CONTACT INFORMATION
Mining Records Curator
Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

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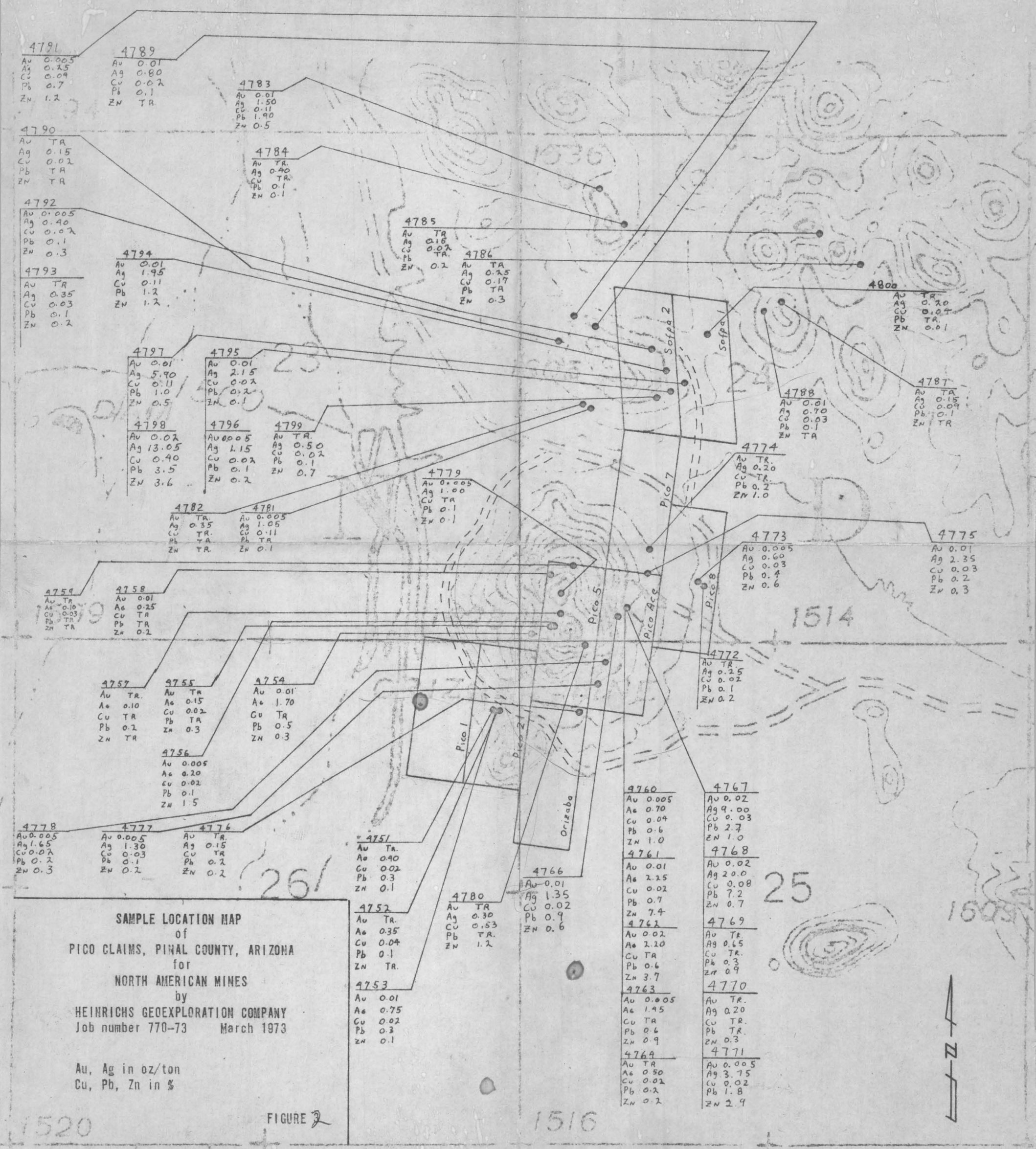


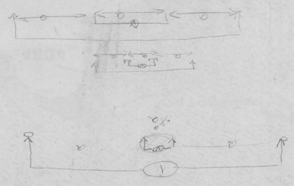
SAMPLE LOCATION MAP
of
PICO CLAIMS, PINAL COUNTY, ARIZONA
for
NORTH AMERICAN MINES
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 770-73 March 1973

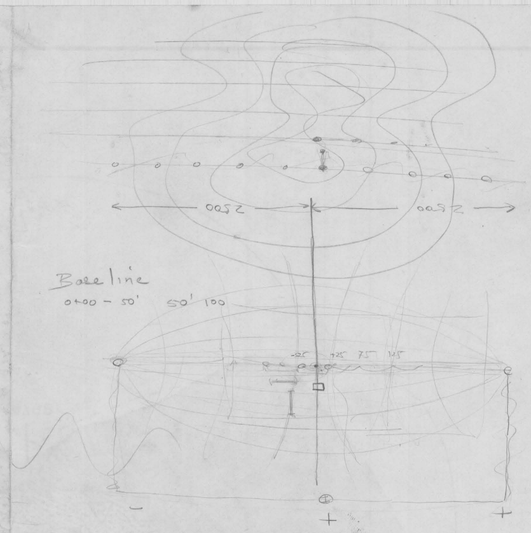
Au, Ag in oz/ton
Cu, Pb, Zn in %

FIGURE 2

GEOLOGIC MAP of IRA'S CAMP AREA for NORTH AMERICAN MINES by HEINRICHS GEOEXPLORATION COMPANY

JOB NUMBER 770-73 MARCH 1973

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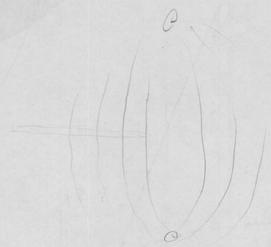
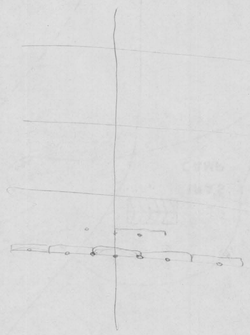
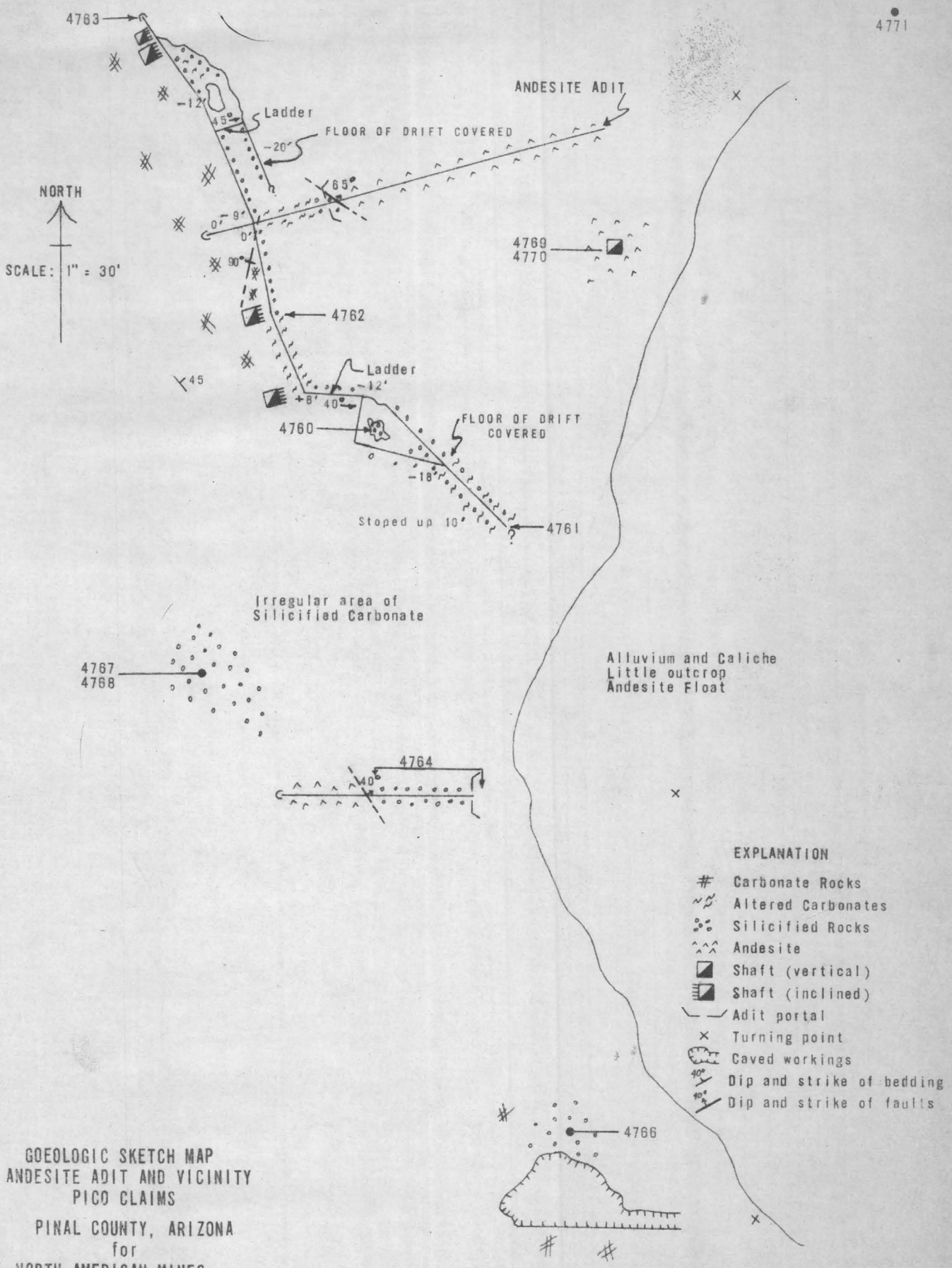


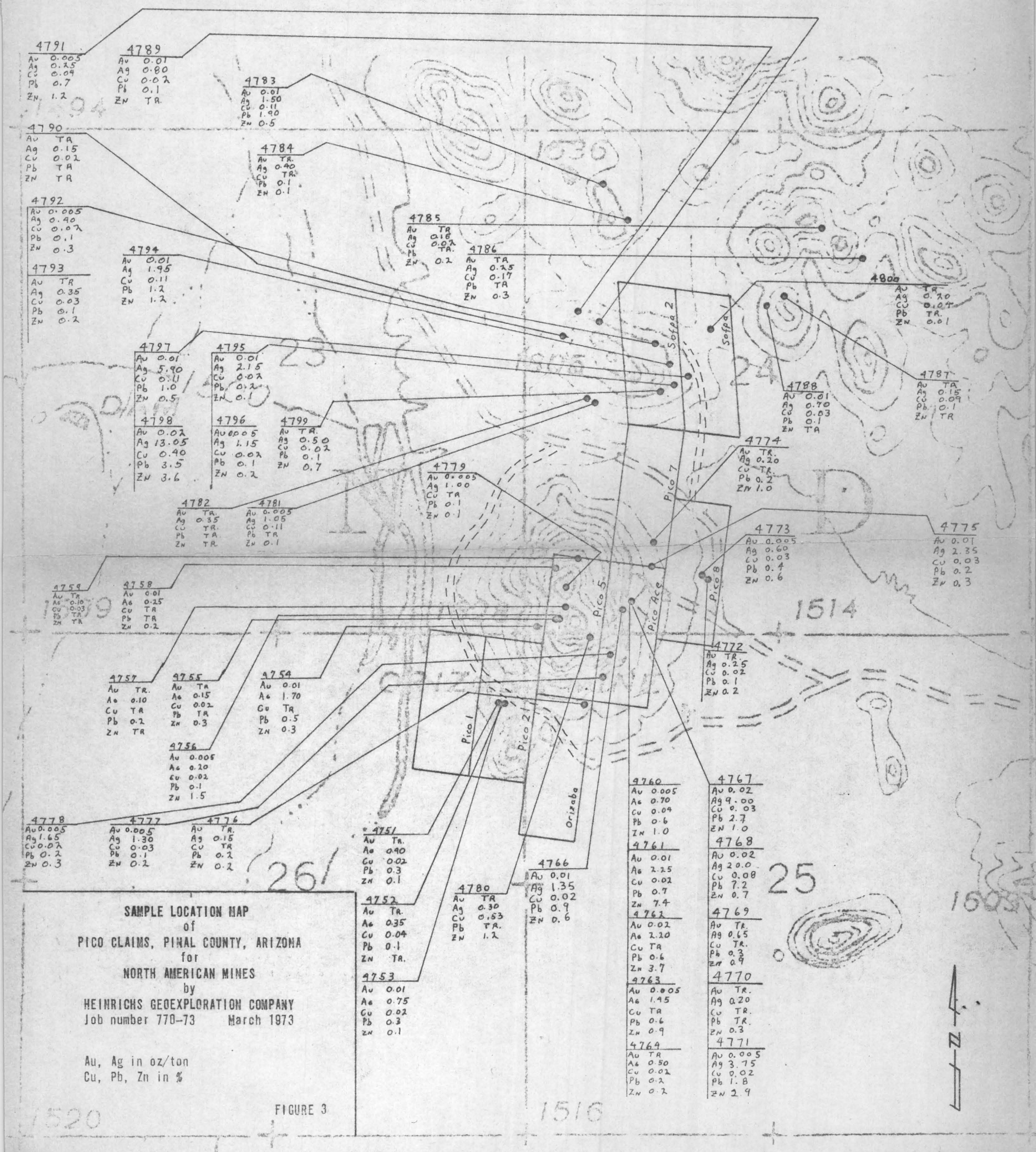




GOEOLOGIC SKETCH MAP
ANDESITE ADIT AND VICINITY
PICO CLAIMS

PINAL COUNTY, ARIZONA
for
NORTH AMERICAN MINES
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 770 March 1973

FIGURE 3



SAMPLE LOCATION MAP
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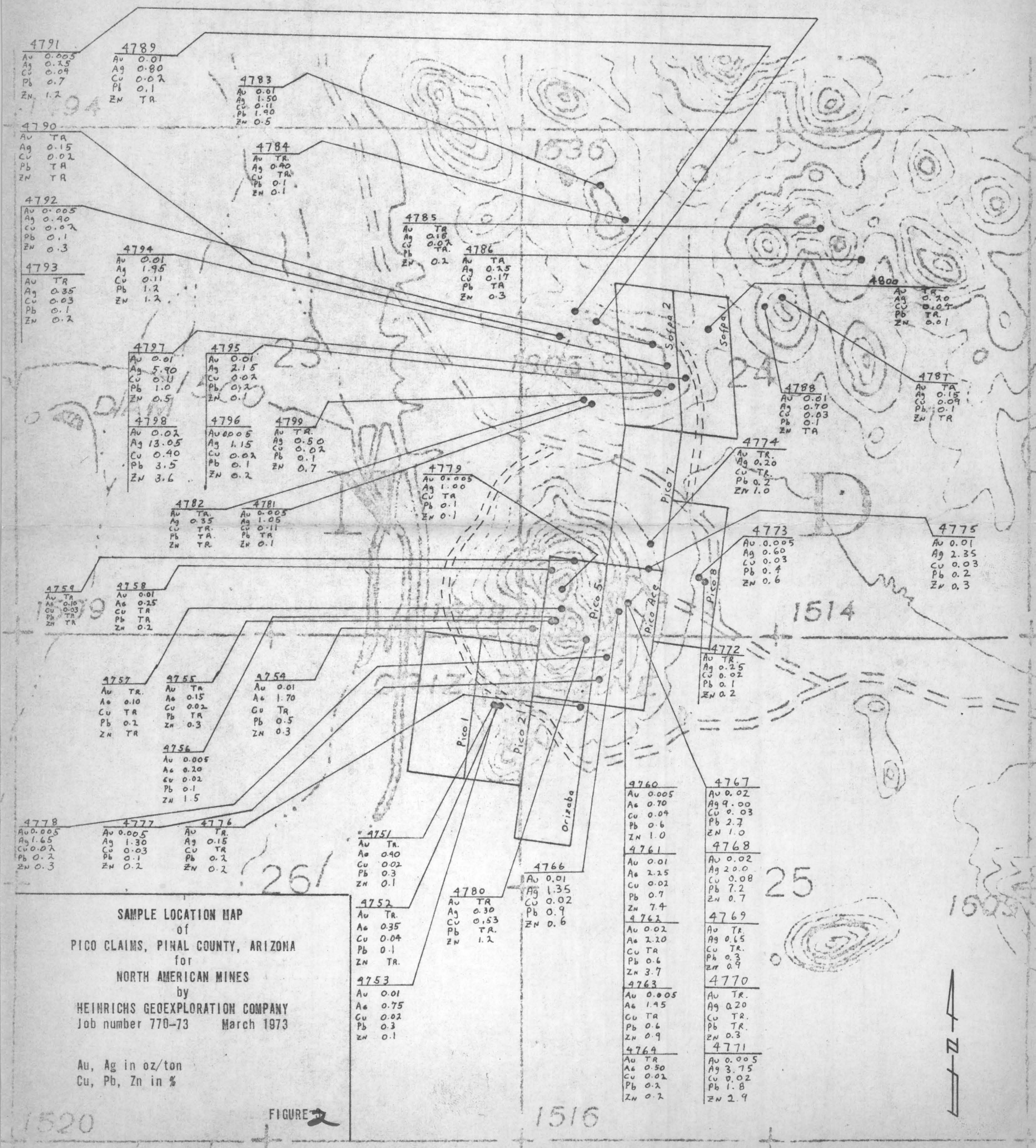
Au, Ag in oz/ton
Cu, Pb, Zn in %

FIGURE 3

OFFICE



SAMPLE LOCATION MAP
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Au, Ag in oz/ton
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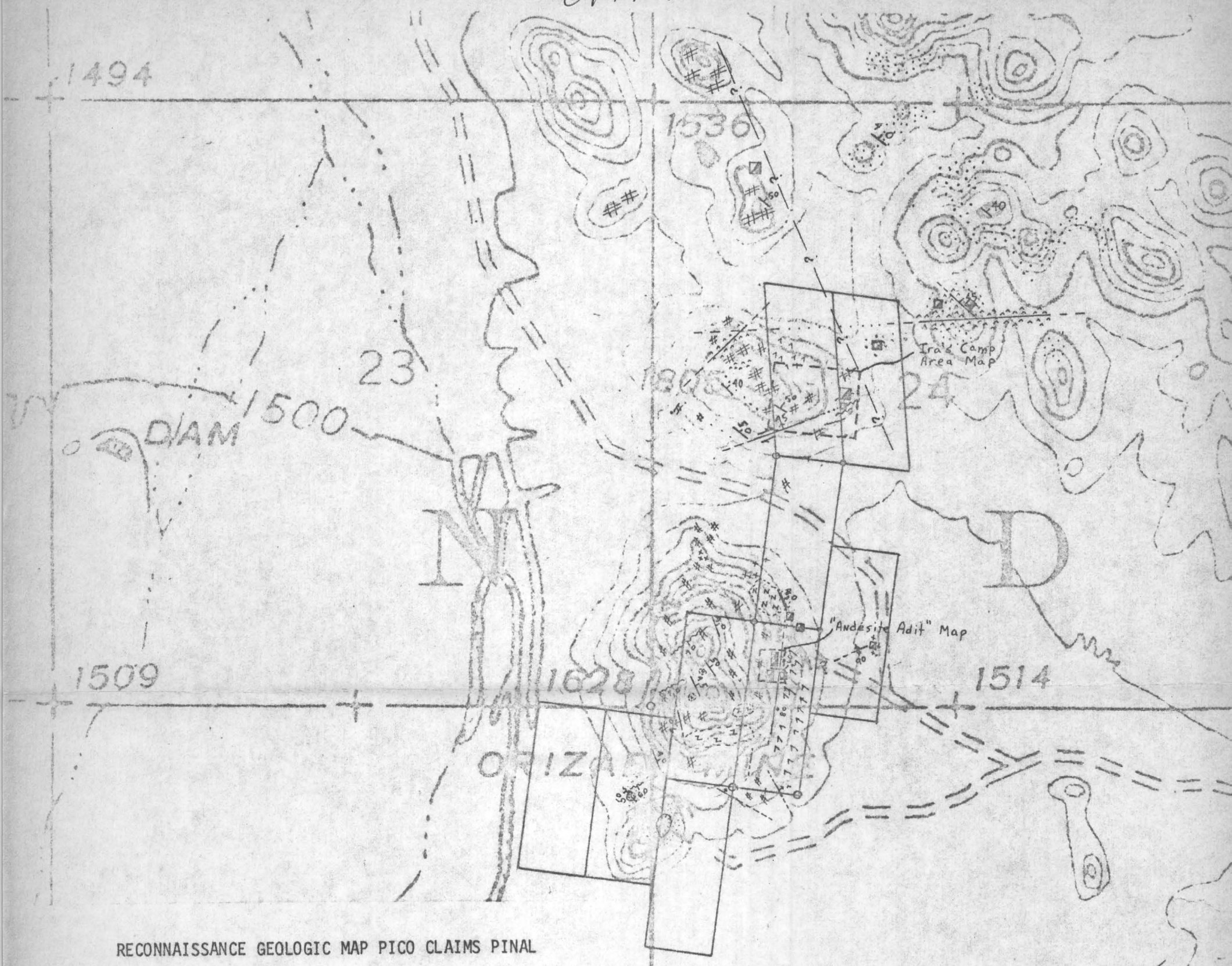
FIGURE 2

OFFICE



RECONNAISSANCE GEOLOGIC MAP PICO CLAIMS PINAL

COUNTY, ARIZONA

Heinrichs GEOEXploration Co. for North American Mines (Job 770)

Explanation

1" = 1000'

- Carbonate Rocks
- Quartzite
- Hornfels and Tactite
- Andesite
- Silisic Intrusives
- Open Pit Mine

N

- Strike and Dip of Bedding
- Strike and Dip of Fault
- Strike and Dip of Vein
- Adit
- Shaft
- Claim Corner

Figure 1
W.H.S. March, 1973

HEINRICHS GEOEXPLORATION COMPANY
Box 5964, Tucson, Arizona 85703
Ph: (602) 623-0578

JOB NUMBER: 770
AREA: Pico Claims

DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
2 March '73	4799	Dump	Au=Trace Ag=0.50 Cu=0.02 Pb=0.1 Zn=0.7	Ira's Camp Area		From old pit at base of silicified zone N88E. Zone has a maximum width of 5'. Quartz and siderite present, no sulfides observed. Alteration of carbonates extends 20' around area.
"	4800	"	Au=Trace Ag=0.20 Cu=0.04 Pb=Trace Zn=0.1	Sample Location		Dump sample of quartzite breccia. Quartzite fragments, clay gouge, sparse silicified carbonate rock - some copper staining.
15 March '73	4801	Rock Chip	Au=Trace Ag=0.15 Cu=0.03 Pb=Trace Zn=0.7	Ira's Camp Area		Surface sample over 20' diameter circle of strongly altered and silicified limestone. Some brecciation, iron staining along fractures, some calcite filled veins. Zone apparently 50' wide and 200' long (or more).
"	4802	"	Au=Trace Ag=0.25 Cu=0.02 Pb=Trace Zn=0.6	"		Same zone as 4801 but uphill 100'. Limonite (?) staining gives dark reddish-brown appearance to weathered surface. Some small flecks of altered pyrite (?) visible internally. Zone forms 20' scarp on north side of summit where it contacts unaltered limestone.
"	4803	Dump	Au=0.01 Ag=2.00 Cu=0.05 Pb=3.6 Zn=0.7	"		From 5' x 5' x 10' long pit in altered, brecciated material. Well fractured with silica in veins and vugs. Greater development of silicification than in 4801-02. Just downhill (15') of approximately N-S striking fault, dipping 80°E.
"	4804	Rock Chip	Au=0.005 Ag=0.55 Cu=0.03 Pb=0.3 Zn=0.3	"		Brecciated, silicified quartzite; abundant quartz and breccia-filled veins. Weathers to Mn-stained brown-black mottled with light tan spots. Sample taken over 20' diameter area. Some quartz crystals up to 2mm long.
"	4805	Dump	Au=0.02 Ag=3.75 Cu=0.18 Pb=3.4 Zn=1.3	"		6' x 6' x 10' deep hole along well brecciated, altered limestone. Abundant quartz along veins and between breccia fragments. Some iron staining, some material looks like low grade ore.
"	4806	Rock Chip	Au=Trace Ag=0.40 Cu=0.03 Pb=0.2 Zn=0.5	"		Chip sample of partly silicified, partly unaltered limestone.

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JOB NUMBER: 770
AREA: Pico Claims

DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
1 March '73	4791	Rock Chip	Au=0.005 Ag=0.25 Cu=0.04 Pb=0.7 Zn=1.2	Sample Location		Marble and tactite, garnet, and magnetite with slight amount of malachite staining. From 5' x 5' pit 10' deep.
"	4792	Dump	Au=0.005 Ag=0.40 Cu=0.02 Pb=0.1 Zn=0.3	Ira's Camp Area		High graded ore from dumps of pits in altered intrusive. One sample contains druze filled with flexable black hair-like crystals and quartz, selenite, and iron oxide filled fractures. Also brown siderite present.
1 Mar. '73	4793	Rock Chip	Au=Trace Ag=0.35 Cu=0.03 Pb=0.1 Zn=0.2	"		From 8' altered zone, 4' chip sample from face of altered intrusive gouge and quartz vein material. One quartz vein 2" thick, one 4" thick.
2 March '73	4794	"	Au=0.01 Ag=1.95 Cu=0.11 Pb=1.2 Zn=1.2	"		From 8' x 6' x 8' pit exposing fault zone N75°-85°W, dipping 44°N. Sample from 3 sides of pit: total of 9'. Altered limestone with light Cu staining on a few fragments. Quartz crystals to 2m.m. in matrix between breccia fragments.
"	4795	"	Au=0.01 Ag=2.15 Cu=0.02 Pb=0.2 Zn=0.1	"		From pit in altered carbonate and gouge, irregular silicified area. 5' of fault N70°E, 60°S exposed in pit.
"	4796	Dump	Au=0.005 Ag=1.15 Cu=0.02 Pb=0.1 An=0.2	"		From dump in pit on N70°E striking shear zone, brecciated silicified limestone. Nearby brecciated zone strikes N10°W.
"	4797	Dump	Au=0.01 Ag=5.90 Cu=0.11 Pb=1.0 Zn=0.5	"		Dump of shaft south of Ira Wagnon's camp. 16 sample sites over surface of dump.
"	4798	"	Au=0.02 Ag=13.05 Cu=0.40 Pb=3.5 Zn=3.6	"		High grade sample from "ore piles" around west side of main shaft of sample 4797. Moderate Cu staining, malachite, little chrysocolla and rare azurite, cerussite (?). Also possible oxidized zinc minerals.

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JOB NUMBER: 770
AREA: Pico Claims

DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
28 Feb. '73	4783	Dump	Au=0.01 Ag=1.50 Cu=0.11 Pb=1.9 Zn=0.5	Sample Location		Quartzite and silicified carbonate at limestone - quartzite contact. Hole and shallow drift 15' long comprise the workings. Malachite staining on fractures and along bedding.
1 Mar. '73	4784	Rock Chip	Au=Trace Ag=0.40 Cu=Trace Pb=0.1 Zn=0.1	"		From pit near portal of adit. Adit follows thin fracture zone 1/2" thick. Alteration, silicification, and iron staining in nearby thinly bedded limestone.
"	4785	"	Au=Trace Ag=0.15 Cu=0.02 Pb=Trace Zn=0.2	"		Poorly exposed breccia zone about 4'-5' wide by 30'(?) long. Some quartzite fragments with limonite staining in siliceous matrix. Sample of surface float.
"	4786	Dump	Au=Trace Ag=0.25 Cu=0.17 Pb=Trace Zn=0.3	"		From 4' by 8' dump in N70°E striking fault zone, dip about 83°S. Chrysocolla and malachite staining on fractures and in veinlets.
"	4787	Dump	Au=Trace Ag=0.15 Cu=0.09 Pb=0.1 Zn=Trace	"		Dump from shaft through basic sill in quartzite. Sill N50°W, dipping 45°N, 20' outcrop, width has small amount of malachite staining on bleached quartzite.
"	4788	"	Au=0.01 Ag=0.70 Cu=0.03 Pb=0.1 Zn=Trace	"		Dump from 30' shaft in quartzite. Iron oxide filled fractures.
"	4789	Dump	Au=0.01 Ag=0.80 Cu=0.02 Pb=0.1 Zn=Trace	"		Dump from 4' x 6' pit in altered intrusive;red stained, altered silicified zone N65°E, dipping 85°S.E.
"	4790	Rock Chip	Au=Trace Ag=0.15 Cu=0.02 Pb=Trace Zn=Trace	"		4' from east wall of 10' x 10' hole sampled. Heavily red and yellow iron stained fractured quartzite. No recognizable ore minerals.

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JOB NUMBER: 770
AREA: Pico Claims

DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
22 Feb. '73	4775	Dump	Au=0.01 Ag=2.35 Cu=0.03 Pb=0.2 Zn=0.3	Sample Location		Dump from shaft along claim line. Chlorite and silicified marble, hematite masses with coarsely crystalline calcite. Light green chlorite in altered andesite.
27 Feb. '73	4776	Rock Chip	Au=Trace Ag=0.15 Cu=Trace Pb=0.2 Zn=0.2	"		Fragmented gray dolomite along face of N60°W striking fault. Calcite and quartz cementing breccia fragments, weak alteration visible.
27 Feb. '73	4777	Dump	Au=0.005 Ag=1.30 Cu=0.03 Pb=0.1 Zn=0.2	Sample Location		N-S striking fault zone with 10' of altered reddish limestone with areas of broken silicified material. No recognizable ore minerals.
"	4778	Dump	Au=0.005 Ag=1.65 Cu=0.02 Pb=0.2 Zn=0.3	"		Dump from prospect hole on N50°E striking fault zone. 3' wide silicified altered limestone with reticulating quartz veinlets. No recognizable ore minerals.
"	4779	Rock Chip	Au=0.005 Ag=1.00 Cu=Trace Pb=0.1 Zn=0.1	Sample Location		Silicified area in limestone near Discovery Post on hill top. Calcite, jasper, limonite, and Mn staining. No identifiable sulfides.
"	4780	Dump	Au=Trace Ag=0.30 Cu=0.53 Pb=Trace Zn=1.2	"		Dump from shallow pit. Garnetite, marble, with Cu stain and silicification. Tactite area 20' x 50'.
28 Feb. '73	4781	Dump	Au=0.005 Ag=1.05 Cu=0.11 Pb=Trace Zn=0.1	"		Dump from pit in cross-bedded gray to purple ferrugenous sandstone. Brecciated quartzite with malachite and azurite staining particularly on fractures, some samples have a light yellow-green staining.
28 Feb. '73	4782	Rock Chip	Au=Trace Ag=0.35 Cu=Trace Pb=Trace Zn=Trace	Sample Location		Pit exposes a N50°E striking shear zone 4' thick. Quartzite walls and fragments, light yellow staining common in fracture zone.

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JOB NUMBER: 770
AREA: Pico Claims

DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
22 Feb. '73	4767	Rock Chip	Au=0.02 Ag=9.00 Cu=0.03 Pb=2.7 Zn=1.0	Andesite Adit		Fresh surface exposure above andesite adit. Collected within a 30' diameter circle. Silicified limestone with much dark staining and Mn oxides.
"	4768	"	Au=0.02 Ag=20.0 Cu=0.08 Pb=7.2 Zn=0.7	"		High grade ore pile from site of sample 4767. Residual galena, anglesite, massicot, cerussite, and much dark Mn staining.
"	4769	Dump	Au=Trace Ag=0.65 Cu=Trace Pb=0.3 Zn=0.9	"		Porphyritic biotite andesite; gray, weathering brown. Plagioclase phenocrysts up to 2m.m. long.
"	4770	"	Au=Trace Ag=0.20 Cu=Trace Pb=Trace Zn=0.3	Andesite Adit		Medium grained, white marble, veined with limonite, quartz, and epidote. Some quartz is recrystallized chert. From same dump as sample 4769.
"	4771	"	Au=0.005 Ag=3.75 Cu=0.02 Pb=1.8 Zn=2.9	"		Screened dump of andesite adit. Silicified limestone with siderite or Mn-containing siderite veinlets. Much of dump is darkly stained, some Cu staining noted, no andesite observed.
"	4772	"	Au=Trace Ag=0.25 Cu=0.02 Pb=0.1 Zn=0.2	Sample Location		Dump from shaft near center of claim: altered andesite and silicified limestone (?). One tiny galena fragment observed but no other identifiable ore minerals.
"	4773	Rock Chip	Au=0.005 Ag=0.60 Cu=0.03 Pb=0.4 Zn=0.6	"		40' diameter area surface exposure of silicified limestone surface crop is Mn stained. No recognizable ore minerals.
22 Feb. '73	4774	Dump	Au=Trace Ag=0.20 Cu=Trace Pb=0.2 Zn=1.0	"		Hematite-magnetite at marble-andesite contact. N25°W (?), Dip 42°E. Epidote, calcite, and possibly garnet present.

