was begun on August 16, 1983, just ahead of the August 20, 1983 deadline in the Verde agreement. Approximate collar coordinates are 600S, 13,300E at an elevation of 4350 feet.

In an attempt to minimize drilling costs, two separate drilling contractors were commissioned for this job. The Maxfield-Harris Drilling Company started the hole and drilled to 525 ft in barren formation using down-the-hole hammer equipment. This drill demobilized on August 20, 1983 and was replaced on August 23 by a Boyles Brothers diamond drill.

To date, Boyles Brothers has installed 4 inch casing to 525 ft and has advanced the hole to 551 feet. Based on formation encountered in the core, hole CM-1 will have to be drilled to a minimum of 800 feet to satisfy the terms of the Verde agreement. Given encouragement, the hole will be drilled to a greater depth as required.

Unless some difficulty is presented in removing the casing, it appears that the attempt to cut costs by using a rotary drill for the first part of the hole will be a success.

The site for hole CM-1 was selected by P. A. Lindberg on the basis of mercury soil geochemical anomalies discovered by P. Handverger in 1981. Induced Polarization surveys run by Anaconda in 1974 suggested the presence of Precambrian rocks at anomalously shallow depth in this area and such has been confirmed by the drilling to date (expected to be at 600 ft). A report with maps and cross sections is in preparation describing the details of the drill site selection.

The selected drill site required the construction of approximately 3400 feet of new road on federal lands. Access to the lands required use of approximately 1800 feet of existing trails on private lands east of the Fanny Hill claims. Local contractor, Steve Roer, was commissioned to construct the road, starting and completing the work on August 12, 1983 (3 hours!). Currently water bars are under construction using a motor-grader as subsequently required by the U.S. Forest Service.

GEOLOGY

A working set of 25, 1"=400' scale cross sections has been completed by P. A. Lindberg illustrating the salient features of the geology of the northern part of the Jerome District. These sections, constructed with diverse orientations, will be used to complete the construction of five or more detailed level plans of the area at 1"=200' scale. Once this is completed, a complete set of E-W cross sections will be constructed along the geophysical lines showing projections of information into the largely untested area of the Hopewell and South A&A anomalies.

GEOPHYSICS

The 1983 geophysical program involves completion of the I.P. survey started in January 1982 for the full definition of the South A&A and Hopewell anomalies. The status of the total (1982-83) line picketting and geophysical surveying program is detailed on the attached tabulation. This is summarized as follows:

Item	Planned	Completed	Remaining
No. of lines	10	5	5
Picketting(mi.)	34.9	16.6	18.3
IP (mi.)	33.4	11.9	21.5
CSAMT (mi.)	?	0	?
MAG (mi.)	34.9	13.8	21.1
VLF (mi.)	34.9	11.7	23.2

While magnetic and VLF coverage is proceeding apace with line picketting, the IP survey is not now scheduled to begin until mid-September due to delays in obtaining suitable crews during this busy assessment work season. Zonge Research Engineering Organiziation of Tucson (ZERO) has been selected to carry out the IP surveys. Multi-frequency data will be collected over a range from 0.125 to 8Hz in an effort to resolve effects due to fence lines, etc. from legitimate anomalous readings.

Agreement has been obtained from Phelps Dodge allowing access to their lands during this exercise so that lines can be laid out on a systematic basis (See memo to file, 8/17/83).

PERMITTING

Hole CM-1 lies on Federal lands administered by the U.S. Forest Service (Prescott National Forest). Paul Lindberg met in the field with Ranger Wes Girard on August 8, 1983 and was given what he thought was verbal approval to proceed with our road construction and drilling plan. The written plan, thought to be a mere formality, was not submitted until August 15, 1983 <u>after</u> the road was completed (see memo to file dated 8/22/83).

Unfortunately, Ranger Girard, upon visiting the site on August 19, 1983, was surprised and annoyed to find that most of the work had been completed without formal approval being given. Currently, tempers have cooled and CoCa has agreed to make modifications to the road as demanded by the USFS. It is anticipated that our permit will be duely approved upon inspection of the modifications by the USFS by month's end. The whole affair is being treated by Girard as an honest misunderstanding.

LAND

Clarification of title to the mineral estate of three patented mining claims internal to the Verde lands leased to CoCa have been requested from Commonwealth Title Agency of Prescott. Once the owners of the mineral estate on these unsecured parcels is known, modest offers to lease will be made. The claims in question are shown as "Yavapai Packing" and "Dundee" on our current land maps.

Study of assessor's records has revealed many encumbrances on the surface estate of Verde lands leased to CoCa. Unfortunately none of these is mentioned in Exhibit A of the Verde-CoCa agreement. Attempts are being made to plot all such encumbrances onto a new set of 1"=400' scale land maps being drafted as time permits.

The 1"=2000' scale generalized land map of the Jerome Project has been revised to show CoCa's present lease hold position and the demise of Occidental Mineral's project in the area. Additional record checking will be carried out as time permits which will result in a more comprehensive update of this important map. Consideration is being given to making a pair of such maps in the next revision to more clearly illustrate separate surface and mineral ownerships.

STORAGE AND FIELD OFFICE

CoCa is occupying the Verde Exploration office buildings in Jerome (three buildings). These are being refurbished by replacement of broken windows, repair of leaking roofs and painting of exposed wooden trim, etc. as required to provide adequate security and a suitable measure of professional appearance to these old mine offices. A large number of new core racks is under construction to properly store core left lying about in huge piles by previous leasors of the property.

OLD RECORDS

A copy machine has been rented on a short term basis for the purpose of making copies of exploration records found in various places in the Verde offices. This effort will result in an extensive reconstruction of Verde's files covering exploration in the district since 1947.

Contact has been made with Anaconda with a request for drilling records from their extensive program in the 1970s and early 1980s. Very few such records appear to have been left with Verde. Anaconda has responded with a very generous offer to show us their entire Jerome files (24 boxes full!). Paul Lindberg and the writer plan to visit the Anaconda office in Denver later on in the year to fully evaluate the information and to obtain legible copies of key data and maps.

R. A. Rivera/njb

R. A. Rivera

RAR:njb

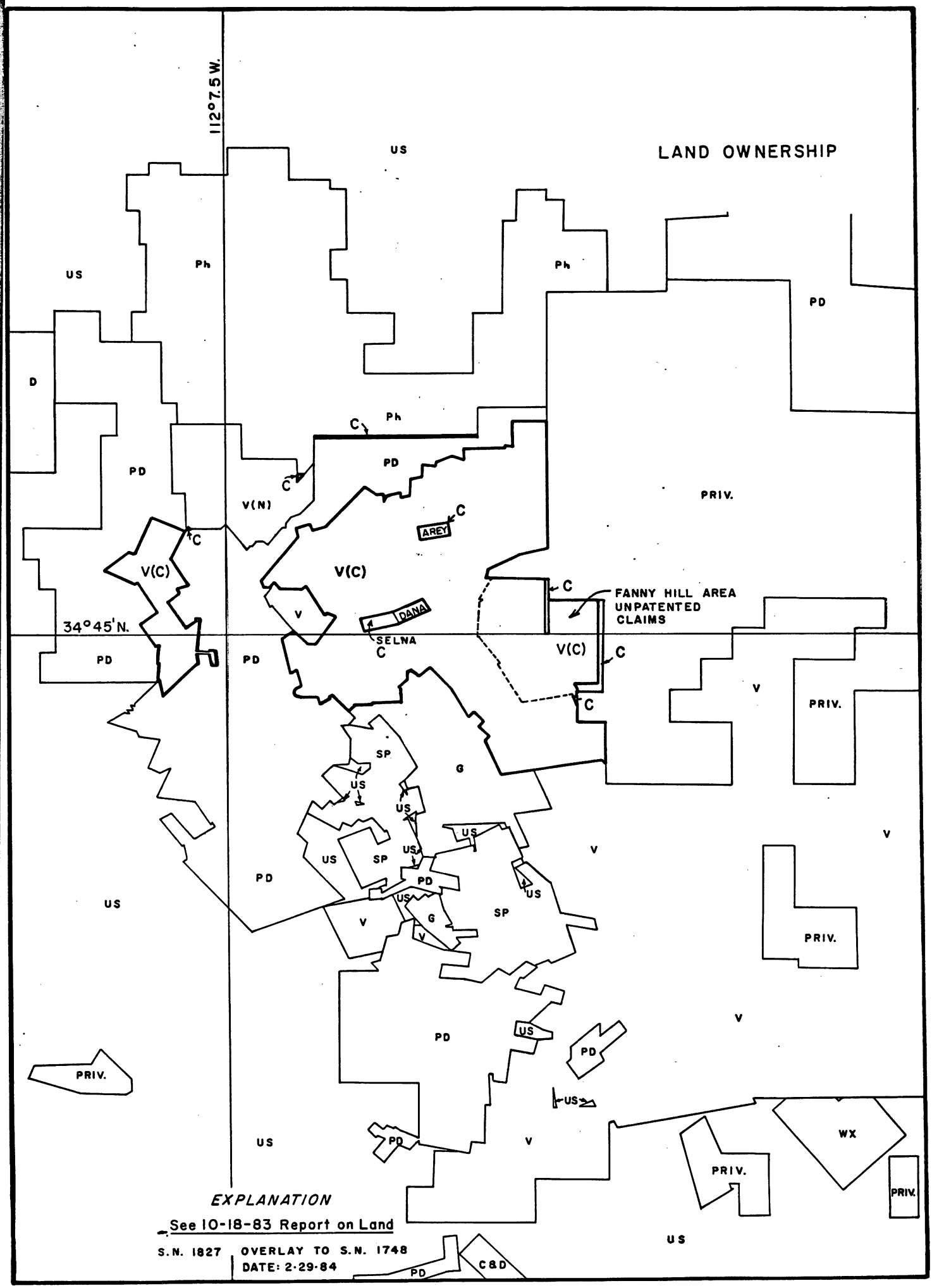
Attachment: Status Report on Geophysical Coverage

STATUS REPORT ON GEOPHYSICAL COVERAGE
JEROME PROJECT, ARIZONA

Date: August 27, 1983

Line No.	Picketting of Stations		Geophysical Coverage			
	Planned	Installed	IP	CSAMT	MAG	VLF
81N	29E-108E:7,900	29E-108E:7,900	None planned	None planned	-	29E-108E:7,900
54N	80W-71E:15,100	80W-71E:15,100	80W-70E:15,000	-	80W-71E:15,100	80W-71E:15,100
46N	74W-81E:15,500	74W-81E:15,500	74W-86E:16,000	-	74W-81E:15,500	16W-83E:9,900
42N	75W-135E:21,000	75W-135E:21,000	75W-85E:16,000	-	76W-135E:21,100	55W-67E:12,200
38N	74W-135E:20,900	74W-135E:20,900	74W-86E:16,000 (Ran twice)	-	74W-135E:20,900	34W-135E:16,900
34N	74W-134E:20,800	74W-0:7,400	-	-	-	-
30N	74W-134E:20,800	-	-	-	-	-
26N*	74W-134E:20,800	-	-	-	-	-
22N*	74W-134E:20,800	-	-	-	-	-
18N*	74W-134E:20,800	-	-	-	-	-
Totals 10 lines	184,400 ft (34.9 mi.)	87,800 ft (16.6 mi.)	63,000 ft (11.9 mi.)	0	72,600 ft (13.8 mi.)	62,000 ft (11.7 mi.)

* These lines may not be required


LAND OWNERSHIP
112°7.5 W.
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SELNA
FANNY HILL AREA
UNPATENTED
CLAIMS
PRIV.
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G
WX
C&D
EXPLANATION
See 10-18-83 Report on Land
S.N. 1827
OVERLAY TO S.N. 1748
DATE: 2-29-84

MEMORANDUM

DATE: December 19, 1983

TO: File-Jerome Geology

cc: HJM
P.A. Lindberg
C.F. Meyer

FROM: R. A. Rivera

SUBJECT: Stratigraphic Position of CM-1/Hopewell Anomaly

A discussion was held on December 14, 1983 in the Jerome office attented by C. F. Meyer, P. A. Lindberg, Don Metzler and the writer at which Chuck Meyer presented the results of his study of 18 thin sections from hole CM-1 in the Fanny Hill area. These results suggest a strong possibility (but not a certainty) that CM-1 intersected a quartz feldspar porphyry (rhyolitic) fragmental unit equivalent to the Cleopatra unit which is stratigraphic footwall to the two main ore deposits at Jerome. Lines of evidence are:

1) The rock is weakly to moderately altered (sericite and carbonate, but not heavily chloritized). Such alteration is unusual in Upper Sequence fragmentals which are stratigraphically hanging wall to the known ore deposits.

2) Spherulitic textures, common in the Upper Sequence, are conspicuously absent in the thin sections studied (with one exception).

3) Fragmental rocks are rare in the Deception Rhyolite unit which lies stratigraphically below the Cleopatra unit in the main part of the camp three miles away.

A consequence of this interpretation, together with P. A. Lindberg's belief that CM-1 is placed on the east limb of an anticlinorium, is that the logical next step in evaluating the Fanny Hill area by drilling is to step out about 1000 ft toward the east. The valley fault is a constraint on the distance of this step out.

The weak alteration at the top of the Precambrian intercept in CM-1 is believed to represent hydrothermal activity (but alteration by weathering in Cambrian time cannot be ruled out). If it is due to hydrothermal activity, an exploration target of modest quality is present in the area. Thus, it is felt justified to invest in the second Fanny Hill drill hole as required in the Verde-CoCa agreement.

It was stated that CoCa's current policy at Jerome is evaluation of known targets. Although the future may bring changes, our policy is not to carry out systematic prospecting operations on the Cleopatra/Upper Sequence surface by deep drilling.

HOPEWELL TARGET

There was some discussion of the Hopewell geophysical target as defined by the 1983 I.P. survey. This addressed:

1) The records of pyritic rocks having been intersected in holes drilled from the 1400 level (UVX) in 1917 and why these clues were not followed up by the mine geologists and operators in the 1930s.

2) The nature of these rocks. (Quartz porphyry and diorite according to Norman; Upper Sequence according to Anaconda's maps.)

3) The presence of weak exhalite type horizons in hole AV-27 at the edge of the anomaly. These are thought to be in the Upper Sequence.

4) The presence of the anomaly at the worse possible location from the standpoint of depth to the Cleopatra surface based on the folding models developed by Anaconda (High School and Haynes synclines intersect).

5) The negative prognostications for the area of the anomaly based on study of core from 4672 ft hole AV-28 nearby. (The area is "an unattractive environment for massive sulfide deposition" memo Johnson to King, 1/15/80)

6) The anomaly's unexpected northerly strike.

7) The uncertainties relating to the validity of the anomaly in the first place, somewhat belayed by the aforementioned pyrite having been found in drill holes near the area.

It was concluded that a reevaluation of the geologic data in the area is in order, including a careful relogging of AV-27. It was observed that if Anaconda's original folding models are correct, the presence of pyrite to the extent necessary to cause the anomaly was a favorable sign for a target at greater depth. It was also observed that the favorable horizon at the top of the Cleopatra unit could be brought into the anomalous area by "tightenning up" the syncline model including the overturning of its eastern limb. Clearly to this point, the geological evidence suggests that very steep dips may be present and that angle drilling, unfortunately, may be required to properly intersect the stratigraphic pile in order to determine the significance of the anomaly in the event that ore is not encountered.

On the whole, the opinion that the Hopewell anomaly could represent a United Verde type of deposit did not suffer a serious blow as a result of our discussions. Clearly a test drill hole east of AV-28 and NNE of AV-27 is the next order of business. Work continues on picking a precise site and orientation for this hole.

R. A. Rivera

Nicor

File: Jerome

MEMORANDUM

To; Mr. Robert A. Rivera, V. P. CoCa Mines

From: Paul A. Lindberg, Consulting Geologist

Date: November 17, 1982

Subject: CRITIQUE OF R. A. RIVERA'S JUNE 1982 REPORT "JEROME PROJECT, YAVAPAI COUNTY, ARIZONA: RESULTS OF EXPLORATION PROGRAM CONDUCTED IN JANUARY-FEBRUARY 1982

GENERAL COMMENTS;

The report under consideration is without doubt one of the most thoroughly researched and organized resume of information that the writer has seen in recent years. Most criticisms are of a minor nature and will be discussed individually. Overall, the review of past work, the execution of a bold Induced Polarization survey this year, and the presentation of a future exploration program are, in my opinion, the most exciting exploration news concerning the Arizona Precambrian since my first encounter in 1971.

The comments which follow can be classified into two categories; namely, those which clear up minor errors or differences of opinion, and to amplify certain aspects to clear up any ambiguities in the geological aspects of the problem. With respect to the latter statement is an included discussion about the expected size distribution of massive sulfides in a district. If the biggest one (i.e., the United Verde deposit) has already been found, why look for another of equal rank? Sangster (1) presented just such a case for a study of Japanese and Canadian massive sulfide deposits and a case will be presented that bears heavily on the philosophical approach for exploration in the Jerome District.

GEOLOGICAL COMMENTS:

On Page 7, last paragraph, it should read "Major vertical motion on the Verde and Haynes faults limits the exposure to the north and east..." Both of

these faults exhibit normal motion. The northern side of the Haynes fault dropped approximately 900 feet and terminates against the slightly older Verde fault which shows a displacement of about 1600 feet. The Hull fault has only a small offset, measured in one location at 45 vertical feet, and is of little overall importance in the district.

At the end of paragraph one on page 9, an added comment may clear up an ambiguity which easily crops up in discussions of where the massive sulfide bodies lie in the stratigraphic section. This can easily be cleared up with the concept of "Upper Sequence" and "Lower Sequence" rock units. The United Verde and United Verde Extension ore bodies are located at the precise top of the Cleopatra quartz porphyry and collectively they belong to the "lower Sequence" of rock units which exhibit extensive hydrothermal alteration. The "Upper Sequence" rocks are after the event and are essentially unaltered and are post-ore. Unfortunately, the quotation presented by Rivera from an article by Lindberg and Jacobsen (2) was attempting to fit the field classifications into the U.S.G.S. formation terminology. At the time our article was written, our employers (Anaconda and Phelps Dodge) wished us to remain as close to the U.S.G.S. nomenclature as possible. This choice was regretable, and will hopefully be cleared up in a future public report on the Jerome geology. In the re-classification of units the Cleopatra quartz porphyry would be the uppermost part of the Deception rhyolite series of flows and breccias, and the massive sulfide deposits would rest conformably on the upper surface of the Cleopatra. All other units, such as the numerous blister domes of rhyolite, rhyolite tuffs, and Grapevine Gulch sediments would lie in the "Upper Sequence" rocks. They are unaltered and post-ore in age.

In the top paragraph on Page 11 the degrees of enrichment between Precambrian and Tertiary ages are discussed. There had to be a Precambrian age enrichment blanket to those massive sulfide deposits exposed to the very old and nearly flat peneplain. But this blanket could not have exceeded much over 150 - 200 feet of depth before primary grades prevailed. A portion of this depth would also be occupied by barren gossan, so it is unlikely that much more

than about 100 feet of enriched blanket would exist purely beneath the old Precambrian unconformity. The situation that existed at the United Verde Extension ore body, however, was totally different from that at the United Verde deposit. The U. V. X. deposit was flanked by a major fault (Verde) and riddled with minor secondary breaks as well as being involved in a locallized un-roofing of the Paleozoic cover rocks. These fortuitous circumstances permitted localized and channeled surface and groundwaters directly onto the U. V. X. sulfide mass which was oxidized to a depth of more than 500 feet and enriched down to more than 900 feet below the Precambrian surface. Therefore, if future discoveries are located in sites similar to the U. V. X., deep oxidation and enrichment might be expected. But if the cap of Paeozoic cover is preserved over the discovery, then only limited oxidation and enrichment of the Precambrian type is to be expected.

As stated on the top of Page 12, faulting has played an important role in the district. It has also been the center of an old controversy. According to the prevaient ideas in vogue during the active life of the two ore bodies being mined in Jerome, the U.V.X. was the faulted-off top of the United Verde mass. To accomplish this fete, one <u>had</u> to invoke a Precambrian age fault, and this belief has clung tenaciously to the mythology of the district. Our work over the past decade shows no conclusive evidence of any motions in Precambrian time on the Verde, Bessie, Haynes, Hull or Warrior faults. The Precambrian age faults that have been recognized are pre-chlorite alteration in age and are related to the probable caldera faulting which created ore traps and exit sites for hydrothermal solutions venting onto the sea floor. The Precambrian age offsets are "healed" with chlorite and exhibit no clay or crushed rock debris. They are also oriented at high angles to the Tertiary faults which cut Precambrian and Paleozoic rocks alike. In my opinion, the only faults which cut the folded Precambrian strata and ore deposits are Tertiary in age. All Precambrian offsets are part of the volcanic pile and are pre-folding in age.

During the active life of the mines in Jerome it was honestly believed that The U.V.X. ore body was the down-faulted apex of the United Verde massive sulfide body. And at the time of the USGS Professional Paper 308, published in 1958, the role of folding was not understood and the timing of faulting was improperly interpretted. It was also about 10-15 years ahead of the time when these ores would be regarded as volcanogenic in nature. With the accumulated knowledge gained in underground work, and with subsequent detailed mapping, drilling, geophysical surveys, and fresh new concepts of the roles of folding, faulting, and volcanogenic ore emplacement, the Jerome District is better known now than ever before. From a strictly geological standpoint the enormous amount of virgin ground adjacent to 2 of the Southwest's most exciting ore bodies makes the Jerome area an extremely attractive mineral exploration target area.

In summary, the geological background presented in Rivera's report is concise and informative. There is a startling contrast between the exposed Precambrian and mined-out ore bodies to immediately adjacent, covered ground which is virtually unexplored. Geological projections are difficult under the Paleozoic cover, but not impossible. Drill hole data and fold projections allow certain permissable target situations where massive sulfide bodies might be located. The January-February 1982 induced polarization survey was conducted over such terrain and the results were highly encouraging.

GEOPHYSICAL COMMENTS;

The presentation by Rivera is thorough and well documented. The problems of excess noise levels and uncertainties in absolute value levels of the anomalous readings is explained in detail. I can only comment on the geological parameters which might enter into the interpretation of the readings.

I can visualize 3 possible explanations to account for the <u>South A & A Anomaly</u>. There are certain restraints in the location of this anomaly, such as old Mingus Mountain drill holes to the north of the target area, but basically the source area of the anomaly has to be located in totally unexplored ground.

Three geologically feasible sources could account for the induced polarization anomaly. These are:

a) Excess disseminated sulfides in the "Upper Sequence" Grapevine Gulch sediments. This is not normal and could be a post-ore expression of lingering weak hydrothermal activity in the cover rocks overlying a deeper massive sulfide body located at the top of the Cleopatra quartz porphyry. It is also possible that a higher level, or "nested" massive sulfide could lie stratigraphically above the Cleopatra Q.P. in the Grapevine Gulch rocks;

b) The source could be a mass of the upward continuation of the North ore body which has been sill-displaced away from the Cleopatra Q. P. by intrusive diorite;

c) An unrecognized fault, similar to and parallel with the Haynes fault, may have dropped the prospective Cleopatra Q. P. contact down to the north. Fold projections would allow for a very steep climb of the stratigraphic contact upward and to the north from the United Verde North ore body, but this stratigraphic target could have been faulted off which may account for the abrupt northward end to the induced polarization anomaly.

The South A & A anomaly appears to be wholly contained within patented lands owned by Phelps Dodge Corporation. There is every reason to believe that a sulfide body exists between the deep level mine workings of the North ore body and the surface drill hole MM-1 which clearly passed too high in the stratigraphic section to have intersected a United Verde-type target. The anomaly source is untested and verification of the validity of this target is readily possible by surface drilling.

The <u>Hopewell Anomaly</u> is regarded quite differently from the South A & A Anomaly. It lies in totally untested ground at a location predicted by fold projections to be geologically viable as a place to test for a massive sulfide target lying on the surface of the Cleopatra Q. P.

During the past decade of work in the Jerome District it has been postulated that a series of NNW fold axes exist in the Jerome District and that these are, in turn, cross-folded by structures with east-west to ENE axes. The major primary folds are named: Jerome anticline, High School syncline, Bitter Creek anticline, and Bitter Creek syncline. The well known plunge of the United Verde ore body (-60° to the NNW) is located along drag folds on the western side of the Jerome anticline, and the U.V.X. ore bodies are located on opposite drag folds on the eastern side of the Jerome anticline. The subsequent Verde fault broke sub-parallel to the eastern limb of the Jerome anticline. Immediately to the north of the deepest part of the United Verde ore body lies the North ore body across the Haynes cross syncline and subsequent fault. It is on the upward side of the continuation of the United Verde trend which was not explored (i.e., the South A & A anomaly). The United Verde plunges to the NNW, but the other side of the Haynes cross fold should plunge to the SSE. If the Haynes cross fold is projected to the east it should separate the Paleozoic covered Bitter Creek area into two realms. To the south of the synclinal axis the Cleopatra quartz porphyry should dip to the NNW, and to the north of the axis the plunges should be to the SSE. The Hopewell Anomaly found during Rivera's Induced Polarization survey earlier this year corresponds very closely to the predicted sub-outcropping limb between the High School syncline and the Bitter Creek anticline. From a geologic prediction I would assume that a SSE plunge would be required at such a location. Rivera's "Northward Plunge" could be reconciled by re-interpretting the northern part of the anomaly as expressing the "tail-out" or thin edge of a sheet-like mass that is diminishing to the NNW. Since there is no geophysical coverage to the south of the best I. P. anomaly on Line 38N., it is pesumptuous to speculate as to its ultimate size. In my opinion there is potential for another United Verde size mass lying beneath the anomaly as expressed at Line 38N. which could plunge beneath geophysical detection and ultimately re-emerge in the vicinity of the Dendee massive sulfide showings. Over 4000 feet of prospective strike length is suggested which lies entirely on Verde Exploration claims.

COMMENTS ON RIVERA'S CONCLUSIONS AND RECOMMENDATIONS:

Both the South A & A and Hopwell Anomalies should exhibit only the more shallow type of Precambrian enrichment if the sulfide masses come to the unconformity surface. I cannot visualize any U.V.X. type of deep and strong enrichment of either of these targets, but this does not rule out their existence further along the Verde or Bessie faults in new environments.

The work plan proposed appears reasonable as described. At this early stage of exploration all approaches to the problem must be from the surface. Future access, should success warrant such actions, can be obtained from underground workings which would have to be re-habilitated. Such underground entries would be through the Edith Shaft (Verde Exploration), Josephine Tunnel (Verde Exploration), or Hopewell Tunnel (Phelps Dodge). Rivera's recommendations are for ultimate and cooperative options of both Verde Exploration and Phelps Dodge claims. In my opinion, the greatest potential lies wholly within the Verde Exploration claims as expressed by the Hopewell Anomaly and the program could be concentrated in the Bitter Creek area without encumbrance by Phelps Dodge.

However, the inclusion of Phelps Dodge ground would elimiante the dismemberment that now exists between Verde, A & A, and Phelps Dodge "Corridor" lands. If either one or both of these anomalies prove to be economic ore masses, it would be imperative that a solid mass of patented land be controlled and which has a history of historical mineral production.

In conclusion I can only say that the facts presented have been done in a highly creditable manner and I am confident that these anomalies are extremely important new additions to the knowledge of the intricacies of the Jerome District. From a personal standpoint it is extremely gratifying to see such anomalies appear in locations where decade-old geologic projections say that the prospective Cleopatra quartz porphyry surface should be present. This review is, therefore, heavily biased and optimistic toward its conclusions.

COMMENTS ON SIZE DISTRIBUTION OF MASSIVE SULFIDE DEPOSITS;

Sangster (1) recently described the "Quantitative Characteristics of Volcanogenic Massive Sulfide Deposits" in Canada and Japan. In essence this paper concludes that within each district there are a large number of massive sulfide deposits which range from very large to very small. The lower limit is obviously an economic one and could trail off to hand specimen sizes. He concludes that typically 2/3 of the ore in any average district comes from the largest ore body and that the next largest deposit accounts for 13% of the district mineral production.

Such concepts are by no means new. It has long been held by the prospectors that these distributions are good rules of procedure. These feelings have been expressed by at least 4 major companies that I have been personally aquainted with in the Jerome district alone. The bottom line in this argument is this; Since the largest (United Verde) and second largest (United Verde Extension) deposits have already been found, why look for the (probable) small dregs at the lower end of the scale?

My objections to the generalizations made by such approaches are many and this is not the forum to describe such reasons. There are, however, some rather compelling reasons to not put much faith in such generalizations and these have particular consequences when describing the Jerome situation. In the first place, how do we know that the United Verde is the largest body in the district. It could just as easily be the second largest. The exposed Precambrian outcrops in Jerome can be likened to a pie cut into 6 pieces. The exposed United Verde deposit lies near the apex of one of the pieces. Since this is the only portion of Precambrian exposed, and the center of the pie is thought to be the active caldera center, 5/6 of the pie are covered by Paleozoic and Tertiary cover rocks. Because of the known ore at the exposed United Verde deposit an active search in the immediate district discovered the concealed U.V.X. ore body as well as mineral "smells" at the Cambruzzi, Dundee, and A & A sites. This underground work might account

2 more "sixths" of the imaginary pie, but it still leaves fully half of the projected "Caldera Center" totally unexplored. If this prospective region had been pattern drilled and showed no additional large ore bodies, I might believe Sangster's conclusions. But as long as legitimate geophysical and geochemical anomalies exist within favorable geologic terrains, no meaningful statistic can be applied. (This is the location of the new Induced Polarization anomalies.)

The other local factor which is as yet unknown is the role of the immense outpouring of the Cleopatra quartz porphyry. The enormity of this single event is thought to be the reason why it has such large ore masses on its surface. I know of no other district, save perhaps parts of the Noranda district in Canada, where such large outpourings and subsequent ore bodies are to be found. What has effectively stopped mineral exploration in the Jerome district has been the lack of exposed Precambrian rock beneath the Paleozoic cover. It is totally illogical that the only big ore body of the district was exposed to view in such a large region of cover. Another local twist to the statistics is that it accounts for primary (i.e., protore) grades of massive sulfide deposits such as are found in the glaciated terrains of the Canadian Archean and in the covered Kuroko deposits in Japan. The incredible enrichment found in the U.V.X. deposit means that 4 million ton deposits would be economic bonanzas by anyone's standards. Such deposits would be highly profitable in the one million ton plus range, if they and located within similar faulted locations that permitted Tertiary enrichment.

OUTLOOK FOR THE MINERAL POTENTIAL OF THE JEROME DISTRICT;

All in all, I am extremely optimistic about the mineral potential of the Jerome district. Rivera's report outlines a straightforward approach to mineral exploration which can be defended by geological reasoning. The newly discovered Induced Polarization anomaly tests will be eagerly awaited, and I am confident that additional bona fide targets will present themselves in future.

Respectfully submitted,

Paul A. Lindberg

Paul A. Lindberg

REFERENCES

(1) Sangster, D. F., Feb. 1980, Quantitative Characteristics of Volcanogenic Massive Sulfide Deposits, CIM Bulletin, pp 74-81.

(2) Lindberg, P. A. and Jacobsen, H. S., 1974, Economic Geology and Field Guide of the Jerome District, Arizona: In Geology of Northern Arizona, Part 2, G.S.A. Rocky Mtn. Section Meeting, Flagstaff, pp 794-804.

COCA MINES INC.
JEROME PROJECT
HOLDING COSTS

11/27/84 (BAM)

Lessor (Fee Land)	Acreage	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
AREY (3,4)	18.7	23,057.40	3,668.88	3,668.88	3,668.88	3,668.88					
MIN.PUR.OPTN.			5,000.00	5,000.00	5,000.00	5,000.00					
SELNA/MONGINI	7.0	24,817.82	9,635.65	9,635.65	9,635.65	9,635.67	4,817.82				
CLOSING CST		1,471.20									
VERDE EXPL. (1,2)		10,000.00	10,000.00	10,000.00	10,000.00						
Rains			15,000	10,000	10000						
SubTotal		59,346.42	28,304.53	28,304.53	28,304.53	18,304.55	4,817.82	0.00	0.00	0.00	0.00
Property Taxes(5)		300.00	315.00	330.75	347.29	364.65	382.88	402.03	422.13	443.24	465.40
Assessment Work	56.0	5,600.00	5,600.00	5,600.00	5,600.00	5,600.00	5,600.00	5,600.00	5,600.00	5,600.00	5,600.00
TOTAL		65,246.42	34,219.53	34,235.28	34,251.82	24,269.20	10,800.70	6,002.03	6,022.13	6,043.24	6,065.40

NOTES

(1) WORK COMMITMENT $100.00 PER YEAR IF SPEND MORE THAN THAT AMOUNT IN ONE YEAR OVER SPENT CREDITED TO FOLLOWING YEAR.
(2) PERFORM & FILE ANNUAL ASSESSMENT WORK. IF GIVE UP PROPERTY BEFORE APRIL 1 OF ANY YEAR STILL RESPONSIBLE FOR THAT YEARS FILING.
(3) SURFACE DAMAGE - $50/DRILL SITE PLUS $1/LINEAR FOOT OF ACCESS ROAD CONSTRUCTED.
(4) ESCROW FEE ($100), CLOSING FEES ($433.25), BANKING FEE ($6/CHECK-MONTHLY), 5 YR INSTALLMENT LOAN.
(5) ASSUMES $300. KNOW AREY'S WAS $171.82, FROM CLOSING COSTS EXTEND SELNA/MONGINI TO ABOUT $100, DON'T KNOW VERDE. INCREASED YEARLY AT 5%.

Nicon

PROSPECTING OF
QUATERNARY GRAVELS
East of Jerome, Arizona

April through August, 1984

By Glenn D. Davis

JEROME PROJECT PROSPECTING REPORT
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Introduction

The Quarternary age gravels, east of the Jerome Mining District, show remarkable size and composition variations. Size of boulders in the gravel are sometimes larger than 5 feet on one dimension with no apparent source closer than the United Verde Mine area 1 mile distant. Composition of the gravel deposits is all rock types listed in the general geology section of this report, but some Precambrian rocks are of massive botryoidal hematite and specularite, interpreted as being oxidized massive sulfide, and jasper from the cap over the ore bodies. There are also some massive cuprite cobbles.

The purpose of the resulting prospecting was to determine if these rocks were locally derived from fault scarps and might lead to the discovery of a new ore body beneath the Quarternary age gravels or part of a boulder train from the United Verde Mine. The United Verde Mine is exposed at the surface.

The Jerome prospecting program was done in conjunction with a soil sampling program for mercury. All the necessary results have not been received as yet and a separate report will follow.

General Geology

Geologic units exposed in the area of Jerome, Arizona range in age from Quaternary, youngest, to Precambrian, oldest. The Dundee Mine is hosted by Quarternary age gravels and the massive sulfides of the United Verde, United Verde Extension, Verde Central, and Haynes Mines are hosted by Precambrian age volcanic rocks. The gravels of Quaternary age are composed of the Tertiary age Hickey basalt, Pennsylvanian Permian ages Supai sandstone, Mississippian age Redwall limestone, Devonian age Martin dolomite, Cambrian age Tapeats sandstone, and Precambrian age basalts-andesites-rhyolites-quartz porphyries and sediments. The United Verde ore body was exposed at the surface and eroding at the time of its discovery.

In the Jerome District, there are four major north to northwest trending faults. The Warrior Fault west of the United Verde Mine and the Verde Fault just east of the United Verde Mine are west of the area of interest. The Bessie Fault and the Valley Fault are in the area of interest and 1 mile to 1-1/2 miles east of Jerome. These faults all show evidence of reverse movement prior to the normal movement seen today. This can ben seen at coordinates 8183N, 3945E.

Mines

Of the mines listed above, only the Dundee Mine is in the area of interest. The Dundee Mine, located 6,700 feet east of the United Verde Mine, is a copper oxide ore body. This mine contains chrysacola, a copper silicate, and malachite, a copper carbonate, cementing, coating and sometimes replacing fragments as the ore. Cobbles and boulders consist, among other rocks of the area, of up to 15% jasper and massive botryoidal hematite and massive cuprite derived from the United Verde Mine. If these cobbles and boulders contain enough copper then no other source of copper is necessary to form this ore body. It is more likely that copper in solution was added, in the quarternary channel where it formed, from the United Verde Mine.

Conclusions

The results of the prospecting alone are inconclusive. These results should be used in conjunction with the mercury soil sampling and magnetometer and VLF-EM geophysical surveys.

Values of relative concentrations of jasper (see Plate 1a) and massive hematite (see plate 1b) appear to be erratic with concentrations on both sides of the Valley Fault but occur east of the Bessie Fault. Isopachs of these values elongates north-south instead of the northwest direction that would tie it to the Valley Fault. This north-south elongation is probably due to the fact that it is not an equal grid, i.e., 100 ft. by 100 ft. There appears to be an alignment of anomalous values along the Valley Fault but on both sides. This can be explained by the fact that the Valley Fault had reverse movement before the normal movement to its present level (see Figure 1).

Cuprite, noted in the field, (see Plate 1) is scattered similarly. Removing from consideration the cuprite samples from the Dundee Mine dump, which is float from the United Verde ore body, cuprite float occurs from 1,300 ft. southwest to 600 ft. northeast of the Valley Fault. A list of cuprite samples and locations is noted in Table 1. The association of the cuprite with the carbonate would appear to be a zone of secondary enrichment that could occur along a fault putting a massive sulfide ore body in contact with either the Martin dolomite or the Redwall limestone (see Figure 1).