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DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
20 Feb. '73	4759	Rock Chip	Au=Trace Ag=0.10 Cu=0.03 Pb=Trace Zn=Trace	Sample Location		Silicified hornfels near end of trail to survey station. Some nearby magnetic float material but no indication of mineralization at sample site.
"	4760	"	Au=0.005 Ag=0.70 Cu=0.04 Pb=0.6 Zn=1.0	Andesite Adit		Underground sample from pillar below ladder in S.E. winse. 3' of silicified dolomite with vuggy areas formerly containing oxidized pb - ag (?) minerals.
"	4761	"	Au=0.01 Ag=2.25 Cu=0.02 Pb=0.7 Zn=7.4	"		Underground sample from most of S.E. face of S.E. winse. 3' of silicified dolomite and altered dolomite. No recognizable minerals seen on dirty face.
"	4762	"	Au=0.02 Ag=2.20 Cu=Trace Pb=0.6 Zn=3.7	"		Underground sample of 4' area with 2' of silicified limestone, 2' of dark gray altered limestone, as well as 1' of red mottled altered limestone on N.E. wall of passage from adit to S.E. winse.
"	4763	"	Au=0.005 Ag=1.45 Cu=Trace Pb=0.6 Zn=0.9	"		Underground sample from end of N.W. winse. Breccia from silicified limestone, anglesite (?) masses with cerussite in local areas.
21 Feb '73	4764	"	Au=Trace Ag=0.50 Cu=0.02 Pb=0.2 Zn=0.2	"		20' of silicified limestone near east contact of Andesite sill. Silicified limestone variegated white, purple, and red separated from andesite by 6" gouge zone. Some dark druzes present, but no identifiable ore minerals.
"	4765	Unknown	Au=0.01 Ag=1.35 Cu=0.08 Pb=0.5 Zn=0.1	Unknown		Ira Wagnon's sample of silicified limestone (?) with light copper staining and yellow-green clay appearing mineral.
22 Feb. '73	4766	Rock Chip	Au=0.01 Ag=1.35 Cu=0.02 Pb=0.9 Zn=0.6	Andesite Adit		Newly blasted silicified limestone at surface near pit on andesite - limestone contact. 20' of silicified limestone exposed, very vuggy with oxidized Pb and Zn minerals. Plattnerite tentatively identified.

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DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
Feb. 19 '73	4751	Dump	Au=Trace Ag=0.40 Cu=0.02 Pb=0.3 Zn=0.1	Sample Location		Composite sample, 3 dumps of old workings, Orizaba mine. White, medium grained quartzite, red medium grained quartzite and brecciated quartzite druzes. Quartz crystals, sparse cerussite, anglesite, malachite, smithsonite(?).
"	4752	Rock Chip	Au=Trace Ag=0.35 Cu=0.04 Pb=0.1 Zn=trace	"		30' of west wall of Orizaba pit, including a 1' vein (N55°W 50°S) with oxidized lead and copper minerals. Red (predominating) and white banded fractured quartzite. From vein: malachite, anglesite, and cerussite. White banding from leaching and redeposition of Fe. Some mineralization in leached areas of quartzite (disseminated).
"	4753	"	Au=0.01 Ag=0.75 Cu=0.02 Pb=0.3 Zn=0.1	"		20' of northeast wall of old Orizaba pit. Red quartzite, locally bleached near veins and fractures (N60°E, 60°S). Some cerussite pseudomorphs after galena. 10' brecciated zone (N80°W, 85°S) and a "flat" of originally more calcareous sediment.
"	4754	Dump	Au=0.01 Ag=1.70 Cu=Trace Pb=0.5 Zn=0.3	"		15' wide altered zone in dolomite. Some samples silicified with sulfide casts. Alteration is argillic; no silicification except in local areas. Largest block of silicified vein material 6". No identifiable minerals.
20 Feb. '73	4755	Rock Chip	Au=trace Ag=0.15 Cu=0.02 Pb=Trace Zn=0.3	"		6" to 5' wide dense silicified hornfels zone with sparse copper staining. In contact with 6" to 1' thick garnet-epidote-calcite tactite band (sample No. 4756) which in turn contacts marble. Reticulating fractures with Fe-oxide staining present.
"	4756	"	Au=0.005 Ag=0.20 Cu=0.02 Pb=0.1 Zn=1.5	"		From pit in silicified zone (sample No. 4755). 75% marble, 20% garnet-epidote-calcite tactite, 5% hornfels (N85°W, N75° irregular dip). Local concentrations of malachite on marble at calcite-tactite contact. Cerussite and bayldonite(?) identified.
"	4757	"	Au=Trace Ag=0.10 Cu=Trace Pb=0.2 Zn=Trace	"		8' wide by 20' long silicified zone striking N53°W. Tactite zone near center, no sulfides visible, but gray fractured quartz with calcite cast.
"	4758	"	Au=0.01 Ag=0.25 Cu=Trace Pb=Trace Zn=0.2	"		More than 100' long and up to 30' wide silicified zone striking N35°E, dipping (irregularly) about 40°S. Reticulating network of quartz veinlets, incomplete replacement of limestone, and unreplaced but recrystallized sections in vein.

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DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
15 March '73	4807	Dump	Au=0.005 Ag=0.75 Cu=0.05 Pb=0.5 Zn=0.7	Ira's Camp Area		From 4' x 10' x 5' deep pit. Altered limestone, some brecciation and fracturing with quartz apparently filling many of veins. Crystal casts present in several samples

INDUCED POLARIZATION AND MAGNETIC SURVEY

OF THE

PICO AREA

PINAL COUNTY, ARIZONA

FOR

NORTH AMERICAN MINES, INC.

JUNE 1973

BY

HEINRICHS GEOEXPLORATION COMPANY
MINERAL CONSULTANTS AND CONTRACTORS
P.O. BOX 5964 TUCSON, ARIZONA

GEOEX Job #770

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Dipole-dipole I.P. Sectional Data Sheets
Line 0-E/W (Spreads 1 & 2, 50' dipoles)
Line B (Spread 1, 100' dipoles)
Magnetic Total Intensity Profiles
Location Plan I.P. Line B (on Geologic Sketch Map, Andesite Adit and Vicinity)

In Map Pocket (total 3 pieces)
Gradient Array I.P. Survey Contour Plans
Percent Frequency Effect
Resistivity
Metallic Conduction Factor

INTRODUCTION

At the request of Mr. Quincy A. Shaw, President of North American Mines, Inc., Heinrichs GEOEXploration Company conducted a combined induced polarization-magnetic survey over portions of the Pico Claims Area on the Papago Indian Reservation, Pinal County, Arizona, to aid in assessing the silver-lead economic potential of the area. Geophysical field work on the project was accomplished during the interim April 25, 1973, to May 12, 1973.

PROCEDURES

A gradient array induced polarization (I.P.) grid was centered on an area of geologic interest (Ira's Camp Area) showing strong silicification and scattered evidence of silver-lead mineralization. The origin (0-E/W, 0-N/S) of the gradient array grid is located 100 feet west of the inclined shaft which is about 180 feet S20°W from Mr. Ira Wagnon's camp. (See accompanying contour plans). This inclined shaft lies approximately 3250 feet in a N32E direction from the SW corner of Section 24, T9S,R4E. Ten north-south lines 100 feet apart were run, consisting of four lines (5W, 2W, 1E and 4E) about 2000 feet long and six lines (4W, 3W, 1W, 0-E/W, 2E and 3E) about 1000 feet long. Readings were obtained with a voltage measuring dipole, 50 feet in length, which was moved on 50 foot station increments along the lines. The data is plotted at the midpoints of the voltage dipole positions and is presented as contour plans of the percent frequency effect (PFE), resistivity, and the metallic conduction factor (MCF). The two remote current electrodes were positioned 2500 feet north and 2500 feet south of the grid origin.

A 7- electrode, double spread, collinear dipole-dipole line was also run along gradient Line 0-E/W with 50 foot dipoles. Another single, 7-electrode, spread of collinear dipole-dipole coverage was run on an east-west line in the Andesite Adit area (see accompanying location plan) several thousand feet south of the gradient grid. The dipole-dipole data are presented on sectional data sheets showing the PFE, resistivity and MCF contoured in "section" and self potentials (taken with the I.P. readings) are shown in profile form at the bottom of the sheets.

Total intensity proton precession magnetometer readings were obtained along gradient lines 1W, 0-E/W and 1E between stations 5.25S and 5.25N on 50 foot stations and are presented as profiles.

A GEOEX Mark 4 I.P. equipment system was used to obtain the I.P. data. The dual frequency I.P. technique was used on frequency pairs of 0.1 and 1.0 hz for the gradient array coverage and 0.3 and 3.0 hz for the dipole-dipole array coverage. A GeoMetrics G-816 porton precession total field magnetometer was used to obtain the magnetic readings.

CONCLUSIONS

The gradient array survey disclosed a weak, but very definite, elongate I.P. anomaly running generally east-west along 0-N/S on Lines 0-E/W, 1W, 2W, and 3W. East and west of this 300 foot long zone, the anomaly weakens and bends somewhat northwards giving the overall anomaly pattern an arcuate shape. This anomaly directly correlates with a high resistivity zone in turn producing rather nondescript MCFs. The anomaly suggests a source less than 50 feet wide and buried less than 50 feet. Depth extent and dip are not obviously interpretable from the data.

Most of the remainder of the area surveyed shows only background po polarization variations. However, there is a weak, rather broad, PFE high trending generally ENE, near 4S, across the entire width of the grid. The strongest PFE response in this zone is located near 4S on Line 1W. There is little resistivity or MCF correlation.

Dipole-dipole Line 0-E/W was run to obtain additional information over these two anomalies. Both gradient array anomalies were verified. The main anomaly is seen to be a narrow zone whose source probably comes to within 20 feet of the surface, centered near 0-N/S, and perhaps having limited depth extent - say down to 50 or 75 feet below surface and is associated with moderately high resistivities. A very thin and shallow anomaly correlating with very high resistivities extends south from the main anomaly to about 1.75S. A weak and somewhat deeper anomaly is noted near 4S that is likely reflecting the same source which produces the gradient array PFE high noted near 4S on Line 1W.

The magnetics are quite flat and uninteresting on the three lines run. The only magnetic response of note is on the north ends of the three lines where slightly higher readings occur. These higher values may be caused by an eastward extension, under shallow alluvial cover, of the diorite outcropping near (5W, 3N). The 100 gamma anomaly near 1.5N on Line 0-E/W is probably caused by artificial interference from metal objects around Mr. Wagnon's camp.

Self potentials taken along the two dipole-dipole I.P. lines show no obvious correlation with the I.P. data. The variations present are likely caused by topographic effects and rock type changes.

The two I.P. anomalies were drilled, hoping there would be a shallow high-grade silver and lead association. Drill hole 2, drilled to test the main anomaly was partially a diamond core hole and several representative pieces of core (a reddish brown, altered and brecciated limestone) were tested in the laboratory for their electrical properties. Following is a table of these results.

I.P. Drill Core Sample Tests DH-2

Footage	PFE	Resistivity/2 pi (in ohm-feet)	MCF
25	4.0	540	7.4
30	3.4	610	5.6
32	8.9	1200	7.4
43	4.8	93	52
57	6.2	430	14

The sample results are sufficiently high enough in PFE to verify that DH-2 intersected the source of the main I.P. anomaly and within predicted depths. The particular minerals responsible for this anomalous polarization have not been positively determined, but these samples are all high in iron oxides and show some manganese oxides - both of which can exhibit polarization. Also, the samples have fairly high resistivities, compatible with the field values.

Rotary drill holes 3 and 4, also in the area of the main anomaly, intersected a rock type similar to that tested from DH-2. The small size of the drill cuttings precluded any simple laboratory electrical testing, however.

Rotary drill hole 1 was drilled to test the anomaly near (1W,4S). A clayey conglomerate, intersected below about 90 feet, could possibly be the cause of the polarization. However, an altered red limestone intersected in the upper 40 feet of the hole may be similar to the polarizable material cored in DH-2 and is perhaps the most likely polarizer.

In summation, several I.P. anomalies were located in and near an area considered geologically favorable for silver deposition and, in the hope that they might relate to argentiferous galena mineralization such as silver-bearing manganese oxides, drilling of these anomalies was initiated. The drilling showed no significant base or precious metal mineralization but intersection of the cause of the I.P. anomalism, at least for DH-2, was verified by laboratory sample testing. Further work on the project was deemed unwarranted.

Respectfully submitted,

Heinrichs GEOEXploration Co.

Chris S. Ludwig
Chief Geophysicist

Approved by:

Walter E. Heinrichs, Jr.
President

Registered Professional Engineer (Mining)
CERTIFICATE EXPIRES
WALTER E. HEINRICHS, JR.
DEC. 31, 19 93
ARIZONA, U.S.A.

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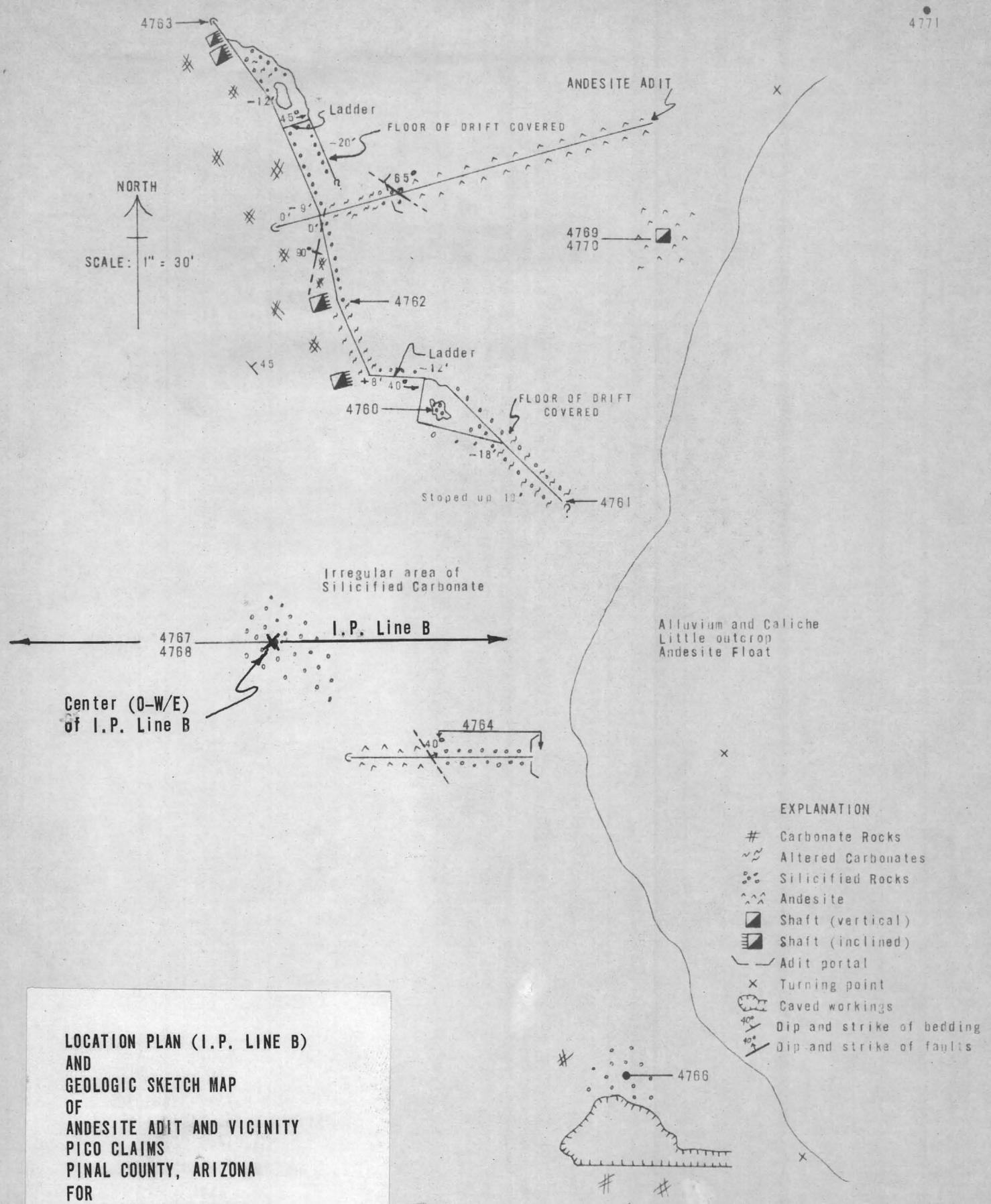

LOCATION PLAN (I.P. LINE B)
AND
GEOLOGIC SKETCH MAP
OF
ANDESITE ADIT AND VICINITY
PICO CLAIMS
PINAL COUNTY, ARIZONA
FOR
NORTH AMERICAN MINES
BY
HEINRICHS GEOEXPLORATION COMPANY
JOB NUMBER 770-73 JUNE 1973

PRELIMINARY EXPLORATION DRILLING OF THE PICO CLAIMS

PINAL COUNTY, ARIZONA

FOR

NORTH AMERICAN MINES

JUNE 1973

HEINRICHS GEOEXPLORATION COMPANY
MINERAL ENGINEERING CONSULTANTS AND CONTRACTORS
P.O. BOX 5964 TUCSON, ARIZONA

GEOEX Job #770

PRELIMINARY EXPLORATION DRILLING
OF THE PICO CLAIMS

PINAL COUNTY, ARIZONA

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ILLUSTRATIONS

Plate 1. Geologic Map Ira's Camp area---------- in pocket

PRELIMINARY EXPLORATION DRILLING OF THE PICO CLAIMS

PINAL COUNTY, ARIZONA

INTRODUCTION

Following geological examination of the Pico Claims (Smith, 1973) and a detailed I.P. survey of the Ira's Camp area, four holes were drilled to test an altered area which coincided with an I.P. anomaly. The locations of the holes with respect to the geology and the I.P. anomaly are indicated on Plate 1 of this report and on the I.P. survey countour plans of the enclosed geophysical report. A total of 54 feet of coring and 465 feet of rotary drilling was completed.

Surface samples assayed anomalous silver values throughout the altered zone and samples from the dumps of the Sofpa workings contained between 5.90 and 13.05 ounces of silver per ton which indicated the possible presence of a near surface disseminated ore body at Ira's Camp. The objective of the drilling program was to determine if sufficient mineralization was present in this area to permit open pit mining.

CONCLUSIONS

1. There were no ore grade intersections in any of the four holes.

2. The I.P. anomaly in the area of DH 2, 3, and 4 is most likely caused by small quantities of manganese minerals in fractures, and the slightly broader anomaly near DH 1 is probably caused by the same effect augmented by clay minerals in the underlying quartzite and clayey conglomerate.

3. There appears to be little potential for the presence of near surface disseminated mineralization in the Ira's Camp area; however, the potential for vein mineralization was not tested.

DRILLING

A bid of $14.00 a foot for core and $6.25 a foot for rotary drilling by Boyles Bros. Drilling Co. of Salt Lake City, Utah, was accepted. Originally a drilling program of three 100 foot rotary holes with an additional 50 feet to be cored at the bottom of each hole was proposed. After completion of the I.P. program, this concept was changed. Because of the shallow depth of the indicated I.P. target, DH 2 was cored starting at 20 feet. DH 1 was rotary drilled to a depth of 105 feet and the other two holes were each rotary drilled to 170 feet. Because of the loss of water circulation and the hard and broken nature of the rock, much better sample return was obtained from rotary rather than core drilling.

DH No.1

This, the southernmost hole, is located off the south flank of the ridge on Line 1W at 4S, on the crest of a weak high (See I.P. Survey Contour Plans). It lies south of the area shown on Plate 1.

After penetrating four inches of caliche, a gray silicified limestone was intersected which is commonly altered to a red color. At approximately 37 feet, a banded red, gray, and white quartzite was found. This quartzite contains diabase pebbles and becomes clayey beyond 80 feet. Near the bottom of the hole at 105 feet a clayey conglomerate is present which probably grades into a shale at a slightly greater depth. These clay minerals probably account for a portion of the observed I.P. anomaly.

No assay containing more than 0.40 ounces of silver per ton or over one percent zinc was obtained. A small amount of sericite was identified where the highest values were found.

DH No. 2

This hole was positioned at the crest of the I.P. high at about 0.5W, 0-N/S. After rotary drilling the first 20 feet, coring started. A brecciated gray limestone with chert lenses up to four inches thick was intersected. The limestone is often altered to a red color. Portions of the altered zone are silicified. The breccia is very porous with calcite and manganese minerals lining cavities. Except for wulfenite and massicot which are present in very small quantities, no ore minerals were identified. The highest assay obtained from any five foot interval contained 0.45 ounces of silver per ton with minor lead and zinc.

Because of poor core recovery and very slow drilling this hole was abandoned at a depth of 74 feet and DH No. 3 started 12 feet to the south.

DH No. 3

This hole was started in the same limestone as DH No. 2. The limestone continues to a depth of about 90 feet when there is a lithologic change from altered gray limestone to a greenish-white clayey limestone. With the exception of a five foot quartzite bed at about 125 feet, the clayey limestone persists to the end of the hole at 170 feet.

The highest analysis was a value of 0.95 ounce per ton silver in the interval from 15 to 20 feet.

DH No. 4

Located between DH No. 3 and DH No. 1, at 0.5W, 1S, this hole was to test the southern part of the altered zone at the outcrop of a prominent silicified shear zone. The first 15 feet were in strongly silicified limestone which passes into relatively unaltered gray limestone. This persists to about 50 feet where the greenish-white clayey limestone is found. A number of thin beds of quartzite were intersected between 60 and 90 feet. From 115 to 130 feet, gray limestone was cut which grades into white clayey conglomerate with rounded limestone and quartzite fragments. This conglom-

erate becomes red colored at about 160 feet. Water was intersected in the hole at about 165 feet and a red quartzite was found in the bottom of the hole at 170 feet.

Because of the previous disappointing results, no lead or zinc analyses were made of cuttings from this hole and beyond 60 feet silver and gold were analyzed at 10 foot rather than 5 foot intervals. The highest silver value for this hole was 0.35 ounce per ton.

REFERENCES

Smith, Wm. Hovey, 1973, Geologic examination of the Pico Claims Pinal County, Arizona: Private report North American Mines, Heinrichs GEOEXploration Company, Tucson, Arizona, 11 p.

Respectfully submitted by,

Heinrichs GEOEXploration Co.

Wm. Hovey Smith

Wm. Hovey Smith
Geologist

Approved by:

Walter E. Heinrichs, Jr.
President

WHS:mt

APPENDIX

Drill Logs

HEINRICHS GEOEXPLORATION COMPANY

POST OFFICE BOX 5964 TUCSON, ARIZONA 85703
PHONE: 602/623-0578 CABLE: GEOEX, TUCSON

HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DH #1 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 10, 1973 LOCATION 1 W 4 S.
COMPLETED May 11, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 105' COLLAR ELEVATION 1540
DATE May 10, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	Au Ozt	Ag Ozt	Pb %	Zn %
		4" Caliche Entire Sample Altd. Gray Silicified Lms, White Lms First Sample From Drill Possible Contamination				Tr	0.10	Tr	0.05
		Red Altd. Lms, White Lms Split Sample 10'				Tr	0.05	0.05	0.20
		Red Altd. Silicified Lms Split Sample				0.005	0.15	0.35	0.60
		50% Red Silicified Lms 50% White Lms. Split Sample 20'				Tr	0.10	0.20	0.40
		Split Sample "				Tr	0.15	0.25	0.40
		Red and 10% Greenish Altd. Silicified Lms Split Sample 30'				Tr	0.15	0.05	0.10
		Red Silicified Lms Split Sample				Tr	0.05	Tr	0.05
		90 % Red Medium Grained Qtzt Split Sample 10% Red Silicified Lms 40'				0.005	0.10	Tr	0.20
		Red, Gray, White Qtzt. Split Sample Hard Drilling		85%		0.005	0.40	0.05	0.60
		Brown Quartzite with small sericite fragments in cuttings Split Sample 50'				Tr	0.35	0.60	1.00
		White, Red, Brown, Qtzt. Small Sill? Argillized with 1% Py. Split Sample Change from Rock Bit to Down Hole Hammer		50%		Tr	0.20	0.20	0.30
		50% white, 50% red Qtzt. Split Sample 60'		50%		0.005	0.15	0.05	0.10
		White Qtzt. Occasional Lt. Green Mineral on Fractures.		50%		Tr	0.20	0.05	0.10
		50% White, 50% Red Qtzt. Entire Sample 70'		50%		Tr	0.25	0.10	0.35
		Red Qtzite Bit stuck, water and oil put down hole. Poor sample		25%		0.005	0.15	0.10	0.20
		60% White, 40% Red Qtzt. Possible Contamination From water and oil 80		80%		0.005	0.30	0.10	0.20

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PHONE: 602/623-0578 CABLE: GEOEX, TUCSON

DIRECTION _____ HOLE NO. DH #1 Rotary
INCLINATION 90% PROPERTY Pico Claims
STARTED May 10, 1973 LOCATION 1 W 4 S.
COMPLETED May 11, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 105' COLLAR ELEVATION 1540
DATE May 10, 1973 NOTES BY Wm. Hovey Smith SHEET 2 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	CORE ASSAYS SECT.	Au Ozt	Ag Ozt	Pb %	Zn %		
		Red Qtzt with rounded diabase Pebbles. Pebbles are weathered — Split Sample Easier Drilling	90%			0.005	0.15	0.15	0.25		
		As above — Split Sample 90'	100%			Tr	0.15	0.15	0.30		
		Conglomerate as above — Clay Content — Entire Sample Clay lost as dust causing < in sample recovery	40%			Tr	0.05	0.10	0.25		
		Moderately Clayey conglomerate T00'	40%			Tr	0.10	0.10	0.20		
		Clayey Conglomerate	35%			Tr	0.10	0.10	0.20		

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DIRECTION _____ HOLE NO. DH #2 20' Rotary, 54' Core
INCLINATION Inclination 90° PROPERTY Pico Claims
STARTED May 12, 1973 LOCATION 0.5 W 0 N
COMPLETED May 13, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 74 COLLAR ELEVATION 1570
DATE May 21, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 1 Sheet

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	Au OzT	Ag OzT	Pb %	Zn %
		Gray Limestone 60% Rotary Hammer Red Altered Limestone 40% Minor Chert Slightly Silicified				Tr	0.30	0.05	0.40
		Gray Limestone 70% Rotary Hammer White Limestone 10% Red Altered Limestone 20% 10				0.005	0.40	0.10	0.45
		Gray Limestone 80% Rotary Hammer Red Altered Limestone 20 Minor Chert				Tr	0.15	0.05	0.75
		Gray Limestone 80% Rotary Hammer Red Altered Limestone 20% Minor Chert 20				Tr	0.35	0.10	0.80
		2' Red and Brown Altd Limestone with Chert Core 2' Gray Mottled Lms. with Red Altd. Lms. (slightly silicified) 1' Brecciated Gray and Red Lms. with 1/10 in.calcite veins		100%		0.005	0.35	0.05	0.60
		1' Brecciated Gray Lms with clay on Mn oxides.Core 1' Red Altd Lms. 6" Gray Lms with calcite veins. 1.5' Fractured Gray Lms. 30 1' Brecciated Red Brown Mottled Lms.		100%		0.005	0.30	0.05	0.40
		Altd. brown and red Altd. Lms 2" Chert near top. 2' chert 3' Altd. Lms. slightly silicified Core Brecciated Zone 32-40' with recrystalized Lms.		100%		0.005	0.30	Tr	0.55
		Common Mn Oxide stain on fractures Core @ 3% clay and sericite in fracture zones Common chert breccia fragments. Calcite 40 lining open cavities		100%		Tr	0.45	Tr	0.65
		Core Massicot observed on galena pseudomorphs on Fracture Mn Oxides on fracture surfaces		100%		Tr	0.15	0.05	0.80
		Brecciated Red Altd Lms with chert Core Mn. Oxide Minerals commonly coat calcite in fractures. Slightly silicified. 50		100%		Tr	0.25	0.05	0.80
		Brecciated Altered Silicified Lms. Core Sericite occasionally observed Small Amounts Mn oxide mineral in fractures		100%		0.005	0.35	Tr	0.35
		Porous silicious breccia with Red Altd. Lms. Ankerite? and calcite lining open cavities Mn Oxide Minerals sparingly present 60		100%		Tr	0.35	Tr	0.40
		Red Altd. Lms-No solid core recovered Mn Oxides on All Rock Fragments Fractures		40%		Tr	0.15	Tr	0.45
		Gray and Red Altd Lms No solid core recovered 70		30%		Tr	0.10	0.05	0.20
		Red silicified Lms. No solid core recovered		20%		Tr	0.15	0.05	0.30

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HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DH #3 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 17, 1973 LOCATION 0.5W 0.25N
COMPLETED May 22, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 170 COLLAR ELEVATION 1570
DATE May 23, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au OzT	Ag OzT	Pb %	Zn %
		80% Gray and White Lms. 20% Altd Red Slightly Silicified Lms.				Tr	0.15	0.10	0.30
	10	50% Gray Lms. 50% Altd Red Lms.				Tr	0.20	0.10	0.45
		70% Gray Lms. 20% Altd Red Lms 10% Chert Fragments and Clay				Tr	0.35	0.20	0.60
	20	60% White Lms. 30% Altd Red Lms. 10% Chert				0.010	0.95	0.40	0.60
		60% Gray Lms. 40% Altd Red Lms.				0.005	0.50	0.10	0.70
	30	50% Gray Lms. 45% Altd Red Lms. Slightly Silicified 5% Calcite Vein Material				Tr	0.40	0.15	0.70
		80% Gray Lms. 20% Altd Red Silicified Lms.				Tr	0.45	0.20	0.75
	40	60% Gray Recrystallized Lms. 30% Red Altd Lms. 10% White Altd Lms. with Sericite				Tr	0.35	0.20	0.60
		80% Altd Red Lms. 10% White Lms. 10% Strongly Silicified Lms.				0.005	0.70	0.20	0.55
	50	80% Altd Silicified Lms. 20% Gray Lms. Common Mn Oxide Staining				Tr	0.60	0.10	0.35
		60% Gray Lms. 20% Altd. Red Lms. 10% White Altd Lms. with Sericite				Tr	0.45	0.05	0.45
	60	90% Red Altd. Silicified Lms. 10% Quartz				0.005	0.45	0.05	0.40
		50% Altd. Red Silicified Lms. 40% Brown Altd. Lms. 10% Quartz and Clay				Tr	0.35	Tr	0.50
	70	80% Altd. Red Lms 20% Gray Lms. Soft Drilling Hole Caving				Tr	0.15	Tr	0.35
		70% Altd. Red Lms. 20% Gray Lms 5% White Clayey Lms. Soft Drilling Hole Plastered				Tr	0.30	0.10	0.40

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HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DH #3 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 17, 1973 LOCATION 0.5 W 0.25 N
COMPLETED May 22, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 170 COLLAR ELEVATION 1570
DATE May 23, 1973 NOTES BY Wm. Hovey Smith SHEET 2 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	Au OzT	Ag OzT	Pb %	Zn %
		60% Gray Lms. 30% Altd. Red Lms. 10% Plaster 80				Tr	0.15	0.05	0.15
		80% Compact Altd. Red Lms. Drilling Conditions Improve 20% Gray Lms				0.005	0.15	0.05	0.25
		70% Altd. Red Lms 10% White Clayey Lms. 20% Gray Lms. 90				Tr	0.20	Tr	0.15
		90% White Clayey Lms. 10% Altd. Red Lms.				Tr	0.25	0.05	0.10
		60% White Clayey Lms. 20% Altd. Red Lms. 20% Pink Clayey Lms. 100				Tr	0.20	Tr	0.05
		White to Buff Clayey Lms. Common Mn Dendrites				Tr	0.25	0.05	Tr
		White, Buff, Lt. Green Clayey Lms. 110				0.005	0.30	Tr	Tr
		Lt. Green Clayey Lms.				0.005	0.20	0.05	Tr
		70% Lt. Green Clayey Lms 20% Gray Lms. 10% Altd. Red Lms. 120				Tr	0.15	Tr	Tr
		50% Lt. Green Clayey Lms. 50% Medium-grained Red Quartzite				Tr	0.20	Tr	0.05
		75% Lt. Green Clayey Lms. 20% Red Quartzite 5% White Quartzite 130				Tr	0.20	Tr	Tr
		Lt. Green and White Clayey Lms.				Tr	0.15	Tr	Tr
		Lt. Green and White Clayey Lms 140				0.005	0.25	Tr	Tr
		Lt. Green Clayey Lms. with 1% Small Limonite Masses.				0.010	0.35	Tr	Tr

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HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DH #3 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 17, 1973 LOCATION 0.5 W 0.25 N
COMPLETED May 22, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 170 COLLAR ELEVATION 1570
DATE May 23, 1973 NOTES BY Wm. Hovey Smith SHEET 3 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au Oz	Ag Oz	Pb %	Zn %	
		Lt. Green Very Clayey Lms.				0.005	0.15	Tr	0.05	
		150								
		White Clayey Lms.				Tr	0.10	0.05	0.05	
		Lt. Green Clayey Lms. with 2% Limonite-stained clays and Red Altd. Lms.				0.005	0.35	0.15	0.15	
		160								
		Lt. Green Clayey Lms. Few Limonite-stained Fragments.				0.010	0.40	0.10	0.10	
		Lt. Green Clayey Lms. 1% Limonite and Vein Calcite Fragments.				0.005	0.35	0.05	0.10	
		170								

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GEOPHYSICAL ENGINEERS

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PHONE: 602/623-0578 CABLE: GEOEX, TUCSON

DIRECTION _____ HOLE NO. DH #4 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 22, 1973 LOCATION 0.5 W 1 S
COMPLETED May 25, 1973 COLLAR COORD: N _____ E _____
SCALE: 1" = 10' DEPTH 170' COLLAR ELEVATION 1570
DATE May 26, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au Oz	Ag Oz	Pb %	Zn %
		Soil, Dark Gray Lms., Red Silicified Lms.				0.005	0.25		
		60% Gray Silicified Lms. 30% Altd. Red Lms. 10% White Quartz				Tr	0.20		
		10							
		90% Dark Gray Silicified Lms. 5% Red Altd. Lms. 5% White Quartz				Tr	0.20		
		90% Gray Lms. 10% Red Altd. Lms.				Tr	0.30		
		20							
		90% Gray Lms. 10% Red Altd. Lms.				0.005	0.35		
		Gray Lms.				0.005	0.20		
		30							
		70% Buff-pink Lms. 20% Gray Lms.				Tr	0.15		
		70% Buff-pink Lms. 20% Gray Lms. 10% Red Altd. Lms.				Tr	0.15		
		40							
		80% Gray Lms. 10% Buff Lms. 10% Altd. Red Lms.				Tr	0.20		
		80% Gray Lms. 10% Dark Gray Lms. 10% Red Altd. Lms.				Tr	0.10		
		50							
		White to Light Green Clayey Lms.				0.005	0.20		
		Light Green Clayey Lms. with Manganese Dendrites							
		60							
		50% Light Green Clayey Lms. 50% Red-buff Quartzite				Tr	0.25		
		50% Light Green Clayey Lms. 50% Red-buff Quartzite							
		70							

HEINRICHS GEOEX
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PHONE: 602/623-0578 CABLE: GEOEX, TUCSON

DIRECTION _____ HOLE NO. DH #4 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 22, 1973 LOCATION 0.5 W 1 S
COMPLETED May 25, 1973 COLLAR COORD: N _____ E _____
SCALE: 1" = 10' DEPTH 170' COLLAR ELEVATION 1570
DATE May 26, 1973 NOTES BY Wm. Hovey Smith SHEET 2 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au OzT	Ag Ozt	Pb %	Zn %		
		50% Light Green Clayey Lms. 50% Red-buff Quartzite				0.005	0.15				
		80% Light Green Clayey Lms. 20% Red Quartzite 80									
		80% Light Green Clayey Lms. 20% Red Quartzite				0.005	0.15				
		80% Clayey Lms. 10% Red Quartzite 90									
		Light Green Clayey Lms.				Tr	0.10				
		Very Clayey Lms. 100									
		90% Light Green Clayey Lms 10% Pink-buff Lms. Quartz Vein Fragments < 1%				Tr	0.10				
		90% Light Green Clayey Lms. 10% Red Quartzite 110									
		70% Light Green Clayey Lms. 30% Gray Lms				Tr	0.15				
		20% Light Green Clayey Lms. 80% Gray Lms. 120									
		Gray Lms.				Tr	0.20				
		80% Gray Lms. 10% White Lms. 130									
		80% White Clayey Lms. 20% Gray Lms.				Tr	0.10				
		White Clayey Lms with subrounded 1-3mm Quartz Pebbles 140									

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DIRECTION _____ HOLE NO. DH #4 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 22, 1973 LOCATION 0.5 W 1[illegible] S
COMPLETED May 25, 1973 COLLAR COORD: N _____ E _____
SCALE: 1" = 10' DEPTH 170' COLLAR ELEVATION 1570
DATE May 26, 1973 NOTES BY Wm. Hovey Smith SHEET 3 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au OzT	Ag OzT	Pb %	Zn %		
		Mostly Well Rounded Lms. and Quartzite Pebbles in a Calcareous and Argillaceous Matrix				0.005	0.15				
		Soft Clayey Conglomerate 150				0.005					
		White Clayey Conglomerate with 1/4" Quartzite Pebbles				0.005	0.25				
		Red Clayey Conglomerate with Well Rounded 1/4"-3/8" Quartzite Pebbles. 160				0.005					
		Red Clayey Conglomerate				Tr	0.25				
		Red Clayey Conglomerate with 2" of hard Red Quartzite at bottom of hole. Hole making water 170				Tr	0.20				

PRELIMINARY EXPLORATION DRILLING OF THE PICO CLAIMS

PINAL COUNTY, ARIZONA

FOR

NORTH AMERICAN MINES

JUNE 1973

HEINRICHS GEOEXPLORATION COMPANY
MINERAL ENGINEERING CONSULTANTS AND CONTRACTORS
P.O. BOX 5964 TUCSON, ARIZONA

GEOEX Job #770

PRELIMINARY EXPLORATION DRILLING
OF THE PICO CLAIMS

PINAL COUNTY, ARIZONA

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ILLUSTRATIONS

Plate 1. Geologic Map Ira's Camp area---------- in pocket

PRELIMINARY EXPLORATION DRILLING OF THE PICO CLAIMS

PINAL COUNTY, ARIZONA

INTRODUCTION

Following geological examination of the Pico Claims (Smith, 1973) and a detailed I.P. survey of the Ira's Camp area, four holes were drilled to test an altered area which coincided with an I.P. anomaly. The locations of the holes with respect to the geology and the I.P. anomaly are indicated on Plate 1 of this report and on the I.P. survey countour plans of the enclosed geophysical report. A total of 54 feet of coring and 465 feet of rotary drilling was completed.

Surface samples assayed anomalous silver values throughout the altered zone and samples from the dumps of the Sofpa workings contained between 5.90 and 13.05 ounces of silver per ton which indicated the possible presence of a near surface disseminated ore body at Ira's Camp. The objective of the drilling program was to determine if sufficient mineralization was present in this area to permit open pit mining.

CONCLUSIONS

1. There were no ore grade intersections in any of the four holes.

2. The I.P. anomaly in the area of DH 2, 3, and 4 is most likely caused by small quantities of manganese minerals in fractures, and the slightly broader anomaly near DH 1 is probably caused by the same effect augmented by clay minerals in the underlying quartzite and clayey conglomerate.

3. There appears to be little potential for the presence of near surface disseminated mineralization in the Ira's Camp area; however, the potential for vein mineralization was not tested.

DRILLING

A bid of $14.00 a foot for core and $6.25 a foot for rotary drilling by Boyles Bros. Drilling Co. of Salt Lake City, Utah, was accepted. Originally a drilling program of three 100 foot rotary holes with an additional 50 feet to be cored at the bottom of each hole was proposed. After completion of the I.P. program, this concept was changed. Because of the shallow depth of the indicated I.P. target, DH 2 was cored starting at 20 feet. DH 1 was rotary drilled to a depth of 105 feet and the other two holes were each rotary drilled to 170 feet. Because of the loss of water circulation and the hard and broken nature of the rock, much better sample return was obtained from rotary rather than core drilling.

DH No.1

This, the southernmost hole, is located off the south flank of the ridge on Line 1W at 4S, on the crest of a weak high (See I.P. Survey Contour Plans). It lies south of the area shown on Plate 1.

After penetrating four inches of caliche, a gray silicified limestone was intersected which is commonly altered to a red color. At approximately 37 feet, a banded red, gray, and white quartzite was found. This quartzite contains diabase pebbles and becomes clayey beyond 80 feet. Near the bottom of the hole at 105 feet a clayey conglomerate is present which probably grades into a shale at a slightly greater depth. These clay minerals probably account for a portion of the observed I.P. anomaly.

No assay containing more than 0.40 ounces of silver per ton or over one percent zinc was obtained. A small amount of sericite was identified where the highest values were found.

DH No. 2

This hole was positioned at the crest of the I.P. high at about 0.5W, 0-N/S. After rotary drilling the first 20 feet, coring started. A brecciated gray limestone with chert lenses up to four inches thick was intersected. The limestone is often altered to a red color. Portions of the altered zone are silicified. The breccia is very porous with calcite and manganese minerals lining cavities. Except for wulfenite and massicot which are present in very small quantities, no ore minerals were identified. The highest assay obtained from any five foot interval contained 0.45 ounces of silver per ton with minor lead and zinc.

Because of poor core recovery and very slow drilling this hole was abandoned at a depth of 74 feet and DH No. 3 started 12 feet to the south.

DH No. 3

This hole was started in the same limestone as DH No. 2. The limestone continues to a depth of about 90 feet when there is a lithologic change from altered gray limestone to a greenish-white clayey limestone. With the exception of a five foot quartzite bed at about 125 feet, the clayey limestone persists to the end of the hole at 170 feet.

The highest analysis was a value of 0.95 ounce per ton silver in the interval from 15 to 20 feet.

DH No. 4

Located between DH No. 3 and DH No. 1, at 0.5W, 1S, this hole was to test the southern part of the altered zone at the outcrop of a prominent silicified shear zone. The first 15 feet were in strongly silicified limestone which passes into relatively unaltered gray limestone. This persists to about 50 feet where the greenish-white clayey limestone is found. A number of thin beds of quartzite were intersected between 60 and 90 feet. From 115 to 130 feet, gray limestone was cut which grades into white clayey conglomerate with rounded limestone and quartzite fragments. This conglom-

erate becomes red colored at about 160 feet. Water was intersected in the hole at about 165 feet and a red quartzite was found in the bottom of the hole at 170 feet.

Because of the previous disappointing results, no lead or zinc analyses were made of cuttings from this hole and beyond 60 feet silver and gold were analyzed at 10 foot rather than 5 foot intervals. The highest silver value for this hole was 0.35 ounce per ton.

REFERENCES

Smith, Wm. Hovey, 1973, Geologic examination of the Pico Claims Pinal County, Arizona: Private report North American Mines, Heinrichs GEOEXploration Company, Tucson, Arizona, 11 p.

Respectfully submitted by,

Heinrichs GEOEXploration Co.

Wm. Hovey Smith

Wm. Hovey Smith
Geologist

Approved by:

Walter E. Heinrichs, Jr.
President

WHS:mt

APPENDIX

Drill Logs

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HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DH #1 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 10, 1973 LOCATION 1 W 4 S.
COMPLETED May 11, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 105' COLLAR ELEVATION 1540
DATE May 10, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	CORE ASSAYS SECT.	Au Qzt	Ag Qzt	Pb %	Zn %
		4" Caliche Entire Sample Altd. Gray Silicified Lms, White Lms First Sample From Drill Possible Contamination				Tr	0.10	Tr	0.05
		Red Altd. Lms, White Lms Split Sample 10'				Tr	0.05	0.05	0.20
		Red Altd. Silicified Lms Split Sample				0.005	0.15	0.35	0.60
		50% Red Silicified Lms 50% White Lms. Split Sample 20'				Tr	0.10	0.20	0.40
		Split Sample "				Tr	0.15	0.25	0.40
		Red and 10% Greenish Altd. Silicified Lms Split Sample 30'				Tr	0.15	0.05	0.10
		Red Silicified Lms Split Sample				Tr	0.05	Tr	0.05
		90 % Red Medium Grained Qtzt Split Sample 10% Red Silicified Lms 40'				0.005	0.10	Tr	0.20
		Red, Gray, White Qtzt. Split Sample Hard Drilling		85%		0.005	0.40	0.05	0.60
		Brown Quartzite with small sericite fragments in cuttings Split Sample 50'				Tr	0.35	0.60	1.00
		White, Red, Brown, Qtzt. Small Sill? Argillized with 1% Py. Split Sample Change from Rock Bit to Down Hole Hammer		50%		Tr	0.20	0.20	0.30
		50% white, 50% red Qtzt. Split Sample 60'		50%		0.005	0.15	0.05	0.10
		White Qtzt. Occasional Lt. Green Mineral on Fractures.		50%		Tr	0.20	0.05	0.10
		50% White, 50% Red Qtzt. Entire Sample 70'		50%		Tr	0.25	0.10	0.35
		Red Qtzite Bit stuck, water and oil put down hole. Poor sample		25%		0.005	0.15	0.10	0.20
		60% White, 40% Red Qtzt. Possible Contamination From water and oil 80		80%		0.005	0.30	0.10	0.20

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HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DH #1 Rotary
INCLINATION 90% PROPERTY Pico Claims
STARTED May 10, 1973 LOCATION 1 W 4 S.
COMPLETED May 11, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 105' COLLAR ELEVATION 1540
DATE May 10, 1973 NOTES BY Wm. Hovey Smith SHEET 2 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	CORE ASSAYS SECT.	Au Ozt	Ag Ozt	Pb %	Zn %
		Red Qtzt with rounded diabase Pebbles. Pebbles are weathered — Split Sample, Easier Drilling	90%			0.005	0.15	0.15	0.25
		As above — Split Sample	100%			Tr	0.15	0.15	0.30
		90'							
		Conglomerate as above — Clay Content — Entire Sample. Clay lost as dust causing < in sample recovery	40%			Tr	0.05	0.10	0.25
		Moderately Clayey conglomerate	40%			Tr	0.10	0.10	0.20
		100'							
		Clayey Conglomerate	35%			Tr	0.10	0.10	0.20

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DIRECTION _____ HOLE NO. DH #2 20' Rotary, 54' Core
INCLINATION Inclination 90° PROPERTY Pico Claims
STARTED May 12, 1973 LOCATION 0.5 W 0 N
COMPLETED May 13, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 74 COLLAR ELEVATION 1570
DATE May 21, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 1 Sheet

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	Au OzT	Ag OzT	Pb %	Zn %
		Gray Limestone 60% Rotary Hammer Red Altered Limestone 40% Minor Chert Slightly Silicified				Tr	0.30	0.05	0.40
		Gray Limestone 70% Rotary Hammer White Limestone 10% Red Altered Limestone 20% 10				0.005	0.40	0.10	0.45
		Gray Limestone 80% Rotary Hammer Red Altered Limestone 20 Minor Chert				Tr	0.15	0.05	0.75
		Gray Limestone 80% Rotary Hammer Red Altered Limestone 20% Minor Chert 20				Tr	0.35	0.10	0.80
		2' Red and Brown Altd Limestone with Chert Core 2' Gray Mottled Lms. with Red Altd. Lms. (slightly silicified) 1' Brecciated Gray and Red Lms. with 1/10 in.calcite veins		100%		0.005	0.35	0.05	0.60
		1' Brecciated Gray Lms with clay on Mn oxides.Core 1' Red Altd Lms. 6" Gray Lms with calcite veins. 1.5' Fractured Gray Lms. 30 1' Brecciated Red Brown Mottled Lms.		100%		0.005	0.30	0.05	0.40
		Altd. brown and red Altd. Lms 2" Chert near top. 2' chert 3' Altd. Lms. slightly silicified Core Brecciated Zone 32-40' with recrystalized Lms.		100%		0.005	0.30	Tr	0.55
		Common Mn Oxide stain on fractures Core @ 3% clay and sericite in fracture zones Common chert breccia fragments. Calcite 40 lining open cavities		100%		Tr	0.45	Tr	0.65
		Core Massicot observed on galena pseudomorphs on Fracture Mn Oxides on fracture surfaces		100%		Tr	0.15	0.05	0.80
		Brecciated Red Altd Lms with chert Core Mn. Oxide Minerals commonly coat calcite in fractures. Slightly silicified. 50		100%		Tr	0.25	0.05	0.80
		Brecciated Altered Silicified Lms. Core Sericite occasionally observed Small Amounts Mn oxide mineral in fractures		100%		0.005	0.35	Tr	0.35
		Porous silicious breccia with Red Altd. Lms. Ankerite? and calcite lining open cavities 60 Mn Oxide Minerals sparingly present		100%		Tr	0.35	Tr	0.40
		Red Altd. Lms-No solid core recovered Mn Oxides on All Rock Fragments Fractures		40%		Tr	0.15	Tr	0.45
		Gray and Red Altd Lms No solid core recovered 70		30%		Tr	0.10	0.05	0.20
		Red silicified Lms. No solid core recovered		20%		Tr	0.15	0.05	0.30

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HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DH #3 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 17, 1973 LOCATION 0.5W 0.25N
COMPLETED May 22, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 170 COLLAR ELEVATION 1570
DATE May 23, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au OzT	Ag OzT	Pb %	Zn %
		80% Gray and White Lms. 20% Altd Red Slightly Silicified Lms.				Tr	0.15	0.10	0.30
		50% Gray Lms. 50% Altd Red Lms. 10				Tr	0.20	0.10	0.45
		70% Gray Lms. 20% Altd Red Lms 10% Chert Fragments and Clay				Tr	0.35	0.20	0.60
		60% White Lms. 30% Altd Red Lms. 10% Chert 20				0.010	0.95	0.40	0.60
		60% Gray Lms. 40% Altd Red Lms.				0.005	0.50	0.10	0.70
		50% Gray Lms. 45% Altd Red Lms. Slightly Silicified 30 5% Calcite Vein Material				Tr	0.40	0.15	0.70
		80% Gray Lms. 20% Altd Red Silicified Lms.				Tr	0.45	0.20	0.75
		60% Gray Recrystallized Lms. 30% Red Altd Lms. 10% White Altd Lms. with Sericite 40				Tr	0.35	0.20	0.60
		80% Altd Red Lms. 10% White Lms. 10% Strongly Silicified Lms.				0.005	0.70	0.20	0.55
		80% Altd Silicified Lms. 20% Gray Lms. Common Mn Oxide Staining 50				Tr	0.60	0.10	0.35
		60% Gray Lms. 20% Altd. Red Lms. 10% White Altd Lms. with Sericite				Tr	0.45	0.05	0.45
		90% Red Altd. Silicified Lms. 10% Quartz 60				0.005	0.45	0.05	0.40
		50% Altd. Red Silicified Lms. 40% Brown Altd. Lms. 10% Quartz and Clay				Tr	0.35	Tr	0.50
		80% Altd. Red Lms — Soft Drilling 20% Gray Lms. — Hole Caving 70				Tr	0.15	Tr	0.35
		70% Altd. Red Lms. — Soft Drilling 20% Gray Lms — Hole Plastered 5% White Clayey Lms.				Tr	0.30	0.10	0.40

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SCALE: 10' = 1" DEPTH 170 COLLAR ELEVATION 1570
DATE May 23, 1973 NOTES BY Wm. Hovey Smith SHEET 2 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	Au OzT	Ag OzT	Pb %	Zn %
		60% Gray Lms. 30% Altd. Red Lms. 10% Plaster 80				Tr	0.15	0.05	0.15
		80% Compact Altd. Red Lms. 20% Gray Lms Drilling Conditions Improve				0.005	0.15	0.05	0.25
		70% Altd. Red Lms 10% White Clayey Lms. 20% Gray Lms. 90				Tr	0.20	Tr	0.15
		90% White Clayey Lms. 10% Altd. Red Lms.				Tr	0.25	0.05	0.10
		60% White Clayey Lms. 20% Altd. Red Lms. 20% Pink Clayey Lms. 100				Tr	0.20	Tr	0.05
		White to Buff Clayey Lms. Common Mn Dendrites				Tr	0.25	0.05	Tr
		White, Buff, Lt. Green Clayey Lms. 110				0.005	0.30	Tr	Tr
		Lt. Green Clayey Lms.				0.005	0.20	0.05	Tr
		70% Lt. Green Clayey Lms 20% Gray Lms. 10% Altd. Red Lms. 120				Tr	0.15	Tr	Tr
		50% Lt. Green Clayey Lms. 50% Medium-grained Red Quartzite				Tr	0.20	Tr	0.05
		75% Lt. Green Clayey Lms. 20% Red Quartzite 5% White Quartzite 130				Tr	0.20	Tr	Tr
		Lt. Green and White Clayey Lms.				Tr	0.15	Tr	Tr
		Lt. Green and White Clayey Lms 140				0.005	0.25	Tr	Tr
		Lt. Green Clayey Lms. with 1% Small Limonite Masses.				0.010	0.35	Tr	Tr

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DATE May 23, 1973 NOTES BY Wm. Hovey Smith SHEET 3 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au Oz	Ag Ozt	Pb %	Zn %
		Lt. Green Very Clayey Lms. 150				0.005	0.15	Tr	0.05
		White Clayey Lms.				Tr	0.10	0.05	0.05
		Lt. Green Clayey Lms. with 2% Limonite-stained clays and Red Altd. Lms. 160				0.005	0.35	0.15	0.15
		Lt. Green Clayey Lms. Few Limonite-stained Fragments.				0.010	0.40	0.10	0.10
		Lt. Green Clayey Lms. 1% Limonite and Vein Calcite Fragments. 170				0.005	0.35	0.05	0.10

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COMPLETED May 25, 1973 COLLAR COORD: N _____ E _____
SCALE: 1" = 10' DEPTH 170' COLLAR ELEVATION 1570
DATE May 26, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	CORE ASSAYS SECT.	Au Oz/T	Ag Oz/T	Pb %	Zn %
		Soil, Dark Gray Lms., Red Silicified Lms.				0.005	0.25		
		60% Gray Silicified Lms. 30% Altd. Red Lms. 10% White Quartz 10				Tr	0.20		
		90% Dark Gray Silicified Lms. 5% Red Altd. Lms. 5% White Quartz				Tr	0.20		
		90% Gray Lms. 10% Red Altd. Lms. 20				Tr	0.30		
		90% Gray Lms. 10% Red Altd. Lms.				0.005	0.35		
		Gray Lms. 30				0.005	0.20		
		70% Buff-pink Lms. 20% Gray Lms.				Tr	0.15		
		70% Buff-pink Lms. 20% Gray Lms. 10% Red Altd. Lms. 40				Tr	0.15		
		80% Gray Lms. 10% Buff Lms. 10% Altd. Red Lms.				Tr	0.20		
		80% Gray Lms. 10% Dark Gray Lms. 10% Red Altd. Lms. 50				Tr	0.10		
		White to Light Green Clayey Lms.				0.005	0.20		
		Light Green Clayey Lms. with Manganese Dendrites 60							
		50% Light Green Clayey Lms. 50% Red-buff Quartzite				Tr	0.25		
		50% Light Green Clayey Lms. 50% Red-buff Quartzite 70							

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SCALE: 1" = 10' DEPTH 170' COLLAR ELEVATION 1570
DATE May 26, 1973 NOTES BY Wm. Hovey Smith SHEET 2 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	CORE ASSAYS SECT.	Au OzT	Ag Oz	Pb %	Zn %
		50% Light Green Clayey Lms. 50% Red-buff Quartzite				0.005	0.15		
		80% Light Green Clayey Lms. 20% Red Quartzite 80							
		80% Light Green Clayey Lms. 20% Red Quartzite				0.005	0.15		
		80% Clayey Lms. 10% Red Quartzite 90							
		Light Green Clayey Lms.				Tr	0.10		
		Very Clayey Lms. 100							
		90% Light Green Clayey Lms 10% Pink-buff Lms. Quartz Vein Fragments < 1%				Tr	0.10		
		90% Light Green Clayey Lms. 10% Red Quartzite 110							
		70% Light Green Clayey Lms. 30% Gray Lms				Tr	0.15		
		20% Light Green Clayey Lms. 80% Gray Lms. 120							
		Gray Lms.				Tr	0.20		
		80% Gray Lms. 10% White Lms. 130							
		80% White Clayey Lms. 20% Gray Lms.				Tr	0.10		
		White Clayey Lms with subrounded 1-3mm Quartz Pebbles 140							

HEINRICHS GEOEX
GEOPHYSICAL ENGINEERS

HEINRICHS GEOEXPLORATION COMPANY
POST OFFICE BOX 5964 TUCSON, ARIZONA 85703
PHONE: 602/623-0578 CABLE: GEOEX, TUCSON

DIRECTION _____ HOLE NO. DH #4 Rotary
INCLINATION 90° PROPERTY Pico Claims
STARTED May 22, 1973 LOCATION 0.5 W 1 S
COMPLETED May 25, 1973 COLLAR COORD: N _____ E _____
SCALE: 1" = 10' DEPTH 170' COLLAR ELEVATION 1570
DATE May 26, 1973 NOTES BY Wm. Hovey Smith SHEET 3 OF 3

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au OzT	Ag OzT	Pb %	Zn %
		Mostly Well Rounded Lms. and Quartzite Pebbles in a Calcareous and Argillaceous Matrix				0.005	0.15		
		Soft Clayey Conglomerate				0.005			
		150							
		White Clayey Conglomerate with 1/4" Quartzite Pebbles				0.005	0.25		
		Red Clayey Conglomerate with Well Rounded 1/4"-3/8" Quartzite Pebbles.							
		160							
		Red Clayey Conglomerate				Tr	0.25		
		Red Clayey Conglomerate with 2" of hard Red Quartzite at bottom of hole. Hole making water				Tr	0.20		
		170							

INDUCED POLARIZATION AND MAGNETIC SURVEY

OF THE

PICO AREA

PINAL COUNTY, ARIZONA

FOR

NORTH AMERICAN MINES, INC.

JUNE 1973

BY

HEINRICHS GEOEXPLORATION COMPANY
MINERAL CONSULTANTS AND CONTRACTORS
P.O. BOX 5964 TUCSON, ARIZONA

GEOEX Job #770

CONTENTS

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Introduction	2
Procedures	2
Conclusions	3

Dipole-dipole I.P. Sectional Data Sheets
- Line 0-E/W (Spreads 1 & 2, 50' dipoles)
- Line B (Spread 1, 100' dipoles)

Magnetic Total Intensity Profiles

Location Plan I.P. Line B (on Geologic Sketch Map, Andesite Adit and Vicinity)

In Map Pocket (total 3 pieces)
- Gradient Array I.P. Survey Contour Plans
  - Percent Frequency Effect
  - Resistivity
  - Metallic Conduction Factor

INTRODUCTION

At the request of Mr. Quincy A. Shaw, President of North American Mines, Inc., Heinrichs GEOEXploration Company conducted a combined induced polarization-magnetic survey over portions of the Pico Claims Area on the Papago Indian Reservation, Pinal County, Arizona, to aid in assessing the silver-lead economic potential of the area. Geophysical field work on the project was accomplished during the interim April 25, 1973, to May 12, 1973.

PROCEDURES

A gradient array induced polarization (I.P.) grid was centered on an area of geologic interest (Ira's Camp Area) showing strong silicification and scattered evidence of silver-lead mineralization. The origin (0-E/W, 0-N/S) of the gradient array grid is located 100 feet west of the inclined shaft which is about 180 feet S20°W from Mr. Ira Wagnon's camp. (See accompanying contour plans). This inclined shaft lies approximately 3250 feet in a N32E direction from the SW corner of Section 24, T9S,R4E. Ten north-south lines 100 feet apart were run, consisting of four lines (5W, 2W, 1E and 4E) about 2000 feet long and six lines (4W, 3W, 1W, 0-E/W, 2E and 3E) about 1000 feet long. Readings were obtained with a voltage measuring dipole, 50 feet in length, which was moved on 50 foot station increments along the lines. The data is plotted at the midpoints of the voltage dipole positions and is presented as contour plans of the percent frequency effect (PFE), resistivity, and the metallic conduction factor (MCF). The two remote current electrodes were positioned 2500 feet north and 2500 feet south of the grid origin.

A 7- electrode, double spread, collinear dipole-dipole line was also run along gradient Line 0-E/W with 50 foot dipoles. Another single, 7-electrode, spread of collinear dipole-dipole coverage was run on an east-west line in the Andesite Adit area (see accompanying location plan) several thousand feet south of the gradient grid. The dipole-dipole data are presented on sectional data sheets showing the PFE, resistivity and MCF contoured in "section" and self potentials (taken with the I.P. readings) are shown in profile form at the bottom of the sheets.

Total intensity proton precession magnetometer readings were obtained along gradient lines 1W, 0-E/W and 1E between stations 5.25S and 5.25N on 50 foot stations and are presented as profiles.

A GEOEX Mark 4 I.P. equipment system was used to obtain the I.P. data. The dual frequency I.P. technique was used on frequency pairs of 0.1 and 1.0 hz for the gradient array coverage and 0.3 and 3.0 hz for the dipole-dipole array coverage. A GeoMetrics G-816 porton precession total field magnetometer was used to obtain the magnetic readings.

CONCLUSIONS

The gradient array survey disclosed a weak, but very definite, elongate I.P. anomaly running generally east-west along 0-N/S on Lines 0-E/W, 1W, 2W, and 3W. East and west of this 300 foot long zone, the anomaly weakens and bends somewhat northwards giving the overall anomaly pattern an arcuate shape. This anomaly directly correlates with a high resistivity zone in turn producing rather nondescript MCFs. The anomaly suggests a source less than 50 feet wide and buried less than 50 feet. Depth extent and dip are not obviously interpretable from the data.

Most of the remainder of the area surveyed shows only background polarization variations. However, there is a weak, rather broad, PFE high trending generally ENE, near 4S, across the entire width of the grid. The strongest PFE response in this zone is located near 4S on Line 1W. There is little resistivity or MCF correlation.

Dipole-dipole Line 0-E/W was run to obtain additional information over these two anomalies. Both gradient array anomalies were verified. The main anomaly is seen to be a narrow zone whose source probably comes to within 20 feet of the surface, centered near 0-N/S, and perhaps having limited depth extent - say down to 50 or 75 feet below surface and is associated with moderately high resistivities. A very thin and shallow anomaly correlating with very high resistivities extends south from the main anomaly to about 1.75S. A weak and somewhat deeper anomaly is noted near 4S that is likely reflecting the same source which produces the gradient array PFE high noted near 4S on Line 1W.

The magnetics are quite flat and uninteresting on the three lines run. The only magnetic response of note is on the north ends of the three lines where slightly higher readings occur. These higher values may be caused by an eastward extension, under shallow alluvial cover, of the diorite outcropping near (5W, 3N). The 100 gamma anomaly near 1.5N on Line 0-E/W is probably caused by artificial interference from metal objects around Mr. Wagnon's camp.

Self potentials taken along the two dipole-dipole I.P. lines show no obvious correlation with the I.P. data. The variations present are likely caused by topographic effects and rock type changes.

The two I.P. anomalies were drilled, hoping there would be a shallow high-grade silver and lead association. Drill hole 2, drilled to test the main anomaly was partially a diamond core hole and several representative pieces of core (a reddish brown, altered and brecciated limestone) were tested in the laboratory for their electrical properties. Following is a table of these results.

I.P. Drill Core Sample Tests DH-2

Footage	PFE	Resistivity/2 pi (in ohm-feet)	MCF
25	4.0	540	7.4
30	3.4	610	5.6
32	8.9	1200	7.4
43	4.8	93	52
57	6.2	430	14

The sample results are sufficiently high enough in PFE to verify that DH-2 intersected the source of the main I.P. anomaly and within predicted depths. The particular minerals responsible for this anomalous polarization have not been positively determined, but these samples are all high in iron oxides and show some manganese oxides - both of which can exhibit polarization. Also, the samples have fairly high resistivities, compatible with the field values.

Rotary drill holes 3 and 4, also in the area of the main anomaly, intersected a rock type similar to that tested from DH-2. The small size of the drill cuttings precluded any simple laboratory electrical testing, however.

Rotary drill hole 1 was drilled to test the anomaly near (1W,4S). A clayey conglomerate, intersected below about 90 feet, could possibly be the cause of the polarization. However, an altered red limestone intersected in the upper 40 feet of the hole may be similar to the polarizable material cored in DH-2 and is perhaps the most likely polarizer.

In summation, several I.P. anomalies were located in and near an area considered geologically favorable for silver deposition and, in the hope that they might relate to argentiferous galena mineralization such as silver-bearing manganese oxides, drilling of these anomalies was initiated. The drilling showed no significant base or precious metal mineralization but intersection of the cause of the I.P. anomalism, at least for DH-2, was verified by laboratory sample testing. Further work on the project was deemed unwarranted.

Respectfully submitted,

Heinrichs GEOEXploration Co.

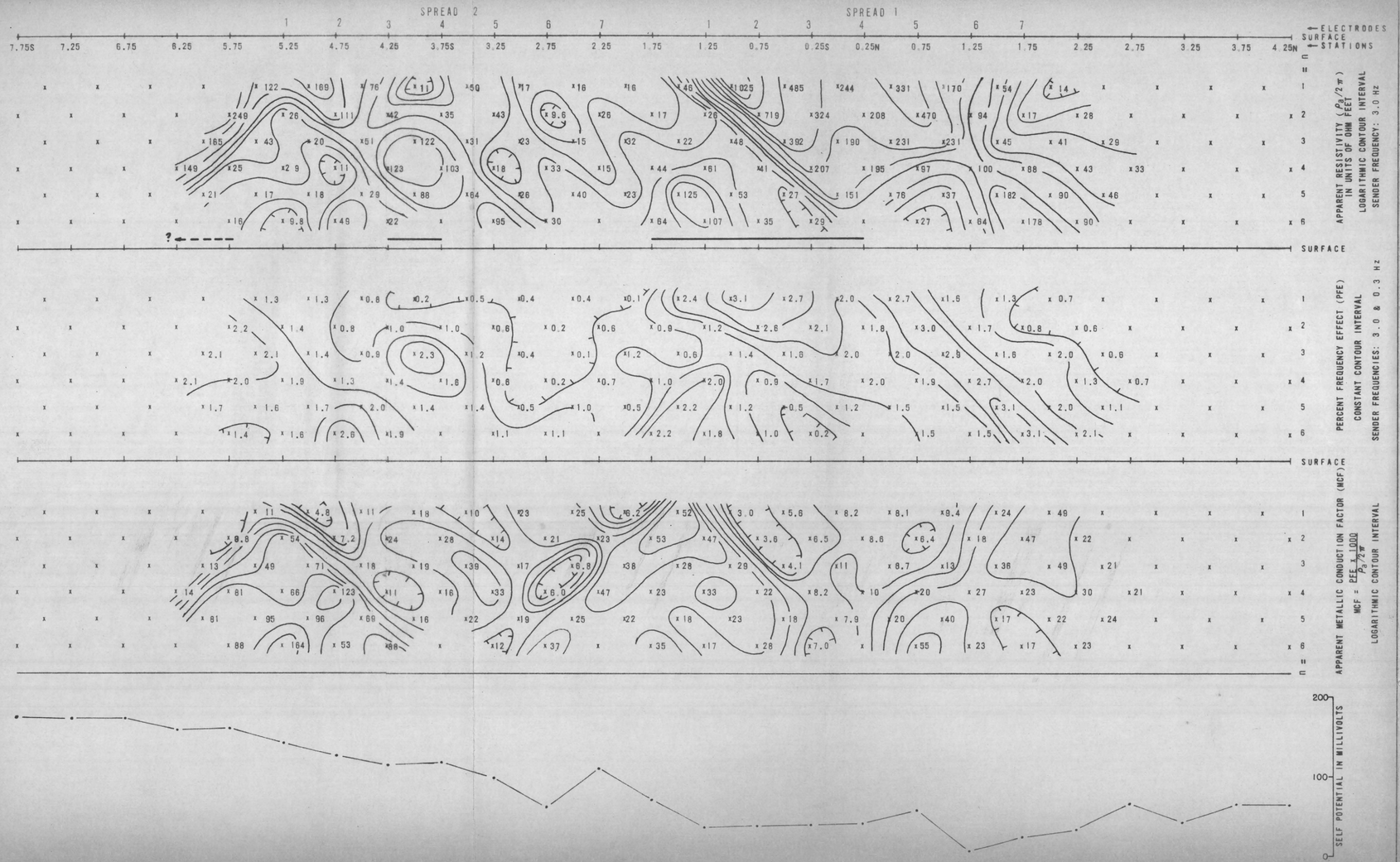
Chris S. Ludwig

Chris S. Ludwig
Chief Geophysicist

Approved:

Walter E. Heinrichs, Jr.
President

CSL:mt



770-73

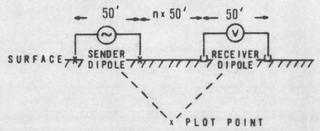
LINE NO.
0-E/W
SPREAD(S)
1 & 2
BEARING
N/S

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of PICO AREA for NORTH AMERICAN MINES, INC.