TABLE 1

CUPRITE SAMPLE LOCATIONS

Sample No.	Northing	Easting	Other Minerals Present
CJ-1	2,393N	10,743E	malachite & calcite
CJ-5	10N	7,105E	native copper & chrysacola
CJ-8	1,780N	9,485E	chalcocite & bornite & covellite
CJ-101	3,112N	8,698E	malachite & calcite
CJ-106	2,200N	8,300E	malachite, chrysacola, calcite
CJ-107	1,800N	10,000E	malachite & chalcocite
No number	2,360N	10,840E	malachite & calcite
No number	3,000N	10,340E	malachite

Table 2
Analysis of Cuprite Sample CJ-1

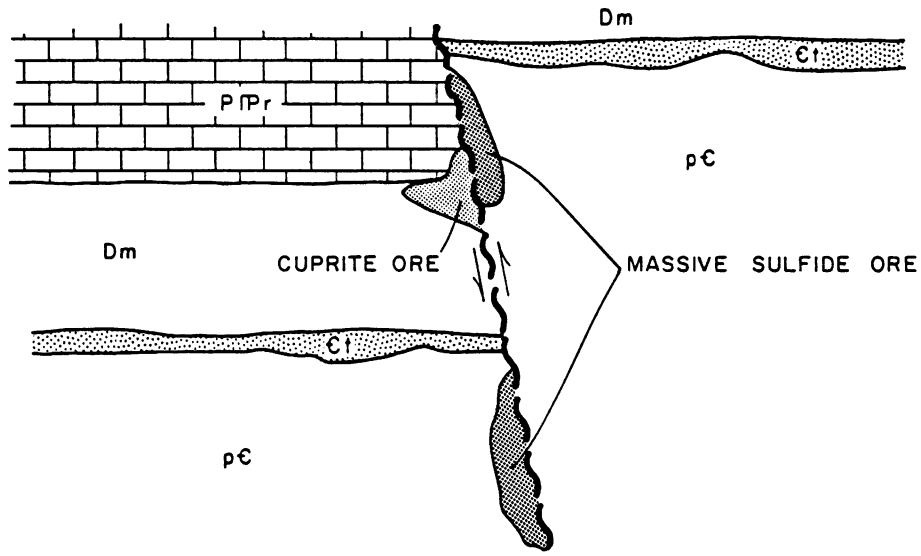
% Cu	% Pb	% Zn	% S	Oz/T Au	Oz/T Ag	ppm Hg	ppm As	ppm Sb	ppm Mo
72	.01	.17	.05	.010	.01	.02	50	2	2

Recommendations

I recommend that the prospecting results be used as a tool with the soil geochemistry and magnetics and VLF-EM geophysics. Isopachs of relative hematite and jasper and the sum of hematite plus jasper concentrations (see Plate 1c) show them to be erratic and of no set pattern. The north-south distortion is masking any feature that might be present.

0115m

LARAMIDE AGE FAULTING



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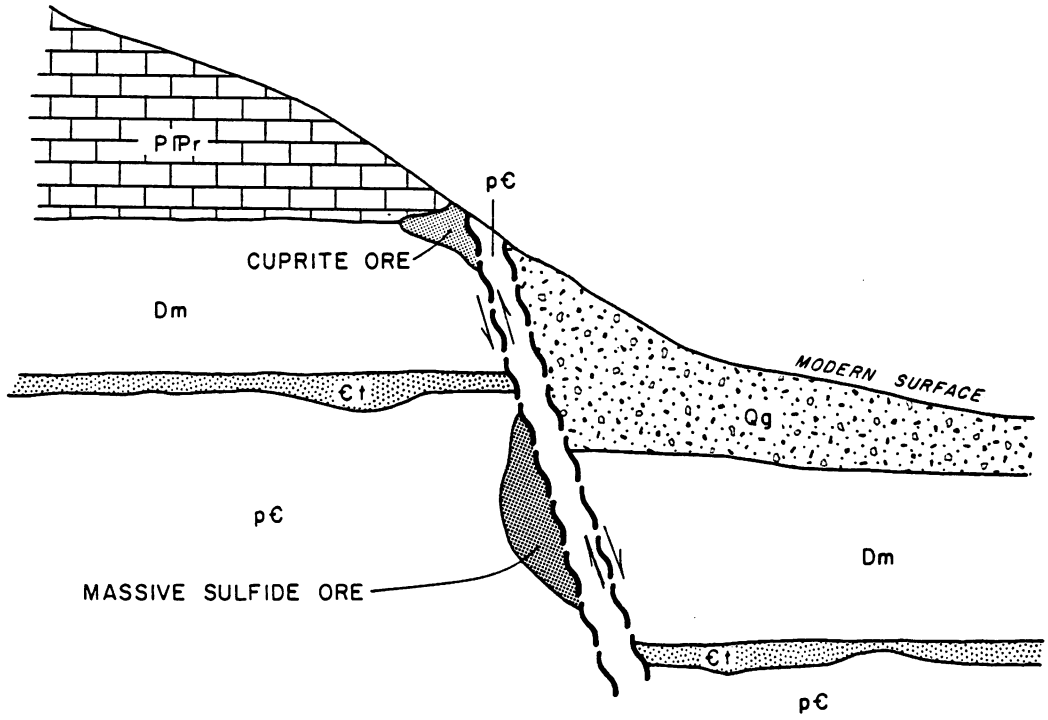

CoCa Mines Inc.

FIGURE I. JEROME PROJECT. YAVAPAI CO., ARIZONA

PROPOSED MODEL FOR A POSSIBLE MASSIVE SULFIDE ORE BODY AND EMPLACEMENT OF CUPRITE INTO LIMESTONE.

FOR: GDD DATE: 9·7·84 BY: TRL S. N.: 2104

TAPEATS SANDSTONE
SAMPLING PROGRAM
JEROME, ARIZONA

July, 1984

By Glenn D. Davis

JEROME PROJECT TAPEATS SAMPLING PROGRAM
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Illustrations

Jerome Project Tapeats Sampling Program United Verde Quadrangle - Sample Location Map with Analyses	Plate 1
Jerome Project Tapeats Sampling Program United Verde Extension Quadrangle - Sample Location Map with Analyses	Plate 2
Jerome Project Tapeats Sampling Program Verde Central Quadrangle - Sample Location Map with Analyses	Plate 3

Introduction

The Cambrian age Tapeats sandstone is deposited on a undulating paleo-surface and according to Lehner (1958) was a shallow sea environment. The sediments were derived from local Precambrian sources and reworked by wave action. The local source for the detrital material makes the Tapeats formation ideal for use in locating areas of interest exposed during Precambrian times.

Rock chip sampling of Cambrian age Tapeats sandstone was undertaken to see if it might lead to the discovery of an orebody different from the United Verde, United Verde Extension, Haynes and Verde Central orebodies. Sampling was done from July 15, 1984 through July 26, 1984. Eighty samples were taken, samples CJ-2 through CJ-4 and CJ-24 through CJ-100, and analyzed for gold, silver, copper, lead, zinc, tin, arsenic and mercury. Samples CJ=2 through CJ-4 were also analyzed for molybdenum. All samples were not taken in the Tapeats unit but included Precambrian age rocks immediately below the Tapeats sandstone contact, fault zones, and jasper and ironstone lenses within the Precambrian age rocks. Sampling was not confined to areas controlled by CoCa, but included areas controlled by Phelps Dodge Corporation. These samples are CJ-57 through CJ-63, CJ-75, CJ-78 through CJ-82, and CJ-86 through CJ-100.

All samples were rock chip taken from outcrop and varied in total sample size from 1-1/2 pounds to 9 pounds, depending on outcrop size. Samples were taken over a 5-1/2 foot vertical interval when enough outcrop was exposed. When the contact was exposed, a sample was taken over a 5-1/2 foot vertical section over the entire exposure of both Tapeats sandstone and Precambrian age rocks.

Findings

The purpose of the Tapeats sampling program was to determine if trace elements might determine the position of a previously undiscovered orebody. It was expected that mercury would be an ideal trace element. It is present but is very subdued, threshold approximately .03 ppm. Arsenic was put into the list of elements to assay because of the amount of arsenopyrite in the orebodies. Tin was used because of some assays reported in the gossan (jasper) zone above the United Verde Extension (UVX) orebody. The base metals, copper, zinc and lead with gold and silver, were used to see if any residual amounts of these elements might have been preserved.

Water courses developed paleochannels on the surface of the Precambrian outcrop. These paleochannels collected large fragments of more resistant rocks forming a breccia with large, to one foot diameter, fragments of Precambrian jasper and massive hematite. Samples CJ-57, CJ-75 and CJ-50 were taken in the paleochannels. CJ-57 was anomalous in all elements. It was expected that these channels and the contact with the Precambrian would give the highest values. In some cases, only the upper Tapeats, very fine-grained sandstone, was present either over paleo-topographic highs or was all that was exposed. These samples were generally low in values except sample number CJ-61.

Four samples were taken, numbers CJ-2, CJ-35, CJ-62 and CJ-76, of fault material. In the Slaughter House window, two samples were taken from areas where a spring and a dry spring have been. Sample number CJ-35 was taken of fault material only and sample number CJ-36 was taken within 15 ft. of the same fault. CJ-35 had a trace of gold (.006 ppm) and anomalous arsenic

(310 ppm) while CJ-36 had anomalous arsenic (290 ppm) background for arsenic is less than 50 ppm. CJ-46 was taken from near a different fault which showed evidence of a spring. This sample was generally bleached to a white color and contained 500 ppm arsenic. Sample CJ-100 also appeared to be bleached and contained anomalous gold (.007 ppm), arsenic (460 ppm) and base metals, copper, zinc and lead (400 ppm, 100 ppm, 100 ppm respectively).

Several jasper occurrences, some unmapped, were located in the Precambrian rocks. One occurrence, sample numbers CJ-66, was sampled as Tapeats but appeared to be at the source. This sample showed traces of gold (.003 ppm). Conclusions drawn on this area, Haynes shaft area, may have been premature - see memorandum from Davis to Rivera dated June 11, 1984.

Conclusions

Since direction of flow along paleochannels is not known, I must assume that results obtained around the United Verde Mine all came from the United Verde orebody. It is not known if there are more orebodies exposed in the pre-Tapeats time, but it is obvious that the samples taken away from the United Verde Mine did not show direct evidence of this.

Recommendations

It is my recommendation that the Slaughterhouse area is the most likely to contain a blind orebody. The arsenic values from the Slaughter House window appear to show that something could exist below this area. These values compare with those near the United Verde Mine.

Bibliography

Lehner, R.E.; 1958; Geology of the Clarkdale Quadrangle, Arizona; Geological Survey Bulletin 1021-N

M E M O R A N D U M

DATE: September 5, 1984

TO: H.J. Matheson cc: JCM

FROM: R.A. Rivera

SUBJECT: JEROME PROJECT 4th Progress Report (A Brief Preliminary one)

This brief report is intended to communicate progress and current status of the Jerome Project to aid in the drafting of the third quarterly directors' report. A more complete progress report and a comprehensive summary report await the receipt of final assay data and the study of the voluminous information that has been gathered during the spring and summer. (The last complete progress report was dated February 29, 1984.)

Drill hole CM-4, our second test of the Hopewell anomaly, has been completed to 2465 feet in the northern part of the anomaly. The predominantly mafic rock encountered, some containing native copper, is in stark contrast to the predominantly felsic rocks lying to the south and west. This defines a contact area, a favorable situs for a mineral deposit. The abundant pyrite encountered in the felsic rocks in the southern part of the Hopewell anomaly (AV-27) bodes well for the potential of the contact area.

Hope CM-4 encountered several zones of gray chert heavily veined with hematite. This is the type of material found at the stratigraphic top of the massive sulphide deposits at Jerome and it is possible that such a body lies somewhere in the vicinity of the hole. Assay data just received is mildly encouraging in this regard.

Our Indian Camp target has been heavily investigated with ground magnetic, VLF electromagnetic and mercury soil geochemical surveys. Intensive prospecting activities in the area resulted in a discovery of 8 cobbles and boulders containing nearly massive cuprite of very high grade over a 1700 ft. x 1900 ft.

zone near the Valley Fault. The geologic situation in this area is quite similar to that at the very rich UVX mine lying 1-1/2 miles away to the west (4 million tons grading 10% copper, 0.04 oz./s. ton gold and 1.7 oz./s. ton silver, all recoverable grades). It is believed that careful study of the gathered data will define shallow targets for inexpensive test drilling.

Negotiations for the acquisition of the Rains parcel in the southern part of the Indian Camp target on very attractive terms are currently on a low key. The Rains' have asked for a delay as they seek a replacement retirement lot in Sedona.

The CoCa Mines' field crew at Jerome was demobilized on August 31, 1984. The writer will attempt to complete a comprehensive study of the information gathered as time permits during the fall and winter months, visiting the Jerome office at infrequent intervals.

Robert A. Rivera

R.A. Rivera

RAR:vlf
0105m

NCCR

M E M O R A N D U M

DATE: April 10, 1984

TO: H. J. Matheson

cc: TEC CFB
JCM FPC
LWF P.Lindberg

FROM: R. A. Rivera

SUBJECT: Preliminary Discussion on the Results of Hole CM-2 and the Hopewell Anomaly, Jerome

INTRODUCTION

As related in the most recent progress report on the Jerome Project (February 29, 1984) drill hole CM-2 is the first test of the Hopewell I.P. anomaly. Unfortunately, due to a substantial deviation from planned inclination, the hole has proved a less than ideal test for the source of the anomaly as that source is currently and optimistically perceived.

This report is intended to communicate, in preliminary form, some of the details of the exploration situation at the Hopewell anomaly so that the negative results of CM-2 can be better evaluated. Given the proximity of our activities to property lines and the activity of competitors nearby, the information and illustrations herein should be treated as confidential.

STATUS

Drill hole CM-2 was stopped at a depth of 2526 ft on March 8, 1984 in order to reconsider the exploration problem in the light of that hole's findings and to carry-out a down hole geophysical survey (Pulse E-M) designed to test for a massive sulfide body in a near-miss situation. This action was felt necessary given the lack of a discovery in the hole and the fact that the originally planned 1500 ft depth-to-target had been exceeded by 1000 ft.

The hole has been cased with 2 inch, schedule 80 perforated plastic pipe to preserve the walls so that down hole geophysical surveys can be performed. The plastic pipe has been threaded with flush joints and it is believed that it can be removed, if necessary, in the event that it is decided to deepen CM-2. A total of 540 feet of NX casing remains in the hole between the depths 180-720 feet. (The casing parted at 180 feet and the remainder cannot be extracted without risk of damage to the plastic pipe.)

As discussed below, deepening hole CM-2 may be required. It is felt appropriate, however, to postpone such deepening until after the source of the Hopewell anomaly has been clearly determined.

The down hole E-M survey has been carried out with negative outcome. This strongly suggests that no massive mineralization lies within several hundred feeet of the hole. A detailed report on the survey is in preparation.

DISCUSSION

The attached plan map illustrates the relationships amongst: the Hopewell IP anomaly, drill hole CM-2 (planned and actual), underground workings, nearby drill holes and important land boundaries. Two cross sections are also provided, both showing the optimistically interpreted source of the Hopewell anomaly but indicating different structural interpretations. The shape of the target on the first cross section is quite detailed. This is shown merely to illustrate the size and geometry of a known deposit at Jerome, such details being impossible to interpret from the geophysical data.

The plan shows, in contour form, the Hopewell IP anomaly processed so as to enhance the readings from the deeper penetrating survey configuration (A=1000 ft, N=4,5,6 averaged, Dipole-Dipole array). The map illustrates the unexpected north-south strike of the anomaly pointed directly at the mined out United Verde Extension orebody located at UV coordinates 0N, 3600E. This strike was unexpected given the NW-SE structural grain in the area as depicted on the Anaconda geologic reconstructions made during the 1970s.

The plan map shows the gradual waning in strength of the anomaly toward the north. This could be indicative of a mineralized zone plunging deep beyond the level of detectibility of the IP surveys or to an actual termination. If the former then both Newmont and Phelps Dodge may be favored with substantial portions of the target; if the latter, CoCa would control the major portion of the target.

Deep drill holes AV-26 and AV-27 very near the anomaly were apparently never logged or sampled by Anaconda who drilled them in 1979. CoCa's logging and sampling of these holes has yielded much encouragement in the form of geochemically anomalous base metal values and levels of pyrite much higher than normal in Upper Sequence rocks. (More on the geochemistry below)

Hole AV-28, drilled to 4,672 ft was comprehensively studied by Anaconda. This study included a large-spread down hole IP survey. CoCa's study of these IP data has resulted in the recognition of an anomaly whose source is probably 500 ft or more away from AV-28 at a depth in excess of 3500 ft. Unfortunately, it is not possible to know in which direction from the hole the source lies. (A detailed report is in preparation concerning the down-hole IP survey in this hole.)

AV-28 is thought to have penetrated the horizon most favored for ore at Jerome in the interval 4120-4449 ft encountering pyritic sediments and tuffs immediately above the Cleopatra quartz porphyry. As indicated by the first of the cross sections, a possibility exists that this horizon is dipping westward at hole AV-28 thus projecting upward into the region of the down-hole IP anomaly (assuming it lies east of the hole) and further upward into the region of the interpreted source of the Hopewell anomaly. If this is correct, then CM-2 is favorably positioned to intersect the horizon within the next 1000 ft. (This cross section depicts the situation thought by the writer to exist at the time CM-2 was planned.)

Unfortunately, the situation shown on the first cross section does not fit the structural picture developed by Anaconda in the area. That picture is better illustrated in the second (alternative) cross section. A large syncline, called the "High School Syncline" was

interpreted by Anaconda as lying in the target area. The axis of the syncline was thought to lie east of AV-28 thus the favorable horizon was believed to dip eastward at AV-28 placing it at great depth below CM-2. If this is correct, then deepening CM-2 would be a grave mistake at this time.

In order to reconcile the High School Syncline with the geophysical interpretation of the Hopewell anomaly it has been necessary to infer an anticline on the east limb of the syncline bringing the favorable horizon into the target area. This is illustrated in the second (alternative) cross section. If this is correct then the east limb of the High School syncline in the immediate vicinity of the target is overturned. Such an overturned situation fits the lithologic data from CM-2 very well (see attached summary log updated from that provided in the progress report). Long mono-lithologic intercepts of pillowed basalts were encountered in CM-2 but no such long intercepts were penetrated by AV-28. The negative results of the down hole E-M survey in hole CM-2 also suggest that this "alternative" cross section is the more correct of the two. (Note that P.A. Lindberg's 1/15/76 report - "Recommended Drilling Proposals" hypothesizes such a secondary anticline, but much smaller and further to the east.)

A third possibility exists: that the Anaconda structural interpretation as originally conceived is correct and that the source of the Hopewell anomaly is high in the Upper Sequence stratigraphic section in the core of the High School syncline. If correct then this source might be expected to be of different character than the two great bonanza ore deposits at Jerome.