RELATIVE ANOMALY STRENGTH

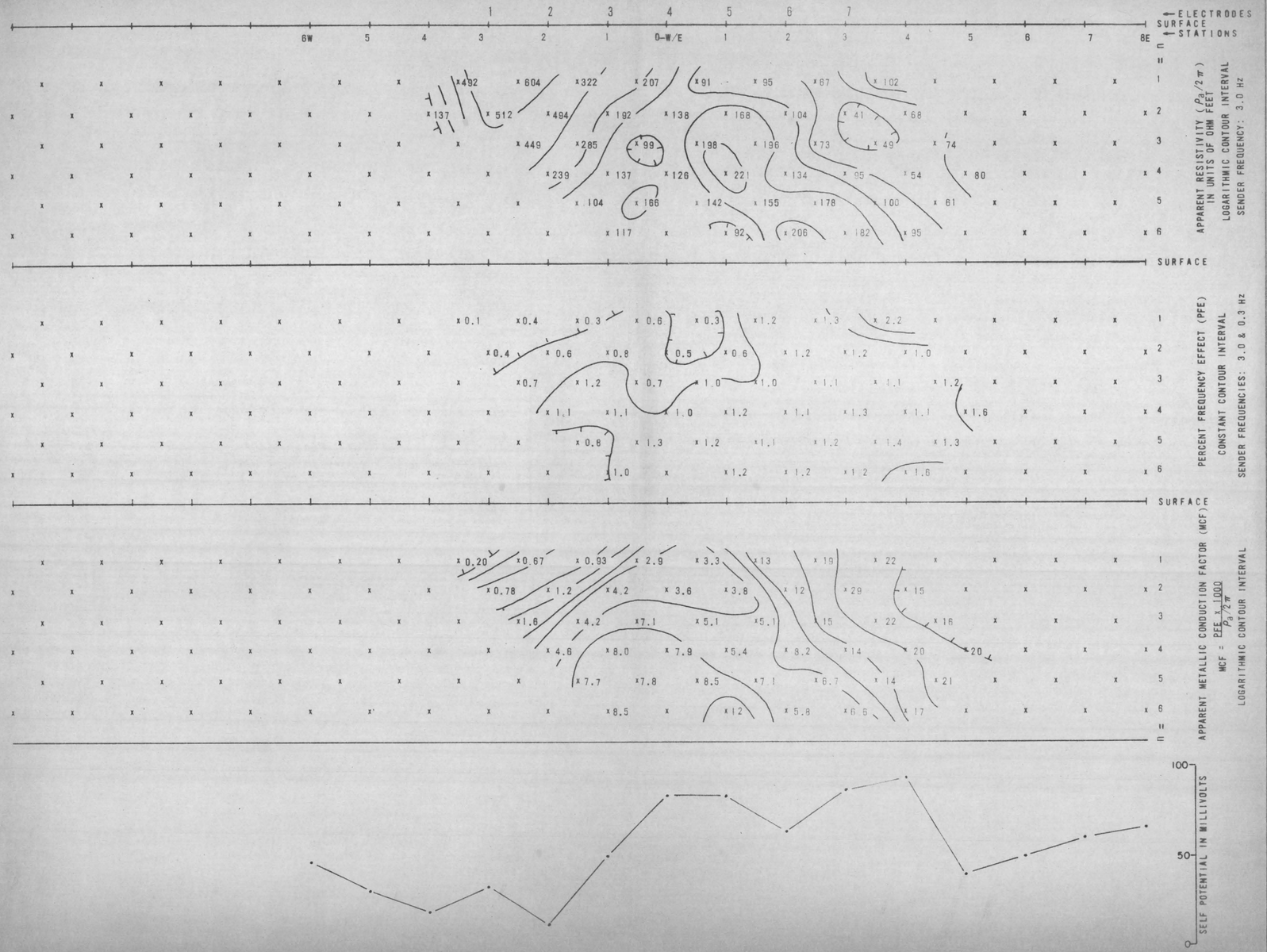
VERY WEAK — WEAK — MODERATE — STRONG

DIPOLE-DIPOLE ELECTRODE ARRAY



DATE
MAY 1973

HEINRICHS GEOEXPLORATION COMPANY
806 W. GRANT ROAD, POST OFFICE BOX 5964, TUCSON, ARIZ., 85703, PHONE: (602)623-0578

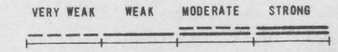


770-73

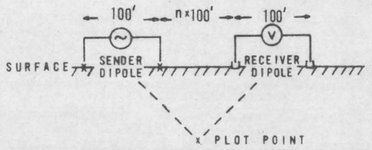
LINE NO.
B
SPREAD(S)
1
BEARING
E/W

INDUCED POLARIZATION TRAVERSE SECTIONAL DATA SHEET of PICO AREA PINAL COUNTY, ARIZONA for NORTH AMERICAN MINES, INC.

RELATIVE ANOMALY STRENGTH



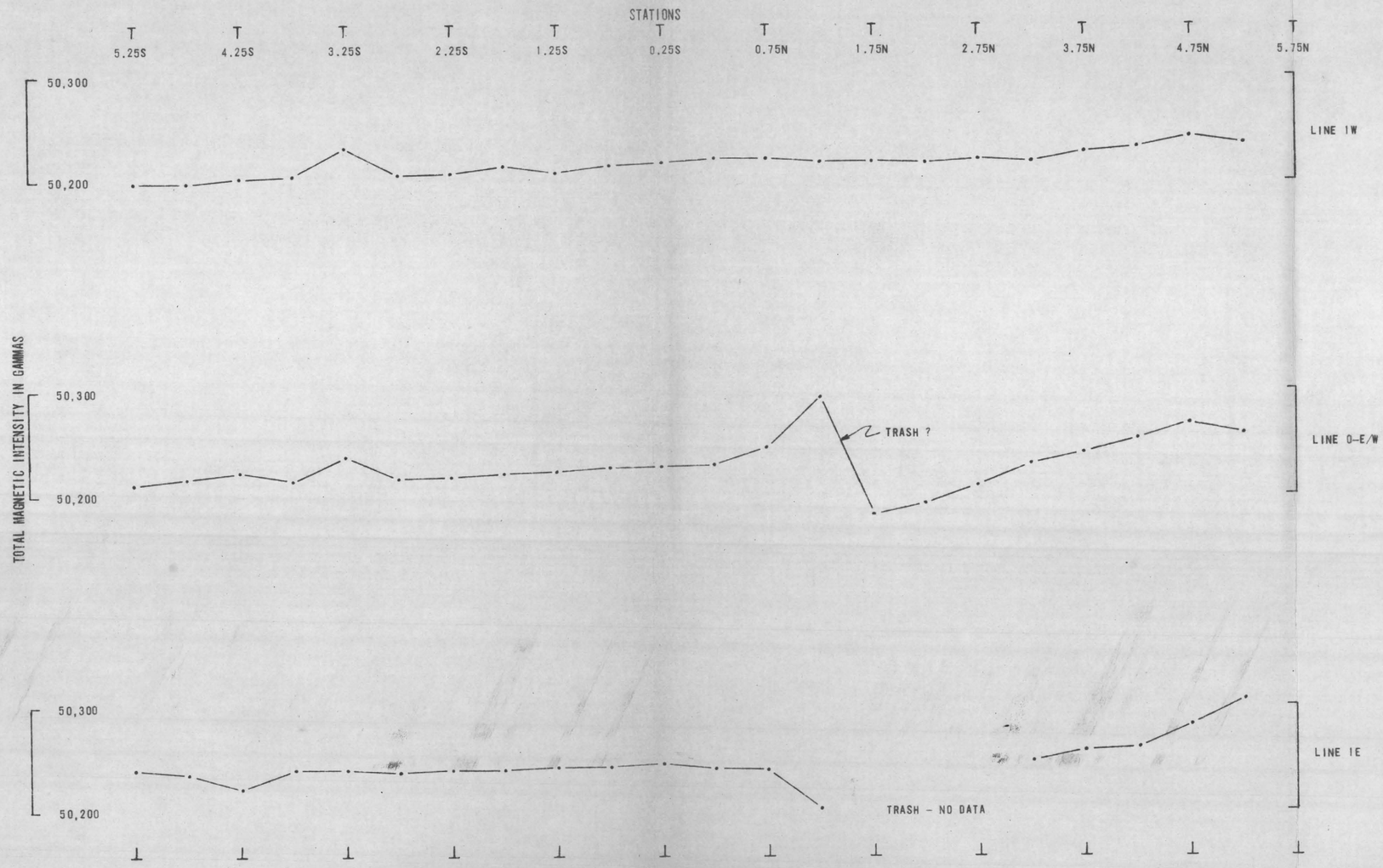
DIPOLE-DIPOLE ELECTRODE ARRAY

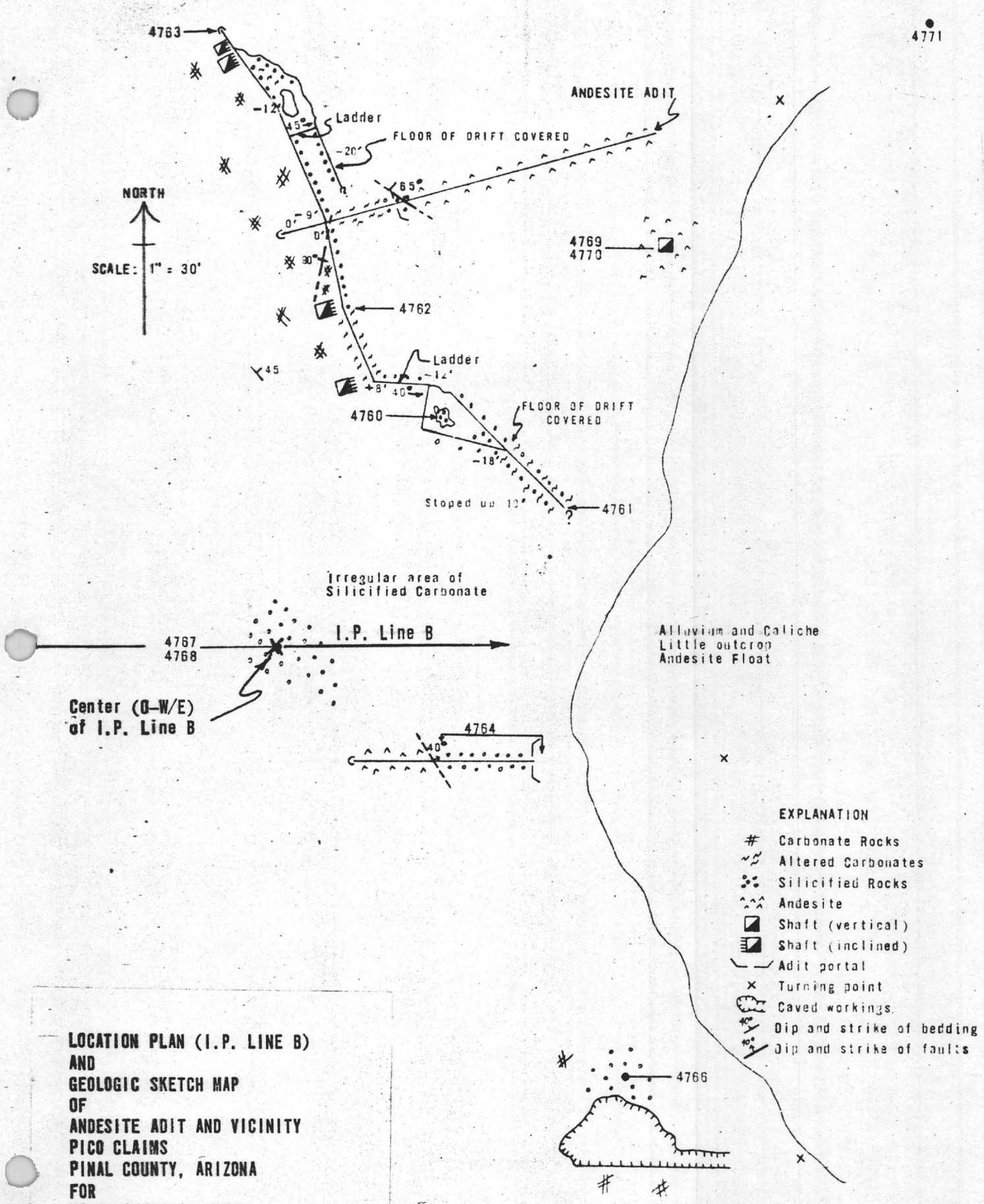


DATE
MAY 1973

HEINRICHS GEOEXPLORATION COMPANY
806 W. GRANT ROAD, POST OFFICE BOX 5964, TUCSON, ARIZ., 85703, PHONE: (602)623-0578

MAGNETIC TOTAL INTENSITY PROFILES
of
PICO AREA
PINAL COUNTY, ARIZONA
for
NORTH AMERICAN MINES, INC.
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 770-73 May 1973





LOCATION PLAN (I.P. LINE B)
AND
GEOLOGIC SKETCH MAP
OF
ANDESITE ADIT AND VICINITY
PICO CLAIMS
PINAL COUNTY, ARIZONA
FOR
NORTH AMERICAN MINES
BY
HEINRICHS GEOEXPLORATION COMPANY
JOB NUMBER 770-73 JUNE 1973

PERCENT FREQUENCY EFFECT CONTOUR PLAN
GRADIENT ARRAY I.P. SURVEY
of
PICO AREA
PINAL COUNTY, ARIZONA
for
NORTH AMERICAN MINES, INC.
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 770-73 May 1973

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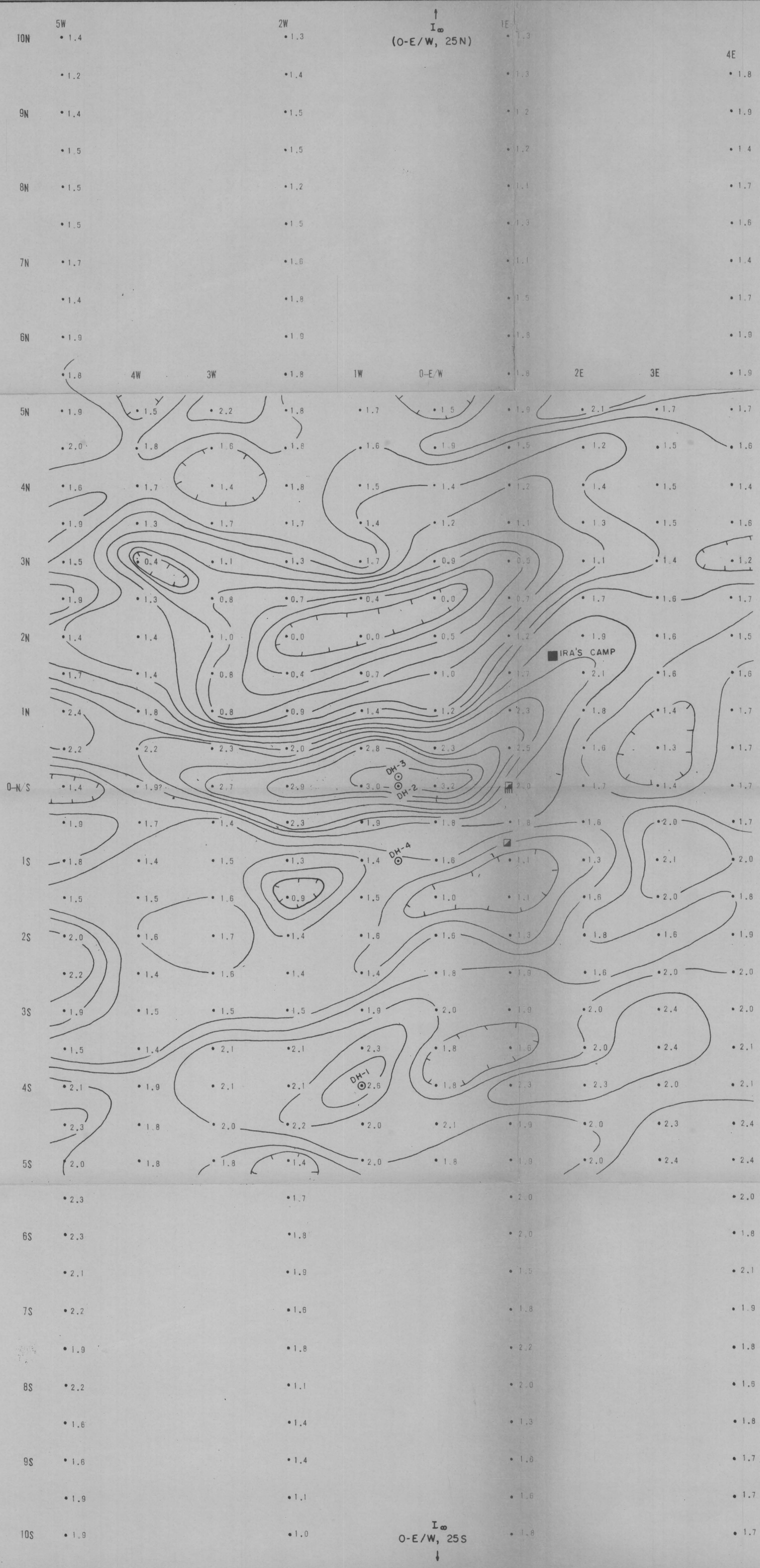


SCALE: 1" = 100'

• 1.7 Plot point

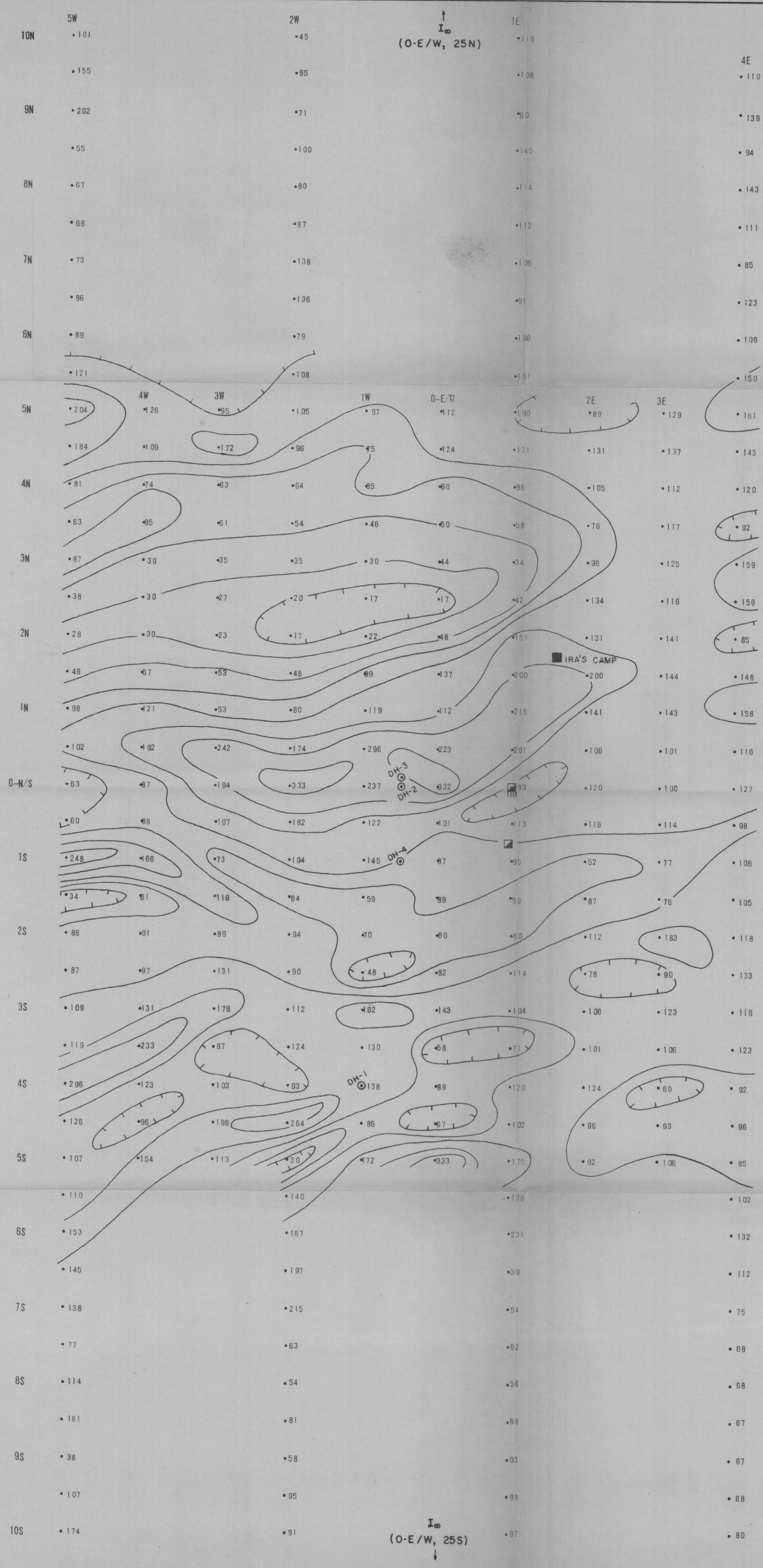
Contour interval 0.2 PFE

Frequencies = 0.1 & 1.0 Hz

Voltage dipole length = 50'

Section 24, T 9 S, R 4 E

RESISTIVITY CONTOUR PLAN
GRADIENT ARRAY I.P. SURVEY
of
PICO AREA
PINAL COUNTY, ARIZONA
for
NORTH AMERICAN MINES, INC.
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 770-73 May 1973



N

SCALE: 1" = 100'

• 121 Plot point ($\rho/2\pi$ in units of ohm-feet)

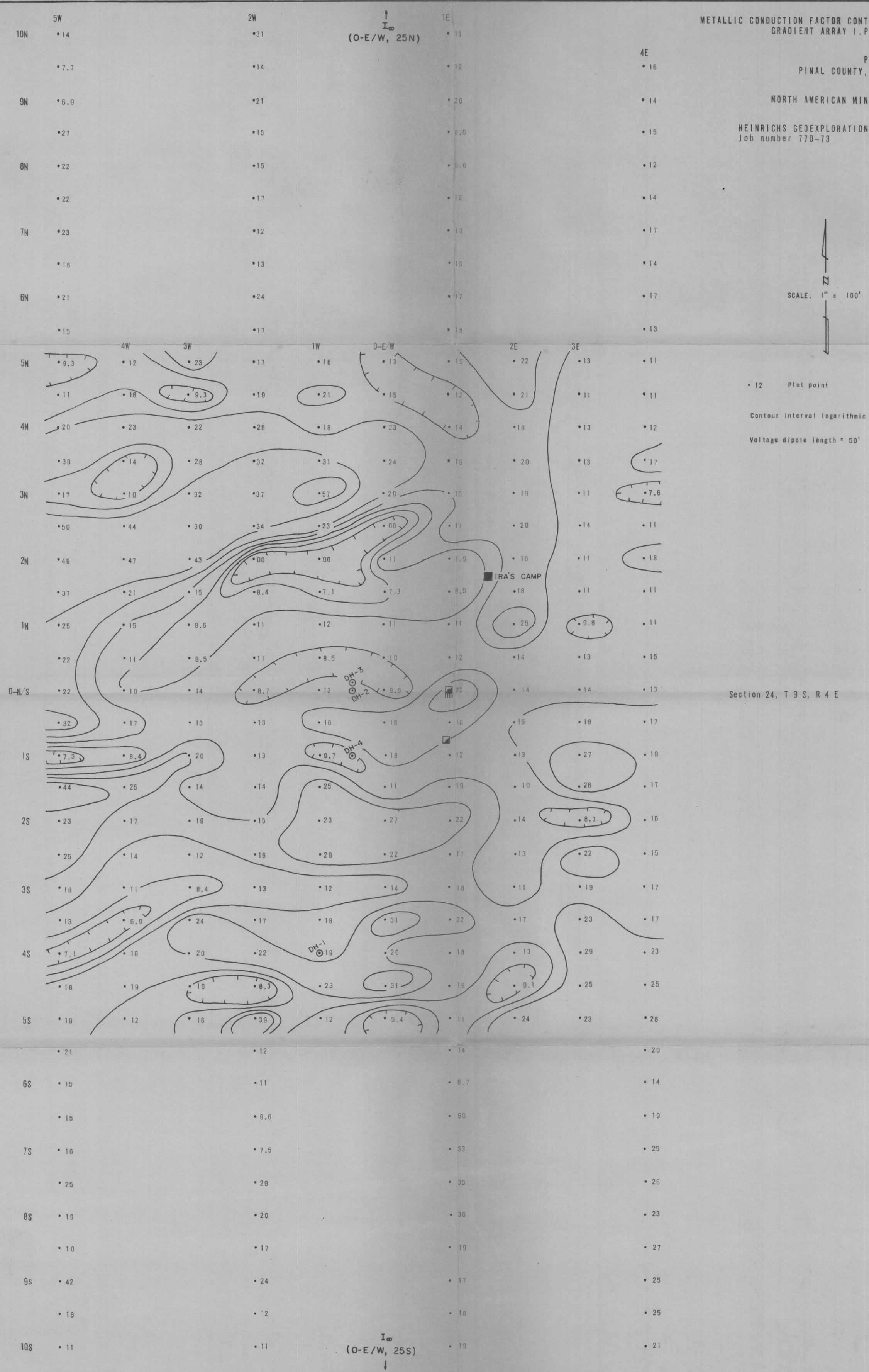
Contour interval logarithmic

Frequency = 1.0 Hz

Voltage dipole length = 50'

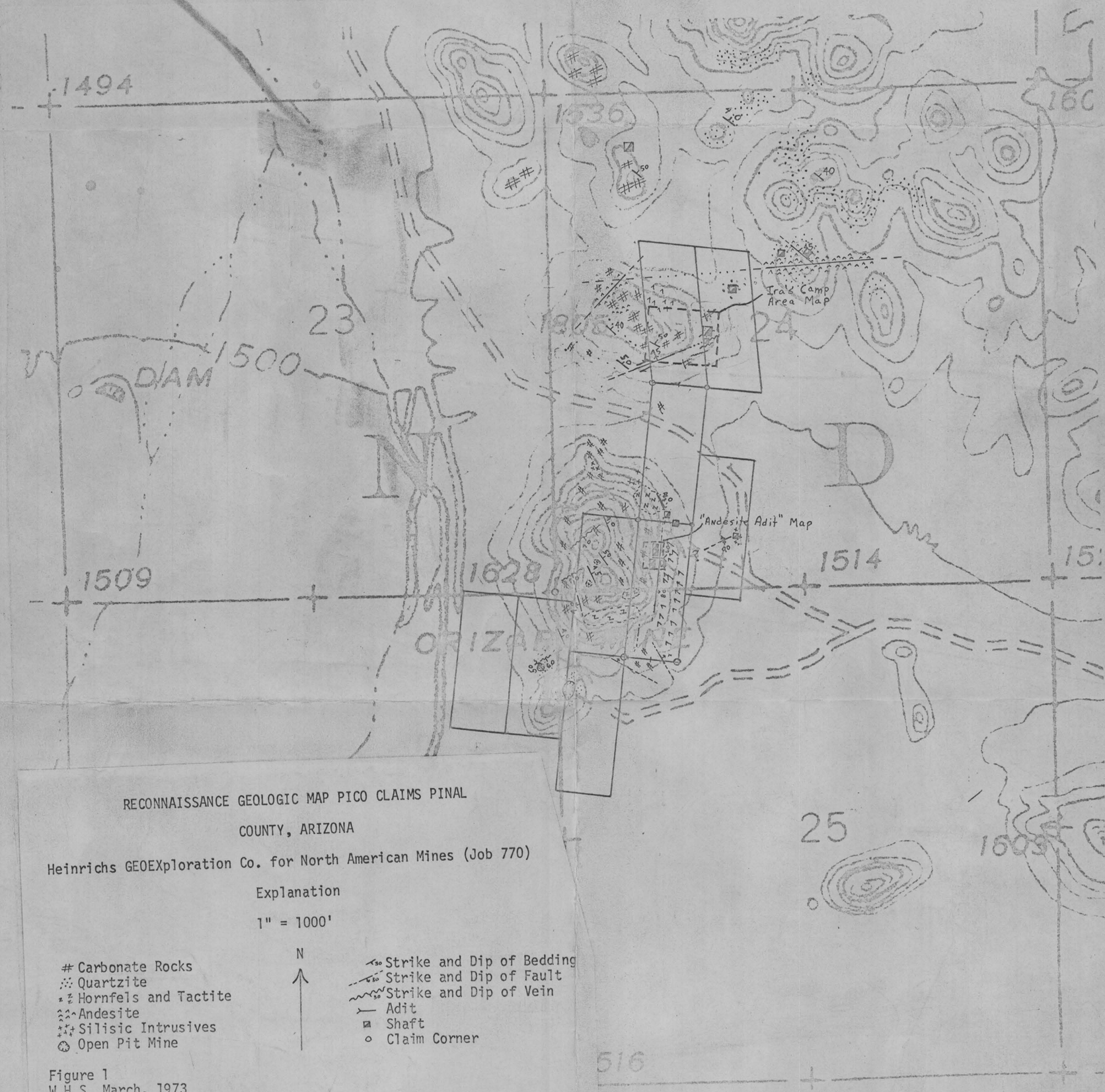
Section 24, T 9 S, R 4 E

METALLIC CONDUCTION FACTOR CONTOUR PLAN
GRADIENT ARRAY I.P. SURVEY
of
PICO AREA
PINAL COUNTY, ARIZONA
for
NORTH AMERICAN MINES, INC.
by
HEINRICHS GEOEXPLORATION COMPANY
Job number 770-73 May 1973



GEOLOGIC MAP of IRA'S CAMP AREA for NORTH AMERICAN MINES by HEINRICHS GEOEXPLORATION COMPANY

JOB NUMBER 770-73 MARCH 1973



RECONNAISSANCE GEOLOGIC MAP PICO CLAIMS PINAL

COUNTY, ARIZONA

Heinrichs GEOEXploration Co. for North American Mines (Job 770)

Explanation

1" = 1000'

N

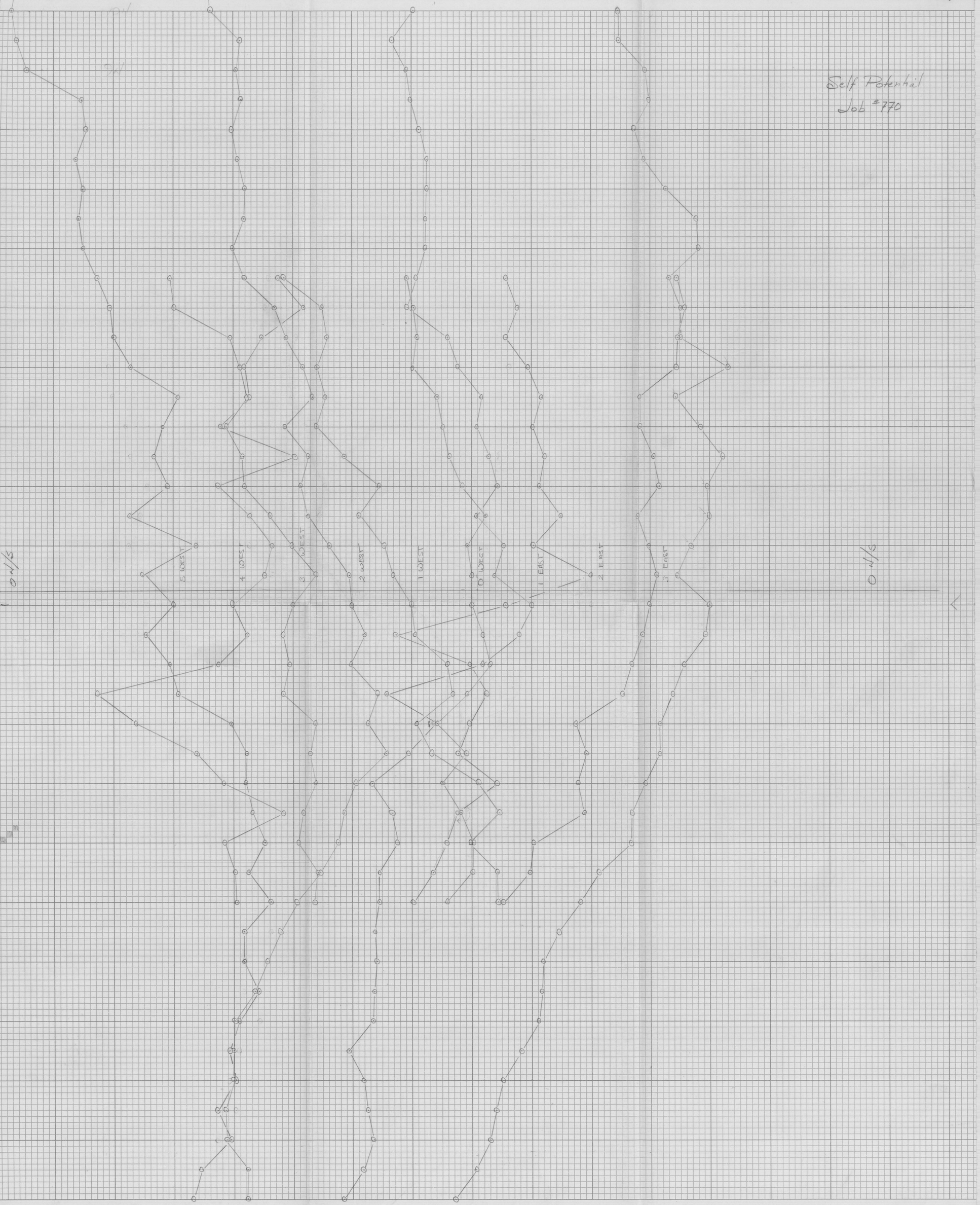
- # Carbonate Rocks
- Quartzite
- Hornfels and Tactite
- Andesite
- Silisic Intrusives
- Open Pit Mine

- Strike and Dip of Bedding
- Strike and Dip of Fault
- Strike and Dip of Vein
- Adit
- Shaft
- Claim Corner

Figure 1
W.H.S. March, 1973

Pico-N.A.M. Pinal County Job 770

K&E STANDARD ® CROSS SECTION
10 X 10 TO THE INCH
KEUFFEL & ESSER CO.
MADE IN U.S.A.



6 March 1969

Mr. Q. A. Shaw
North American Mines
60 State Street
Boston, Massachutes

Re: Memo Report
Pico Claim Area
Pinal Co., Ariz.
Job # 350-69

Dear Mr. Shaw:

The day of 3 March 1969, was spent traversing the Pico Claims with MR. Ira Wagnon. The claims appear to be in good shape and apparently have been approved as ligitimate claims by the BLM, which is helpful in establishing a valid title.

These claims are mineralized but not spectacularly so. The economic minerals are some oxides of copper, galena (usually oxidized), silver halides and some wulfenite. The deposits appear to be contact tactite or skarn types with much garnet, some hematite, both specular and massive, and some epidote.

A porphyritic andesite which appears to be altered has intruded a series of quartzites and limestones and produced the tactite zone. The andesite is kaolinized, but at the depths to which it has been seen it might be weathering rather than alteration.

The drill core left on the property by American Exploration Company shows sulfide mineralization especially in some diabase (sills?) near the bottom of the hole. This core does not appear to have been split and assayed and if not, possibly should be. The failure of one hole to prove economic mineralization should not eliminate the area from further consideration. The information from the geophysical surveys across the property would be of great help and an effort should be made to obtain them.

This property is one in which a few randomly spaced holes about 2,000 feet deep seems to be warranted. If no information is forth coming from American Exploration Company on the I.P. and magnetic surveys probably three wide spaced, 1000' dipole I.P. lines would give sufficient information to help place the drill holes. Part of its attraction, to be sure, is the emergence of the Lakeshore as a probable large important mine (500,000,000 Ton). The necessity of deal-

ing with the Indians for leases may be a deterrent to the property, especially as some sort of check dam is proposed by the Corps of Engineers across Santa Rosa Wash immediately to the west. In fact someone (probably the Corps of Engineers) has recently paneled the section corners in this area for aerial photographs.

Based on the present increased activity in the general area and the fairly firm land position, it is thought perhaps an option if reasonably obtained would be worthwhile.

It may be possible to joint venture any deep drilling in order to defray expenses. Whatever is done is going to be quite expensive because of the possible depth involved.

Sincerely yours,
HEINRICHS GEOEXPLORATION COMPANY

Donald B. Cooley, Geologist

DBC/pp

JOB No. 270 LINE No. 0 PAGE 1
AREA Casa Grande DATE 5-7-73
INSTRUMENT Lin E 0

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	Main Base	1407	50228				
2	25 N	1408	50229				
3	75 N		50245				
4	125 N	~~1409~~	50192				
5	175 N	1409	50182				
6	225 N		50192				
7	275 N	1410	50210				
8	325 N		50230				
9	375 N		50240				
10	425 N	1411	50253				
11	475	1412	50267				
12	525		50257				
13	Main Base	1415	50229				
14	25 S	1416	50229				
15	75 S		50227				
16	125 S	1416	50223				
17	175 S	1417	50221				
18	225 S		50218				
19	275 S	1418	50217				
20	325 S		50238				
21	375 S	1420	50214				
22	425 S		50223				
23	475	1421	50217				
24	525	1422	50210				
25	Main Base	1425	50233				
26							
27							
28							
29							
30							

Magnetic Data

JOB No. 77 LINE No. (W) PAGE 2
AREA CASA GRANDE DATE 5-7-73
INSTRUMENT

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	Base II	1431	50220				
2							
3	25N	1432	50221				
4	75N		50221				
5	125N	1433	50218				
6	175N		50219				
7	225N	1434	50217				
8	275N		50220				
9	325N	1435	50219				
10	375N	1437	50228				
11	425N		50232				
12	475N	1438	50242				
13	525N	1439	50235				
14							
15	Base II	1441	50220				
16	MAIN B	1442	50231				
17	Base II	1444	50220				
18							
19	25S	1445	50218				
20	75S		50216				
21	125S	1446	50209				
22	175S		50214				
23	225S	1447	50208				
24	275S	1448	50206				
25	325S		50232				
26	375S	1449	50204				
27	425S		50203				
28	475S	1450	50199				
29	525S		50199				
30	B II	1453	50221				

JOB No. 770 LINE No. 1 E PAGE 3
AREA Casa Grande DATE 5-7-73
INSTRUMENT

	STA.	TIME	READING	BASE CORR.	Δt	DRIFT CORR.	VALUE
1	Main Base	1454	50232				
2	B III	1458	50239				
3							
4	25 N	1500	50240				
5	75 N		50239				
6	125 N	1501	50202				
7	175 N	1506	51995				
8	225 N	1509	50016				
9	275 N	1510	49619				
10	325 N	1511	50247				
11	375 N		50257				
12	425 N	1512	50260				
13	475 N		50282				
14	525 N	1513	50305				
15	B III	1516	50241				
16	Main B	1517	50237				
17	B III	1518	50243				
18	25 S	1520	50245				
19	75 S	1524	50241				
20	125 S		50241				
21	175 S	1525	50239				
22	225 S	1526	50239				
23	275 S		50238				
24	325 S		50240				
25	375 S	1527	50240				
26	425 S	1528	50223				
27	475 S		50236				
28	525 S	1529	50240				
29	B III	1532	50241				
30	Main B	1533	50237				

CAM 2
Inverted
TAG

I. P. RECEIVER NOTES, JOB NO. [illegible], AREA _____

LINE B, HALF E, SR. 1, a = 106, BEARING E

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-12

PAGE 1

HEINRICHS GEOEX

SEND	1-2	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	10-0	0-1R	→	1-2R	→	→	2-3R	→	→	→
MULTIPLIER	10	1.0	10	10	1.0	1.0	10	10	1.0	1.0
PFE	0.3	1.0	0.6	0.3	0.6	0.8	1.2	0.7	1.0	1.2
CUR. (AMPS)	0.7	0.6	0.6	0.8	0.6	0.7	1	0.8	0.6	0.7
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$	.3	1.2	.3	.3	1.2	3	.3	1.2	3	6
0.3 PFE P_{CAL}	0.1	0.8	0.4	0.1	0.4	0.6	1.0	0.5	0.8	1.0
0.1 PFE PFE_C										
3.0 MV $\rho/2\pi$	77.4	96.75	427.0	242	69.85	23.0	320	110	40.6	14.7
DRIFT MCF	—	—	—	—	—	—	—	—	—	
S. P.	+34.3	0	-20.7				+27.9			
NOISE	334	195	215	91	141	99	97	166	204	127
POT RES.										
CULT ~~1~~ CMFS	0.90	5.1	2.8	3.3	4.3	8.1	12	4.2	4.9	9.4

I. P. RECEIVER NOTES, JOB NO. [illegible], AREA _____

LINE B, HALF E, SR. 7, a = 100, BEARING E

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-12

PAGE 2

HEINRICHS GEOEX

SEND	5-6	4-5	3-4	2-3	1-2					
RECEIVE	4-5-6	→								
MULTIPLIER	1.0	1.0	1.0	1.0	0.1					
PFE	1.3	1.2	1.0	1.2	1.2					
CUR. (AMPS)	1	1	0.8	0.6	0.7					
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE K_n/1000	.3	1.2	3	6	10.5					
0.3 PFE ρ_{CAL}	1.1	1.0	0.8	1.0	1.0					
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	222	85.7	52.0	21.9	9.41					
DRIFT MCF	—	—	—	—	—					
S. P.	+7.6									
NOISE ρ_a	67	104	196	221	142					
POT RES.										
CULT & CMTS	19	12	5.1	5.4	8.5					

MCF

I. P. RECEIVER NOTES, JOB NO. [illegible]0, AREA _____

LINE B, HALF R, SR. 1, a = 100, BEARING R

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-12

PAGE 3

HEINRICHS GEOEX

SEND		6-7	5-6	4-5	3-4	2-3	1-2				
RECEIVE		4-5 wf	→								
MULTIPLIER		10	1.0	1.0	1.0	0.1	0.1				
PFE		2.2	1.2	1.1	1.1	1.1	1.2				
CUR. (AMPS)		1	1	1	0.8	0.8	~~0.8~~ 0.7				
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	K_n/1000	.3	1.2	3	6	10.5	16.8				
0.3 PFE	ρ_{CAL}	2.0	1.0	0.9	0.9	0.9	1.0				
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$	33.6	34.2	24.0	17.7	8.78	3.80				
DRIFT	MCF	—	—	—	—	—	—				
S. P.		-54.2									
NOISE	ρ_a	102	41	73	134	155	92				
POT RES.											
CULT & CMTS		22	29	15	8.2	7.1	13				

MCF

I. P. RECEIVER NOTES, JOB NO. [illegible], AREA _____

LINE B, HALF E, SP. 1, a = 100, BEARING E

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-12

PAGE 4

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	2-3					
RECEIVE	5-6 W	→	→	→	→					
MULTIPLIER	1.0	1.0	1.0	1.0	0.1					
PFE	1.0	1.1	1.3	1.2	1.2					
CUR. (AMPS)	1	1	1	0.8	0.6					
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE K_n/1000	1.2	3	6	10.5	16.8					
0.3 PFE ρ_{CAL}	0.8	0.9	1.1	1.0	1.0					
0.1 PFE PFE_C										
3.0 MV $\rho/2\pi$	56.3	16.3	15.9	13.5	7.30					
DRIFT MCF	—	—	—	—	—					
S. P.	+10.5									
NOISE ρ_a	68	49	96	178	206					
POT RES.										
CULT & CMTS	15	22	14	6.7	5.8					

MCF

I. P. RECEIVER NOTES, JOB NO. 20, AREA _____ PAGE 5

LINE B, HALF E, SR. 1, a = 100, BEARING E

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-12

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	6-7	5-6	4-5			
RECEIVE	6-7 wk	→	→	→	7-8 wk	→	→			
MULTIPLIER	1.0	0.1	0.1	0.1	1.0	0.1	0.1			
PFE	1.2	1.1	1.4	1.2	1.6	1.3	1.6			
CUR. (AMPS)	1	1	1	0.8	1	1	1			
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE K_n/1000	3	6	10.5	16.8	6	10.5	16.8			
0.3 PFE ρ_{CAL}	1.0	0.9	1.2	1.0	1.4	1.1	1.4			
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	24.6	8.97	9.45	8.63	13.3	5.81	5.61			
DRIFT MCF	—	—	—	—	—	—	—			
S. P.	+10.5				+4.9					
NOISE ρ_a	74	54	100	182	80	61	95			
POT RES.										
CULT & CMTS	16	20	14	6.6	20	21	17			

I. P. RECEIVER NOTES, JOB NO. [illegible]2, AREA _____

LINE B, HALF W, SR. 1, a = 100, BEARING W

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-12

PAGE 1

HEINRICHS GEOEX

SEND	6-7	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7
RECEIVE	1E-0	0-1W	→	1W-2W	→	→	2W-3W	→	→	→
MULTIPLIER	10	10	10	10	10	1.0	10	10	1.0	1.0
PFE	1.2	0.4	0.5	0.6	0.4	1.0	0.4	0.7	0.6	0.9
CUR. (AMPS)	1	1	1	1	1	1	0.8	1	1	1
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE K_n/1000	.3	.3	1.2	.3	1.2	3	.3	1.2	3	6
0.3 PFE P_{CAL}	1.0	0.2	0.3	0.4	0.2	0.8	0.2	0.5	0.4	0.7
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	308	304	140	656	111	63.5	819.5	156	32.5	20.7
DRIFT MCF	—	—	—	—	—	—	—	—	—	—
S. P.	-41.9	+.5		-37.5			+20.2			
NOISE ρ_a	93	92	169	198	134	192	309	189	98	125
POT RES.										
CULT & CMTS	13	4.3	3.0	3.0	~~2.9~~ 3.0	5.2	1.3	3.7	6.1	7.2

I. P. RECEIVER NOTES, JOB NO. [illegible], AREA _____

LINE B, HALF W, SP. 1, a = 100, BEARING W

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 2

HEINRICHS GEOEX

SEND		2-3	3-4	4-5	5-6	6-7	C.D.L				
RECEIVE		3-4W	→	→	→	→					
MULTIPLIER		100	10	1.0	1.0	1.0	1.0				
PFE		0.4	0.6	1.2	1.1	1.3					
CUR. (AMPS)		0.6	0.8	1	1	1					
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	K_n/1000	0.23	1.2	3	6	10.5					
0.3 PFE	ρ_{CAL}	~~[illegible]~~	0.4	1.0	0.9	1.1	-.2				
0.1 PFE	PFE_c	1200									
3.0 MV	$\rho/2\pi$	~~101.6~~	327	94.5	22.6	15.7	101.6				
DRIFT	MCF	—	—	—	—	—	—				
S. P.		-14.1									
NOISE	ρ_a	604	494	285	137	166					
POT RES.											
CULT & CMTS		0.67	1.2	4.2	8.0	7.8					

I. P. RECEIVER NOTES, JOB NO. [illegible], AREA _____

LINE B, HALF W, SP. 1, a = 50, BEARING W

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-12

PAGE 3

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	4-5	5-6	6-7		CAL		
RECEIVE	4-5W	→								
MULTIPLIER	1.00	10	10	1.0	0.1	0.1		1.0		
PFE	0.1	0.4	0.7	1.1	0.8	1.0				
CUR. (AMPS)	0.7	0.6	0.8	1	1	1				
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE K_n/1000	.3	1.2	3	6	10.5	16.8				
0.3 PFE P_{CAL}	-.1	+.2	.5	.9	0.6	0.8		-.2		
0.1 PFE PFE_c										
3.0 MV $P/2\pi$	1140	254	119	39.6	9.83	6.92		101.9		
DRIFT MCF	—	—	—	—	—					
S. P.	+12.4									
NOISE P_a	492	512	449	239	104	117				
POT RES.										
CULT & CMTS	0.20	0.78	1.6	4.6	7.7	8.5				

MCF

I. P. RECEIVER NOTES, JOB NO. 2[illegible], AREA _____

LINE B, HALF W, SR. 1, a = _____, BEARING W

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-12

PAGE 4

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	
RECEIVE	5-6 W	→	→	→	→	6-7 W	→	→	→	
MULTIPLIER	1.0									
PFE										
CUR. (AMPS)	0.7									
*POINT NO.										
SEP. (n)										
H. F. MV										
*DRIFT										
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}	1.2									
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	79.4									
DRIFT MCF										
S. P.	+16.5									
NOISE	37									
POT RES.										
*CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. [illegible], AREA _____

LINE B, HALF W, SR. 1, a = _____, BEARING W

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-12

PAGE 5

HEINRICHS GEOEX

SEND	1-2	2-3	3-4							
RECEIVE	1-8W →									
MULTIPLIER										
PFE										
CUR. (AMPS)										
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE / K_n/1000										
0.3 PFE / ρ_{CAL}										
0.1 PFE / PFE_c										
3.0 MV / $\rho/2\pi$										
DRIFT / MCF										
S. P.										
NOISE										
POT RES.										
CULT & CMTS										

I. P. SENDER NOTES

JOB No. 720 AREA Ira's Camp

LINE B, HALF E, SP. 1, DATE 5-11-73

PAGE 11

HEINRICHS GEOEX

SEND	1-2	6-7	5-6	~~3-4~~ 4-5	3-4	2-3	6-7	5-6	4-5	3-4
RECEIVE	400-500E	500-600E	→	→	→	→	600-700E	→	→	→
RANGE	10x700	16x100	→	→	16x80.0	10x80	16x100	→	→	10x80.0
VOLTAGE	780	560	440	340	740	780	560	440	340	740
CURRENT	0.7	1.0	→	→	0.8	.6	1.0	→	→	0.8
SEND	~~2-3~~	6-7	5-6	4-5						
RECEIVE		700-800E	→	→						
RANGE		16x100	→	→						
VOLTAGE		560	440	340						
CURRENT		1.0	→	→						

FREQUENCIES

SENDER No.

OPERATOR

RECEIVER No.

OPERATOR

COMMENTS:

The bugs are bad!

I. P. SENDER NOTES

JOB No. 770 AREA Iras Camp

LINE B, HALF E, SP. 1, DATE 5-11-73

PAGE 3

HEINRICHS GEOEX

SEND	0-2	~~2-3~~ 1-2	~~1-2~~ 2-3	3-4	2-3	1-2	4-5	3-4	2-3	1-2
RECEIVE	0-100W	0-100E →		100-200E →			200-300E →			
RANGE	10X70.0	10X60.0	10X60.0	10X80.0	10X60.0	10X70.0	10X100	10X80.0	10X60	10X70
VOLTAGE	780	680	780	740	780	780	360	740	780	780
CURRENT	0.7	0.6	0.6	0.8	0.6	0.7	1.0	0.8	0.6	0.7
SEND	5-6	4-5	3-4	2-3	1-2	6-7	5-6	5-4	4-3	2-3
RECEIVE	300-400E →					400-500E →				
RANGE	10X100	→	10X80.0	10X60	10X70	10X100	→	→	10X80.0	10X60.0
VOLTAGE	440	350	740	780	780	560	440	340	740	780
CURRENT	1.0	→	0.8	0.6	0.7	1.0	1.0	→	0.8	0.6

FREQUENCIES	3.0 & 0.3
SENDER No.	18761
OPERATOR	RJ
RECEIVER No.	
OPERATOR	MJM

COMMENTS:

I. P. SENDER NOTES

JOB. No. 770 AREA Casa Grande (Ira's Camp)

LINE B', HALF W, SP. 1, DATE 5-11-73

PAGE 1

HEINRICHS GEOEX

SEND	6-7	5-6	6-7	4-5	5-6	6-7	3-4	4-5	5-6	6-7
RECEIVE	0-100E	0-100W	→	100-200W	→	→	200-300W	→	→	→
RANGE	10X100	→	→	→	→	→	10X900	10X100	→	→
VOLTAGE	560	440	560	340	460	560	740	340	460	560
CURRENT	1.000	→	→	→	→	→	0.8	1.0	→	→
SEND	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	5-6	6-7
RECEIVE	300-400W	→	→	→	400-500W	→	→	→	→	→
RANGE	10X600	10X80.0	10X100	→	10X700	10X600	10X800	10X100	→	→
VOLTAGE	780	740	340	440	780	780	740	360	450	560
CURRENT	0.6	0.8	1.0	→	0.7 ~~0.6~~	0.6 ~~0.7~~	0.8	1.0	→	→

FREQUENCIES 3.0-60.3

SENDER No. 18707

OPERATOR DJ

RECEIVER No. 20693

OPERATOR mJm

COMMENTS: 6-7
300-400W
10X100.0
560
1.0

I. P. SENDER NOTES

JOB No. 770 AREA Ira's Camp

LINE 13, HALF W, SP. 1, DATE 5-11-73

PAGE 2

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	1-2
RECEIVE	500-600W →					600-700W →				700-800W
RANGE	10x700	10x600								
VOLTAGE	786	780								
CURRENT	0.7	0.6								
SEND	2-3	3-4								
RECEIVE	700-800W →									
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	COMMENTS:
SENDER No.	
OPERATOR	
RECEIVER No.	
OPERATOR	

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 0, HALF N, SP. _____, a = 50, BEARING _____

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

PAGE 1

HEINRICHS GEOEX

SEND										
RECEIVE	25S-25N	25N-75N	75-125N	125-175N	175-225N	225-275N	275-325N	325-375N	375-425N	425-475N
MULTIPLIER	1.0	1.0	.1	1.0	0.1	0.1	0.1	0.1	0.1	
PFE Corr.	2.8	1.8	0.8	0.6	-0.1	-0.6	0.6	0.6	0.9	1.2
CUR. (AMPS)										
POINT No.										
SEP. (n)										
H. F. Mv										
DRIFT										
1.0 PFE $K_n/1000$										
0.3 PFE P_{CAL}	2.16	1.6	0.6	0.4	-.3	-0.8	0.4	~~0.5~~ 0.4	0.7	1.0
0.1 PFE PFE_c										
3.0 MV $P/2\pi$	23.59	16.7	8.55	10.4	3.77	1.32	3.485	~~3.43~~ 4.02	4.91	18 .38
DRIFT MCF	—	—	—	—	-.1	—	—			-.1
S. P.	~~-7.5~~	-5.3	-4.15	14.3	0	+2.8	+3.2	+26.2	+7.1	-6.4
NOISE	7.0									
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. _____, AREA _____

LINE 0, HALF N, SP. _____, a = 20=50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 2

HEINRICHS GEOEX

SEND		N									
RECEIVE		475-625									
MULTIPLIER											
PFE Cor.		0.8									
CUR. (AMPS)											
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	$K_n/1000$	0									
0.3 PFE	ρ_{CAL}	0.6									
0.1 PFE	PFE_c	1.8									
3.0 MV	$\rho/2\pi$	455									
DRIFT	MCF	—									
S. P.		+1.2									
NOISE											
POT RES.											
CULT & CMTS											

109.1

I. P. RECEIVER NOTES, JOB NO. 770, AREA

LINE 0, HALF 5, SP. , a = 50, BEARING 5

SENDER STA. = ELECTRODE NO. , DATE

PAGE 3

HEINRICHS GEOEX

SEND	5			5	5	5	5	5		
RECEIVE	25-75	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475	475-525
MULTIPLIER	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
PFE Corr.	1.0	1.2	0.6	0.8	1.1	1.4	0.6	1.5	1.4	1.5
CUR. (AMPS)										
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$										
0.3 PFE P_{CAL}	0.8	1.0	0.4	0.6	0.9	1.2	0.4	1.3	1.2	1.3
0.1 PFE PFE_C										
3.0 MV $P/2\pi$	7.64	6.61	6.73	4.615	6.44	10.91	4.53	7.15	[illegible]	27.85
DRIFT MCF	—	—	—	—	—	—	—	—	5.62	—
S. P.	-10.9	-8.1	22.85	+41.6	-39.9	+14.7	+3.3	-7.4	+1.95	+9.5
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 1W, HALF N, SP. _____, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 4

HEINRICHS GEOEX

SEND	25-75N	75-125N	125-175N	175-225N	225-275N	275-325N	325-375N	375-425N	425-475N
RECEIVE									
MULTIPLIER	1.0	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE cm.	2.2	2.2	0.9	0.2	-0.6	0.5	0.6	0.8	1.6	1.3
CUR. (AMPS)									
POINT NO.									
SEP. (n)									
H. F. MV									
DRIFT									
1.0 PFE $K_n/1000$									
0.3 PFE ρ_{CAL}	2.0	2.0	0.7	0	-.8	0.3	0.4	0.6	1.4	1.1
0.1 PFE PFE_c									
3.0 MV $\rho/2\pi$	17.6	21.6	8.93	7.85	1.69	1.32	2.35	3.66	6.62	6.19
DRIFT MCF	—	—	—	—	—	—	—	—	—	—
S. P.	-73.9	-58.8	-1.6	-2.0	+14.1	+61.3	-19.2	+9.0	-9.3	-5.9
NOISE									
POT RES.									
CULT & CMTS									

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 1W, HALF N, SP. _____, a = _____, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 5

HEINRICHS GEOEX

SEND											
RECEIVE	475-525										
MULTIPLIER	0.1										
PFE (m)	1.1										
CUR. (AMPS)											
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE $K_n/1000$											
0.3 PFE ρ_{CAL}	0.9										
0.1 PFE PFE_c											
3.0 MV $\rho/2\pi$	8.21										
DRIFT MCF	—										
S. P.	+24.8										
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 1 W, HALF 5, SP. _____, a = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE 4-26

PAGE 6

HEINRICHS GEOEX

SEND										
RECEIVE	255-755	755-1255	1255-1755	1755-2255	2255-2755	2755-3255	3255-3755	3755-4255	4255-4755	4755-5255
MULTIPLIER	0.1	1.0	0.1	0.1	0.1	1.0	0.1	1.0	0.1	1.0
PFE Corr.	1.4	1.1	1.0	0.9	0.8	1.7	1.8	1.9	1.5	1.6
CUR. (AMPS)										
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$										
0.3 PFE P_{CAL}	1.2	0.9	0.8	0.7	0.6	1.5	1.6	1.7	1.3	1.4
0.1 PFE PFE_c										
3.0 MV $P/2\pi$	9.16	10.8	4.54	5.35	3.74	12.7	10.35	11.4	7.18	14.8
DRIFT MCF	—	—	—	—	—	+.1	—	—	—	—
S. P.	-2.2	-16.6	12.2	23.6	-8.7	-47.5	-2.1	+25.75	-27.9	-8.6
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 2W, HALF N, SP. _____, ^2a = 50, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

PAGE 7

HEINRICHS GEOEX

SEND										
RECEIVE	25S-25N	25N-75N	75N-125N	125-175N	175-225N	225-275N	275-325N	325-375N	375-425N	425-475N
MULTIPLIER	1.0	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE Corr.	2.2	1.4	0.3	-0.1	-0.1	0.1	0.8	1.2	1.2	1.2
CUR. (AMPS)										
POINT No.										
SEP. (n)										
H. F. Mv										
DRIFT										
1.0 PFE K_n/1000										
0.3 PFE ρ_{CAL}	2.0	1.2	0.1	-0.3	-0.3	-0.1	0.6	1.0	1.0	1.0
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	24.5	13.2	6.10	3.64	1.305	1.57	2.78	4.22	5.16	7.90
DRIFT MCF	—	—	—	—	—	—	—	—	—	—
S. P.	+9.0	+20.2	+8.1	+45.4	-5.0	+5.4	-15.6	+6.9	+21.4	+12.1
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 770, AREA Tooo Camp Area

LINE 0, HALF _____, SP _____, a = _____, BEARING _____

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

PAGE 1

HEINRICHS GEOEX

SEND		Col	Col								
RECEIVE											
MULTIPLIER											
PFE											
CUR. (AMPS)								Assume	0.0	+0.2	
POINT NO.								Cal	1 to 0.1 fg		
SEP. (n)											
H. F. MV											
DRIFT										2"	
1.0 PFE	$K_n/1000$	-0.4		-0.3			-0.3		? -0.3		
0.3 PFE	ρ_{CAL}	-0.4		+0.3				+0.3			
0.1 PFE	PFE_C	-0.4	+	[redacted]	-0.25				-0.25	-0.1	
3.0 MV	$\rho/2\pi$	27.6	27.7	95.1	95.1		95.1	95.1	95.1		
DRIFT	MCF			—	-0.3		—	—	-0.3		
S. P.											
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA Tons Corp Area

LINE 0, HALF _____, SP. _____, a = _____, BEARING _____

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 1

HEINRICHS GEOEX

SEND		Cal	Cal								
RECEIVE											
MULTIPLIER											
PFE											
CUR. (AMPS)											
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	$K_n/1000$	0.4		-0.3			-0.2				
0.3 PFE	ρ_{CAL}	-0.4		+0.3				+0.3			
0.1 PFE	PFE_C	0.4			-0.25				-0.25		
3.0 MV	$\rho/2\pi$	27.8	27.2	95.1	25.1		95.1	95.1	95.1		
DRIFT	MCF				+0.3				-0.3		
S. P.											
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE Baseline, HALF _____, SP. _____, ~~S~~ S. P., BEARING E-W

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

PAGE 15 P.

HEINRICHS GEOEX

SEND										
RECEIVE	0E/W-50W	50W-100W	100W-150W	150-200W	200-250W	250-300W	300-350W	350-400W	400-450W	450-500W
MULTIPLIER										
PFE										
CUR. (AMPS)										
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$										
DRIFT MCF										
S. P.	+18.05	+26.8	+25.75	+31.7	+11.3	+16.8	-3.7	+12.4	+12.6	+3.3
NOISE										
POT RES.										
CULT & CMTS										

NORTH = 8 mv.

I. P. RECEIVER NOTES, JOB NO. _____, AREA _____

LINE Baseline, HALF _____, SP. _____, a = S.P. _____, BEARING E-W

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 1

HEINRICHS GEOEX

SEND											
RECEIVE	0E/W-50W	50W-100W	100W-150W	150-200W	[illegible]	[illegible]	[illegible]	300-350	350-400	400-450	450-500
MULTIPLIER											
PFE											
CUR. (AMPS)											
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE $K_n/1000$											
0.3 PFE ρ_{CAL}											
0.1 PFE PFE_c											
3.0 MV $\rho/2\pi$											
DRIFT MCF											
S. P.	+18.05	+26.8	+25.75	+31.7	+11.3	+16.8	-3.7	+12.4	+12.6	+3.3	
NOISE											
POT RES.											
CULT & CMTS											

NORTH = 8 mv

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE Bosk, HALF _____, SR. _____, a = _____, BEARING 0 — E

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

PAGE 25P

HEINRICHS GEOEX

SEND	0-50E	50-100E	100-150E	150-200	200-250	250-300	~~350-400~~	300-350	350 400	
RECEIVE										
MULTIPLIER										
PFE										
CUR. (AMPS)										
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$										
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$										
DRIFT MCF										
S. P.	-20.2	+6.8	+1.8	+56.7	-3.2	+15.4		+15.6	-2.8	
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. _____, AREA _____

LINE _____, HALF _____, SP. _____, a = _____, BEARING _____

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE _____

HEINRICHS GEOEX

SEND		0-50	50-100	100-150	150-200	200-250	250-300	[illegible]	300-350	350-400	
RECEIVE											
MULTIPLIER											
PFE											
CUR. (AMPS)											
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	$K_n/1000$										
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$										
DRIFT	MCF										
S. P.		-20.2	+6.0	+1.8	+5.7	-3.2	+15.4		+5.6	-2.8	
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 770, AREA L. WE O

LINE O, HALF N, SP. 1, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE 5-7-73

PAGE 1

HEINRICHS GEOEX

SEND	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	Cal
RECEIVE	0-50N	→	50-100N	→		100-150N	→			
MULTIPLIER	100	10	100	10	1.0	100	10	10	1.0	1.0
PFE	2.0	2.1	2.7	1.8	2.0	1.6	3.0	2.0	2.0	
CUR. (AMPS)	1	.75	1	1	.75	1	1	1	.75	1
POINT No.										
SEP. (n)	Pcal, used		1.042							
H. F. MV										
DRIFT										
1.0 PFE K_n/1000	.15	.6	.15	.6	1.5	.15	.6	1.5	3	
0.3 PFE ρ_{CAL}	1.7	1.8	2.4	1.5	1.7	1.3	2.7	1.7	1.7	-.3
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	1560	361.0	2120	333.0	91.3	1085.0	757.0	147.5	46.9	95.8
DRIFT MCF	—	—	—	—	—	—	—	—	—	—
S. P.	+18.3		-52.1			+15.7				
NOISE										
POT RES. (3h)	244	301	331	208	190	170	470	231	195	
CULT & CMTS	8.2	7.0	8.1	8.6	11	9.4	6.4	8.7	10	

I. P. RECEIVER NOTES, JOB NO. 770, AREA O Line

LINE 0, HALF N, SP. 1, a = _____, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-7-73

PAGE 2

HEINRICHS GEOEX

SEND		5-6	4-5	3-4	2-3	1-2					
RECEIVE		150-300N				→					
MULTIPLIER		10	10	10	1.0	~~1.0~~ 0.1					
PFE$_c$		1.3	1.7	2.9	1.9	1.5					
CUR. (AMPS)		.8	1	1	1	.66					
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	K_n/1000	.15	.6	1.5	3	5.25					
0.3 PFE	ρ_{CAL}	1.0	1.4	2.6	1.6	1.2					
0.1 PFE	PFE$_c$	~~240~~									
3.0 MV	$\rho/2\pi$	~~338~~	151	148	31.0	9.22					
DRIFT	MCF	+ .1	—	—	—	- .1					
S. P.		+10.6									
NOISE		54	94	231	97	76					
POT RES.		274.5									
CULT & CMTS		24	18	13	20	20					

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE D, HALF N, SP. _____, a = _____, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 3

HEINRICHS GEOEX

SEND		6-7	5-6	4-5	3-4	2-3	1-2				
RECEIVE		200-25'0N	→	→	→	→	→				
MULTIPLIER		1.0	1.0	1.0	1.0	0.1	0.1				
PFE		0.7	0.8	1.6	2.7	1.5	1.5				
CUR. (AMPS)		1	.8	1	1	1	.7				
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	K_n/1000	.15	.6	1.5	3	5.25	8.4				
0.3 PFE	P_{CAL}	0.4	0.5	1.3	2.4	1.2	1.2				
0.1 PFE	PFE_C										
3.0 MV	$P/2\pi$	90.7	21.75	28.5	31.9	6.82	2.17				
DRIFT	MCF	—	—	—	—	—	—				
S. P.		+33.8									
NOISE											
POT RES.		14	17	45	100	37	27				
CULT & CMTS		49	47	36	27	40	55				

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 0, HALF N, SP. 1, a = _____, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-7-73

PAGE 4

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5	3-4	
RECEIVE	250-300	→	→	→	→	300-350	→	→	→	
MULTIPLIER	1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0	
PFE	0.6	2.0	2.0	3.1	1.5	0.6	1.3	2.0	3.1	
CUR. (AMPS)	.75	.75	1	1	1	1	.8	1	1	
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$	.6	1.5	3	5.25	8.4	1.5	3	5.25	8.4	
0.3 PFE P_{CAL}	0.3	1.7	1.7	2.8	1.2	0.3	1.0	1.7	2.8	
0.1 PFE PFE_C	33.2									
3.0 MV $P/2\pi$	~~43.8~~	19.75	28.1	33.2	7.33	18.7	11.0	16.5	20.3	
DRIFT MCF	—	—	—	—	—	—	—	—	—	
S. P.	-25.7					+24.3				
NOISE										
POT RES.	28	41	88	182	64	29	43	90	178	
CULT & CMTS	22	49	23	17	23	21	30	22	17	