As the log shows, CM-2 encountered great lengths of unmineralized basalt and andesite flows with a few short, weakly mineralized zones as indicated on the cross sections. Ironically, the notable lack of disseminated pyrite in the rocks tested is regarded favorably since it requires that the source of the Hopewell anomaly be compact in size, such as the massive sulfide deposit illustrated in the cross sections. Of course the

possibility that the anomaly is due to the effects of pipes, fences, pyritic dumps, etc. at the 500 level plantsite/townsite complex cannot be entirely disregarded. Given the negative results of CM-2 this latter possibility has become more of a worry.

GEOCHEMISTRY

One aspect of CoCa's exploration program at Jerome, description of which was inadvertently omitted from the last progress report, is geochemistry. That a paleo-geochemical anomaly in Cu and Zn may occur in the basal Paleozoic strata at Jerome from the weathering of the then exposed ore deposits is an old idea described and tested by the USGS in 1955 (Bull. 1000-C by Lyman C. Huff).

CoCa's sampling and relogging activities on drill holes in the vicinity of the Hopewell anomaly have been rewarded with very encouraging results. Drill hole AV-26, in particular, is interesting since exotic copper minerals are visible in the cuttings near the unconformity. Assays for copper and zinc just received for this hole are 10 to 20 times higher than normal elsewhere in the Jerome district. Similar but slightly less high values were encountered in AV-20 and AV-27 at the unconformity.

Care must be exercised in interpreting the high geochemical values from the Hopewell anomaly area. The area is within 1 mile of the two known deposits at Jerome and the high values may relate to those deposits rather than to a third, heretofore unknown deposit. Sampling of the few drill holes lying between the known deposits and the Hopewell target is in progress in order to test for the presence of an isolated, strong anomaly centered near the latter. Another worry is that contamination of the samples of cuttings for AV-26 and AV-27 may have occurred. Evidence exists for sloppy sample handling practices and the holes were collared on a large dump from the United Verde Mine.

CONCLUSION

As is clear from the size of the Hopewell anomaly as illustrated on the plan map and from the size of the possible source of the anomaly as illustrated in section, two more drill holes, and their attendant down hole geophysical surveys, will be required to test the target. Abandoning the area prior to effecting such a program of drilling would be quite premature. Lack of strong encouragement from such work, however, would lead to the conclusion that the Hopewell anomaly does not represent a large massive sulfide deposit within reach of the surface geophysical survey (2,000 ft max.).

R. A. Rivera

RAR:njb

Attachments:

1) Summary Log CM-2 (3/18/84)
2) 1"=400' scale plan (Ser. No. 1972, Date 3/18/84)
3) 1"=400' scale section 34 + 00 N (Ser. No. 1974, Date 3/18/84)
4) 1"=400' scale alternative section (Ser. No. 1973, Date 3/18/84)

SUMMARY GEOLOGIC LOG

March 18, 1984 R. A. Rivera
(Compressed from P. A. Lindberg Log)

Hole No: CM-2

Approximate coordinates: UV Grid, 3410 North, 3240 East

Elevations (approximate): Collar 4920
Precambrian: 4203 (Vert.Depth 717)
Bottom of Hole 2420, TD 2526

Hole Size Data:
0-5 : 6.6" (OD) casing left in hole
5-720: 5 1/4" down hole hammer (NX casing left in hole between 180-720 ft depth)
720-2526: NQ diamond drill (cased 0-2526 with 2" sched. 80 perforated plastic pipe with flush joints every 20 ft)

Planned Attitude: -70° due east

Survey data: Gyroscopic survey, readings every 100 ft 100 to 1500 and 1560. The point at 1560 is 216 ft N72E of the collar and the inclination at that point is -83°. Acid tube rdgs @ 1965' (83°) and 2526' (82 1/2°)

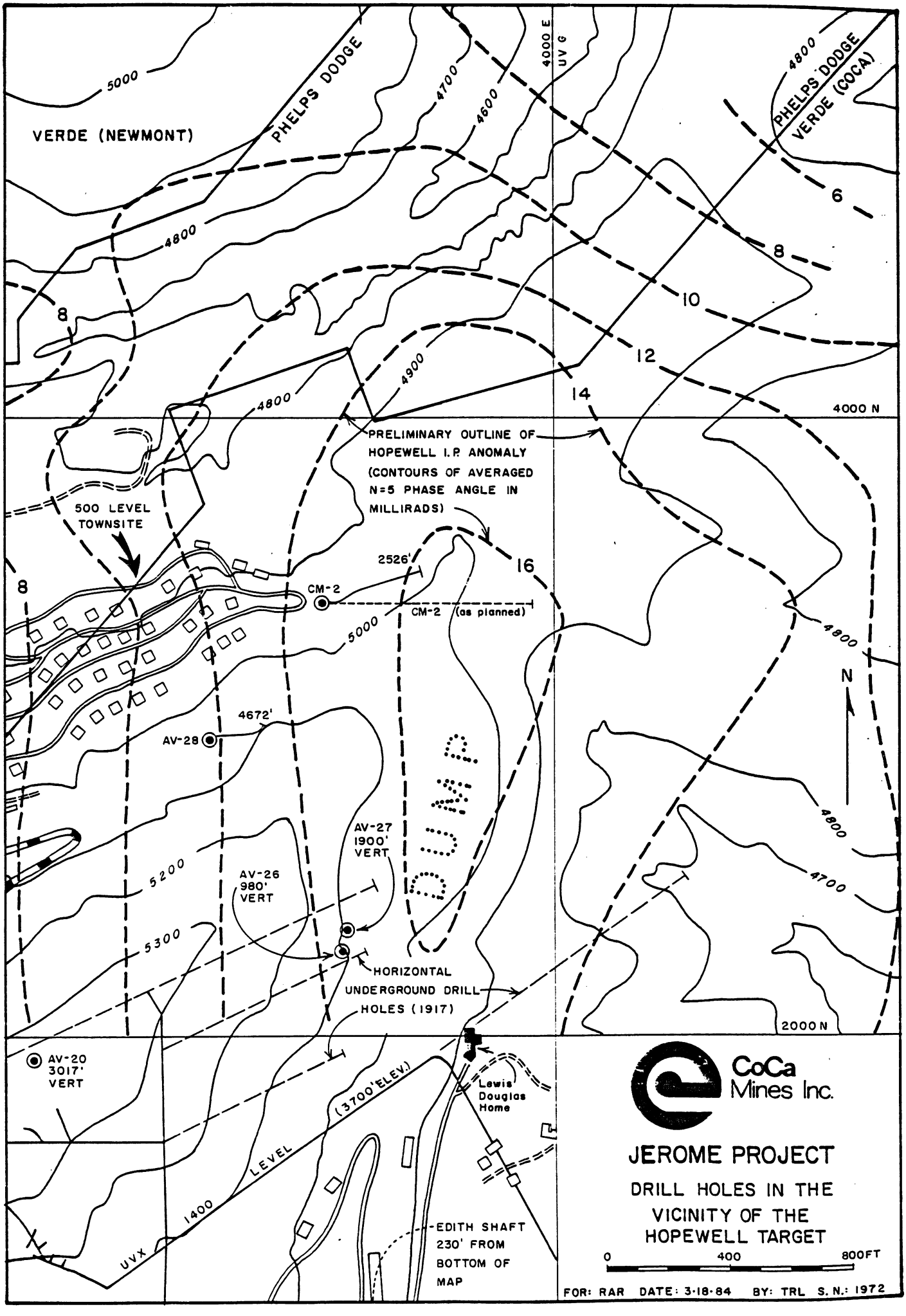
Dates Drilled: January 27, 1984 to March 8, 1984

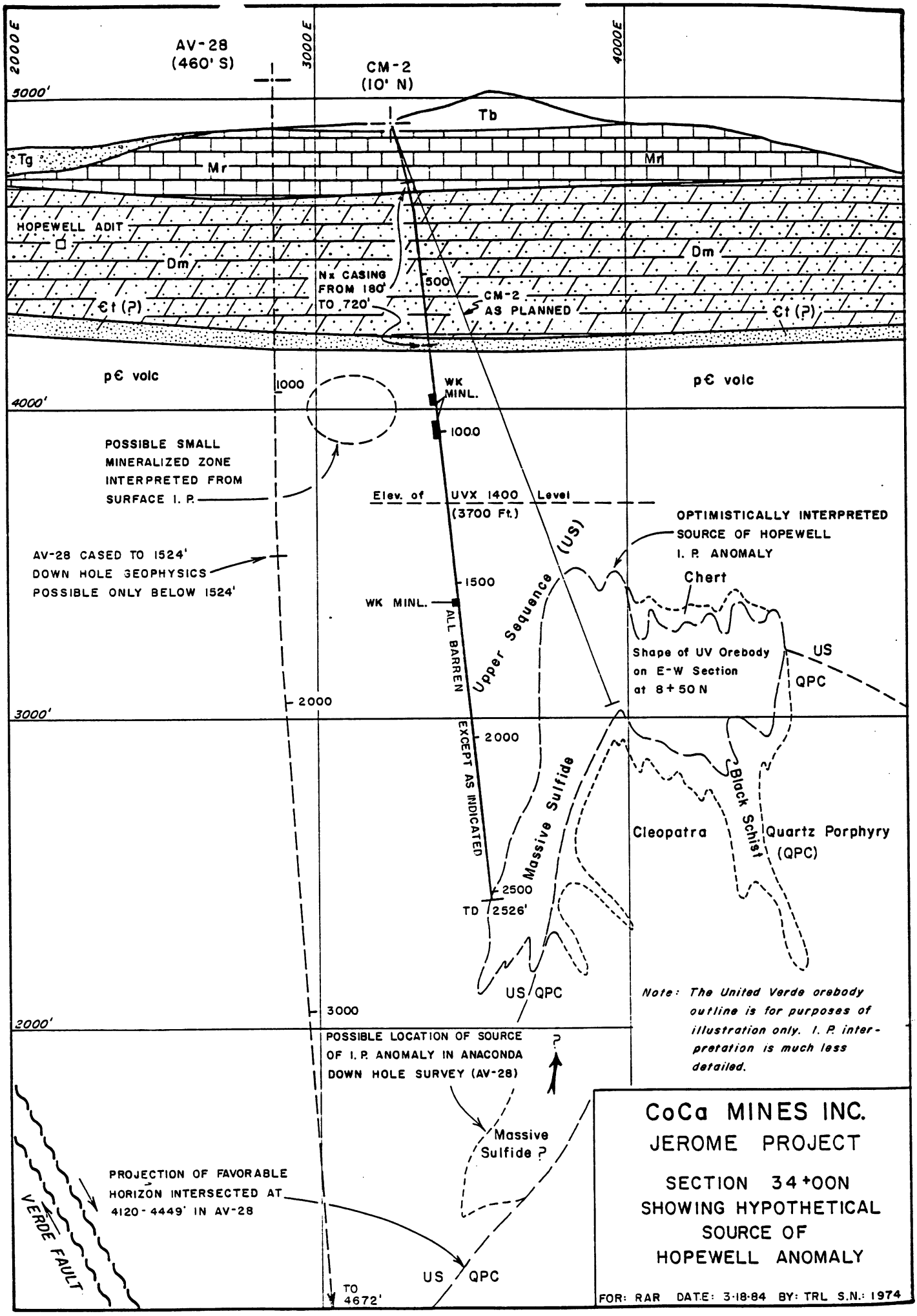
Purpose: First test of Hopewell IP Anomaly

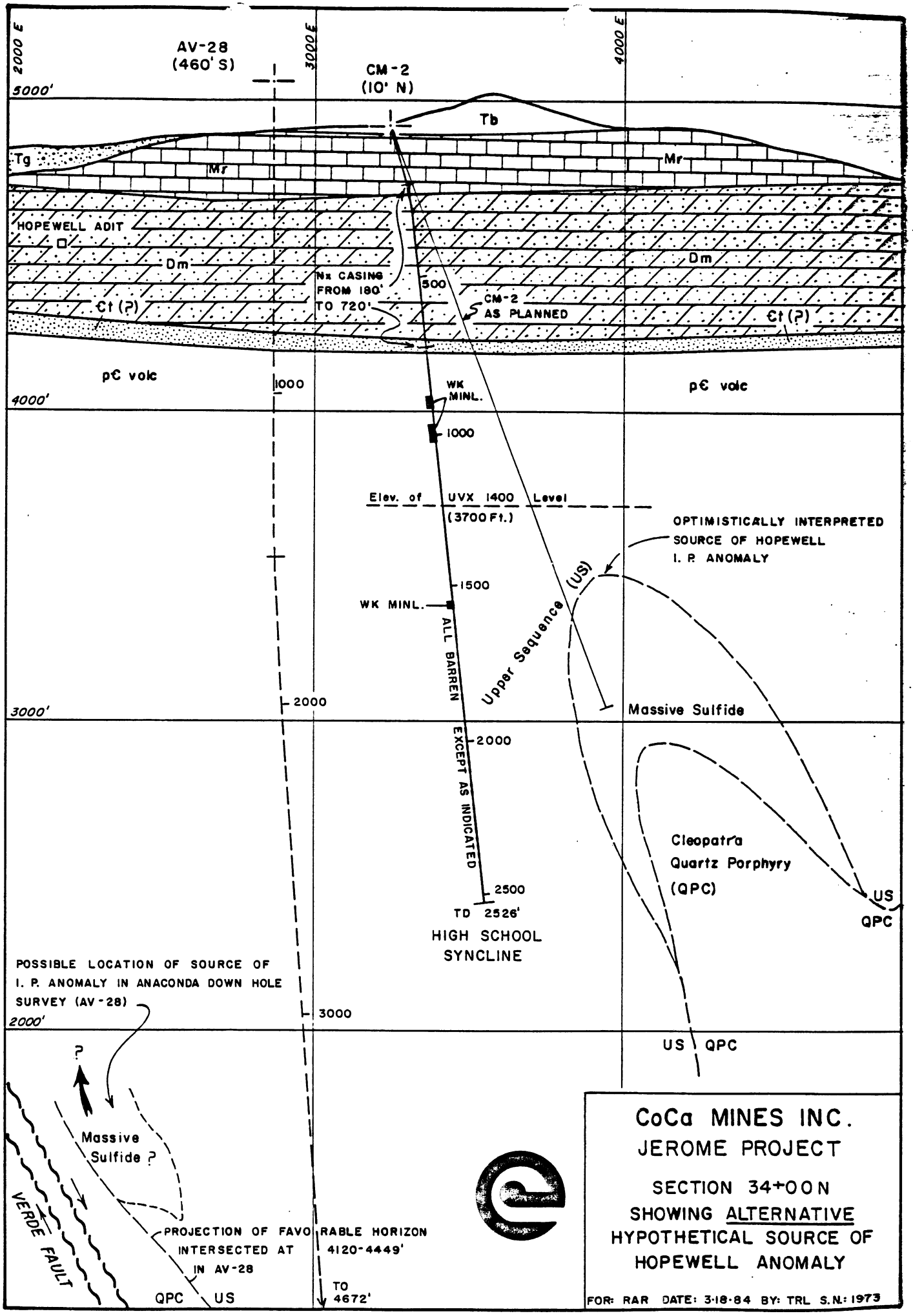
Geologic Record:

	0-25 :	Tertiary basalt
	25-35 :	Tert/Miss. unconformity
	35-234:	Mississippian Redwall-limestone
	234-690:	Devonian Martin dolomite
	690-712:	Cambrian(?) Tapeats shale
	712-730:	Cambrian(?) Tapeats sandstone
Precambrian	730-849:	Amygdaloidal pillowed basalt or andesite. Weakly pyritic but pyrite increasing at lower contact
	849-885 1/2:	Rhyolite flow, unmineralized
	@885 1/2:	Bedded pyrite zone (thin)

885 1/2-910:	Rhyodacite(?) welded tuff, unmineralized
@910:	Jasper exhalite (?) thin
910-973:	Rhyolite flow, unmineralized
973-1004 1/2:	Amygdaloidal pillowed basalt, weakly pyritic
1004 1/2-1011 1/2:	Massive jasper
1011 1/2-1424:	Amygdaloidal pillowed basalt, unmineralized except in cherty zones between pillows
1424-1426:	Flow top breccia, rhy fragments
1426-1499:	Amygdaloidal basalt flow
1499-1553:	Andesite(?) tuff
1553-1576 1/2:	Weakly pyritic sericitized volc. breccia and flows (andesitic)
1576 1/2-1638:	Amygdaloidal pillowed basalt
1638-1650:	Talc rich fault(?) zone or inter-flow breccia
1650-1677:	Andesite(?) tuff
1667-2479 1/2:	Amygdaloidal pillowed basalt, occas. zones of diabase texture and tuff. Occas. pyrite at pillow margins. Small, infrequent amygdules.
2479 1/2-2485:	Bedded sediment, barren.
2485-2506 1/2:	Chert-sericite-carbonate rock. No sulfides. "tiger rock".
2506 1/2-2526: (BOH)	Amygdaloidal basalt as before. Barren.