I. P. RECEIVER NOTES, JOB NO._____, AREA_____

LINE O, HALF N, SR._____, a = _____, BEARING N

SENDER STA._____ = ELECTRODE NO._____, DATE_____

PAGE 4.5

HEINRICHS GEOEX

SEND		6-7	5-6	4-5							
RECEIVE		350-400	→	→							
MULTIPLIER		1.0	0.1	0.1							
PFE		0.7	1.1	2.1							
CUR. (AMPS)		1	.8	1							
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	$K_n/1000$	3	5.25	8.4							
0.3 PFE	P_{CAL}	0.4	0.8	1.8							
0.1 PFE	PFE_c										
3.0 MV	$P/2\pi$	10.7	6.67	10.29							
DRIFT	MCF	—	—	—							
S. P.		0									
NOISE											
POT RES.		33	46	90							
CULT & CMTS		21	24	23							

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 0, HALF 5, SP. _____, a = _____, BEARING _____

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-7

PAGE 5

HEINRICHS GEOEX

SEND	SP	SP	4-5	3-4	4-5	5-6	6-7	2-3		
RECEIVE	0-50	50-100	100-150	150-200	→	→	→			
MULTIPLIER			10	100	10	1.0	1.0	100		
PFE			2.0	2.6	1.6	1.7	1.2	3.1		
CUR. (AMPS)			1	1	1	.669	1	1		
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$			.6	.6	1.5	3	5.25	.15		
0.3 PFE ρ_{CAL}			1.8	2.4	1.4	1.5	1.0	2.9		
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$			554	1150	251	44.4	27.6	6555.0		
DRIFT MCF			—	—	—	—	—	—		
S. P.	-.8	-.9	-2.5	+33.9						
NOISE										
POT RES.			346	719	392	207	151	1025		
CULT & CMTS			5.8	3.6	4.1	8.2	7.9	3.0		

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 6, HALF 5, SR. _____, a = _____, BEARING _____

SENDER STA. _____ = ELECTRODE No. _____, DATE 5-7

PAGE 6

HEINRICHS GEOEX

SEND		2-3	3-4	4-5	5-6	6-7		1-2			
RECEIVE		~~150-200S~~				→ 200-250		~~1~~			
MULTIPLIER		1.0	1.0	1.0	0.1	0.1		10			
PFE		1.2	1.4	0.9	0.5	0.2		2.4			
CUR. (AMPS)		1	1	1	.66	1		.4			
POINT No.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	$K_n/1000$	.6	1.5	3	5.25	8.4		.15			
0.3 PFE	ρ_{CAL}	1.0	1.2	0.7	0.3	0		2.2			
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$	41.0	30.9	13.0	3.29	3.26		178.5			
DRIFT	MCF	—	—	—	—	-.1					
S. P.		+39.0									
NOISE											
POT RES.		26	48	41	27	29		46			
CULT & CMTS		47	29	22	18	7.0		52			

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 0, HALF 5, SP. _____, a = _____, BEARING 5

SENDER STA. _____ = ELECTRODE No. _____, DATE 4-7

PAGE 7

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	4-5	5-6	6-7				
RECEIVE						→ 250-300 S ←				
MULTIPLIER	1.0	1.0	1.0	0.1	0.1	0.1				
PFE	1.4	0.6	2.0	1.2	1.0	0.5				
CUR. (AMPS)	.5	1	1	1	.6	.8				
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$	.6	1.5	3	5.25	8.4	12.6				
0.3 PFE P_{CAL}	1.2	0.4	1.8	1.0	0.8	0.3				
0.1 PFE PFE_c										
3.0 MV $P/2\pi$	13.7	13.9	19.5	9.63	2.43	2.27				
DRIFT MCF	—	—	—	—	+.1	—				
S. P.	-48.6									
NOISE										
POT RES.	17	22	61	53	35	37				
CULT & CMTS	82	28	33	23	28	13				

I. P. RECEIVER NOTES, JOB NO. 770, AREA Ira's Camp

LINE DEW, HALF S, SP. 2, a = 50, BEARING

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-7-73

PAGE 8

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	-4-5	5-6	1-2	2-3	3-4	4-5	
RECEIVE	~~250~~ 300 - ~~350~~ S 350					350 ~~250~~ - ~~250~~ S 400				CAL
MULTIPLIER	1.0	1.0	1.0	1.0	0.1	0.1	0.1	0.1	0.1	1.0
PFE	1.3	1.0	2.2	1.8	1.1	1.0	0.5	2.2	1.3	
CUR. (AMPS)	.6	1	1	1	.6	.5	1	1	1	1
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE K_n/1000	1.5	3	5.25	8.4	12.6	3	5.25	8.4	12.6	
0.3 PFE ρ_{CAL}	1.1	0.8	2.0	1.6	0.9	0.8	0.3	2.0	1.1	-.2
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	12.4	14.0	33.8	12.2	3.11	2.78	4.135	7.28	3.95	96.2
DRIFT MCF	—	—	—	—	—	—	—	—	—	
S. P.	+36.9					+16.8				
NOISE										
POT RES.	32	44	125	107	68	17	23	64	52	
CULT & CMTS	40	23	18	17	16	58	22	35	25	

I. P. RECEIVER NOTES, JOB NO._____, AREA_____

LINE_____, HALF_____, SP._____, a = _____, BEARING_____

SENDER STA._____ = ELECTRODE NO._____, DATE_____

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HEINRICHS GEOEX

SEND	CBL			3-4							
RECEIVE				100-1505			1.0	OMP			
MULTIPLIER	1.0			100							
PFE											
CUR. (AMPS)				1			680				
POINT NO.				2.5			10X100				
SEP. (n)				—							
H. F. MV				3100							
DRIFT											
1.0 PFE $K_n/1000$				.15							
0.3 PFE P_{CAL}	-.2										
0.1 PFE PFE_c	—			2.7							
3.0 MV $P/2\pi$	95.8										
DRIFT MCF											
S. P.											
NOISE											
POT RES.				485							
CULT & CMTS				5.6							

I. P. SENDER NOTES

JOB No. 770 AREA

LINE 0, HALF N, SP. , DATE 5-7-73

PAGE 1

HEINRICHS GEOEX

SEND	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	
RECEIVE	0-50N	→	50-100	→		100-150	→			
RANGE	10X100	3X250	10X100	10X100	3X250	10X100	10X100	10X100	3X250	
VOLTAGE	530	660	680	530	640	650	680	530	640	
CURRENT	1.0	0.75	1.0	1.0	0.75	1.0	1.0	1.0	0.75	
SEND	5-6	4-5	3-4	2-3	1-2		Cal			
RECEIVE	150-200	→								
RANGE	3X266	10X100	10X100	10X100	3X220					
VOLTAGE	640	650	680	530	570		540			
CURRENT	0.8	1.0	1.0	1.0	0.66		1.0			

FREQUENCIES	3.0 0.3
SENDER No.	
OPERATOR	
RECEIVER No.	
OPERATOR	

COMMENTS:

I. P. SENDER NOTES

JOB No. 770 AREA

LINE 0, HALF N, SP., DATE 5-7-73

PAGE 2

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	2-3	1-2				
RECEIVE	200 250	→								
RANGE	10X100	3X266	10X100	10X100	10X100	3X233				
VOLTAGE	780	530	650	680	530	570				
CURRENT	1.0	0.8	1.0	1.0	1.0	0.70				
SEND	6-7	5-6	4-5	3-4	2-3	6-7	5-6	4-5	3-4	
RECEIVE	250 300	→				300 350	→			
RANGE	3X250	3X250	10X100	10X100	10X100	10X100	3X266	10X100	10X100	
VOLTAGE	340	600	650	670	530	770	630	650	680	
CURRENT	0.75	0.75	1.0	1.0	1.0	1.0	0.8	1.0	1.0	

FREQUENCIES

SENDER No.

OPERATOR

RECEIVER No.

OPERATOR

COMMENTS:

I. P. SENDER NOTES

JOB No. 770 AREA _____

LINE 0, HALF N, SP. _____, DATE 5-7-73

PAGE 3

HEINRICHS GEOEX

SEND	6-7	5-6	4-5							
RECEIVE	350-400	→	→							
RANGE	10x100	3x266	10x100							
VOLTAGE	760	630	640							
CURRENT	1.0	0.8	1.0							
SEND										
RECEIVE										
RANGE										
VOLTAGE										
CURRENT										

FREQUENCIES	COMMENTS:
SENDER No.	
OPERATOR	
RECEIVER No.	
OPERATOR	

I. P. SENDER NOTES

JOB No. 770 AREA

LINE 0, HALF 5, SP., DATE

PAGE 4

HEINRICHS GEOEX

SEND	4-5	2-3	3-4	4-5	5-6	6-7				
RECEIVE	100 150	150 x200	→							
RANGE	10 x100	10 x100	10 x100	10 x100	3 x223	10 x100				
VOLTAGE	640	520	670	640	540	760				
CURRENT	1.0	1.0	1.0	1.0	.670	1.0				
SEND	1-2	2-3	3-4	4-5	5-6	6-7				
RECEIVE	200 x250	→								
RANGE	3 x200	10 x100	10 x100	10 x100	3 x200	10 x100				
VOLTAGE	500	520	670	640	500	760				
CURRENT	0.6	1.0	1.0	1.0	0.66	1.0				

FREQUENCIES	COMMENTS:
SENDER No.	
OPERATOR	
RECEIVER No.	
OPERATOR	

I. P. SENDER NOTES

JOB No. 770 AREA

LINE 0, HALF 3, SP. , DATE 5-7-73

PAGE 5

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	4-5	5-6	6-7				
RECEIVE	250 ~ 300 →									
RANGE	3X166	10X100	10X100	10X100	3X200	3X266				
VOLTAGE	420	520	670	640	460	600				
CURRENT	0.5	1.0	1.0	1.0	0.6	0.8				
SEND	1-2	2-3	3-4	4-5	5-6		1-2	2-3	3-4	4-5
RECEIVE	300 350						350 400 →			
RANGE	3X200	10X100	10X100	10X100	3X200		3X166	10X100	10X100	10X106
VOLTAGE	500	520	670	640	460		420	520	670	640
CURRENT	0.6	1.0	1.0	1.0	0.6		0.5	1.0	1.0	1.0

FREQUENCIES

SENDER No.

OPERATOR

RECEIVER No.

OPERATOR

COMMENTS:

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 0, HALF N, SP. 2, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE 5-7

PAGE 1

HEINRICHS GEOEX

SEND	2-3	1-2	3-4	3-3	1-2	4-5	3-4	3-3	1-2	COR
RECEIVE	325-375	325-375	375-325	→	→	375-325	→	→	→	
MULTIPLIER	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
PFE	0.2	1.0	0.5	1.0	2.3	0.4	0.6	1.2	1.6	
CUR. (AMPS)	1.5	1	2	1.5	1	2	2	1.5	1	1
POINT No.										-.2
SEP. (n)	Cal used 1.047									—
H. F. MV										95.35
DRIFT										—
1.0 PFE K_n/1000	.15	.6	.15	.6	1.5	.15	.6	1.5	3	
0.3 PFE P_{CAL}	0	0.8	0.3	0.8	2.1	0.2	0.4	1.0	1.4	
0.1 PFE PFE_c										
3.0 MV $P/2\pi$	108	66.1	63.7	83.9	77.6	220	135.5	29.5	32.85	
DRIFT MCF	—	—	—	—	—	—	—	—	-.1	
S. P.	+22.6		+2.0			+72.8				
NOISE										
POT RES.	11	42	50	35	122	17	43	31	103	
CULT & CMTS	18	24	10	28	19	23	14	39	16	

I. P. RECEIVER NOTES, JOB NO._____, AREA_____

LINE_____, HALF_____, SR._____, a = _____, BEARING_____

SENDER STA._____ = ELECTRODE NO._____, DATE_____

PAGE 2

HEINRICHS GEOEX

SEND		5-6	4-5	3-4	2-3	1-2					
RECEIVE		175-225	→	→	→	→					
MULTIPLIER		10	1.0	1.0	0.1	1.0					
PFE		0.4	0.2	0.4	0.6	1.4					
CUR. (AMPS)		2	2	2	1.5	1					
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	$K_n/1000$	.15	.6	1.5	3	5.25					
0.3 PFE	P_{CAL}	0.2	0	0.2	0.4	1.0					
0.1 PFE	PFE_c										
3.0 MV	$P/2\pi$	206.5	30.6	29.2	8.63	11.65					
DRIFT	MCF	—	—	—	—	—					
S. P.		-82.1									
NOISE											
POT RES.		16	9.6	23	18	64					
CULT & CMTS		25	21	17	33	22					

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 0, HALF N, SR. 2, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 3

HEINRICHS GEOEX

SEND		6-7	5-6	4-5	3-4	2-3	1-2				
RECEIVE		125-175	—	—	—	—	→				
MULTIPLIER		10	1.0	1.0	1.0	0.1	0.1				
PFE		0.1	0.6	0.1	0.2	0.5	1.1				
CUR. (AMPS)		1.5	2	2	2	1.5	1				
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	$K_n/1000$	.15	.6	1.5	3	5.25	6.4				
0.3 PFE	ρ_{CAL}	-.1	0.4	-.1	0	~~[illegible]~~	0.9				
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$	153	83.7	18.85	21.3	~~9.71~~	10.80				
DRIFT	MCF	—	—	—	—	72.1	—				
S. P.		-11.5				—					
NOISE											
POT RES.		16	26	15	33	26	95				
CULT & CMTS		6.2	23	6.8	6.0	19	12				

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 0, HALF N, SR. 2, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 4

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	2-3					
RECEIVE	75-125	→	→	→	→					
MULTIPLIER	1.0	1.0	0.1	1.0	0.1					
PFE	0.5	1.0	0.4	1.0	1.1					
CUR. (AMPS)	1.5	2	2	2	1.5					
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE K_n/1000	.6	1.5	3	5.25	8.4					
0.3 PFE ρ_{CAL}	0.3	0.8	0.2	0.8	0.9					
0.1 PFE PFE_c										
3.0 MV $\rho/2\pi$	44.0	41.3	8.20	14.7	5.09					
DRIFT MCF	—	—	—	—	—					
S. P.	-22.0			—						
NOISE										
POT RES.	18	32	13	40	30					
CULT & CMTS	27	31	31	25	37					

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 0, HALF 5, SR. 2, a = 56, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-7-73

PAGE 5

HEINRICHS GEOEX

SEND		SP	SP	3-4	2-3	3-4	4-5	5-6	6-7		
RECEIVE		375-425	425-475	475-535	535-575	→					
MULTIPLIER				1.0	100	10	1.0	1.0	1.0		
PFE				0.8	1.3	0.8	0.9	1.4	1.4		
CUR. (AMPS)				2	1.5	2	1.5	1.5	1.5		
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	$K_n/1000$			.15	.15	.6	1.5	3	5.25		
0.3 PFE	ρ_{CAL}			0.6	1.1	0.6	0.7	1.2	1.2		
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$			970	2570	353	48.75	58.8	24.15		
DRIFT	MCF			—	—	—	—	—	—		
S. P.		-10.8	+22.0	+14.5	+19.7						
NOISE											
POT RES.				76	269	111	51	123	88		
CULT & CMTS				11	4.8	7.2	18	11	16		

I. P. RECEIVER NOTES, JOB NO._____, AREA_____

LINE 0, HALF S, SR. 2, a = 50, BEARING S

SENDER STA._____ = ELECTRODE NO._____, DATE_____

PAGE 6

HEINRICHS GEOEX

SEND		1-2	2-3	3-4	4-5	5-6	6-7				
RECEIVE		525-625	→								
MULTIPLIER		1.0	1.0	1.0	0.1	0.1	0.1				
PFE		1.3	1.4	1.4	1.3	2.0	1.9				
CUR. (AMPS)		1	1.5	2	1.5	1.5	1.5				
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	K_n/1000	.15	.6	1.5	3	5.25	8.4				
0.3 PFE	ρ_{CAL}	1.1	1.2	1.2	1.1	1.8	1.7				
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$	779	62.2	25.0	5.06	7.93	3.67				
DRIFT	MCF	—	—	—	—	—	—				
S. P.		-4.0									
NOISE											
POT RES.		122	26	20	11	29	22				
CULT & CMTS		11	54	71	123	69	88				

I. P. RECEIVER NOTES, JOB No. 726, AREA _____

LINE 6, HALF 5, SP. 2, a = 50, BEARING 5

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

PAGE 7

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	
RECEIVE	625-675	→	→	→	→	675-725	→	→	→	
MULTIPLIER	1.0	1.0	1.0	0.1	0.1	1.0	1.0	0.1	0.1	
PFE	2.2	2.1	1.9	1.7	2.6	2.1	2.0	1.6	1.6	
CUR. (AMPS)	1	1.5	2	1.5	1.5	1	1.5	2	1.5	
POINT NO.										
SEP. (n)										
H. F. MV										
DRIFT										
1.0 PFE $K_n/1000$	.6	1.5	3	5.25	8.4	1.5	3	5.25	8.4	
0.3 PFE ρ_{CAL}	2.0	1.9	1.7	1.5	2.4	1.9	1.8	1.4	1.4	
0.1 PFE PFE_C										
3.0 MV $\rho/2\pi$	396	41.05	18.3	4.84	8.44	105.0	11.8	6.11	1.665	
DRIFT MCF	—	—	—	—	—	—	—	—	—	
S. P.	+14.7					0				
NOISE										
POT RES.	249	43	29	18	49	165	25	17	9.8	
CULT & CMTS	8.8	49	66	96	53	13	81	95	164	

I. P. RECEIVER NOTES, JOB NO. 220, AREA _____

LINE 0, HALF 5, SR. 2, a = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 8

HEINRICHS GEOEX

SEND		1-2	2-3	3-4		Col					
RECEIVE		225-775	→								
MULTIPLIER		1.0	0.1	0.1		1.0					
PFE		2.1	1.7	1.4							
CUR. (AMPS)		1	1.5	2		1					
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE	K_n/1000	3	5.25	8.4							
0.3 PFE	ρ_{CAL}	1.9	1.5	1.2		-.2					
0.1 PFE	PFE_c										
3.0 MV	$\rho/2\pi$	47.4	5.75	3.61		95.7					
DRIFT	MCF	—	—	—		—					
S. P.		+12.6									
NOISE											
POT RES.		149	21	16							
CULT & CMTS		14	81	88							

I. P. SENDER NOTES

JOB No. 770 AREA IRA'S CAMP

LINE 0, HALF N, SP. 2, DATE 5-7

PAGE 1

HEINRICHS GEOEX

SEND	2-3	1-2	3-4	2-3	1-2	4-5	3-4	2-3	1-2	
RECEIVE	325-375S	→	275-325S	→	→	275-225S	→	→	→	
RANGE	10x150	10x100	10x200	10x150	10x100	10x200	10x200	10x150	10x100	
VOLTAGE	420	560	380	420	550	410	360	410	550	
CURRENT	1.5	1.0	2.0	1.5	1.0	2.0	2.0	1.5	1.0	
SEND	5-6	4-5	3-4	2-3	1-2					
RECEIVE	175-225S	→	→	→	→					
RANGE	10x200	10x200	10x200	10x150	10x100					
VOLTAGE	420	400	360	410	540					
CURRENT	2.0	2.0	2.0	1.5	1.0					

FREQUENCIES 3 & .3

SENDER No. 6644S

OPERATOR ~~J.M.~~ DK

RECEIVER No. DD

OPERATOR ~~DK~~ JM

COMMENTS:

CAL - 1.0

LOW MODE

I. P. SENDER NOTES

JOB No. 770 AREA Irra's Camp

LINE 0, HALF N, SP. 2, DATE 5-7

PAGE 2

HEINRICHS GEOEX

SEND	6-7	5-6	4-5	3-4	2-3	1-2				
RECEIVE	125-175S	→								
RANGE	10x150	10x200	10x200	10x200	10x~~200~~ 150	10x100				
VOLTAGE	~~440~~ 660	410	380	350	~~5~~400	540				
CURRENT	1.5	2.0	2.0	2.0	~~2.0~~ 1.5	1.0				
SEND	6-7	5-6	4-5	3-4	~~2-3~~	2-3				
RECEIVE	75-125S	→				→				
RANGE	10x150	10x200	10x200	10x~~200~~	~~10x200~~	10x150				
VOLTAGE	660	400	370	~~280~~ 340	~~340~~	~~450~~ 400				
CURRENT	1.5	2.0	2.0	~~1.5~~ 2.0	~~2.0~~	1.5				

FREQUENCIES 3 + .3

SENDER No. 66445

OPERATOR DK

RECEIVER No. DD

OPERATOR Jm

COMMENTS:

VOLTAGE FOR 6-7 — 660

LOW MODE

WENT TO HI MODE ON 3-4 + 4-5

I. P. SENDER NOTES

JOB No. 770 AREA IRA'S CAMP

LINE 0, HALF S, SP. 2, DATE 5-7

PAGE 3

HEINRICHS GEOEX

SEND	3-4	2-3	3-4	4-5	5-6	6-7				
RECEIVE	475-525S	525-575S	→							
RANGE	10x200	10x150	10x200	10x150	10x150	10x150				
VOLTAGE	330	390	320	260	290	640				
CURRENT	2.0	1.5	2.0	1.5	1.5	1.5				
SEND	1-2	2-3	3-4	4-5	5-6	6-7				
RECEIVE	575-625S	→								
RANGE	10x100	10x150	10x200	10x150	10x150	10x150				
VOLTAGE	520	380	320	260	280	640				
CURRENT	1.0	1.5	2.0	1.5	1.5	1.5				

FREQUENCIES 3 + .3

SENDER No. 6644S

OPERATOR DK

RECEIVER No. DD

OPERATOR JM

COMMENTS:

WENT TO HI MODE ON 5-6

I. P. SENDER NOTES

JOB No. 770 AREA Irra's Camp

LINE 0, HALF 5, SP. 2, DATE 5-7

PAGE 4

HEINRICHS GEOEX

SEND	1-2	2-3	3-4	4-5	5-6	1-2	2-3	3-4	4-5	
RECEIVE	625-675S	→				675-725S	→			
RANGE	~~500~~ 10x100	10x150	10x200	10x150	10x150	10x100	10x150	10x200	10x150	
VOLTAGE	520	380	320	250	280	520	380	320	240	
CURRENT	1.0	1.5	2.0	1.5	1.5	1.0	1.5	2.0	1.5	
SEND	1-2	2-3	3-4							
RECEIVE	725-775S	→								
RANGE	10x100	10x150	10x200							
VOLTAGE	520	380	320							
CURRENT	1.0	1.5	2.0							

FREQUENCIES	COMMENTS:
SENDER No.	
OPERATOR	
RECEIVER No.	
OPERATOR	

NOTE ON 925 to 975 N ON LINE 2 W Changed to 14.1

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____ PAGE 8

LINE 2 W, HALF N, SP. _____, a = 50, BEARING ρ Cal = 1.052

SENDER STA. _____ = ELECTRODE NO. _____, DATE 4-26 (26.29 = Constant)

HEINRICHS GEOEX

SEND										N
RECEIVE	475-525	525-575	575-625	625-675	675-725	725-775	775-825	825-875	875-925	925-975
MULTIPLIER	0.1	0.1	0.1	1.0	1.0	0.1	0.1	0.1	0.1	0.1
PFE Con.	1.5	1.2	1.3	1.1	1.6	1.0	0.9	1.1	1.2	1.414
CUR. (AMPS)										94
POINT NO.										15
SEP. (n)										
H. F. MV										
DRIFT										0.328
1.0 PFE $K_n/1000$										0.4
0.3 PFE ρ_{CAL}	1.3	1.0	1.1	0.9	1.4	0.8	0.7	0.9	1.0	1.2
0.1 PFE PFE_c										2.0
3.0 MV $\rho/2\pi$	8.705	9.29	6.95	12.4	12.9	8.51	8.14	10.60	7.90	10.90
DRIFT MCF	-0.1	—	—	—	—	—	—	—	—	—
S. P.	+18.4	+19.1	-10.3	-4.5	+12.3	+4.4	+10.9	+4.0	-6.8	+26.3
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 2W, HALF N, SP. _____, ^2a = 50, BEARING N

SENDER STA. N = ELECTRODE NO. _____, DATE 4-26

PAGE 9

HEINRICHS GEOEX

SEND		975-1025		Cal							
RECEIVE											
MULTIPLIER		0.1									
PFE		1.3 1.1									
CUR. (AMPS)		45									
POINT NO.		29									
SEP. (n)											
H. F. MV											
DRIFT		0.313									
1.0 PFE	$K_n/1000$	0.1									
0.3 PFE	ρ_{CAL}	0.9									
0.1 PFE	PFE_c	1.6									
3.0 MV	$\rho/2\pi$	5.41									
DRIFT	MCF	—									
S. P.		-2.7									
NOISE											
POT RES.											
CULT & CMTS											

e cal = 1.058 g.a. e/m ~ 90

I. P. RECEIVER NOTES, JOB No. 770, AREA Constant = 26.45

LINE 0, HALF N, SP. _____, ^{2}a = 50', BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE 4-30

PAGE 18 A

HEINRICHS GEOEX

SEND		Cal								N	
RECEIVE			25S-25N	25N-75N	75-125N	125-175	175-225	225-275	275-325	325-375	375-425
MULTIPLIER			1.0	1.0	0.1	1.0	0.1	0.1	0.1	0.1	0.1
PFE											
CUR. (AMPS)			332	223	112	137	48	17	44	50	60
POINT NO.			9.6	10	11	7.3	11	0	20	24	23
SEP. (n)											
H. F. MV											
DRIFT			0.500	.498	.496	.493	.489	.483	.477	.470	.462
1.0 PFE	K_n/1000	94.55	25.1	16.9	8.54	10.5	3.68	1.35	3.50	4.05	4.92
0.3 PFE	P_{CAL}	0									
0.1 PFE	PFE_c	0	3.2	2.3	1.2	1.0	0.5 0.6	0 0.0	0.9	1.2	1.4
3.0 MV	$P/2\pi$	0.2									
DRIFT	MCF	—	+.1	—	—	—	+.2	—	—	—	-0.1
S. P.			-0	+3.4	-15.1	+20.3	+10.7	+5.3	+3.3	+21.1	-3.4
NOISE											
POT RES.											
CULT & CMTS											

8/27 MCP

G

I. P. RECEIVER NOTES, JOB NO. 776, AREA

LINE 0, HALF N, SP. , a = 50, BEARING N

SENDER STA. = ELECTRODE NO. , DATE 4-30

PAGE 19A

HEINRICHS GEOEX

SEND		425-475	475-525								
RECEIVE											
MULTIPLIER		0.1	0.1								
PFE											
CUR. (AMPS)		124	112								
POINT NO.		15	13								
SEP. (n)											
H. F. MV											
DRIFT		.452	.442								
1.0 PFE	$K_n/1000$	10.41	9.60								
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	1.9	1.5								
3.0 MV	$\rho/2\pi$										
DRIFT	MCF	—	—								
S. P.		+3.3	+6.0								
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 0, HALF S, SP. _____, ^2a = 50, BEARING _____

SENDER STA. _____ = ELECTRODE No. _____, DATE 4-30

PAGE 20 B

HEINRICHS GEOEX

SEND		25-75	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475	475-525
RECEIVE											
MULTIPLIER		0.1	0.1	0.1	0.1	0.1	1.0	0.1	0.1	0.1	1.0
PFE											
CUR. (AMPS)		101	87	89	60	82	143	58	89	67	333
POINT NO.		18	18	11	27	22	14	31	20	31	5.4
SEP. (n)											
H. F. MV											
DRIFT		.498	.496	.493	.489	.483	.477	.470	.462	.452	.442
1.0 PFE	K_n/1000	7.64	6.66	6.83	4.62	6.42	11.3	4.63	7.31	5.64	28.5
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	1.8	1.6	1.0	1.6	1.8	2.0	1.8	1.8	2.1	1.8
3.0 MV	$\rho/2\pi$										
DRIFT	MCF	+.1	—	—	+.1	—	—	—	—	—	—
S. P.		-9.7	-5.6	+19.2	+24.7	-27.7	+23.7	-15.6	-11.2	+1.8	+21.3
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. _____, AREA _____

LINE 1W, HALF N, SP. _____, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE 4-30

PAGE 21A

HEINRICHS GEOEX

SEND							See @			
RECEIVE	25-25N	25-75N	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475
MULTIPLIER	1.0	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE										
CUR. (AMPS)	237	296	119	99	22	17	30	46	84	75
POINT NO.	13	9.5	12	7.1	0	23	57	31	18	21
SEP. (n)										
H. F. MV										
DRIFT	.503	.501	.498	.494	.491	.485	.478	.471	.463	.453
1.0 PFE $K_n/1000$	17.85	22.3	9.01	7.55	1.68	1.36	2.37	3.675	6.845	6.30
0.3 PFE ρ_{CAL}							0.5			
0.1 PFE PFE_c	3.0	2.8	1.4	0.7	0	0.4	1.7	1.4	1.5	1.6
3.0 MV $\rho/2\pi$							-.1			
DRIFT MCF	—	—	—	—	—	—	—	—	—	—
S. P.	+15.2	+8.1	+20.9	-17.0	+29.6	+23.0	-7.2	+7.0	-8.2	+4.4
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 1W, HALF W, SP. _____, a = _____, BEARING _____

SENDER STA. _____ = ELECTRODE NO. _____, DATE 4-30

PAGE 22A

HEINRICHS GEOEX

SEND		#2	Cal							
RECEIVE	425-525									
MULTIPLIER	0.1									
PFE										
CUR. (AMPS)	97									
POINT NO.	18									
SEP. (n)										
H. F. MV										
DRIFT	.443									
1.0 PFE $K_n/1000$	8.29		94.2							
0.3 PFE ρ_{CAL}			0							
0.1 PFE PFE_c	1.7		0							
3.0 MV $\rho/2\pi$			0.4							
DRIFT MCF	—									
S. P.	+31.8									
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 720, AREA _____

LINE 1W, HALF 5, SP. _____, a = 50, BEARING S

SENDER STA. _____ = ELECTRODE No. _____, DATE 5-1

PAGE 23 A

HEINRICHS GEOEX

SEND		Cal	255-275	275-325	325-375	375-425	425-475	475-525	525-575	Spec	
RECEIVE										375-425	425-475
MULTIPLIER		1.0	0.1	1.0	0.1	0.1	0.1	1.0	1.0	1.0	0.1
PFE											
CUR. (AMPS)			122	145	59	70	48	162	130	138	86
POINT NO.			16	9.7	25	23	29	12	18	19	23
SEP. (n)											
H. F. MV											
DRIFT			.501	.498	.494	.491	.485	.478	.471	.463	.453
1.0 PFE	K_n/1000	94.8	9.22	11.0	4.53	5.37	3.74	12.8	10.4	11.3	7.215
0.3 PFE	ρ_{CAL}	0.1									
0.1 PFE	PFE_c	0.2	1.9	1.4	1.5	1.6	1.4	1.9	2.3	2.6	2.0
3.0 MV	$\rho/2\pi$	0.3								-0.4	
DRIFT	MCF	—	—	—	—	—	—	—	—	+.1	—
S. P.			-3.3	-26.3	-5.1	+30.1	-12.4	-38.1	-18.5	+24.1	-22.6
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 1W, HALF S, SP. _____, ^2a = 50, BEARING S

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

PAGE 24A

HEINRICHS GEOEX

SEND		475-525									
RECEIVE											
MULTIPLIER		1.0									
PFE											
CUR. (AMPS)		.172									
POINT NO.		12									
SEP. (n)											
H. F. MV											
DRIFT		.443									
1.0 PFE	$K_n/1000$	14.7									
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	2.0									
3.0 MV	$\rho/2\pi$										
DRIFT	MCF	—									
S. P.		-0.1									
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 2W, HALF N, SR. _____, a = 50, BEARING _____

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-1

PAGE 25 D

HEINRICHS GEOEX

SEND								SPEC		
RECEIVE	25S-25N	25N-75N	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475
MULTIPLIER	1.0	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE										
CUR. (AMPS)	333	174	80	48	17	20	35	54	64	96
POINT NO.	8.7	11	11	8.4	0	34	37	32	28	19
SEP. (n)										
H. F. MV										
DRIFT	.507	.505	.502	.499	.495	.489	.482	.474	.467	.458
1.0 PFE K_n/1000	24.8	13.05	6.06	3.605	1.30	1.57	2.77	4.27	5.16	7.96
0.3 PFE ρ_{CAL}								0.9		
0.1 PFE PFE_c	2.9	2.0	0.9	0.4	0	0.7	1.3	1.7	1.8	1.8
3.0 MV $\rho/2\pi$								-.3		
DRIFT MCF	—	—	—	—	—	—	+0.1	—	—	—
S. P.	+2.1	+17.7	+17.1	+5.7	-5.6	+20.1	-24.0	+8.5	+13.6	+10.3
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 2W, HALF N, SP. _____, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-1

PAGE 26A

HEINRICHS GEOEX

SEND										
RECEIVE	475-525	525-575	575-625	625-675	675-725	725-775	775-825	825-875	875-925	925-975
MULTIPLIER	0.1	0.1	0.1	1.0	1.0	0.1	0.1	0.1	0.1	1.0
PFE										
CUR. (AMPS)	105	108	79	136	138	87	80	100	71	95
POINT NO.	17	17	24	13	12	17	15	15	21	14
SEP. (n)										
H. F. MV										
DRIFT	.448	.437	.424	.412	.400	.386	.372	.357	.342	.328
1.0 PFE K_n/1000	8.83	9.34	7.05	12.5	13.0	8.50	8.175	10.58	7.89	11.0
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	1.8	1.8	1.7	1.8	1.6	1.5	1.2	1.5	1.5	1.3
3.0 MV $\rho/2\pi$										
DRIFT MCF	—	—	—	—	—	—	—	—	—	-.1
S. P.	+25.1	+9.8	-9.15	-0.3	+5.8	~~+4.0~~		+3.7	-2.7	+24.8
NOISE						+4.8	-7.8	+		
POT RES.										
CULT & CMTS										

J.A. Pha~76

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 2W, HALF N, SP. _____, a = 50, BEARING _____

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-1

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HEINRICHS GEOEX

SEND											
RECEIVE	975-1005										
MULTIPLIER	0.1										
PFE											
CUR. (AMPS)	45										
POINT NO.	31										
SEP. (n)											
H. F. MV											
DRIFT	.313										
1.0 PFE K_n/1000	5.41										
0.3 PFE ρ_{CAL}											
0.1 PFE PFE_c	1.4										
3.0 MV $\rho/2\pi$											
DRIFT MCF	—										
S. P.	+2.9										
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO._____, AREA_____

LINE 2W, HALF 5, SP._____, a = 50, BEARING 5

SENDER STA._____ = ELECTRODE NO._____, DATE 4-26

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HEINRICHS GEOEX

SEND				5		5	5			
RECEIVE	25-75	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475	475-525
MULTIPLIER	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.0	0.1
PFE	2.3	1.3	0.9	1.4	1.4	1.5	2.1	2.1	2.2	1.4
CUR. (AMPS)	182	104	64	94	90	112	124	93	264	36
POINT NO.	13	13	14	15	16	13	17	22	8.3	39
SEP. (n)										
H. F. MV										
DRIFT	0.505	0.502	0.499	0.495	0.489	0.482	0.474	0.467	0.458	0.448
1.0 PFE K_n/1000	13.7	7.87	4.87	7.26	7.00	8.87	9.93	7.61	21.9	3.08
0.3 PFE ρ_{CAL}						0.7				
0.1 PFE PFE_c	2.4	1.5	1.1	1.6	1.6	1.5	2.3	2.3	2.4	1.6
3.0 MV $\rho/2\pi$						-.3				
DRIFT MCF	-.2	—	—	-0.1		—	—	+.1	—	—
S. P.	-11.4	+10.4	-22.7	+8.3	-15.0	+25.4	+9.6	+5.4	+14.7	+20.9
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 2W, HALF 5, SP. _____, ρ_a = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE 4-2c

PAGE 11

HEINRICHS GEOEX

SEND				5							5
RECEIVE		575-675	575-625	625-675	675-725	725-775	775-825	825-875	875-925	925-975	975-1025
MULTIPLIER		1.0	1.0	1.0	1.0	0.1	0.1	0.1	0.1	1.0	1.0
PFE		1.7	1.8	1.9	1.6	1.8	1.1	1.4	1.4	1.1	1.0
CUR. (AMPS)		140	167	197	215	63	54	81	58	95	91
POINT NO.		12	11	9.6	7.5	29	20	17	24	12	11
SEP. (n)											
H. F. MV											
DRIFT		0.437	0.424	.412	.400	.386	.372	.357	.342	.328	.313
1.0 PFE	K_n/1000	12.2	15.0	18.2	20.4	6.18	5.56	8.60	6.44	11.0	11.05
0.3 PFE	ρ_{CAL}										0.5
0.1 PFE	PFE_c	1.9	2.0	2.1	1.8	2.0	1.3	1.6	1.6	1.3	1.1
3.0 MV	$\rho/2\pi$										-0.3
DRIFT	MCF	—	—	—	—	—	-0.1	—	—	—	—
S. P.		+13.4	+11.2	+10.2	+16.7	+0.9	0	+7.0	-1.2	-17.4	-0.3
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 3 W, HALF N, SR. _____, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

PAGE 12

HEINRICHS GEOEX

SEND	Col									
RECEIVE			255-25N	25N-75N	75-125N	125-175N	175-225N	225-275	275-325	325-375
MULTIPLIER	0.1	0.1	1.0	1.0	0.1	0.1	0.1	0.1	0.1	0.1
PFE			2.9	2.3	0.8	0.8	1.0	0.8	1.1	1.7
CUR. (AMPS)			194	242	93	53	23	27	35	61
POINT No.			14	9.5	8.6	15	43	30	32	28
SEP. (n)										
H. F. MV										
DRIFT			.512	.511	.509	.506	.501	.496	.489	.481
1.0 PFE K_n/1000	0.2	-1.1	14.4	18.0	6.92	4.00	1.77	2.07	2.69	4.85
0.3 PFE ρ_{CAL}	0.6	-1.3								
0.1 PFE PFE_c	0	-1.4	2.9	2.5	1.0	1.0	1.2	1.0	1.3	1.9
3.0 MV $\rho/2\pi$	7.56	7.63								
DRIFT MCF			—	—	—	—	—	—	—	—
S. P.			+19.9	+20.8	+17.8	+22.4	+1.3	+13.2	+17.6	+6.0
NOISE										
POT RES.										
CULT & CMTS										

STRONG DC NOISE AT 375-425 N ON LINES 2W + 3W

I. P. RECEIVER NOTES, JOB NO._____, AREA_____

LINE 3W, HALF N, SR._____, a = 50, BEARING N

SENDER STA._____ = ELECTRODE NO._____, DATE_____

PAGE 13

HEINRICHS GEOEX

SEND	375-425	425-475	475-525							
RECEIVE										
MULTIPLIER	0.1	1.0	0.1							
PFE	1.4	1.6	2.2							
CUR. (AMPS)	63	172	95							
POINT NO.	22	9.3	23							
SEP. (n)										
H. F. MV										
DRIFT	.473	.464	.455							
1.0 PFE K_n/1000	5.03	14.1	7.92							
0.3 PFE ρ_{CAL}			1.0							
0.1 PFE PFE_c	1.6	1.8	2.4							
3.0 MV $\rho/2\pi$			-.6							
DRIFT MCF	—	—	—							
S. P.	+8.6	+47.0	+2.8							
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 3W, HALF S, SP. _____, a = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE _____

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HEINRICHS GEOEX

SEND											
RECEIVE		25-75S	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475	475-525
MULTIPLIER		0.1	0.1	0.1	0.1	0.1	1.0	0.1	0.1	1.0	0.1
PFE		1.4	1.5	1.6	1.7	1.6	1.5	2.1	2.1	2.0	1.8
CUR. (AMPS)		107	73	116	89	131	179	87	103	196	113
POINT NO.		13	20	14	19	12	8.4	24	20	10	16
SEP. (n)											
H. F. MV											
DRIFT		.511	.509	.506	.501	.496	.489	.481	.473	.469	.455
1.0 PFE	K_n/1000	8.00	5.47	8.755	6.75	10.04	13.9	6.86	8.27	16.1	9.45
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	1.6	1.7	1.8	1.9	1.8	1.7	2.3	2.3	2.2	2.0
3.0 MV	$\rho/2\pi$										
DRIFT	MCF	—	—	—	—	—	—	—	—	—	-0.1
S. P.		+8.5	[illegible]								
NOISE			-5.7	+5.2	-27.4	+5.0	-4.7	+11.1	+3.1	-16.4	+3.7
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 4W, HALF N, SP. _____, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE 4-27

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HEINRICHS GEOEX

SEND										
RECEIVE	25-25N	25-75N	75-125N	125-175N	175-225N	225-275N	275-325N	325-375N	375-425N	425-475N
MULTIPLIER	0.1	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE	0.9	2.2	1.8	1.4	1.4	1.3	0.4	1.3	1.7	1.8
CUR. (AMPS)	87	192	121	67	30	30	39	95	74	109
POINT No.	10	11	15	21	47	44	10	14	23	16
SEP. (n)										
H. F. MV										
DRIFT	.520	.519	.518	.515	.510	.505	.499	.491	.482	.472
1.0 PFE K_n/1000	6.39	14.1	8.86	4.95	2.22	2.23	2.95	7.36	5.87	8.91
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	1.1	2.4	2.0	1.6	1.6	1.5	0.6	1.5	1.9	2.0
3.0 MV $\rho/2\pi$										
DRIFT MCF	—	—	—	—	—	—	—	—	—	—
S. P.	-26.4	-5.8	+17.8	+27.0	-64.6	+60.8	-23.4	+3.1	-14.7	+34.6
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 4W, HALF N, SR. _____, ^2a = 50', BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 4-27

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HEINRICHS GEOEX

SEND											
RECEIVE	475-525										
MULTIPLIER	0.1										
PFE	1.5										
CUR. (AMPS)	126										
POINT NO.	12										
SEP. (n)											
H. F. MV											
DRIFT	.464										
1.0 PFE $K_n/1000$	10.37										
0.3 PFE ρ_{CAL}											
0.1 PFE PFE_c	1.7										
3.0 MV $\rho/2\pi$											
DRIFT MCF	—										
S. P.	+21.9										
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 4W, HALF 5, SP. _____, a = 50, BEARING _____

SENDER STA. _____ = ELECTRODE No. _____, DATE 4-27

PAGE 17

HEINRICHS GEOEX

SEND											
RECEIVE		255-755	755-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475	475-525
MULTIPLIER		0.1	1.0	0.1	0.1	0.1	0.1	1.0	0.1	0.1	1.0
PFE		1.7	1.4	1.5	1.6	1.4	1.5	1.4	1.9	1.8	1.8
CUR. (AMPS)		98	166	61	91	97	131	233	123	96	154
POINT No.		17	8.4	25	17	14	11	6.0	16	19	12
SEP. (n)											
H. F. MV											
DRIFT		.519	.518	.515	.510	.505	.499	.491	.482	.472	.464
1.0 PFE	$K_n/1000$	7.15	12.2	4.47	6.82	7.28	9.97	18.05	9.67	7.72	12.6
0.3 PFE	ρ_{CAL}										0.9
0.1 PFE	PFE_c	0.9	1.6	1.8	1.8	1.7	1.7	1.6	2.1	2.0	2.0
3.0 MV	$\rho/2\pi$										-.5
DRIFT	MCF	—	—	+.3	—	+.2	—	-.1	—	—	—
S. P.		-11.4	+23.8	+100.6	-32.0	-50.8	-22.0	-49.8	+48.8	-8.5	-1.1
NOISE											
POT RES.											2.0
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 220, AREA [redacted]

LINE 5W, HALF N, SP. _____, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-1

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HEINRICHS GEOEX

SEND										
RECEIVE	25S-25N	25-75N	75N-125	125-175	175-225	225-275	275-325	325-375	[redacted]	[redacted]
MULTIPLIER	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
PFE										
CUR. (AMPS)	63	102	98	46	28	38	87	63		
POINT NO.	22	22	25	37	49	50	17	30		
SEP. (n)										
H. F. MV										
DRIFT	.530	.530	.528	.526	.522	.517	.511	.504	[redacted]	
1.0 PFE K_n/1000	4.51	7.29	7.01	3.335	2.05	2.77	6.465	4.76	[redacted]	
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	1.4	2.2	2.4	1.7	1.4	1.9	1.5	1.9		
3.0 MV $\rho/2\pi$										
DRIFT MCF	+.1	—	—	+.1	—	—	—	—		
S. P.	+25.4	-44.2	+55.1	-31.4	+11.1	-7.7	-12.7	+39.7	[redacted]	
NOISE										
POT RES.										
CULT & CMTS										

325 · 375 P

I. P. RECEIVER NOTES, JOB NO. 770, AREA Cal = 1.044

LINE 5W, HALF N, SR. ____, a = 50, BEARING N

SENDER STA. ____ = ELECTRODE NO. ____, DATE C = 26.09

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HEINRICHS GEOEX

SEND		Cal	325-375	375-425	425-475	475-525	525-575	575-625	625-675	675-725	725-775
RECEIVE							1				
MULTIPLIER		1.0	0.1	0.1	1.0	1.0	0.1	0.1	0.1	0.1	0.1
PFE			1.9	1.6	2.0	1.9	1.8	1.9	1.4	1.7	1.5
CUR. (AMPS)			62	81	184	204	121	89	86	73	68
POINT NO.			30	20	11	9.3	15	21	16	23	22
SEP. (n)											
H. F. MV											
DRIFT			0.504	.496	.486	.476	.465	.455	.445	.433	.420
1.0 PFE	K_n/1000	95.5	4.745	6.25	14.5	16.4	10.005	7.52	7.405	6.43	6.17
0.3 PFE	ρ_{CAL}	.3					1.0				
0.1 PFE	PFE_c	.2	2.0	1.7	2.1	2.0	1.9	2.0	1.5	1.8	1.6
3.0 MV	$\rho/2\pi$	.4					-.4				
DRIFT	MCF	.2	—	-.1	—	—	—	—	—	—	—
S. P.			+17.0	+14.7	+2.9	+10.8	11.7	+3.3	-3.3	+6.6	-9.6
NOISE											
POT RES.											
CULT & CMTS											

$\rho/2\pi$ MCF

G

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 5W, HALF N, SP. _____, ^2a = 50, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE 5-2

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HEINRICHS GEOEX

SEND		775-825	825-875	875-925	925-975	975-1025					
RECEIVE											
MULTIPLIER		0.1	0.1	1.0	1.0	1.0					
PFE		1.5	1.5	1.4	1.2	1.4					
CUR. (AMPS)		67	55	202	155	101					
POINT NO.		22	27	6.9	7.7	14					
SEP. (n)											
H. F. MV											
G DRIFT		.406	.392	.378	.362	.349					
1.0 PFE	$K_n/1000$	6.35	5.40	20.5	16.4	11.1					
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	1.6	1.6	1.5	1.3	1.5					
3.0 MV	$\rho/2\pi$										
DRIFT	MCF	—	—	—	—	—					
S. P.		+4.4	+45.7	+9.6	+4.3	-5.0					
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 5W, HALF 5, SP. _____, $\frac{2}{a}$ = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-2

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HEINRICHS GEOEX

SEND		25-75 S	75-125	125-175	175-225	225-225	275-325	325-375	375-425	425-475	475-525
RECEIVE						spec					
MULTIPLIER		0.1	1.0	0.1	0.1	0.1	0.1	0.1	1.0	0.1	0.1
PFE		1.9	1.8	1.5	2.0	2.2	1.9	1.5	2.1	2.3	2.0
CUR. (AMPS)		60	248	34	88	87	109	119	296	126	107
POINT NO.		32	7.3	44	23	25	18	13	7.1	18	19
SEP. (n)											
H. F. MV											
DRIFT		.530	.528	.526	.522	.517	.511	.504	.496	.486	.476
1.0 PFE	K_n/1000	4.305	18.0	2.51	6.435	9.42	8.14	9.035	22.85	9.925	8.64
0.3 PFE	ρ_{CAL}					.9					
0.1 PFE	PFE_c	2.0	1.9	1.6	2.1	2.3	2.0	1.6	2.2	2.4	2.2
3.0 MV	$\rho/2\pi$					-.3					
DRIFT	MCF	—	—	—	—	—	—	—	—	—	+.2
S. P.		+23.2	-20.9	-7.1	-43.7	-12.8	+1.0	-6.0	-10.0	+13.7	-18.1
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 5W, HALF 5, SP. _____, a^2 = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-2

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HEINRICHS GEOEX

SEND		525-575	575-625	625-675	675-725	725-775	775-825	825-875	875-925	925-975	975-1025
RECEIVE											
MULTIPLIER		0.1	1.0	1.0	1.0	0.1	1.0	1.0	0.1	1.0	1.0
PFE		2.3	2.3	2.1	2.2	1.9	2.2	1.6	1.6	1.9	1.9
CUR. (AMPS)		110	153	145	138	77	114	161	38	107	174
POINT NO.		21	15	15	16	25	19	10	42	18	11
SEP. (n)											
H. F. MV											
G DRIFT		.465	.455	.445	.433	.420	.406	.392	.378	.362	.349
1.0 PFE	K_n/1000	9.06	12.9	12.45	12.2	7.05	10.8	15.7	3.85	11.3	19.1
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	2.4	2.4	2.2	2.3	2.0	2.3	1.7	1.7	2.0	2.0
3.0 MV	$\rho/2\pi$										
DRIFT	MCF	—	—	—	—	—	—	—	—	—	
S. P.		+21.3	+.7	-13.0	+16.8	+5.7	-5.1	+15.1	-12.1	+25.6	+7.0
NOISE											
POT RES.											
CULT & CMTS											

NOTE All sorts of metal at 125-175 N on N Half

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 1E, HALF N, SP. _____, a/a = 50, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

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HEINRICHS GEOEX

SEND	25S-25N	25N 75	75-125	125-175	175 225	225-275	275 325	325 375	375 425	425-475
RECEIVE										
MULTIPLIER	0.1	1.0	1.0	1.0	1.0	0.1	0.1	0.1	0.1	1.0
PFE	2.0	2.5	2.3	1.7	1.2	0.7	0.5	1.1	1.2	1.5
CUR. (AMPS)	93	201	216	200	151	42	34	58	86	121
POINT NO.	22	12	11	8.5	7.9	17	15	19	14	12
SEP. (n)										
H. F. MV										
6 DRIFT	.503	.501	.498	.494	.491	.485	.478	.471	.463	.453
1.0 PFE K_n/1000	7.08	15.4	16.6	15.5	11.8	3.33	2.76	4.75	7.12	10.2
0.3 PFE ρ_{CAL}										0.8
0.1 PFE PFE_c	2.1	2.6	2.4	1.8	1.3	0.8	0.6	1.2	1.3	1.6
3.0 MV $\rho/2\pi$										-.3
DRIFT MCF	—	+.1	—	—	—	—	—	—	—	—
S. P.	+30.8	-7.6	+22.3	-17.0	+7.3	+10.0	-4.1	+19.5	+8.8	+33.7
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 1E, HALF N, SP. _____, $\frac{a}{2}$ = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-2

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HEINRICHS GEOEX

SEND										
RECEIVE	475-525	525-575	575-625	625-675	675-725	725-775	775-825	825-875	875-925	925-975
MULTIPLIER	0.1	0.1	0.1	0.1	1.0	1.0	1.0	1.0	0.1	1.0
PFE	1.9	1.8	1.8	1.5	1.1	1.3	1.1	1.2	1.2	1.3
CUR. (AMPS)	100	101	106	91	106	112	114	140	60	108
POINT NO.	19	18	17	16	10	12	9.6	8.6	20	12
SEP. (n)										
H. F. MV										
G DRIFT	.443	.431	.419	.407	.399	.380	.366	.352	.337	.322
1.0 PFE K_n/1000	8.645	9.01	9.72	8.57	10.35	11.3	11.95	15.2	6.55	12.8
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	2.0	1.9	1.9	1.6	1.15	1.4	1.2	1.3	1.3	1.4
3.0 MV $\rho/2\pi$										
DRIFT MCF	—	-.1	—	—	—	—	—	—	—	—
S. P.	-7.7	-9.0	+1.2	-1.2	+.3	+6.6	+6.7	+3.9	+11.6	-17.5
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 1E, HALF N, SP. _____, a = _____, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE _____

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HEINRICHS GEOEX

SEND											
RECEIVE	915 1025										
MULTIPLIER	1.0										
PFE	1.3										
CUR. (AMPS)	119										
POINT No.	11										
SEP. (n)											
H. F. MV											
G DRIFT	.307										
1.0 PFE K_n/1000	14.8										
0.3 PFE ρ_{CAL}											
0.1 PFE PFE_c	1.4										
3.0 MV $\rho/2\pi$											
DRIFT MCF	—										
S. P.	6.05										
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 1E, HALF S, SP. _____, a = 50, BEARING S

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-2-73

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HEINRICHS GEOEX

SEND	25-75	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475	475-525
RECEIVE										
MULTIPLIER	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.0
PFE	1.8	1.1	1.1	1.3	1.9	1.9	1.6	2.3	1.9	1.9
CUR. (AMPS)	113	95	59	60	114	104	71	120	102	175
POINT NO.	16	12	19	22	17	18	22	19	19	11
SEP. (n)										
H. F. MV								.463		
DRIFT	.501	.498	.494	.491	.485	.478	.471	9.97	.453	.443
1.0 PFE K_n/1000	8.64	7.32	4.575	4.70	9.045	8.335	5.79	~~9.84~~	8.66	15.1
0.3 PFE ρ_{CAL}			0.4							
0.1 PFE PFE_c	1.9	1.2	1.2	1.4	2.0	2.0	1.7		2.0	2.0
3.0 MV $\rho/2\pi$			-.1					2.4		
DRIFT MCF	—	—	—	—	—	—	+.1	—	—	—
S. P.	+10.7	+30.2	+80.7	-41.9	+22.4	+31.2	-16.9	-4.0	+14.3	0
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 1 E, HALF S, SP. _____, a = 50, BEARING S

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-2 5-3

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HEINRICHS GEOEX

SEND	525-575	575-625	[redacted]	625-675		675-725	725-775	775-825	825-875	875-925
RECEIVE			Cal							
MULTIPLIER	1.0	1.0		0.1		0.1	0.1	0.1	0.1	1.0
PFE	2.0	2.0								
CUR. (AMPS)	138	231		30		54	62	56	68	93
POINT NO.	14	8.7		50		33	35	36	19	17
SEP. (n)										
H. F. MV										
G DRIFT	.431	.419		.407		.394	.380	.366	.352	.337
1.0 PFE K_n/1000	12.3	21.1	96.2	2.81	[redacted]	5.23	6.285	5.89	7.35	10.6
0.3 PFE ρ_{CAL}			0							
0.1 PFE PFE_c	2.1	2.1	0	1.5	[redacted]	1.8	2.2	2.0	1.3	1.6
3.0 MV $\rho/2\pi$			.3							
DRIFT MCF	—	—	-.1	—		—	+.1	—	—	—
S. P.	+4.1	-1.2		+2.4		+1.3	+19.2	-12.3	-3.5	-4.3
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 1E, HALF 5, SP. _____, ^2a = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-3

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HEINRICHS GEOEX

SEND											
RECEIVE	925-975	975-1025									
MULTIPLIER	1.0	1.0									
PFE											
CUR. (AMPS)	88	97									
POINT NO.	18	19									
SEP. (n)											
H. F. MV	.322	.307									
DRIFT	10.5										
1.0 PFE $K_n/1000$	[redacted]	12.1									
0.3 PFE ρ_{CAL}											
0.1 PFE PFE_c	1.6	1.8									
3.0 MV $\rho/2\pi$											
DRIFT MCF	—	—									
S. P.	+9.1	+16.1									
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB No. 270, AREA _____

LINE 2E, HALF 5, SP. _____, $\frac{2}{a}$ = 50, BEARING 5

SENDER STA. _____ = ELECTRODE No. _____, DATE 5-3

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HEINRICHS GEOEX

SEND	25-75-255	255-755	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475
RECEIVE							—			
MULTIPLIER	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.0	0.1
PFE										
CUR. (AMPS)	120	116	52	87	112	78	106	101	124	96
POINT NO.	14	14	25	18	16	20	19	20	19	21
SEP. (n)										
H. F. MV										
DRIFT	.507	.505	.502	.499	.495	.489	.482	.474	.467	.458
1.0 PFE K_n/1000	9.10	8.78	3.95	6.66	8.635	6.13	8.44	8.18	10.2	8.03
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	1.7	1.6	1.3	1.6	1.8	1.7 1.6	2.0	2.0	2.3	2.0
3.0 MV $\rho/2\pi$										
DRIFT MCF	—	—	—	—	—	+.2	—	-.1	—	—
S. P.	+71.6	+91.5	-61.8	-13.8	+14.0	+9.3	-31.9	+31.7	+9.5	+12.1
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 220, AREA _____

LINE 2E, HALF 5, SP. _____, a = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-3

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HEINRICHS GEOEX

SEND		475-525	5								
RECEIVE											
MULTIPLIER		0.1									
PFE											
CUR. (AMPS)		92									
POINT NO.		22									
SEP. (n)											
H. F. MV											
DRIFT		.448									
1.0 PFE	K_n/1000	7.84									
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	2.0									
3.0 MV	$\rho/2\pi$										
DRIFT	MCF	—									
S. P.		+15.8									
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 220, AREA _____

LINE 2E, HALF N, SP. _____, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-3

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HEINRICHS GEOEX

SEND								375-425		
RECEIVE	25-75	75-125	125-175	175-225	225-275	275-325	325-375	Spec	425-475	475-525
MULTIPLIER	0.1	1.0	1.0	1.0	1.0	0.1	0.1	0.1	1.0	0.1
PFE										
CUR. (AMPS)	106	141	200	131	134	96	76	105	131	89
POINT NO.	15	13	10	14	13	11	17	13	9.1	24
SEP. (n)										
H. F. MV										
G DRIFT	.505	.502	.499	.495	.489	.482	.474	.467	.458	.448
1.0 PFE K_n/1000	8.05	10.75	15.4	10.15	10.5	7.63	6.16	8.62	11.0	7.64
0.3 PFE ρ_{CAL}								0.6		
0.1 PFE PFE_C	1.6	1.8	2.1	1.9	1.7	1.1	1.3	1.4	1.2	2.1
3.0 MV $\rho/2\pi$								+82		
DRIFT MCF	—	—	—	—	—	-.1	—	—	—	
S. P.	+48.4	-23.0	+18.2	-4.0	+10.3	-8.0	+11.0	+18.0	-9.4	+9.3
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 3E, HALF N, SP. _____, a = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-3-73

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HEINRICHS GEOEX

SEND										
RECEIVE	25S-25N	25N-75N	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475
MULTIPLIER	0.1	0.1	1.0	1.0	1.0	0.1	0.1	0.1	0.1	1.0
PFE										
CUR. (AMPS)	100	101	143	144	141	116	125	117	112	137
POINT NO.	14	13	9.8	11	11	14	11	13	13	11
SEP. (n)										
H. F. MV										
G DRIFT	.512	.511	.509	.506	.501	.496	.489	.481	.473	.464
1.0 PFE K_n/1000	7.50	7.55	10.75	10.9	10.8	8.98	9.77	9.32	9.045	11.35
0.3 PFE P_{CAL}									0.4	
0.1 PFE PFE_c	1.4	1.3	1.4	1.6	1.6	1.6	1.4	1.5	1.5	1.5
3.0 MV $P/2\pi$									0	
DRIFT MCF	—	-.1	—	—	—	—	—	—	—	—
S. P.	-5.1	+6.0	+9.3	-17.7	+3.9	+12.0	+.8	-31.1	-1.5	-6.1
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 3 E, HALF N, SR. _____, a = 50, BEARING _____

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-3

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HEINRICHS GEOEX

SEND		475-585									
RECEIVE											
MULTIPLIER		1.0									
PFE											
CUR. (AMPS)		129									
POINT NO.		13									
SEP. (n)											
H. F. MV											
DRIFT		.455									
1.0 PFE	$K_n/1000$	10.9									
0.3 PFE	P_{CAL}										
0.1 PFE	PFE_c	1.7									
3.0 MV	$P/2\pi$										
DRIFT	MCF	—									
S. P.		+6.8									
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 3 E, HALF 5, SR. _____, a/a = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-3-73

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HEINRICHS GEOEX

SEND										
RECEIVE	255-755	755-1255	1255-1755	1755-2255	2255-2755	2755-3255	3255-3755	3755-4255	4255-4755	4755-5255
MULTIPLIER	0.1	0.1	0.1	1.0	0.1	0.1	0.1	0.1	0.1	0.1
PFE										
CUR. (AMPS)	5	5	5	5	5	5	5	5	5	5
POINT NO.	114	77	76	183	90	123	106	69	93	106
SEP. (n)	18	27	26	8.7	22	19	23	29	25	23
H. F. MV										
DRIFT	.511	.509	.506	.501	.496	.489	.481	.473	.464	.455
1.0 PFE K_n/1000	8.53	5.82	5.77	14.0	6.94	9.675	8.48	5.57	7.69	8.96
0.3 PFE ρ_{CAL}				0.9						
0.1 PFE PFE_C	2.6	2.1	2.0	1.6	2.0	2.4	2.4	2.0	2.3	2.4
3.0 MV $\rho/2\pi$				-.4						
DRIFT MCF	—	+.1	—	—	—	—	—	—	—	—
S. P.	+6.8	+8.4	+8.0	+39.9	-8.4	+6.4	-5.0	+42.3	+3.7	+22.1
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB No. 770, AREA _____

LINE 4E, HALF _____, SP. _____, ^3a = 50, BEARING N

SENDER STA. _____ = ELECTRODE No. _____, DATE 5-4

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HEINRICHS GEOEX

SEND		CAL									
RECEIVE			25N-25N	25N-75N	75-125	125-175	175-225	225-275	275-325	325-375	375-425
MULTIPLIER		1.0	0.1	0.1	1.0	1.0	0.1	1.0	1.0	0.1	0.1
PFE			1.7	1.7	1.7	1.6	1.5	1.7	1.2	1.6	1.4
CUR. (AMPS)			127	116	158	148	85	159	159	92	120
POINT NO.			13	15	11	11	18	11	7.6	17	12
SEP. (n)											
H. F. MV											
DRIFT			.520	.519	.518	.515	.510	.505	.499	.491	.482
1.0 PFE	K_n/1000	96.6	9.39	8.59	11.7	11.0	6.39	12.05	12.2	7.15	9.505
0.3 PFE	P_{CAL}	+.1								0.8	
0.1 PFE	PFE_c	+.1	1.8	1.8	1.8	1.7	1.6	1.9	1.4	1.7	1.5
3.0 MV	$P/2\pi$	+.3								0	
DRIFT	MCF	—	—	—	—	—	—	+.2	+.2	—	—
S. P.			+27.8	-11.7	-15.6	+1.6	-13.4	+19.2	+20.75	-43.7	+39.5
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 4E, HALF N, SP. _____, $\frac{2}{a}$ = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-4

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HEINRICHS GEOEX

SEND										
RECEIVE	425-475	475-525	525-575	575-625	625-675	675-725	725-775	775-825	825-875	875-925
MULTIPLIER	1.0	1.0	1.0	0.1	1.0	0.1	1.0	1.0	0.1	1.0
PFE	1.6	1.7	1.9	1.9	1.7	1.4	1.6	1.7	1.4	1.9
CUR. (AMPS)	143	161	150	109	123	85	111	143	94	139
POINT NO.	11	11	13	17	14	17	14	12	15	14
SEP. (n)										
H. F. MV										
G DRIFT	.472	.464	.453	.443	.431	.419	.406	.391	.377	.362
1.0 PFE K_n/1000	11.6	13.3	12.65	9.465	10.9	7.75	10.5	14.0	9.53	14.7
0.3 PFE ρ_{CAL}										
0.1 PFE PFE_c	1.7	1.8	2.0	2.0	1.8	1.5	1.7	1.8	1.5	2.1
3.0 MV $\rho/2\pi$										
DRIFT MCF	—	—	—	—	—	—	—	—	—	+.3
S. P.	0	+9.7	-25.0	+2.3	+25.1	+19.3	+7.8	-12.8	+3.7	+22.4
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 48, HALF N, SR. _____, $\frac{3}{a}$ = 50, BEARING N

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-4

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HEINRICHS GEOEX

SEND		925-10	05								
RECEIVE											
MULTIPLIER		1.0									
PFE		1.8									
CUR. (AMPS)		110									
POINT NO.		16									
SEP. (n)											
H. F. MV											
DRIFT		.348	—								
1.0 PFE	$K_n/1000$	12.1									
0.3 PFE	ρ_{CAL}										
0.1 PFE	PFE_c	1.9									
3.0 MV	$\rho/2\pi$										
DRIFT	MCF	—									
S. P.		0									
NOISE											
POT RES.											
CULT & CMTS											

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 4E, HALF S, SR. _____, a = 50, BEARING S

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-4

PAGE 48

HEINRICHS GEOEX

SEND										
RECEIVE	25-75	75-125	125-175	175-225	225-275	275-325	325-375	375-425	425-475	475-525
MULTIPLIER	0.1	0.1	0.1	0.1	1.0	0.1	0.1	0.1	0.1	0.1
PFE										
CUR. (AMPS)	98	106	105	118	133	116	123	92	96	85
POINT NO.	17	19	17	16	15	17	17	23	25	28
SEP. (n)										
H. F. MV										
G DRIFT	.519	.518	.515	.510	.505	.499	.491	.482	.472	.464
1.0 PFE K_n/1000	7.265	7.87	7.82	8.90	10.1	8.88	9.63	7.35	7.775	7.06
0.3 PFE P_{CAL}										
0.1 PFE PFE_c	1.7	2.0	1.8	1.9	2.0	2.0	2.1	2.1	2.4	2.4
3.0 MV $P/2\pi$										
DRIFT MCF	—	—	—	—	—	—	—	—	—	—
S. P.	+3.0	+18.8	+8.8	+11.1	0	+12.7	+11.6	0	+27.2	+16.3
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. 770, AREA _____

LINE 4E, HALF 5, SP. _____, a = 50, BEARING 5

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-4

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HEINRICHS GEOEX

SEND	525-575	575-625	625-675	675-725	725-775	775-825	825-875	875-925	925-975	975-1025
RECEIVE	e									
MULTIPLIER	0.1	1.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
PFE										
CUR. (AMPS)	102	132	112	75	68	68	67	67	68	80
POINT NO.	20	14	19	25	26	23	27	25	25	21
SEP. (n)										
H. F. MV										
DRIFT	.453	.443	.431	.419	.406	.391	.377	.362	.348	.334
1.0 PFE K_n/1000	8.67	11.4	9.97	6.86	6.42	6.675	6.77	7.07	7.48	9.19
0.3 PFE ρ_{CAL}				1.0						
0.1 PFE PFE_c	2.0	1.8	2.1	1.9	1.8	1.6	1.8	1.7	1.7	1.7
3.0 MV $P/2\pi$				-.3						
DRIFT MCF	—	—	—	—	—	—	—	—	—	—
S. P.	+18.0	+12.3	+2.1	+2.4	+15.0	+15.3	+5.7	+5.0	+11.2	+18.3
NOISE										
POT RES.										
CULT & CMTS										

I. P. RECEIVER NOTES, JOB NO. _____, AREA CAL 1 DAP

LINE 4 E, HALF ALL, SP. _____, a = 50, BEARING _____

SENDER STA. _____ = ELECTRODE NO. _____, DATE 5-4

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HEINRICHS GEOEX

SEND	Cal										
RECEIVE											
MULTIPLIER	1.0										
PFE											
CUR. (AMPS)											
POINT NO.											
SEP. (n)											
H. F. MV											
DRIFT											
1.0 PFE $K_n/1000$	95.										
0.3 PFE ρ_{CAL}											
0.1 PFE PFE_c	0										
3.0 MV $\rho/2\pi$	1.4										
DRIFT MCF											
S. P.											
NOISE											
POT RES.											
CULT & CMTS											

uncle Chris,

Heres the notes, all readings were taken at 5 amps.

Here are the SP's on the center line going W. on 50' spacings. They start at line 0 and go W to line 5 W. It's labeled Page #1 SP's

---

I labeled this data with (A's) so you wouldnt confuse them with the first Data. So everything with a A on it is repeat information. P.S. Theres no page #21

Now for Page #28.
This information is from line 5 W. It starts at 25's of 0' and ends at 375' N. Thats where we had troubles. over

---

See ya later and be sure to wash you belly button to night.