VERDE (NEWMONT)
PHELPS DODGE
PHELPS DODGE
VERDE (COCA)
5000
4700
4600
4800
4900
4000 E
UV G
6
8
10
12
14
16
4000 N
PRELIMINARY OUTLINE OF HOPEWELL I.P. ANOMALY (CONTOURS OF AVERAGED N=5 PHASE ANGLE IN MILLIRADS)
500 LEVEL TOWNSITE
2526'
CM-2
CM-2 (as planned)
4672'
AV-28
AV-27 1900' VERT
AV-26 980' VERT
5200
5300
HORIZONTAL UNDERGROUND DRILL HOLES (1917)
N
2000 N
AV-20 3017' VERT
(3700' ELEV.)
Lewis Douglas Home
1400 LEVEL
UVX
EDITH SHAFT 230' FROM BOTTOM OF MAP
CoCa Mines Inc.
JEROME PROJECT
DRILL HOLES IN THE VICINITY OF THE HOPEWELL TARGET
0
400
800FT
FOR: RAR DATE: 3-18-84 BY: TRL S.N.: 1972


2000E
3000E
4000E
AV-28
(460' S)
CM-2
(10' N)
5000'
Tb
Tg
Mr
Mr
HOPEWELL ADIT
Dm
Dm
Nx CASING
FROM 180'
TO 720'
500
CM-2
AS PLANNED
Ct (?)
Ct (?)
p€ volc
p€ volc
1000
WK
MINL.
4000'
1000
POSSIBLE SMALL
MINERALIZED ZONE
INTERPRETED FROM
SURFACE I. P.
Elev. of UVX 1400 Level
(3700 Ft.)
OPTIMISTICALLY INTERPRETED
SOURCE OF HOPEWELL
I. P. ANOMALY
AV-28 CASED TO 1524'
DOWN HOLE GEOPHYSICS
POSSIBLE ONLY BELOW 1524'
1500
WK MINL.
ALL BARREN
EXCEPT AS INDICATED
Upper Sequence (US)
Chert
Shape of UV Orebody
on E-W Section
at 8+50 N
US
QPC
2000
3000'
2000
Massive Sulfide
Black Schist
Cleopatra
Quartz Porphyry
(QPC)
2500
TD 2526'
US/QPC
Note: The United Verde orebody
outline is for purposes of
illustration only. I. P. inter-
pretation is much less
detailed.
3000
2000'
POSSIBLE LOCATION OF SOURCE
OF I. P. ANOMALY IN ANACONDA
DOWN HOLE SURVEY (AV-28)
?
Massive
Sulfide ?
PROJECTION OF FAVORABLE
HORIZON INTERSECTED AT
4120-4449' IN AV-28
VERDE FAULT
US
QPC
TO
4672'
CoCa MINES INC.
JEROME PROJECT
SECTION 34+00N
SHOWING HYPOTHETICAL
SOURCE OF
HOPEWELL ANOMALY
FOR: RAR DATE: 3-18-84 BY: TRL S.N.: 1974


2000 E
3000 E
4000 E
AV-28
(460' S)
CM-2
(10' N)
5000'
Tb
Tg
Mr
Mr
HOPEWELL ADIT
Dm
Dm
Nx CASING
FROM 180'
TO 720'
500
CM-2
AS PLANNED
Ct (?)
Ct (?)
pC volc
pC volc
1000
4000'
WK
MINL.
1000
Elev. of UVX 1400 Level
(3700 Ft.)
OPTIMISTICALLY INTERPRETED
SOURCE OF HOPEWELL
I. P. ANOMALY
1500
WK MINL.
ALL BARREN
Upper Sequence (US)
2000
3000'
Massive Sulfide
2000
EXCEPT AS INDICATED
Cleopatra
Quartz Porphyry
(QPC)
US
QPC
2500
TD 2526'
HIGH SCHOOL
SYNCLINE
POSSIBLE LOCATION OF SOURCE OF
I. P. ANOMALY IN ANACONDA DOWN HOLE
SURVEY (AV-28)
3000
2000'
US
QPC
?
Massive
Sulfide ?
VERDE FAULT
PROJECTION OF FAVORABLE HORIZON
INTERSECTED AT 4120-4449'
IN AV-28
QPC
US
TO
4672'
CoCa MINES INC.
JEROME PROJECT
SECTION 34+00N
SHOWING ALTERNATIVE
HYPOTHETICAL SOURCE OF
HOPEWELL ANOMALY
FOR: RAR DATE: 3-18-84 BY: TRL S.N.: 1973

Nicor

M E M O R A N D U M

DATE: February 29, 1984

TO: H. J. Matheson

cc: TEC CFB
JCM FPC
LWF P.Lindberg

FROM: R. A. Rivera

SUBJECT: Progress Report for October 31, 1983 to February 29, 1984, Jerome Project

INTRODUCTION AND SUMMARY

This is the third of a series of short progress reports supplementing the last comprehensive report, dated June, 1982, on the Jerome Project. Previous reports of this series were dated 8/27/83 and 10/30/83 and should be consulted for background on current activities described here. A 1"=1 mile location map with a set of four overlays is attached to the present report illustrating the matters discussed. Overlays show: land boundaries, geophysical survey lines, drill holes and geology, respectively.

During the report period the contracted surface geophysical survey program was completed. This included induced polarization (I.P.) and controlled source audio-magnetotelluric (CSAMT) surveys. A small test program over the United Verde deposit was also run with the permission of Phelps Dodge Corp. using pulse electromagnetic (PEM) and CSAMT equipment. On the whole, the surface geophysical results were a disappointment, underscoring the difficulties involved in the exploration for mineral deposits at depths greater than 1000 feet.

While both the Hopewell and South A&A anomalies were confirmed by the 1983 surveys, the nature and exact positions of their causes remain ambiguous and uncertain. It appears that more surface drill holes than previously anticipated will be required to resolve these uncertainties.

Drilling in holes CM-2 and CM-3 was carried out during the report period. Hole CM-2, our first test of the Hopewell anomaly, is currently in progress at a depth of 2125 feet. This hole has encountered weakly mineralized upper sequence andesitic and basaltic volcanic rocks and is now believed to lie immediately west of the source of the anomaly. Given lack of direct encouragement, the hole will be terminated at 2500 ft, cased with perforated plastic pipe and tested with surface-to-hole electromagnetic equipment to investigate the ground within 500 ft of the hole for a "near miss" situation.

Hole CM-3, the second of the holes to be drilled in the Fanny Hill area in satisfaction of terms in the Verde/CoCa agreement, has been completed to a depth of 1000 ft. No mineralization was encountered but the hole has yielded encouragement of a geologic nature.

DRILLING AND DRILL SAMPLES

Study of the results of CM-1, the first hole drilled in the Fanny Hill area, has been completed. Drillers and geologists logs, assays and petrographic reports were duly filed on January 23, 1984. The three geologists who have studied this hole (P. A. Lindberg, P. A. Handverger and C. F. Meyer) have reached agreement in the opinion that the rocks penetrated may be correlative with the Cleopatra quartz porphyry unit, the most favored stratigraphic footwall unit in this district. The intercepted rock is best termed a sericitized quartz, feldspar rhyolite porphyry.

Only weak Au, Cu, Zn and As anomalies were found in the set of 24 samples taken from the core of hole CM-1. A single moderately high mercury anomaly was found. This was located at the base of the Paleozoic rocks covering the Precambrian rhyolites.

The total cost for the drilling of hole CM-1 can now be reported, all invoices finally having been received. This cost is tabulated as follows:

Item	Cost		
	$	$/ft Hammer	$/ft Diamond
Hammer Drill (525 ft)	5,314.70	10.12	
Case and Diamond Drill (367 ft)	13,414.45		36.55
Road Construction and Materials	1,126.12		
Total (892 ft)	19,855.27	22.26 (overall)	

Seven companies were asked to bid on the early 1984 drilling program at Jerome. A comparison of the bids resulted in the selection of the Longyear Company to carry out both the hammer and diamond drilling phases of the work. A memorandum dated February 9, 1984 records this selection decision. Bids were solicited by telephone calls on January 18, 1984, Longyear was awarded the contract on January 24, 1984 and was mobilized and drilling on January 27, 1984. This remarkably demonstrates the severe lack of mineral exploration work going on in the southwest at this time.

The hammer drilling was carried out on a single 10 hour shift daily schedule. The diamond drilling operations are on a continuous basis (3-8 hr daily shifts) on hole CM-2 and on a double 10 hr daily shift basis on CM-3. Two diamond drill machines were mobilized.

Hole CM-2 was collared on January 27, 1984 at a 70° inclination bearing due east. It was drilled to 720 feet and cased with down hole hammer equipment and is currently being deepened with NQ size diamond drilling equipment to a minimum total depth of 2500 ft. (Depth to date this report is 2125 ft.) A down hole gyroscopic survey was run on February 21st by Mollen-Hauer Surveying Co. and showed an unfortunate steepening of the hole to an inclination of nearly 85°. This is such as to jeopardize the testing of the Hopewell anomaly.

Hole CM-2 penetrated a normal sequence of Paleozoic strata entering the Precambrian at 755 feet. To date it has penetrated volcanic flows and tuffs predominantly of andesitic or basaltic composition. Weak pyritic mineralization was encountered near and within the only felsic rocks so far encountered (in the vicinity of 840-1000 ft). This included an 8 ft intercept of massive jasper. This weakly mineralized zone may represent that interpreted from the geophysical data to be a small satellite of mineralization west of the main Hopewell anomaly.

Nothing yet penetrated in hole CM-2 can explain the Hopewell induced polarization anomaly. Disseminated pyrite is rare to absent and massive mineralization is so far absent. The explanation that such mineralization is present in the area, nearby, remains a viable hypothesis.

A preliminary summary log giving more information on CM-2 is attached to this report. Detailed logging and sampling of this hole is in progress.

Hole CM-3 was collared vertically on February 2, 1984 and was drilled to 550 ft and cased with down-hole hammer equipment. It was deepened to 1000 ft with NQ size diamond drilling equipment and was stopped on February 22, 1984. The 550 ft of NX casing was left in the hole pending a decision on deepening at some future date. (No reclamation work on the drill road to CM-1 and CM-3 is planned until such decision is made respecting more drilling.)

The detailed logging and sampling of hole CM-3 has not yet been completed, however a preliminary summary log is provided, attached to this report. The hole is located only 470 ft N67E and 30 ft lower than CM-1 but encountered remarkable different Precambrian lithology thought to be of the upper sequence. If so, then the upper sequence/Cleopatra interface known as an important ore control at Jerome may lie between the two holes. Unfortunately, no mineralization of note was encountered.

The hole penetrated Precambrian formation from 560 to 1000 feet. The top contact is apparently a fault, much of the Paleozoic stratigraphy being missing at the site of the hole.

A report describing the selection of drill sites for CM-1 and CM-3, together with drafted maps showing Verde's mercury soil geochemical survey results in the Fanny Hill area, is in preparation.

A diamond rock cutting saw has been loaned to the project by Paul A. Handverger. This is being used to cut core for the construction of skeleton logs and to cut samples for both assay and petrographic studies.

GEOLOGY

The program of compiling geologic data into a set of detailed level plans and cross sections advanced during the first part of the report period but has now come to a stop with the pressure of other work, principally logging of core. A part of this program has continued, however, namely the re-logging and sampling of cuttings and core from drill holes in the vicinity of the Hopewell and South A&A anomalies. So far only holes AV-26 and AV-27, believed to lie on the immediate west side of the Hopewell target, have been relogged and sampled. Eventually holes MM-1, 2, 5, 6 and AV-8, 11, 16, 18, 20 and 28 will be re-studied.

The 1"=200' scale mapping project in the vicinity of the United Verde pit is about 25% complete.

Geologic investigations in the Haynes area resulted in the re-discovery of a zone of exotic copper minerals in the vicinity of 1700N, 2900W (UV grid). This was described in a short memorandum to file dated December 20, 1983. Further prospecting in the area will be undertaken in connection with the 1"=200' scale mapping project.

A discussion of the geologic aspects of the exploration program at Jerome was held on the occassion of a visit by C. F. Meyer to deliver the results of his petrographic work on samples from hole CM-1. These discussions were recorded in a memorandum to file dated December 19, 1983. The opinion that the Hopewell anomaly might represent a United Verde type of deposit was sustained in this discussion.

A set of prints of 59 maps covering the Jerome district was obtained during the report period. These represent a large compilation project thought to date from the 1960s. Much geochemical data and geological interpretation not seen in the Verde exploration files is

present and will be incorporated, as appropriate, in CoCa Mines' own compilations. Details regarding these maps was provided to the record in a memorandum to file dated January 23, 1984.

Fragmentary data from a petrologic and chemical study conducted by James F. McAleer in 1972 for Anaconda has been compiled onto base maps prepared by Verde Exploration, Ltd. This information will be compared with the results of the academic studies discussed below when they become available.

GEOCHEMISTRY

The results of CoCa's 1983 soil geochemical sampling program for mercury were presented in a series of three short summary reports recorded for assessment work on the Late Comer, Little Tidy and Gunbarrel group unpatented claims. Geochemical analysis for base and precious metals and for trace elements is being routinely carried out in the course of logging CM series drill holes and re-logging earlier drill holes. These results are discussed elsewhere in this report (under Drilling and Geology).

Verde Exploration, Ltd., Phelps Dodge Corp. and CoCa are cooperating in two geochemical/geologic studies of Jerome by outside groups. The first is a geochemical study of the Yavapai series volcanic rocks being undertaken as a PhD project by Kelly Vance of the technical University at Socorro, New Mexico. The second is a post-doctorate study of rare earth element geochemistry in the immediate vicinity of Precambrian massive sulfide ore deposits being undertaken by Dr. Mike Lesher of the University of Toronto.

Compilation of the various records of mercury soil geochemical sampling programs conducted by Verde Exploration, Ltd. over the years is in progress. This includes work in the Fanny Hill, Hopewell anomaly, A&A and other areas. This information will be merged with records of similar surveys by Anaconda. To date only the Fanny Hill data are nearly ready for presentation as noted above (under Drilling).

GEOPHYSICS

The contracted surface geophysical project which was one of the major tasks of the 1983-84 Jerome program was completed on November 17, 1983. The duration of field

work contracted by Zonge Engineering Research Organization (ZERO) under this project was nearly two months and involved three types of surveys. These included:

Induced Polarization (IP or CR) - 3 lines

Controlled Source Audio Magneto-Telluric (CSAMT) - 3 lines and some test readings

Pulse Electro-magnetic (PEM) - 1 line and some test readings

Statistics on the line coverages under these surveys as well as under the magnetic and VLF surveys conducted by CoCa Mines personnel are presented on the attached table and on an overlay to the location map. As indicated, more line picketting, magnetic and VLF surveying are planned for the immediate future, mostly in the Haynes area.

To date formal presentation of geophysical survey results is complete only for the CSAMT survey. Five copies of a 10 page hardbound report with numerous plates and dated January 12, 1984 have been received from ZERO. These will be distributed as follows: 2 to Verde Exploration, Ltd. with the April 1, 1984 quarterly submission, 2 for CoCa Mines and 1 to Phelps Dodge Corp. (already submitted) pursuant to our understanding of August 12, 1983 (see memo of 8/17/83).

The results of the IP (CR) survey are to be presented by CoCa Mines Inc. and await the attention of our draftsman. Field plots and interpretations have been completed, however, and are in regular use in the Jerome office. A study of the conversion of units between 1982 and 1983 IP surveys has been presented (memo to file dated 12/16/83). The results of the ongoing magnetic and VLF surveying program are being maintained in Jerome.

The results of the PEM survey have not yet been received from ZERO. A set of six geologic maps and cross sections constructed by Paul Lindberg for inclusion in the PEM report have been completed.

As stated in the previous progress report, the results of the IP survey, while confirming the presence of two targets at depths in the order of 1500 ft, did not provide definitive information. This was due to interference effects from a complex network of pipes and sulfide rich dumps over a large area in the central portions of lines.

The intent of the CSAMT survey was to attempt confirmation of the two targets using a different geophysical method. To this end Line 38N, the traverse on which both the So. A&A and Hopewell anomalies have their "cleanest" expression, was surveyed with CSAMT. When this work did not result in a definitive confirmation, it was decided to test the method over the known conditions at the United Verde massive sulfide deposit.

The statement in ZERO's report that the United Verde sulfide body was detected by a "reasonable" anomaly (pg 2) is belayed by an examination of the pseudo-sectional data. Clearly, had the fact that the huge massive sulfide body was present not been known, no anomaly would have been recognized. It is noted that similar vague features are present over both the South A&A and Hopewell anomalies on Line 38N.

It is this writer's opinion, after study of the CSAMT survey data over the United Verde deposit, that the method's depth of exploration is 1000 ft or less and that the method is probably unsuitable for use in the northern part of the Jerome district where Paleozoic and conductive Tertiary cover is present over the Precambrian volcanic rocks in which ores are to be found. The lack of strong confirmation for the presence of CoCa's two targets is, therefore, not regarded as fatal.

Search through Verde Exploration, Ltd. records has uncovered data from down hole IP surveys conducted by the Anaconda Company in holes AV-20 and AV-28 in the vicinity of the Hopewell anomaly. Contrary to statements in an Anaconda report (memo Johnson to King, 1/15/80), the results from AV-28 are believed by this writer to suggest the presence of a mineralized body within 1000 ft of the hole at a depth in excess of 3000 ft. When combined with variants to Paul Lindberg's folding models in the area this interpretation bodes well for the Hopewell IP anomaly whose source is believed to lie at a depth of 1500-2000 ft a distance of 1000-1500 ft easterly of AV-28. The data from the Anaconda down hole surveys have been redrafted by CoCa and will be presented with a report in the near future.

A down hole electromagnetic survey is planned for drill hole CM-2 to test for the near miss situation thought to exist. Crone Geophysics Ltd. of Toronto has been contracted to perform this work during mid-March, 1984.

ENGINEERING AND SURVEYING

It has been discovered that during their long tenure on the Jerome Project, Anaconda did not set up a system of survey control, nor did they use the triangulation system used by the Mingus Mountain Mining Company in the early 1950s. Further, serious errors have been discovered on the base topographic map used by Anaconda; specifically, where extensions to the Mingus Mountain Company maps were made using enlargements of the USGS 15 minute topographic maps.

While so far CoCa's search of old records has not yielded definitive data on the Mingus Mountain control network (triangulation diagrams missing from their slots in the vault), some information is being pieced together. These efforts are discussed in memoranda to file dated 8/21/83, 9/15/83 and 12/1/83.

Unable to accept the known errors in the Anaconda topographic base maps, which maps in any event are too large in size to store properly, it has been decided to generate a new set of 1"=400' scale base maps for the project. These will use the Mingus Mountain topography where available, extended to cover the entire Verde District with enlargements of the 7 1/2 minute USGS quadrangles now available. Maps will show mineral monuments, triangulation stations, sections, townships and ranges, much of which information is missing from the Mingus Mountain maps. (See details of this exercise in the 12/1/83 memorandum.) To date, four 10,000 x 14,000 ft areas covering the heart of the district have been drafted onto 26 x 42 inch sheets. Eventually 13 or more such sheets may be required to present CoCa's exploration activities.

Given success in CoCa's early exploration programs at Jerome a comprehensive compilation of data will be made as sets of overlays on the new system of base maps. These will show: drill hole locations, underground workings, individual patented and unpatented claims, surficial geology, subsurface geology as level plans and geophysical, geochemical and petrographic sample locations and results.

Surveys are in progress in the Dundee area in connection with our offer to purchase the Green Flower claim. Local surveyor Joe Jones is carrying out this work for the purpose of determining exact boundary lines and acreages. Instrument surveys may be required in the near

future to tie together locations of drill holes, geophysical lines and land boundaries in the Hopewell corridor area. To date most of CoCa's geophysical line location and claim location work at Jerome has been carried out by compass and tape surveys.

LAND AND PERMITTING

The August 15, 1983 operating plan covering drilling and roadbuilding activities on the USFS lands in the Fanny Hill area has been amended to cover hole CM-3. This amendment was approved January 25, 1984 (see 2/6/84 memo to file).

Notices of intention to drill exploration "wells" have been filed with the Arizona Department of Water Resources in compliance with ARS 45-596. These were acknowledged by the department on February 6, 1984 after the first submission dated January 24, 1984 was replaced by a corrected submission dated January 30, 1984. These notices cover both holes CM-2 and CM-3.

The status of new land acquisitions on the Jerome project is as follows:

Property	Owner	Status
Reverse Pat. Claim (MS 3436)	Peter D. Arey	License and options agreement signed effective 3/10/84. New escrow agent named. Initial consideration paid.
Green Flower Pat. Claim (MS 1455)	Selna/Mongini	Option Agreement is in escrow. Efforts are in progress to correct treasurer's deed. Survey is in progress.
Green Up Pat. Claim (MS 1455)	Ramon Dana	Attempts to recontact him have failed.

Eight new mining claims called LAM 1-8 were located in the Fanny Hill area by CoCa Mines Inc. on November 15-17, 1983. These fill interstices between the Verde Exploration, Ltd. claims and adjacent fee lands and secure

all land in that area which remained open to location. Notices of location were duly recorded and filed. Details of this exercise are provided in memoranda from Rivera to Lagos dated November 30, 1983 and Miller to Rivera dated November 19, 1983.

Contrary to statements in the last progress report, further consideration of the facts lead to the decision to amend all 27 of Verde Exploration, Ltd.'s unpatented claims in the Fanny Hill area in conjunction with the re-monumentation exercise. This was carried out on November 14, 1983 thus insuring the integrity of the Verde claims vis-a-vis overlaps by the LAM group. Amended location notices were duly recorded and filed. Details are provided in Miller's November 19, 1983 memorandum and in a memorandum to Lagos dated December 14, 1983.

Affidavits of annual labor for 1982-83 covering Verde's 27 unpatented claims held under lease and CoCa's own seven claims near the A&A lands were duly recorded and filed prior to the December 31, 1983 deadline.

Verde Exploration, Ltd. has responded informally with expressions of interest in CoCa's likewise informal offers concerning inclusion of the UVX gossan zone patented lands in the Verde/CoCa lease. Possibilities discussed with Paul Handverger involve inclusion of the Green Flower claim under option to CoCa into the Verde/CoCa agreement or purchase of surface plant at the Edith Shaft by CoCa from Phelps Dodge. Discussions continue.

Following encouragement from the Phelps Dodge exploration group, the writer once again approached PD in writing with a request for an exploration agreement in the northern part of the Jerome District. This approach was rebuffed. Details are given in memoranda dated 12/16/83 and 2/1/84.

Phelps Dodge has agreed to fully cooperate with CoCa Mines in our exploration activities in Jerome including allowing placement of our drill holes on Verde mineral lands of which PD owns the surface. Unfortunately, they have requested written factual data concerning such holes. So far CoCa has declined to provide such information and has asked Verde to intercede in an expression of their rights under the deeds whereby the surface was sold. A map is in preparation showing all areas where predecessors to Verde have sold surface rights and/or rights of way to the predecessors of Phelps Dodge. These matters are discussed in the 2/1/84 memorandum and in a memorandum to file and a letter to P. A. Handverger both dated 2/29/84.

Detailed land maps showing all patented and unpatented claims and fee land lots have been drafted for two of the 10,000 x 14,000 ft quadrangles discussed above (under Engineering). These will have great value in providing control in the field and in re-tracing critical land boundaries. These maps are currently in the proofing stage.

Mr. Fredrick E. Kallof, owner of the Silver Plate lands, requested an interview on February 25, 1984. Mr. Kallof advised that Phelps Dodge had approached him with an expression of interest for an exploration agreement in connection with their nearby Copper Chief project. He wondered as to CoCa's interest. I advised that CoCa did not presently wish to intrude into the Phelps Dodge play but that in the event that PD and he were unable to come to terms we would reconsider.

FIELD OFFICE, RECORDS AND STORAGE

Painting of the badly deteriorated exterior trim on the three mine buildings currently being used by CoCa is 90% complete. This exercise required extensive replacement of deteriorated sashes, doors, frames, etc, especially at the upper mine office. Rubble from a collapsed wall behind this office has been cleared and steps are being taken to secure open entry ways into the building. Much clean-up work within the buildings has also been carried out.

Donald Metzler has been responsible for all of the building rehabilitation work, assisted a few times by contracted labor. These efforts have been rewarded with much favorable comment from neighbors, residents of Jerome, tourists and by Verde's representatives. A handsome payoff in public opinion can be expected given exploration success and mine development on the project.

A mountain of badly deteriorated old records (mostly business records) found in the basement of the transformer building has now been sorted and reboxed. These materials have been stored on pallets in the lower mine office. Study and copying of the more important records will proceed as time permits.

An inventory of all available samples and drill hole core is in progress. So far the extensive AV series and the MM and JD series are inventoried. This inventory has

disclosed the absence of 35 boxes of core from the most important intervals encountered in Anaconda's long program at Jerome. Verde has been asked to attempt retrieval of this core from Anaconda (see letter Rivera to Handverger, 2/23/84, for more details).

Due to the above activities work on copying exploration records reached a low point during the report period. This will resume to its former pace in March. Lynn Thieme, our part time secretary, having demonstrated a remarkable organizational ability, will carry out most of this work.

PLANNING, SCHEDULING AND MANPOWER

The Jerome Project is now operating under the program outlined in the 1984 exploration annual work plan submitted in January. This includes fulfilling obligations to Verde on the Fanny Hill area, the initial testwork of the Hopewell anomaly, land acquisition and continued data compilation.

Project staff is as follows:

R. A. Rivera, Project Manager
Paul A. Lindberg, Consulting Geologist (50%)
Donald Metzler, Junior Geologist
Lynn Thieme, Contract Secretary (20 hrs/wk)
Trina Lutwiniak, Draftsman(Temporary Assignment)

Peter J. Miller left the project on December 9, 1983 for work on the company's properties in Nevada and California.

The CoCa Mines "expatriate" crew changed its domicile from the home of Paul Handverger to the Lewis Douglas residence in Jerome on January 15, 1984. The owners of this historic home, the family of Earl Bell, impressed by CoCa's rehabilitation work on the mine office buildings, finally agreed to the rental of the home on a month to month basis at a very reasonable price. Details of the agreement are given in a memorandum dated January 23, 1984.

Paul Handverger and his family returned from Alaska on January 30, 1984. Paul took up his mantle as representative of Verde Exploration, Ltd. a few days later and is being kept regularly informed of progress on CoCa's exploration program.

VISITORS AND NEWS

A 10-15 man crew from the Anaconda Company visited Jerome during February 3-6, 1984 after attending that company's annual exploration meeting in Tucson. A few of that crew stopped by the CoCa offices for a visit during the period.

Mr. John Lachta, geologist, joined the Newmont Exploration crew active in Jerome on lands leased from Verde Exploration, Ltd. These include the A&A lands and the large group of unpatented claims in the south of the district. Newmont completed, during the report period, their PEM surveys on the A&A lands and over the United Verde deposit but are continuing such surveys at present on the southern block of claims. These activities are under the direction of Jeff Chambers. James Meyer has been mentioned as being in overall charge of Newmont's program but this has not yet been confirmed.

Deputy State Mine Inspector David Hamm was in the area for a short period in connection with a complaint lodged against Phelps Dodge on their Copper Chief underground rehabilitation work.

Mr. Chuck Arnold, senior staff geologist and coordinator of special projects and Andrew Peterson, local representative, both of Phelps Dodge Corporation stopped by the CoCa offices on February 10 and 24, 1984. Matters discussed are reported above (under Land).

Mr. Dudley F. Emer, chief geologist for ZERO visited the project during November 15-17, 1983. Dudley conducted the PEM test survey over the United Verde deposit himself.

A large group of professors and students from the University of Western Ontario visited Jerome on February 18-19, 1984. Paul Lindberg lead the group in a geologic tour. Prof. Bob Hodder was present in the group.

Mr. Vin Perry and Dr. C. F. Meyer, both retired from the Anaconda Company, stopped by the office on February 14, 1984. Various aspects of Anaconda's programs at Jerome were discussed.

A number of foremen from Longyear Company have been frequent visitors to the project in connection with servicing their drilling crews. These include Gary Muncy, Joe E. Reedy and the general manager Russell Beddow. Visitors from other drilling companies who bid on the job were: Nino Trujillo of Joy Machinery Co., James L. Witt of Drilling Services Company and David Todd of Coates Drilling, Inc.

Dr. Mike Lesher of the University of Toronto visited the project between February 10-13, 1984. Paul Lindberg collaborated in the collection of samples for Dr. Lesher's research work. Don Metzler also assisted in this program.

Mr. Kelly Vance of the technical University at Socorro visited the project during February 18-20, 1984 collecting samples for his research. Paul Lindberg collaborated in this work.

Local personalities John Dempsey, W. E. (Earl) Bell (a noted physicist) and Noel Knapp (survey instrument expert) have stopped by the office from time to time to pay their respects.

Job applicant Mark P. Bunn advises that the McCabe-Gladstone project of Jerome Mining Corporation (Stan West Mining Corp.) has died. Evidently all newly installed surface plant is being removed and the mine allowed to flood. Project manager Allan St. James is reported to have been laid off! A memorandum describing the project was submitted to file dated 2/1/84.

OTHER

Quarterly submission of factual data and reports to Verde as required by Section 4.1d of our 7/1/83 agreement was made on January 17, 1984 for the 4th quarter of 1983. Twelve items were included in the submission.

R. A. Rivera/njb

R. A. Rivera

RAR:njb
Attachments as noted on next page

Attachments

1) Location Map at 1"=1 mile scale and four overlays (Ser. Nos. 1748, 1749, 1750, 1826, 1827, rev. 2/29/84)

2) Status Report on Geophysical Coverage (Table)

3) Summary Geologic Log, Hole CM-2

4) Summary Geologic Log, Hole CM-3

STATUS REPORT ON GEOPHYSICAL COVERAGE
JEROME PROJECT, ARIZONA

Date: February 29,1984

Line Number	Picketting of Stations		Geophysical Coverage				
	Planned	Installed	IP AND/OR CR	CSAMT	MAG	VLF	PEM
81N	29E-108E:7,900	29E-108E:7,900	- :0	- :0	29E-108E:7,900	29E-108E:7,900	- :0
54N	80W-71E:15,100	80W-71E:15,100	80W-70E:15,000	- :0	80W-71E:15,100	80W-71E:15,100	- :0
46N	74W-81E:15,500	74W-81E:15,500	74W-86E:16,000	- :0	74W-81E:15,500	16W-83E:9,900	- :0
42N	75W-135E:21,000	75W-135E:21,000	75W-85E:16,000	- :0	76W-135E:21,100	55W-67E:12,200	- :0
38N	74W-135E:20,900	74W-135E:20,900	74W-116E:19,000 (rerun)	36W-50E:8,600	74W-135E:20,900	34W-135E:16,900	- :0
34N	74W-135E:20,900	74W-135E:20,900	74W-126E:20,000	- :0	74W-135E:20,900	2W-46E:4,800	- :0
30N	74W-125E:19,900	74W-125E:19,900	- :0	- :0	74W-125E:19,900	0-42E:4,200	- :0
26N	74W-115E:18,900	74W-115E:18,900	75W-0:7,500	- :0	74W-115E:18,900	3E-45E:4,800	- :0
22N	74W-109E:18,300	74W-109E:18,300	0-110E:11,000	- :0	74W-109E:18,300	21W-40E:6,100	- :0
18N	45W-20E:6,500	- :0	- :0	- :0	- :0	- :0	- :0
16N	45W-20E:6,500	16W-12E:2,800	- :0	- :0	- :0	- :0	- :0
14N	45W-20E:6,500	21W-14W:700	- :0	20W-14W:600	- :0	- :0	- :0
12N	45W-20E:6,500	45W-14E:5,900	- :0	20W-10E:3,000	- :0	- :0	- :0
10N	45W-20E:6,500	21W-2W:1,900	- :0	20W-14W:600	- :0	- :0	- :0
8N	45W-20E:6,500	22W-9E:3,100	- :0	22W-6E:2,800	- :0	- :0	10W-4E: 1,400
5310 BenchLine	Irreg:700	Irreg:700	- :0	- :0	- :0	- :0	Irr:700
Test Line B	Irreg:200	Irreg:200	- :0	Irreg:200	- :0	- :0	One Rdg.
Test Line A	Irreg:600	Irreg:600	- :0	Irreg:200	- :0	- :0	One Rdg.
Totals 18 lines	198,900 ft (37.7 mi.)	174,300 ft (33.0 mi.)	104,500 ft (19.8 mi.)	16,000 ft (3.0 mi.)	158,400 ft (30.0 mi.)	81,900 ft (15.5 mi.)	2,300 ft (0.4 mi.)

SUMMARY GEOLOGIC LOG
(Incomplete)

February 29, 1984 R. A. Rivera
(Compressed from P. A. Lindberg Log)

(Hole in progress @ 2125 ft depth)

Hole No: CM-2

Approximate coordinates: UV Grid, 3410 North, 3240 East

Elevations (approximate): Collar 4920
Precambrian: 4203 (Vert.Depth 717)
Bottom of Hole ___, TD ___

Hole Size Data:
0-5 : 6.6 (OD) casing left in hole
5-720: 5 1/4" down hole hammer (cased to 720 with NX casing)
720- : NQ diamond drill

Planned Attitude: -70° due east

Survey data: Gyroscopic survey, readings every 100 ft 100 to 1500 and 1560. The point at 1560 is 216 ft N72E of the collar and the inclination at that point is -83°.

Dates Drilled: January 27, 1984 and in progress

Purpose: First test of Hopewell IP Anomaly

Geologic Record:

	0-25 :	Tertiary basalt
	25-35 :	Tert/Miss. unconformity
	35-234:	Mississippian Redwall-limestone
	234-690:	Devonian Martin dolomite
	690-712:	Cambrian(?) Tapeats shale
	712-730:	Cambrian(?) Tapeats sandstone
Precambrian	730-849:	Amygdoloidal pillowed basalt or andesite. Weakly pyritic but pyrite increasing at lower contact
	849-885 1/2:	Rhyolite flow, unmineralized
	@885 1/2:	Bedded pyrite zone (thin)
	885 1/2-910:	Rhyodacite(?) welded tuff, unmineralized
	@910:	Jasper exhalite (?) thin
	910-973:	Rhyolite flow, unmineralized

973-1004 1/2:	Amygdaloidal pillowed basalt, weakly pyritic
1004 1/2-1011 1/2:	Massive jasper
1011 1/2-1424:	Amygdaloidal pillowed basalt, unmineralized except in cherty zones between pillows
1424-1426:	Flow top breccia, rhy fragments
1426-1499:	Amygdaloidal basalt flow
1499-1553:	Andesite(?) tuff
1553-1576 1/2:	Weakly pyritic sericitized volc. breccia and flows (andesitic)
1576 1/2-1638:	Amygdaloidal pillowed basalt
1638-1650:	Talc rich fault(?) zone or inter-flow breccia
1650-1677:	Andesite(?) tuff
1667-2125+:	Amygdoloidal pillowed basalt, occas. zones of diabase texture. Occas. pyrite at pillow margins. Small, infrequent amygdules.

SUMMARY GEOLOGIC LOG February 29, 1984 R. A. Rivera
(Preliminary)

Hole No: CM-3

Approximate Coordinates: UV Grid, 440 South, 13,770 East

Elevations (approximate): Collar 4305
Precambrian: 3745 (Vert.Depth 560ft)
Bottom of Hole 3305 TD 1000 ft

Hole Size Data
0-10 : 6.6" (OD) casing left in hole
10-550: 5 1/4" down hole hammer (550 ft NX casing left in hole)
550-1000: NQ Diamond Drill

Planned Attidue: Vertical

Survey Data: Gyroscopic survey, readings every 100 ft, 100 to 800 and at 860 ft. The point at 860 ft depth lies 31 ft N52E of the collar.

Dates Drilled: February 2-23, 1984

Purpose: Offset mild encouragement in hole CM-1, 470 ft away. Requirement in Verde lease.

Geologic Record:

	0-370:	Late Tertiary gravel and congolmerate
	370-400:	Mississippian Redwall limestone
	400-415:	Sandstone (Devonian Martin?)
	415-515:	Devonian Martin sandy dolomite
	515-525:	Possible Precambrian fault block of rhyolite (qtz porphyry)
	525-540:	Lost sample (fault zone?)
	540-545:	Devonian Martin Formation
	545-560:	Cave material and fault gouge including Cambrian(?) tapeats sandstone
Precambrian	560-770:	Andesite tuff
	770-813	Rhyolite, highly fractured with prominent MnOx veinlets. Poss. fine sulfide (minor)
	813-839:	Andesite dike(?) sharp contacts
	839-841:	Rhyolite, highly fractured as above
	841-905:	Coarse grained andesite tuff with sparse jasper and rhyolite fragments
	905-1000: BOH	Andesite or basalt flow sparsely amygdaloidal with prominent silicified vein like zones with specular hematite sparse pyrite.

NICAR

MEMORANDUM

DATE: October 30, 1983

TO: H. J. Matheson

cc: TEC CFB
JCM PJM
LWF P.A. Lindberg

FROM: R. A. Rivera

SUBJECT: Progress Report for August 28-October 30, 1983, Jerome Project

INTRODUCTION AND SUMMARY

This is the second of a series of short progress reports supplementing the last comprehensive report on this project which was dated June, 1982. The first report of this series was dated August 27, 1983. This should be consulted for background on current activities described here. A 1"= 1 mile location map with a set of four overlays is attached to the present report illustrating the matters discussed. Overlays show: general geology, land boundaries, drill hole locations and geophysical survey lines.

During the report period the induced polarization (I.P.) geophysical survey was completed on three long traverses immediately south of the A&A lands surveyed in 1982. Unfortunately, the results, while positive, are ambiguous due to interference effects from the 500 level townsite and plant site complex. An attempt to map the anomalous indications using another geophysical method (CSAMT) is planned for the first half of November.

Hole CM-1 was completed during the report period to a depth of 892 feet. No mineralization was encountered. Small geophysical surveys were conducted on the seven fractional claims located by CoCa Mines in 1982 and all 1982-83 assessment work has been completed.

DRILLING AND DRILL SAMPLES

Hole CM-1, located on the Fanny Hill unpatented claim area on the east side of the property, (see overlay) was designed to test a target developed by Verde Exploration, Ltd. The basis for the target is a mercury soil geochemical anomaly. A report presenting the site selection reasoning and the Verde geochemical maps has still not been completed.

The drill hole encountered the Precambrian surface at a depth of 601 feet and penetrated 291 feet of variously altered rhyolitic material to a total depth of 892 feet. The hole was completed on September 7, 1983 by Boyles Drilling Company of Phoenix. A summary log giving more complete information is attached to this report.

Detailed logging and sampling of CM-1 has been completed by P. A. Lindberg. Twenty four samples were selected for assays on Au, Ag, Cu, Pb, Zn, As, Sb and Hg including one 5 foot interval at the base of the Tapeats (?) formation. This and one other short interval were split, the remaining samples being spot checks of short fragments of core. One sample has been selected for spectrographic analysis. All samples were submitted to Skyline Labs in Tucson on October 24, 1983.

In addition, 18 specimens were selected from the Precambrian core and will be prepared for petrographic studies. Hopefully such studies will result in a definative interpretation as to the location of CM-1 relative to the top of the Cleopatra Quartz porphyry unit. At present the hole's location in the Precambrian stratigraphy is not known.

The total contracted cost for hole CM-1 is not yet available due to delays in obtaining the bit charge from Boyles Brothers. A preliminary breakdown of cost is as follows:

Item	Cost	
	$	$/ft (892 ft)
Maxfield Harris (Hammer Drill)	5,314.70	18.71
Boyles Bros. (Diamond Drill)	11,317.18	
Boyles Bros. Bit Cost	1,000.00(est)	1.12(est)
Subtotal Drillers	17,685.88(est)	19.83(est)
Road Construction & Materials	1,126.12	1.26
Total	18,812.00(est)	21.09(est)

All casing (except 20 ft to protect the collar) was recovered from the hole. A well marked permanent monument has been made of the capped collar of this hole for eventual use as a survey point.

Reclamation of the 3400 feet of new road constructed through USFS lands for access to CM-1 has not yet been carried out. This will await a decision as to the siting of the second Fanny Hill hole required by the Verde agreement to be drilled before July 1, 1984.

GEOLOGY

The major program of compilation of geologic data onto a set of plans and east-west cross sections has not advanced very far during the report period. Cross sections along the geophysical lines are, however, completed or nearly completed. Other duties assigned to P. A. Lindberg and his need to devote time to other clients are the principal reasons for the delay.

It has been decided to re-map the area immediately north of the United Verde orebody in considerable detail using 1"=200 ft scale blowups of the Mingus Mountain topographic map. P. A. Lindberg will be engaged in this work during November.

GEOCHEMISTRY

A total of 93 soil samples were obtained on or near seven unpatented fractional claims located by CoCa Mines in 1982. These samples were analyzed for Hg by Skyline Labs, Inc. in Tucson. The sampling was conducted on August 30, 1983 and samples were shipped the following day. An assay certificate dated September 19, 1983 presents the results.

Samples were taken every 100 feet along east-west traverses as follows (UV coordinate system):

Line 81N,	29E to 108E	(picketted)
Line 62N,	28E to 35E	(paced)
Line 42N,	17W to 21W	(picketted)

Results of analysis were suprisingly uniform and higher than expected (mean 0.30 ppm, std. dev.=0.20 ppm, range = 0.03 to 0.85 ppm). There is some uncertainty attending the significance of these results given the reported use of Hg at the Clarkdale smelter during the first part of this century. (P. A. Lindberg, verbal commun.)

Short reports presenting the geochemical data will be written in connection with the preparation of 1982-83 assessment affidavits.

GEOPHYSICS

The first phase of the 1983 geophysical program was completed during the report period. This involved:

1. Picketting of 18.4 miles of new E-W traverses and refurbishing pickets on 4.3 miles of old lines.

2. Completion of the magnetic survey over the entire 30 mile gridded area. (18.4 miles of new coverage)

3. VLF surveying in selected areas on the grid where pipelines are expected to lie. (7.1 miles of new coverage for a total of 15.5 miles to date.)

4. Induced polarization (actually complex resistivity) surveys on lines: 38N (repeat), 34N and a combination of lines 26N-22N (see overlay). This brings the total length surveyed with IP to 19.8 miles of traverse.

The details of line layout and coverage are indicated on the attached table and on an overlay to the location map.

All line picketting, magnetic and VLF surveys were carried out by CoCa Mines personnel using company owned equipment. The induced polarization survey was carried out by Zonge Engineering Research Organization of Tucson with a four man crew during the period September 22 to October 29, 1983 and under contract to CoCa.

The first phase of the 1983 geophysical program was designed to map the southern extent of the two I.P. anomalies discovered in the 1982 survey and to refine the position of the mineralized zones that were thought to be present. On line 38N, the two anomalies were believed to reflect mineralization at depths in excess of 1000 ft at stations 14W (South A&A anomaly) and at or near station 40E (Hopewell anomaly).

It is very disappointing to have to report that after the expenditure of considerable sums on the Phase I work the objectives have not been reached. While the presence of both anomalies has been emphatically confirmed, the results remain difficult to map in a quantitative way. The results from line 34N in particular have introduced the <u>possibility</u> that <u>both</u> anomalies could be strongly contaminated by the effects of a network of buried pipes over a large area near the lines. (The 500 level plant site and town site.)

Plotting and study of the I.P. data are still in progress and efforts continue to resolve the uncertainties using computer generated model responses for target ore deposits and for simulations of the townsite/plantsite complex. This work may yet result in the ability to separate effects from the two sources and allow proper analysis of the anomalies due to the targets.

Meanwhile the second phase of the geophysical program has begun in an effort to confirm, with a second geophysical method, that part of the IP anomalies are caused by two deep mineralized bodies. The controlled source audio magneto-telluric method (CSAMT) has been chosen for this test. Both the computer modelling work and the CSAMT survey are being performed by Zonge personnel under the supervision of CoCa Mines.

One aspect of the 1983 induced polarization survey has been an unqualified success. This is the quality and repeatability of the data. The use of the sophisticated electronic equipment supplied by Zonge, in combination with improved field procedures and high power capabilities (all at great cost) has overcome the severe electrical noise problems encountered in the 1982 survey run with more primitive equipment. Thus, there no longer exists an uncertainty as to the magnitude of any particular reading. What exists is an uncertainty as to the cause of anomalous readings.

The magnetic survey run on the geophysical grid has resulted in the discovery of an anomaly on the Haynes Group of patented claims. This anomaly (a 150-300 gamma high) is apparently caused by a tabular body in the Precambrian formations at depth below the carbonates of the area. The body strikes N10W over a length in excess of 2000 ft, has a dip near vertical and is probably 200 ft thick containing 1½ vol. % magnetite (Kt = 1.0 Cgs-Ft). It passes through line 22N at station 3340W (UV coordinates) and is best expressed on that, our southernmost line.

It is rare to obtain magnetic anomalies from Precambrain rocks in this area due to the pervasive chlorization of those formations. Possibilities (based on A. A. Brant's measurements of rock magnetic properties at Jerome in 1949) are:

a) Ore of the Haynes type (unlikely)

b) A weakly magnetic member of the Grapevine Gulch formation (most likely)

c) A Tertiary basalt dike which did not breach the Paleozoic rocks (quite possible).

An expansion of the geophysical grid to the south in the Haynes area will be undertaken, as time permits, to map the magnetic anomaly's southern extent and, hopefully, to allow further refinement of its width and magnetite content.

LAND AND PERMITTING

The August 15, 1983 operating plan covering drilling and roadbuilding activities on the USFS lands in the Fanny Hill area has been approved. This approval was received on August 30, 1983 and includes some conditions added by the USFS to our original plan (see memo dated 9/2/83).

The 1"=2000' scale generalized land map of the entire area around the Verde District has been updated. An analysis of recent changes was presented in a memo dated 10/18/83.

Three offers have been tendered to the owners of each of three patented mining claims internal to the Verde Exploration lands now leased to CoCa. The status of these negotiations is as follows:

Claim	Owner	Status
Reverse (MS 3436) (Yavapai Packing)	Peter Arey	Has accepted option to purchase mineral rights. Agreement being drafted by CoCa.
Green Flower (MS 1455) (Dundee)	Joe Selna/Emil Mongini	Have accepted option to purchase 50% of the mineral rights and to lease remaining 50%. A flaw exists in the treasurer's deed. Agreements being drafted by CoCa.
Green Up (MS 1455) (Dundee)	Ramon Dana	Has refused to consider any deal.

An informal offer has been made to Verde regarding the inclusion in our lease of the Gossan Zone over the UVX orebody. The offer involves agreement to keep the surface plant and shaft in good working order. The data available from Phelps Dodge work on this project is currently under review.

Examination of the unpatented claims leased to CoCa by Verde (the Fanny Hill and Fanny Hill extension groups) has found corner monuments either missing or in a poor state of repair. It was also found that these claim groups do not abut against adjacent fee lands and that a number of small areas remain open to location.

Consideration was given to amending all claims to correct certain minor defects in the location certificates and to close open areas (see memo dated 9/12/83 to W. C. Lagos). Given legal advice on the matter, such amendation has now been considered unneeded (letter Don Sherman to W. C. Lagos, 10/20/83). Activities in the area, therefore will be confined

to remonumentation of corners at original sites (as well as they can be determined) and to the location of approximately 10 new claims to cover the various fractions left by the original layout. This large and expensive effort is felt justified in view of the altered rhyolitic rocks encountered in the area by hole CM-1.

The 1982-83 assessment work obligations on the project area have been completed. Four separate affidvatis will be required due to the non-contiguous layout and the fact that the A&A lands are not included in CoCa's lease from Verde (see ARS 27-208-C).

A "detailed report" required for filing the geochemical and geophysical results with three of the four affidavits (covering the seven claims located by CoCa in 1982) is in preparation. Poor accessibility to drafting talent and the complexity of the land maps which have to be drafted to properly present the data has slowed progress on this report. Final costs have not yet been obtaind from Boyles Bros. to allow completion of the 4th affidavit.

Indications are that Verde Exploration plans to use those expenditures by CoCa on hole CM-1 in excess of $5400 to cover 1982-83 assessment obligations on their southern block of claims not leased to CoCa!

STORAGE AND FIELD OFFICE

Eighty four panes of glass (out of a total 343) were replaced and all windows reputtied in the three old mine office buildings owned by Verde and occupied by CoCa in Jerome. A new roof was installed on one of the buildings (the transformer building) which was found to leak severely. The cost to contractors for this work was $2,348.56 (see memos 9/14/83 and 9/20/83). An additional $1500 (est) was spent on materials used to construct core storage racks in all three bulidings and in the lower office.

All core found in the complex of these buildings has now been stored on racks and is off the floor (including the 20-30 long wooden boxes of JD series core found in the upper office). Capacity remains for only 4500 more feet of core on the racks constructed to date. Floor space remains, however, in areas freed by removal of huge piles of core in the upper office. An inventory of existing core is now in preparation and work in organizing cuttings from rotary drilling activities is in progress at a low priority.

Painting of the badly weathered wooden trim on the office buildings is scheduled for November or December using CoCa Mines personnel. Modern telephones, allowing direct dial credit card calls, have been installed in the offices.

Copying of drill logs and other old exploration records is proceeding at the rate of approximately 6000 page/mo. Lack of suitable part time help is hampering this effort.

PLANNING, SCHEDULING AND MANPOWER

Delays in the mobilization of the geophysical contractor and in the execution those surveys have forced a delay in scheduling further drilling on the property. Such drilling activities are now being considered for January, 1984 to allow sufficient time to study the results of the geophysics and of the geologic data compilation work.

There are as yet no changes in the plan as outlined on August 10, 1983.

Project staff remain as before, namely:

R. A. Rivera, Project Manager
Paul A. Lindberg, Consulting Geologist (30-50% of time)
Peter J. Miller, Project Geologist
Donald Metzler, Jr., Geologist

Various part time temporary help has been contracted from time to time to help with copying records and other laborious tasks. At present a draftsman is urgently required on a temporary basis.

The project is fortunate to obtain, on a limited basis, the consulting services of C. F. Meyer. Chuck will be involved primarily in petrographic studies of specimens from drill holes near the target areas.

VISITORS AND NEWS

Mr. William Golden of Verde Exploration, Ltd., accompanied by his daughter, Sibyl, paid a visit to the project office on September 24, 1983. A short synopsis of our plans and exploration targets was presented.

Mr. Harry Seigle, President of Scintrex, Inc. of Canada, stopped by on September 23, 1983. He indicated that he had worked on the Jerome project with Arthur A. Brant in 1947-49. Mr. Seigle is consulting for Jerome Mining Company in connection with their McCabe-Gladstone project near Prescott. According to Alan St. James, project manager, the shaft is now at 1050 ft depth and will be deepened further in the near future.

Mr. Angus Scott-Fleming of Zonge Engineering spent September 22 and 23 on the property advising on the design of the geophysical surveys.

Mr. Jeff Chambers, geophysicist with Newmont, arrived on October 6, 1983 with a small crew. They are setting pickets on their A&A holding in anticipation of running a pulse E-M survey upon the completion of our survey in mid-November.

Mr. Armando , of Phelps Dodge stopped by on October 26, 1983 with a three man crew. He is also setting pickets in the area immediately north of the United Verde orebody in anticipation of a CSAMT survey to be run by PD after Newmont finishes. CoCa has certainly stirred up the geophysical activity in Jerome!

OTHER

Quarterly submission of factual data and reports to Verde as required by Section 4.1d of our agreement was made on October 5, 1983 for the July-September, 1983 quarter.

R. A. Rivera/njb
R. A. Rivera

RAR:njb

Attachments

1) Location Map at 1"=1 mile scale and four overlays
2) Status Report on geophysical coverage (Table)
3) Summary geologic log, hole CM-1

STATUS REPORT ON GEOPHYSICAL COVERAGE
JEROME PROJECT, ARIZONA

Date: October 30, 1983

Line No.	Picketting of Stations		Geophysical Coverage			
	Planned	Installed	IP	CSAMT	MAG	VLF
81N	29E-108E:7,900	29E-108E:7,900	None Planned	None planned	29E-108E:7,900	29E-108E:7,900
54N	80W-71E:15,100	80W-71E:15,100	80W-70E:15,000	-	80W-71E:15,100	80W-71E:15,100
46N	74W-81E:15,500	74W-81E:15,500	74W-86E:16,000	-	74W-81E:15,500	16W-83E:9,900
42N	75W-135E:21,000	75W-135E:21,000	75W-85E:16,000	-	76W-135E:21,100	55W-67E:12,200
38N	74W-135E:20,900	74W-135E:20,900	74W-116E:19,000 (rerun)	-	74W-135E:20,900	34W-135E:16,900
34N	74W-135E:20,900	74W-135E:20,900	74W-126E:20,000	-	74W-135E:20,900	2W-46E:4,800
30N	74W-125E:19,900	74W-125E:19,900	Not to be run	-	74W-125E:19,900	0-42E:4,200
26N	74W-115E:18,900	74W-115E:18,900	75W-0:7,500	-	74W-115E:18,900	3E-45E:4,800
22N	74W-109E:18,300	74W-109E:18,300	0-110E:11,000	-	74W-109E:18,300	21W-40E:6,100
Totals 10 lines	158,400 ft (30.0 mi.)	158,400 ft (30.0 mi.)	104,500 ft (19.8 mi.)	0	158,400 ft (30.0 mi.)	81,900 ft (15.5 mi.)

SUMMARY GEOLOGIC LOG October 7, 1983 R. A. Rivera

Hole No: CM-1

Approximate coordinates: UV Grid, 620 South, 13,340 East

Elevations (approximate): Collar 4335
Precambrian 3734 Depth 601 ft
Bottom of Hole 3433 TD 892 ft

Hole Size Data:

0-20	6" casing (left in hole)
20-525	5 1/8 down hole hammer
525-892	NX Diamond Drill

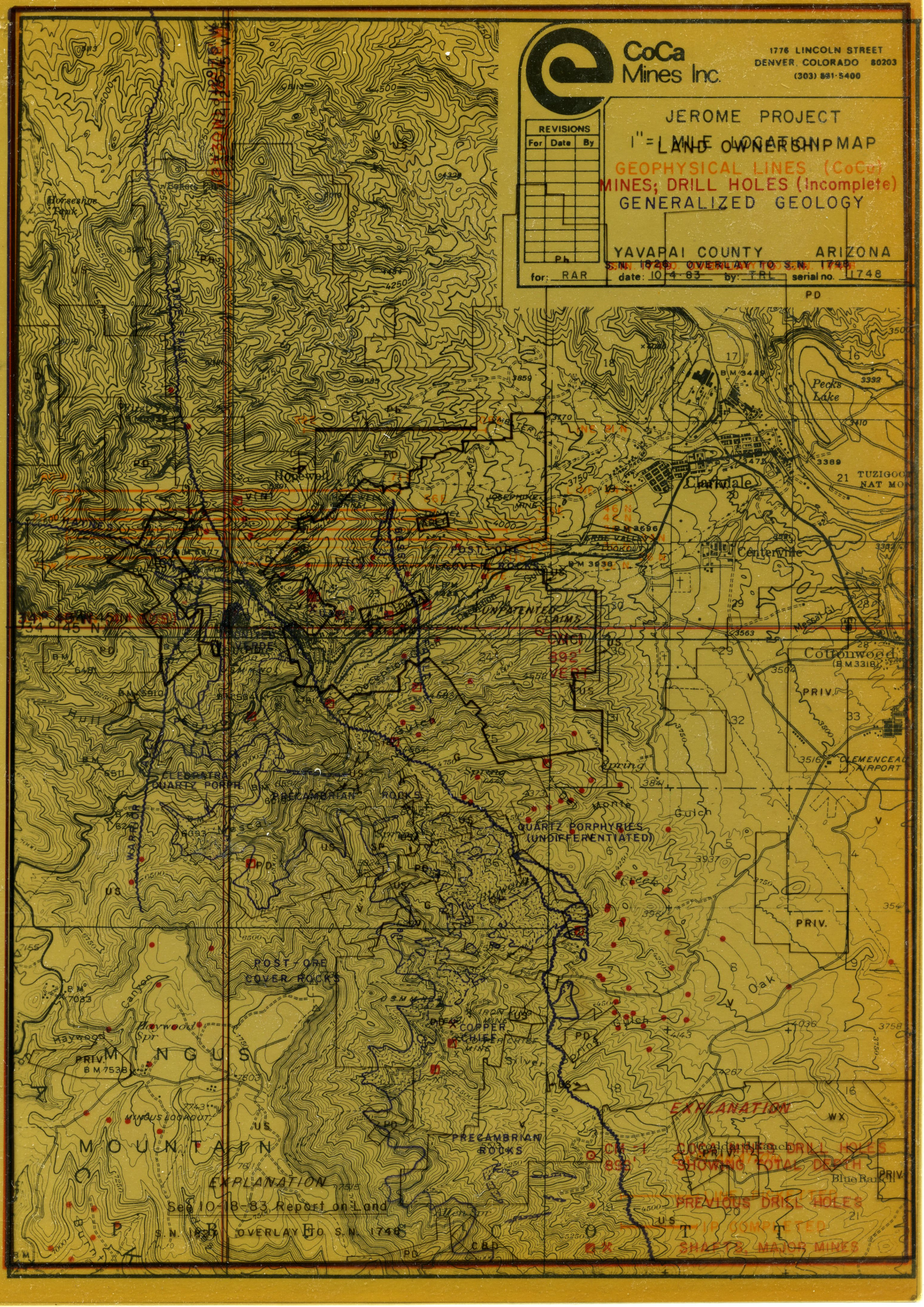
Survey Data: Acid Tube @ 855 ft incl = 86°
@ 891 ft incl = 86°

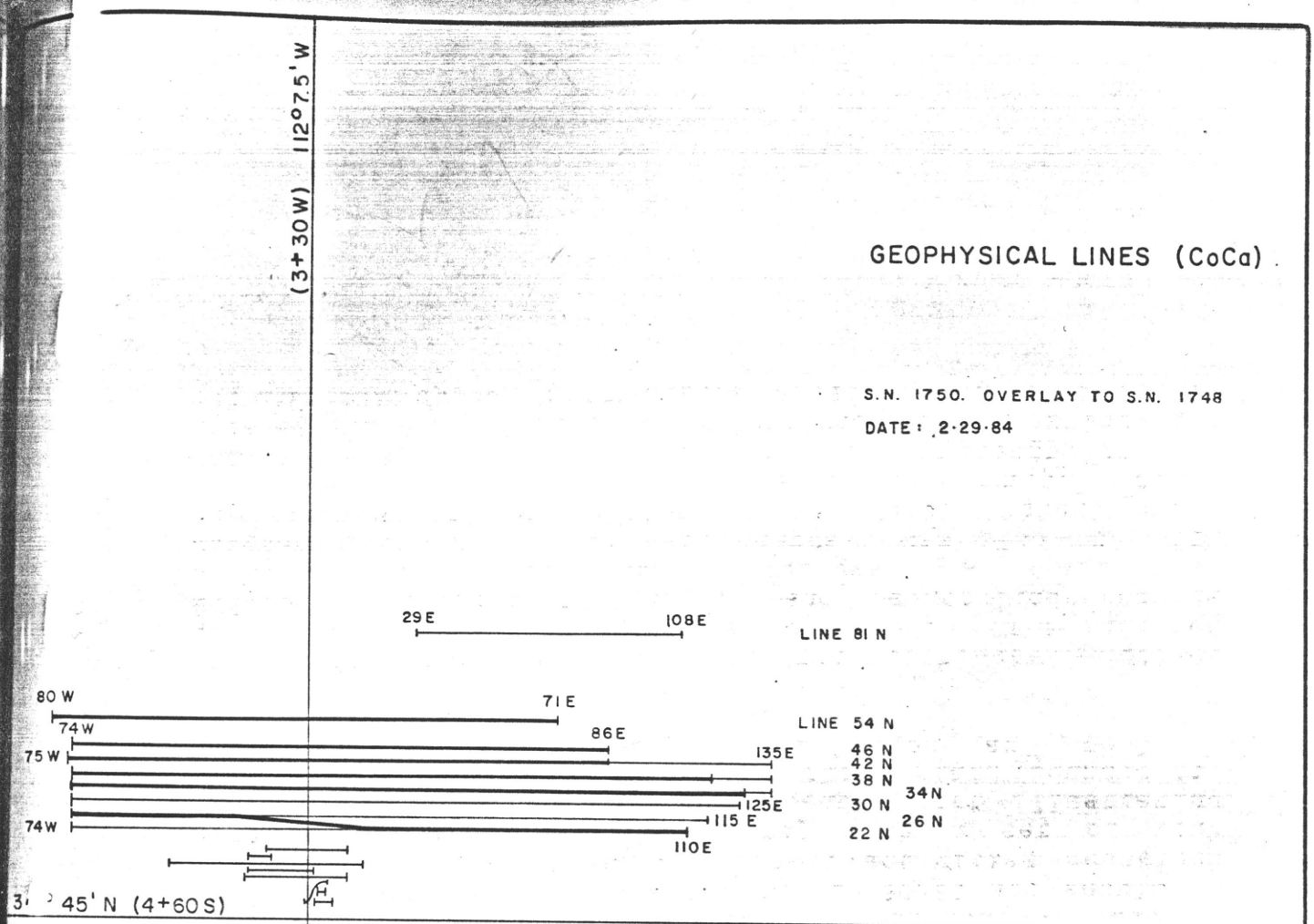
Dates Drilled: Aug. 15-Sept. 7, 1983

Purpose: Test mercury soil geochemical anomaly. Requirement in Verde lease. Assessment requirements met.

Geologic Record:

	0 -280:	Late Tertiary gravel and conglom.
	280-517:	Devonian Martin Dolomite
	517-539:	Cambrian tapeats (?) shale
	539-601:	Cambrian tapeats (?) sandstone
Precambrian	601-645:	Quartz feldspar porphyry (QFP) highly altered (weathered?)
	645-653:	Andesitic tuff
	653-706:	QFP, less altered
	706-713:	Carbonate rick dike
	713-718:	QFP as before
	718-765:	QFP, hard, silicified
	765-855:	QFP, rotten, fractured, abundant carbonate
	855-892: (BOH)	QFP, relatively unfractured, incr. silicification


CoCa Mines Inc.
1776 LINCOLN STREET
DENVER, COLORADO 80203
(303) 861-5400
JEROME PROJECT
1" = 1 MILE LOCATION MAP
LAND OWNERSHIP
GEOPHYSICAL LINES (CoCa)
MINES; DRILL HOLES (Incomplete)
GENERALIZED GEOLOGY
YAVAPAI COUNTY ARIZONA
S.N. 1826 OVERLAY TO S.N. 1748
for: RAR
date: 10-4-83
by: TRL
serial no. 1748
REVISIONS
For
Date
By
Ph
Hopewell
Clarkdale
Centerville
Cottonwood
Pecks Lake
TUZIGOOT NAT MON
CLEMENCEAU AIRPORT
UNPATENTED CLAIMS
POST-ORE COVER ROCKS
CLEOPATRA QUARTZ PORPH.
PRECAMBRIAN ROCKS
QUARTZ PORPHYRIES (UNDIFFERENTIATED)
COPPER CHIEF
MINGUS MOUNTAIN
MINGUS LOOKOUT
Haywood Spr
Hull
Spring
Monte
Gulch
Creek
Oak
Silver
Blue Ranch
Goddard Ranch
PRIV.
EXPLANATION
CM-1 CLEARED DRILL HOLES
895' SHOWING TOTAL DEPTH
PREVIOUS DRILL HOLES
SHIP COMPLETED
SHAFT & MAJOR MINES
EXPLANATION
See 10-18-83 Report on Land
S.N. 1826 OVERLAY TO S.N. 1748

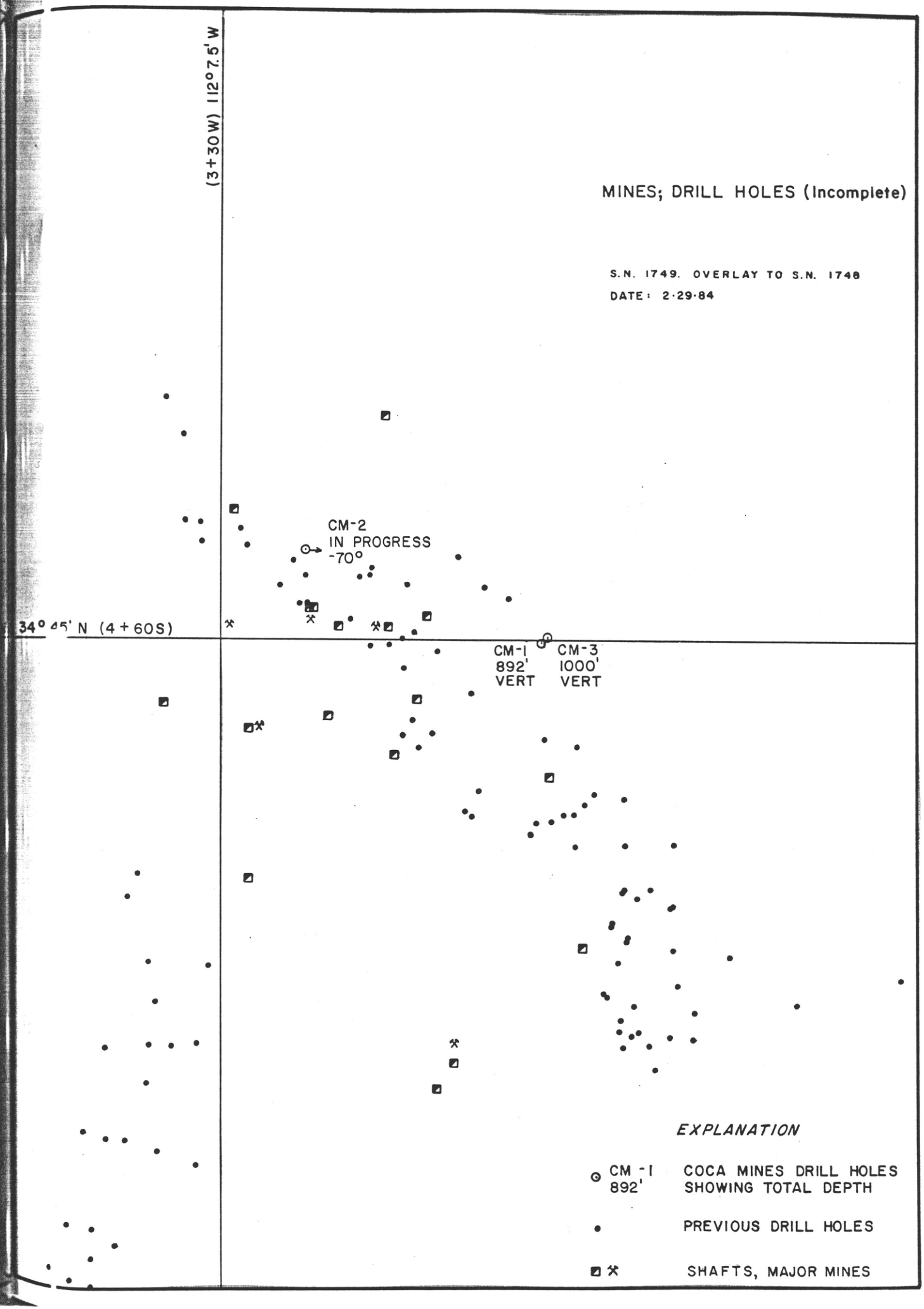


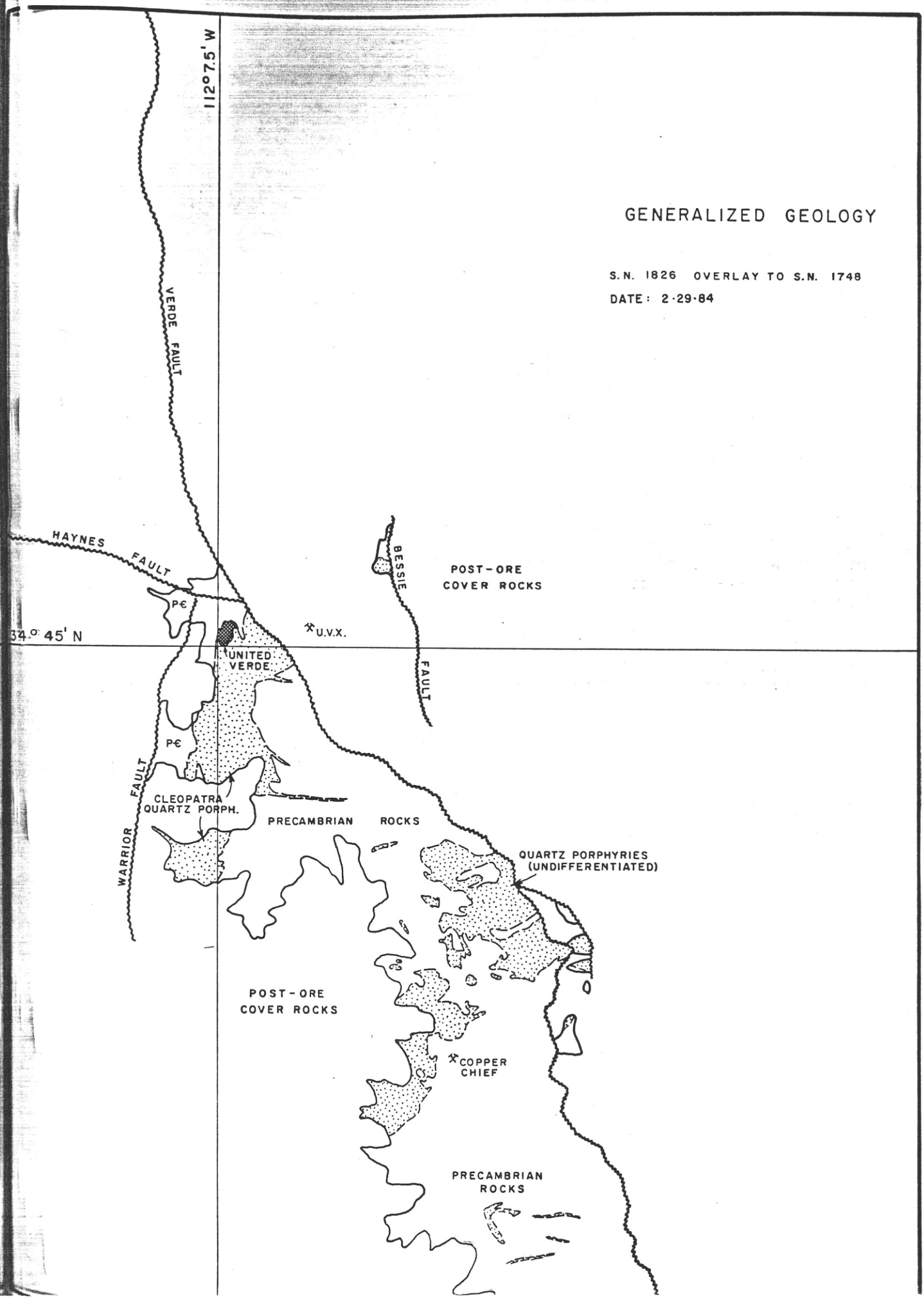
EXPLANATION

LINE PICKETTED

IP COMPLETED

REFER TO TABULATED STATUS REPORT FOR LINE AND STATION NUMBERS

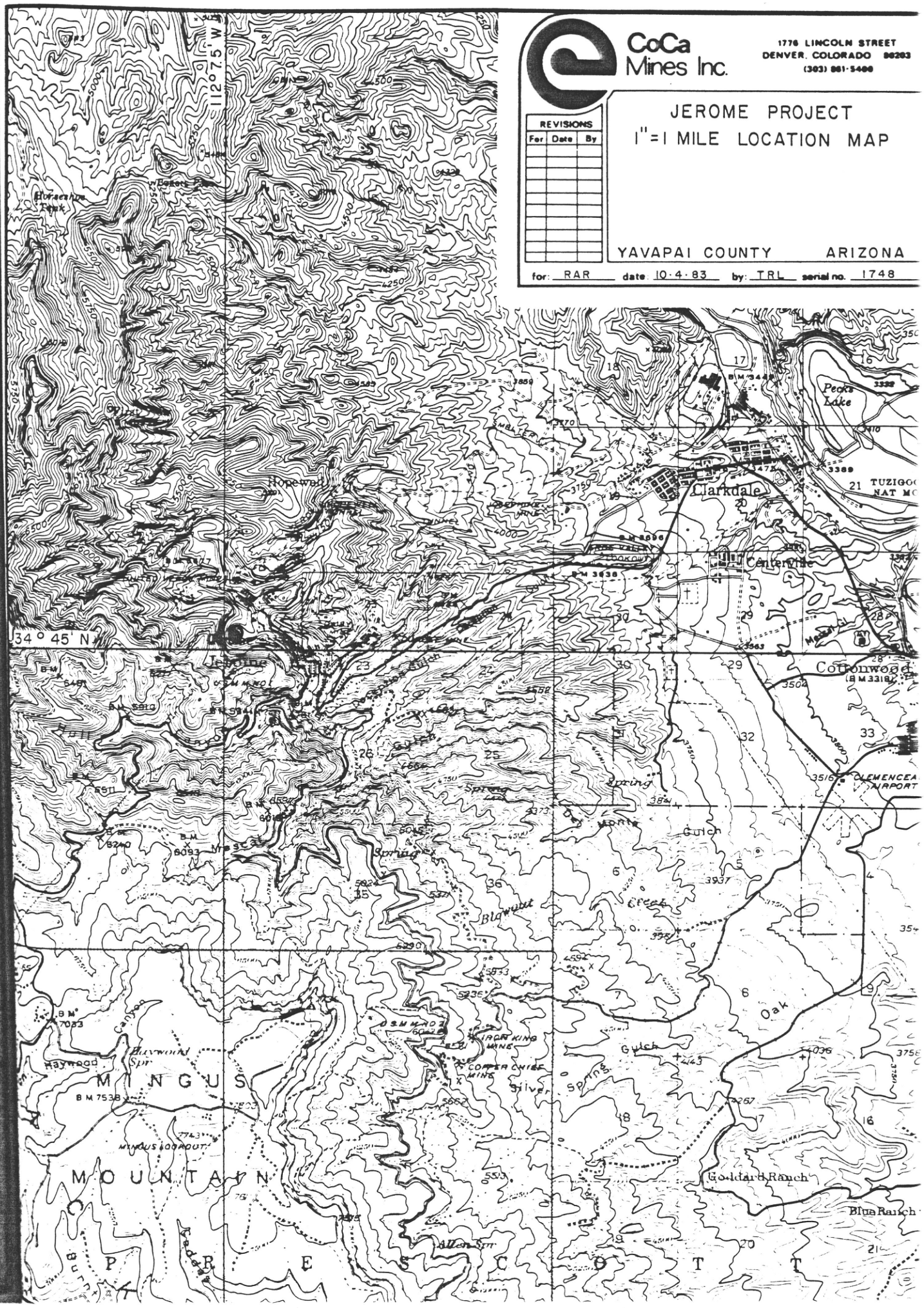

(3+30W) 112°7.5' W
MINES; DRILL HOLES (Incomplete)
S.N. 1749. OVERLAY TO S.N. 1748
DATE: 2·29·84
CM-2
IN PROGRESS
-70°
34° 45' N (4+60S)
CM-1
892'
VERT
CM-3
1000'
VERT
EXPLANATION
CM -1
892'
COCA MINES DRILL HOLES
SHOWING TOTAL DEPTH
PREVIOUS DRILL HOLES
SHAFTS, MAJOR MINES


GENERALIZED GEOLOGY
S.N. 1826 OVERLAY TO S.N. 1748
DATE: 2·29·84
112°7.5' W
VERDE FAULT
HAYNES FAULT
BESSIE FAULT
POST-ORE COVER ROCKS
P€
34° 45' N
U.V.X.
UNITED VERDE
P€
WARRIOR FAULT
CLEOPATRA QUARTZ PORPH.
PRECAMBRIAN ROCKS
QUARTZ PORPHYRIES (UNDIFFERENTIATED)
POST-ORE COVER ROCKS
COPPER CHIEF
PRECAMBRIAN ROCKS

CoCa Mines Inc.
1776 LINCOLN STREET
DENVER, COLORADO 80203
(303) 861-5400

JEROME PROJECT
1"=1 MILE LOCATION MAP

REVISIONS		
For	Date	By

YAVAPAI COUNTY ARIZONA

for: RAR date: 10·4·83 by: TRL serial no. 1748