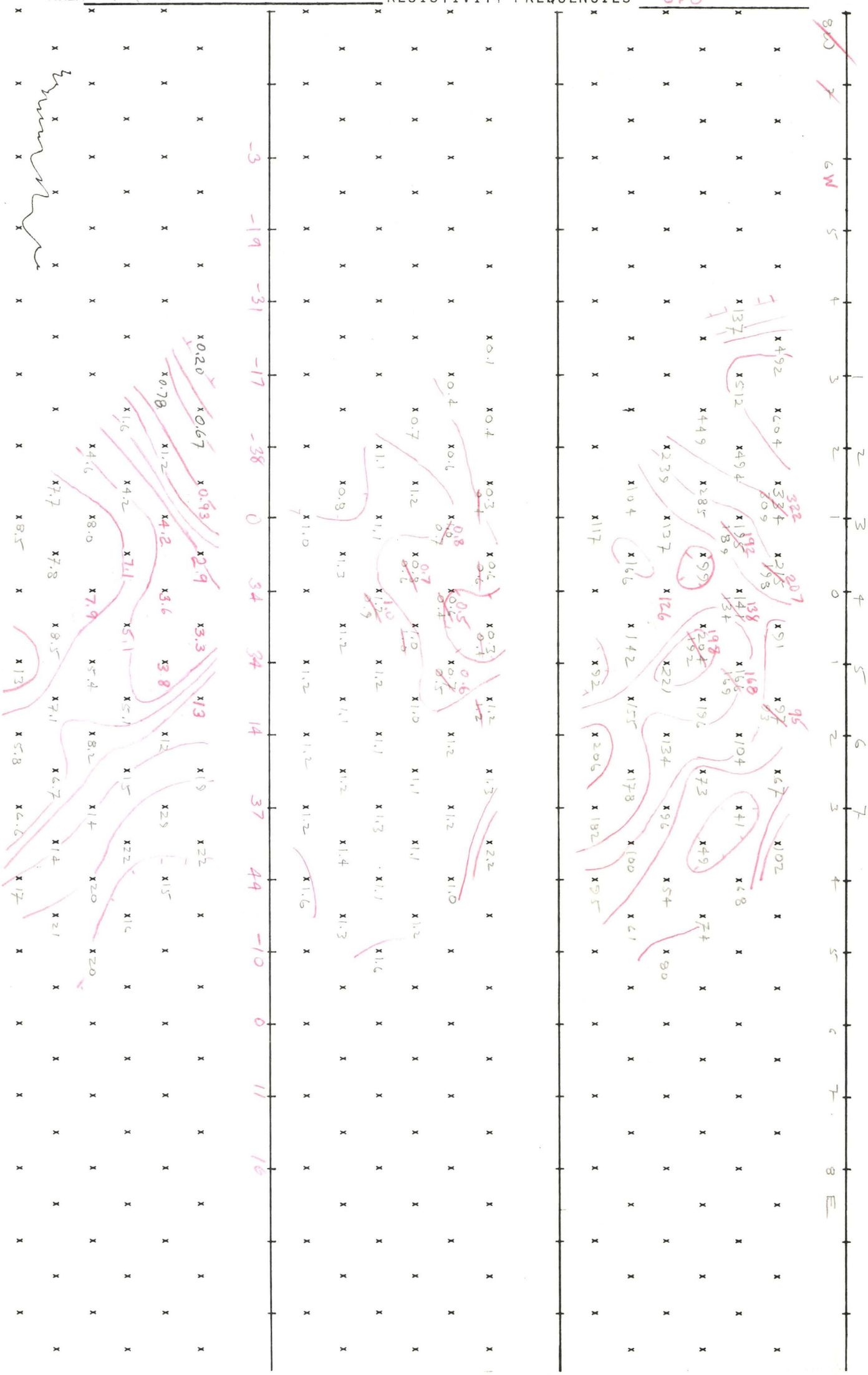
Martin Inc.

The CO/'s are in the order on the sheets they were taken, And I Found my Col Resistor today, it was out in the desert between stations.

JOB# 770 LINE# B SP 1 a = 100' BEARING E-W

CLIENT North Am. Mines Inc. DATE 5-12 May 1973 FREQUENCIES 3.0 & 0.3 Hz

AREA Pico RESISTIVITY FREQUENCIES 3.0



JOB 770

$$\rho_a/2\pi = \left[\frac{\ell^2}{2a}\right]\left[\frac{\Delta V}{I}\right]G(X,Y) = 25\,G(X,Y)\,\Delta V \quad (\Omega\text{-ft})$$

$\ell = 2500'$ $\quad (2\ell = 5000')$

$2a = 50'$

$I = 5000$ ma

$\Delta x = 50'$, $\Delta X = \frac{50}{2500} = 0.02$

$\Delta y = 100'$, $\Delta Y = \frac{100}{2500} = 0.04$

$\boxed{G(X,Y)}$

line		0E/W	1E&1W	2E&2W	3E&3W	4E&4W	5W
±x	±y	0.00	0.04	0.08	0.12	0.16	0.20
0.00	0	0.500	0.503	0.507	0.512	0.520	0.530
0.02	50	0.498	0.501	0.505	0.511	0.519	0.530
0.04	100	0.496	0.498	0.502	0.509	0.518	0.528
0.06	150	0.493	0.494	0.499	0.506	0.515	0.526
0.08	200	0.489	0.491	0.495	0.501	0.510	0.522
0.10	250	0.483	0.485	0.489	0.496	0.505	0.517
0.12	300	0.477	0.478	0.482	0.489	0.499	0.511
0.14	350	0.470	0.471	0.474	0.481	0.491	0.504
0.16	400	0.462	0.463	0.467	0.473	0.482	0.496
0.18	450	0.452	0.453	0.458	0.464	0.472	0.486
0.20	500	0.442	0.443	0.448	0.455	0.464	0.476
0.22	550		0.431	0.437		0.453	0.465
0.24	600		0.419	0.424		0.443	0.455
0.26	650		0.407	0.412		0.431	0.445
0.28	700		0.394	0.400		0.419	0.433
0.30	750		0.380	0.386		0.406	0.420
0.32	800		0.366	0.372		0.391	0.406
0.34	850		0.352	0.357		0.377	0.392
0.36	900		0.337	0.342		0.362	0.378
0.38	950		0.322	0.328		0.348	0.362
0.40	1000		0.307	0.313		0.334	0.349

995.5
992
988

Job 770

Gradient $50' = 2a$

$50'/\text{station}$

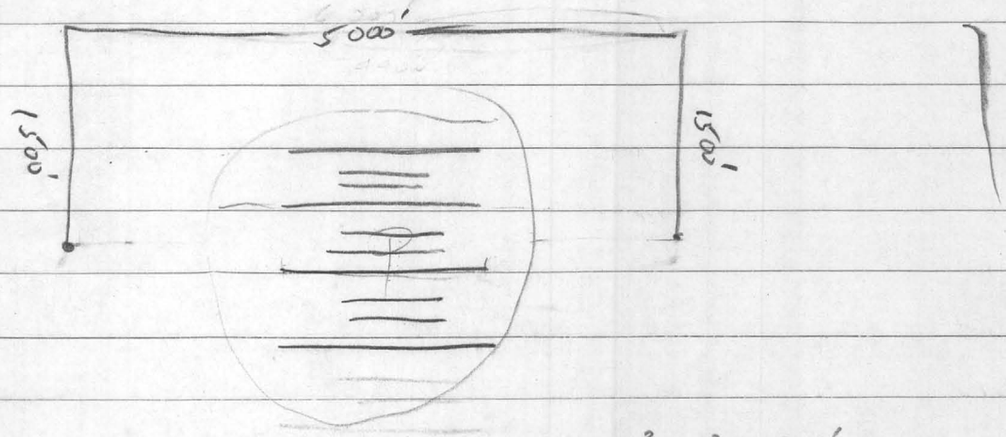
$100'$ line separation $4E \rightarrow 5W$

$1000'$ all

some $2000'$ $4E, 1E, 2W, 5W$

$\therefore 2l \geq 6000'$

Marina area



$$\frac{25}{\frac{50}{9}} \quad \frac{5\times10^3 \times 10^2 \times 5\times10^1}{5000\times100\times50} \times 0.5$$

$$\frac{5\times10^6}{8\times10^6}$$

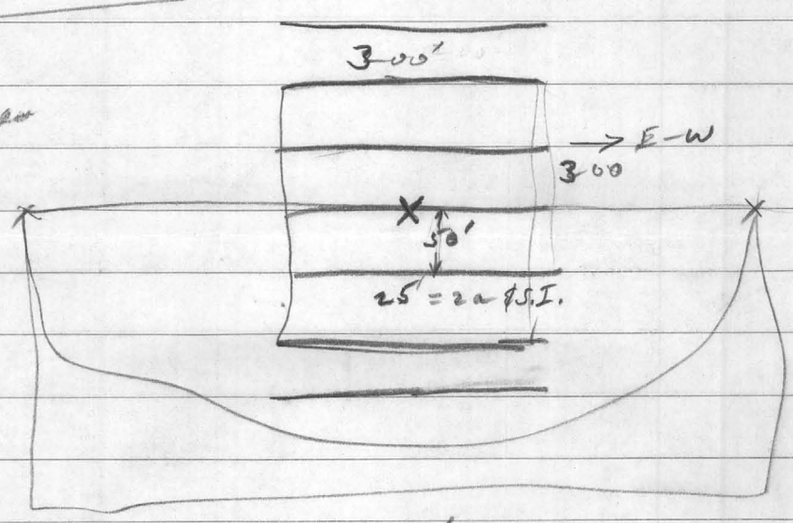
$$\frac{\rho}{2\pi} = \frac{V}{I}\frac{l^2}{2a}\,\mu \qquad 5.6\,\Omega V \rightarrow \delta$$

$$V = \frac{I(\rho/2\pi)(2a)}{\mu l^2}$$

$$Q = 0.5$$

$$\theta = \frac{0.6189 \times 3000 \times 1.732}{1000}$$

Sub area



10,000

50' 500'

1½

HEINRICHS GEOEX
GEOPHYSICAL ENGINEERS

HEINRICHS GEOEXPLORATION COMPANY
POST OFFICE BOX 5964 TUCSON, ARIZONA 85703
PHONE: 602/623-0578 CABLE: GEOEX, TUCSON

DIRECTION _____ HOLE NO. DDH 1 ROTARY ~~DRILLING~~
INCLINATION 90° PROPERTY Pico Claims
STARTED May 10, 1973 LOCATION 1W 400S.
COMPLETED May 11, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 105' COLLAR ELEVATION 1540
DATE May 10, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	Au oz/T	Ag oz/T	Pb %	Zn %
		4" CALACHE (CALICHE) Entire Sample							
		Alto. gray silicified lms, white lms							
		First Sample from Drill possible contamination				TR	0.10	TR	0.05
		Red alto. lms, white lms Split Sample							
		10'				TR	0.05	0.05	0.20
		Red alto. silicified lms Split Sample							
						0.05	0.15	0.35	0.60
		50% Red silicified lms 50% white lms. Split Sample							
		20'				TR	0.10	0.30	0.40
		" Split Sample							
						TR	0.15	0.25	0.40
		Red and 10% greenish alto. silicified lms. Split Sample							
		30'				TR	0.15	0.05	0.10
		Red silicified lms. Split Sample							
						TR	0.05	TR	0.05
		90% Red medium grained Qtzt. Split Sample							
		10% Red silicified lms							
		40				0.05	0.10	TR	0.20
		Red, gray, white Qtzt. Split Sample							
		Hard Drilling		<85%					
						0.05	0.40	0.05	0.60
		Brown quartzite with small sericite							
		Fragments in cuttings Split Sample							
		50				TR	0.35	0.60	1.00
		White, Red, Brown, Qtzt. Small sill? Split Sample							
		Argillized with 1% py.		<50%					
		Change from Rock Bit to				TR	0.20	0.20	0.30
		Down Hole Hammer							
		50% white, 50% red Qtzt. Split Sample		<50%					
		60				0.05	0.15	0.05	0.10
		White Qtzt. Occasional lt. green mineral on							
		fractures.		<50%					
						TR	0.20	0.05	0.10
		50% white, 50% Red Qtzt. Entire Sample							
				<50%					
		70				TR	0.25	0.10	0.35
		Red Qtzite							
		B.T stuck water and		<25%					
		oil down hole poor sample.				0.05	0.15	0.10	0.20
		60% white, 40% Red Qtzt.							
		Possible contamination from		<80%					
		80 water and oil				0.05	0.30	0.10	0.20
		Red Qtzt with rounded Diabase Split Sample							
		Peabbles. Peabbles are weathered Easier Drilling		90%					
						0.05	0.15	0.15	0.25
		As above ~~Clay Content~~. ~~Sample Fines~~ ~~Much~~		100%					
		~~Clay best as best~~. Split ~~Entire~~ Sample				TR	0.15	0.15	0.30

HEINRICHS GEOEXPLORATION COMPANY

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HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. 1 Rotary
INCLINATION 90° PROPERTY Pico
STARTED May 10 1973 LOCATION 1W 4S
COMPLETED May 11 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 105' COLLAR ELEVATION 1540
DATE May 10, 1973 NOTES BY Wm. Vaughn Smith SHEET 2 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	CORE ASSAYS SECT.	Au	Ag	Pb	Zn		
		Conchomerate as above > chay content Entire sample chay host as dust causing < in sample recovery		40%		TR	0.05	0.10	0.25		
		Moderately chayey conghomerate		40%		TR	0.10	0.10	0.20		
		100 chayey conghomerate		35%		TR	0.10	0.10	0.20		

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HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DDH #2 20' ROTARY 54' CORE
INCLINATION 90° PROPERTY Pico
STARTED May 13, 1973 LOCATION 0.5W 0N
COMPLETED May 17, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 74 COLLAR ELEVATION 1570
DATE May 21, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 1 SHEET

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	Au oz/T	Ag oz/T	Pb %	Zn %
	S.L. ALTD. LMS.	GRAY LIMESTONE 60% ROTARY HAMMER RED ALTERED LIMESTONE 40% Slightly silicified MINOR CHERT			0	TR	0.30	0.05	0.90
		GRAY LIMESTONE 70% ROTARY HAMMER WHITE LIMESTONE 10% 10 RED ALTERED LIMESTONE 20%				0.005	0.90	0.10	0.95
		GRAY LIMESTONE 80% ROTARY HAMMER RED ALTERED LIMESTONE 20% MINOR CHERT				TR.	0.15	0.05	0.75
		GRAY LMS 80% ROTARY HAMMER RED ALTERED LIMESTONE 20% 20 MINOR CHERT				TR.	0.35	0.10	0.80
		2' RED AND brown ALTD LIMESTONE WITH CHERT CORE 2' GRAY MOTTLED LMS. WITH RED ALTD. LMS. LMS slightly silicified							
	S.L. ALTD. LMS. breccia	1' BRECCIATED GRAY AND RED LMS. WITH 1/10 IN CALCITE VEINS		100%		0.005	0.35	0.05	0.60
		1' BRECCIATED GRAY LMS WITH clay AN MN. OXIDES CORE 1' RED ALTD LMS. & 6" GRAY LMS WITH CALCITE VEINS. 1.5' FRACTURED GRAY LMS					0.30	0.05	0.90
		30 1' BRECCIATED RED BROWN MOTTLED LMS.		100%		0.005	~~TR~~	~~TR~~	~~0.55~~
		ALTD. brown AND RED ALTD LMS 2" CHERT NEAR TOP. 2" CHERT 3' ALTD LMS slightly silicified CORE BRECCIATED ZONE 32-40' WITH RECRYSTALLIZED LMS		100%		0.005	0.30	TR	0.55
	S.L. ALTD. LMS. breccia	COMMON MN OXIDE STAIN ON FRACTURES CORE @ 3% clay AND SERICITE IN FRACTURE ZONES 40 COMMON CHERT breccia FRAGMENTS. CALCITE		100%		TR	0.45	TR	0.65
		LINING OPEN CAVITIES CORE MASSICOT observed on galena pseudomorphs on fracture MN OXIDES ON FRACTURE SURFACES		100%		TR	0.15	0.05	0.80
		BRECCIATED RED ALTD LMS WITH CHERT CORE MN. OXIDE MINERALS COMMONLY COAT CALCITE IN FRACTURES slightly silicified 50		100%		TR	0.25	0.05	0.80
		BRECCIATED ALTERED SILICIFIED LMS. CORE SERICITE OCCASIONALLY OBSERVED SMALL AMOUNTS MN. OXIDE MINERALS IN FRACTURES		100%		0.005	0.35	TR	0.35
		Porous siliceous breccia WITH RED ALTD LMS. ANKERITE? AND CALCITE LINING OPEN CAVITIES MN. OXIDE MINERALS SPORADICALLY PRESENT. 60		100%		TR	0.35	TR	0.40
		RED ALTD. LMS No SOLID CORE RECOVERED MN. OXIDES ON FRACTURES. all rock FRAGMENTS		40%		TR	0.15	TR	0.95
		≈ GRAY AND RED ALTD LMS No SOLID CORE RECOVERED 70		30%		TR	0.10	0.05	0.20
		RED SILICIFIED LMS. No SOLID CORE RECOVERED		20%		0.005	0.15	0.05	0.30
		80							

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HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DDH #3 ROTARY
INCLINATION 90 PROPERTY Pico
STARTED May 17, 1973 LOCATION 0.5 W 0.25 N
COMPLETED May 22, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 178 COLLAR ELEVATION 1570
DATE May 23, 1973 NOTES BY Wm. Hovey Smith SHEET 1 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au oz/T	Ag oz/T	Pb %	Zn %
	S.L. ALTD LMS.	80% GRAY AND WHITE LMS. 20% ALTD RED SLIGHTLY SILICIFIED LMS.				TR.	0.15	0.10	0.30
		50% GRAY LMS. 50% ALTD RED. LMS 10				TR	0.20	0.10	0.45
		70% GRAY LMS 20% ALTD RED LMS 10% CHERT FRAGMENTS AND CLAY				TR	0.35	0.20	0.60
		60% WHITE LMS 30% ALTD. RED LMS 20 10% CHERT				0.010	0.95	0.90	0.60
		60% GRAY LMS 40% ALTD RED LMS				0.005	0.50	0.10	0.70
		50% GRAY LMS 45% ALTD. RED LMS SLIGHTLY SILICIFIED 30 5% CALCITE VEIN MATERIAL				TR	0.40	0.15	0.70
		80% GRAY LMS 20% ALTD RED SILICIFIED LMS				TR	0.45	0.20	0.75
		60% GRAY RECRYSTALLIZED LMS. 30% RED ALTD LMS 40 10% WHITE ALTD LMS WITH SERICITE				TR	0.35	0.20	0.60
		80% ALTD RED LMS 10% WHITE LMS 10% STRONGLY SILICIFIED LMS				0.005	0.70	0.20	0.55
		80% ALTD SILICIFIED LMS 20% GRAY LMS 50 COMMON MNOXIDE STAINING.				TR	0.60	0.10	0.35
		60% GRAY LMS 20% ALTD RED LMS 10% WHITE ALTD LMS WITH SERICITE				TR	0.45	0.05	0.45
		90% RED ALTD. SILICIFIED LMS. 10% QUARTZ 60				0.05	0.45	0.05	0.40
		50% ALTD. RED SILICIFIED LMS 40% BROWN ALTD LMS. 10% QUARTZ AND CLAY				TR	0.35	TR	0.50
	S.L. ALTD. LMS. breccia	80% ALTD RED LMS SOFT DRILLING HOLE CAVING 20% GRAY LMS 70				TR	0.15	TR	0.35
		70% ALTD RED LMS. SOFT DRILLING 25% GRAY LMS HOLE PLASTERED 5% WHITE CLAYEY LMS.				TR	0.30	0.10	0.40
		60% GRAY LMS. 30% ALTD RED LMS 80 10% PLASTER				TR	0.15	0.05	0.15
	S.L. ALTD. LMS.	80% COMPACT ALTD RED LMS. DRILLING CONDITIONS IMPROVE 20% GRAY LMS				0.005	0.15	0.05	0.25
		70% ALTD. RED LMS. 10% WHITE CLAYEY LMS. 20% GRAY LMS				TR	0.20	TR	0.15

HEINRICHS GEOEX
GEOPHYSICAL ENGINEERS

HEINRICHS GEOEXPLORATION COMPANY
POST OFFICE BOX 5964 TUCSON, ARIZONA 85703
PHONE: 602/623-0578 CABLE: GEOEX, TUCSON

DIRECTION _____ HOLE NO. DDH #3 ROTARY
INCLINATION 90 PROPERTY Pico
STARTED May 17, 1973 LOCATION 0.5W 0.25N
COMPLETED May 22, 1973 COLLAR COORD: N _____ E _____
SCALE: 10' = 1" DEPTH 178' COLLAR ELEVATION 1570
DATE May 23, 1973 NOTES BY Wm. Hovey Smith SHEET 2 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	CORE ASSAYS Au oz/T	Ag oz/T	Pb %	Zn %
		90% White chayey lms 10% Alto Red lms				TR	0.25	0.05	0.10
		60% White chayey lms 20% Alto Red lms 100 20% Pink chayey lms				TR	0.20	TR	0.05
		White to buff chayey lms common Mn dendrites				TR	0.25	0.05	TR
		White, buff, lt. green chayey lms. 110				0.005	0.30	TR	TR
		Lt. green chayey lms				0.005	0.20	0.05	TR
		70% Lt. green chayey lms 20% Gray lms 120 10% Alto Red lms				TR	0.15	TR	TR
		50% Lt. green chayey lms. 50% Medium grained red quartzite				TR	0.20	TR	0.05
		75% Lt. green chayey lms 20% Red quartzite 130 5% White quartzite				TR	0.20	TR	TR
		Lt. green and white chayey lms.				TR	0.15	TR	TR
		Lt. green and white chayey lms. 140				0.005	0.25	TR	TR
		Lt. green chayey lms with 1% small limonite masses				0.010	0.35	TR	TR
		Lt. green very chayey lms 150				0.005	0.15	TR	0.05
		White chayey lms.				TR	0.10	0.05	0.05
		Lt. green chayey lms with 2% limonite stained chays and red alto lms. 160				0.005	0.35	0.15	0.15
		Lt. green chayey lms. Few limonite stained fragments				0.010	0.10	0.10	0.10
		Lt. green chayey lms. <1% limonite and ~~veins~~ calcite fragments 170				0.005	0.35	0.05	0.10

HEINRICHS GEOEXPLORATION COMPANY

POST OFFICE BOX 5964 TUCSON, ARIZONA 85703
PHONE: 602/623-0578 CABLE: GEOEX, TUCSON

HEINRICHS GEOEX GEOPHYSICAL ENGINEERS

DIRECTION _____ HOLE NO. DDH #4 3? Rotary
INCLINATION 90° PROPERTY Pico
STARTED 22 May 1973 LOCATION 0.5 W ~~1.5~~ 100S
COMPLETED 25 May 1973 COLLAR COORD: N _____ E _____
SCALE: 1" = 10' DEPTH 170' COLLAR ELEVATION 1570
DATE 26 May 1973 NOTES BY Wm. Thoney Smith SHEET 2 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	CORE ASSAYS SECT.	AU	AG
		Light Green Chayey hms				TR	0.10
		Very chayey hms					
		100					
		90% light Green chayey hms. 10% Pink-buff hms Quartz vein fragments <1%				TR	0.10
		90% light Green chayey hms. 10% Red Quartzite					
		110					
		70% light Green chayey hms 30% Gray hms.				TR	0.15
		20% light Green chayey hms 80% Gray hms					
		120					
		Gray hms				TR	0.20
		80% Gray hms 10% White hms					
		130					
		80% White chayey hms 20% Gray hms				TR	0.10
		White chayey hms with subrounded 1-3mm Quartz Pebbles					
		140					
		Mostly well rounded hms and Quartzite Pebbles in a calcareous and argillaceous matrix.				0.005	0.15
		Soft chayey conglomerate					
		150				0.005	
		White chayey conglomerate with 1/4" Quartzite pebbles				0.005	0.25
		Red chayey conglomerate with well rounded 1/4"-3/8" Quartzite Pebbles					
		160					
		Red chayey conglomerate				TR	0.25
		Red chayey conglomerate with 2" of hard Red Quartzite at bottom of hole. Hole making					
		170 WATER.				TR	0.20

HEINRICHS GEOEXPLORATION COMPANY

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SCALE: 1" = 10' DEPTH 170' COLLAR ELEVATION 1570
DATE 26 May 1973 NOTES BY Wm. Harvey Smith SHEET 1 OF 2

LITHOLOGY	MINERAL	ROCK TYPE - GEOLOGY	SURV.	% CORE RECV'D	SECT.	Au OZ/T	Ag OZ/T	Pb %	Zn %
		Soil, Dark Gray lms, Red silicified lms.				0.005	0.25		
		60% Gray silicified lms 20% Alto. red lms 10 10% White Quartz				TR	0.20		
		90% Dark Gray silicified lms. 5% Red Alto lms 5% White Quartz				TR	0.20		
		90% Gray lms 10% Red Alto. lms. 20				TR	0.30		
		90% Gray lms 10% Red Alto. lms.				0.005	0.35		
		Gray lms. 30				0.005	0.20		
		70% Buff-Pink lms 20% Gray lms.				TR	0.15		
		70% Buff-Pink lms. 20% Gray lms. 40 10% Red Alto lms.				TR	0.15		
		80% Gray lms. 10% Buff lms. 10% Alto Red lms.				TR	0.20		
		80% Gray lms. 10% Dark Gray lms. 50 10% Red Alto lms.				TR	0.10		
		White to light Green chayey lms				0.005	0.20		
		Light Green chayey lms with Manganese dendrites 60							
		50% Light Green chayey lms 50% Red-Buff Quartzite				TR	0.25		
		50% Light Green chayey lms 50% Red-Buff Quartzite 70							
		50% Light Green chayey lms 50% Red-Buff Quartzite				0.005	0.15		
		80% Light Green chayey lms 20% Red Quartzite 80							
		80% Light Green chayey lms 20% Red Quartzite				0.005	0.15		
		90% Chayey lms 10% Red Quartzite							

JOB# 770 LINE# OE SP 1&2 a = 50' LOOKING West

CLIENT N.A.M. Inc. DATE May 1973 FREQUENCIES 0.3 & 3.0 Hz

AREA Pico

Pz π @ 3.0 hz

NORTH AMERICAN MINES, INC.
50 Congress Street, Room 525
Boston, Mass. 02109

June 4, 1973

HEINRICHS
GEOEX
Cable: GEOEX

REC'D JUN 5 1973

BOX 5964 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

Mr. Richard Clemans
Attorney At Law
1104 North Pinal Avenue
Casa Grande, Arizona 85222

Re: Pico Property, Casa Grande Mining District

Dear Mr. Clemans:

This letter is to give you formal notification that North American Mines, Inc., is terminating its Option Agreement concerning the Pico claims pursuant to Section 7 of our Agreement dated January 22, 1973.

During the course of our exploration, North American Mines, Inc., drilled four holes and conducted other geological and geophysical studies of the property. Unfortunately, the results of our testing did not give us sufficient encouragement to merit continuation of the project. A report, including the geological and geophysical work, maps and assays of the drill holes is presently being prepared by Heinrichs Geoexploration Co.

Pursuant to Section 7 of the Agreement, the owners may pick up any available core from the property at their expense. This is to advise you that cuttings from three rotary drill holes are presently stored on a twenty-day temporary storage lease at the Jacobs Assay Office, 1435 South 10th Avenue, P. O. Box 1889, Tucson, Arizona 85702. The core from the one diamond drill hole is presently stored at the Heinrichs Geoexploration Co. office, 808 W. Grant Road, Tucson, Arizona 85705.

An affidavit of performance of assessment work will be prepared upon completion of the above report and will be forwarded to you in due course.

Very truly yours,

Quincy A. Shaw
President

cc: Ira Wagnon
Walter E. Heinrichs, Jr.

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

RICHARD G. CLEMANS
ATTORNEY AT LAW
1104 NORTH PINAL AVENUE
CASA GRANDE, ARIZONA 85222
836-2450

June 8, 1973

HEINRICHS
GEOEX
Cable: GEOEX
REC'D JUN 11 1973 REC'D
BOX 5964 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

Heinrichs Geoexploration Co.
808 W. Grant Road.
Tucson, AZ 85705

Dear Sir:

I have written to Mr. Wagnon in relation to cores you are holding re Pico Property, Casa Grande Mining District. It may be that we will not be able to pick the same up within the twenty days, but would you please hold the same until you hear further from either Ira Wagnon or myself.

Very truly yours,

Richard G. Clemans

RGC:ccm

cc: Ira Wagnon

MEMO
KK 42A

INSTRUCTIONS TO SENDER:
1. DETACH YELLOW COPY AND FILE FOR FOLLOW-UP.
2. SEND WHITE AND PINK COPIES.

INSTRUCTIONS TO RECIPIENT:
1. WRITE REPLY.
2. DETACH STUB AND KEEP WHITE COPY.
3. SIGN PINK COPY AND RETURN IT TO SENDER.

KOLOR KEY
Moore Business Forms, Inc.-s

PHELPS DODGE CORPORATION
WESTERN EXPLORATION OFFICE
DRAWER 1217
DOUGLAS, ARIZONA 85607
Phone: 602-364-8414

REINRICHS
GEOEX
Cable: GEOEX
BOX 5964 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

REC'D AUG 2 1973 REC'D

PLEASE REPLY BY

☐ REGULAR MAIL ☐ AIR MAIL ☐ WIRE ☐ PHONE

TO Chris Ludwig

DATE 8-1-73

SUBJECT Job #770

MESSAGE

Enclosed is the petrographic analysis on the core sample from Ira Wagnons property.

Job #770
DH #2

SIGNED

REPLY

RECIPIENT - Please sign and return pink copy

Orig Guard 383

PETROGRAPHIC ANALYSIS

Date 8/1/73 Sample Location Silver Reef Mtns Q 9-4-24-PM

Submitted by: P Mathews Petrographer SAW

Probable Original Mode	Present Mode	Notes
%	91 % anhydrite	
%	6 % quartz	
%	1 % hematite	? dust-like matter marginally replacing
%	2 % goethite	? the anhydrite; some FeOOH repl. FeS_2
%	1-1/2% hetaerolite	
%	%	
%	%	

Rock Name ..... Original Rock .....

Alteration: .....

Note: This material gives a 4 → 9 PFE per decade. Cause of 3 PFE gradient — D-D anomaly Job # 770

DIAMOND CORE DRILLING
ROTARY DRILLING
GROUTING
FOUNDATION TESTING
DIAMOND DRILLING EQUIPMENT
DRILLING ADDITIVES

Boyles Bros. DRILLING COMPANY

CONTRACTORS-ENGINEERS
General Offices and Plant
1624 Pioneer Road P. O. Box 58 Phone (801) 487-3671
SALT LAKE CITY, UTAH 84110
Cable: BOYLESCO
Telex: 388-321

BRANCH OFFICES
PHOENIX, ARIZONA
GOLDEN, COLORADO
SPARKS, NEVADA
SPOKANE, WASHINGTON
MURFREESBORO, TENNESSEE
IRONWOOD, MICHIGAN
SANTIAGO, CHILE cable: BOYLESBROS
LIMA, PERU cable: BOYLESCOP
MEXICO CITY, MEXICO telex: 001774546

INVOICE DATE: May 31, 1973
ORDER NUMBER:
INVOICE NUMBER:
CONTRACT: 6-655
TERMS:
LOCATION: Casa Grande, Arizona

Mr. Quincy A. Shaw
North American Mines, Inc.
c/o Heinrichs Geoexploration Co.
P. O. Box 5964
Tucson, Arizona 85703
ATTN: Mr. Wm. Hovey Smith

Hole No.	From	To	Footage	Rate	Total
DDH-1	0	105	105	6.25	656.25
DDH-2 (Rotary)	0	20	20	6.25	125.00
(Core)	20	74	54	14.00	756.00
DDH-3	0	170	170	6.25	1,062.50
DDH-4	0	170	170	6.25	1,062.50
Mobilization & Demobilization - Phoenix-Casa Grande & Return					500.00
Water Truck rent - May 9, 1973 thru May 25, 1973			17 Days	325.00	184.11
Water Truck mileage	8850	8887	37 Mi.	.20	7.40
NX Core Boxes			5 Boxes	1.35	6.75
Casing Time			½ Hrs.	37.00	18.50
Cement Time			9 Hrs.	37.00	333.00

DIAMOND CORE DRILLING
ROTARY DRILLING
GROUTING
FOUNDATION TESTING
DIAMOND DRILLING EQUIPMENT
DRILLING ADDITIVES

Boyles Bros. DRILLING COMPANY

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1624 Pioneer Road P. O. Box 58 Phone (801) 487-3671
SALT LAKE CITY, UTAH 84110
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BRANCH OFFICES
PHOENIX, ARIZONA
GOLDEN, COLORADO
SPARKS, NEVADA
SPOKANE, WASHINGTON
MURFREESBORO, TENNESSEE
IRONWOOD, MICHIGAN
SANTIAGO, CHILE cable: BOYLESBROS
LIMA, PERU cable: BOYLESCOP
MEXICO CITY, MEXICO telex: 001774546

INVOICE DATE: May 31, 1973
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INVOICE NUMBER:
CONTRACT: 6-655
TERMS:
LOCATION: Casa Grande, Arizona

Mr. Quincy A. Shaw
North American Mines, Inc.
c/o Heinrichs Geoexploration Co.
P. O. Box 5964
Tucson, Arizona 85703
ATTN: Mr. Wm. Hovey Smith

Hole No.	From	To	Footage	Rate	Total
Casting Plaster			8 Sks.	4.00	32.00
Portland Cement			2 Sks.	1.95	3.90
Air Quick (Foam			5 Gal.	6.25	31.25
Mud No. 2 (Quik Gel)			5 Sks.	3.18	15.90
			TOTAL BILLING		4,795.06

1435 S. 10th AVE.
P. O. BOX 1889

Jacobs Assay Office

Registered Assayers

PHONE 622-0813

Certificate No. 59134

TUCSON, ARIZONA 85702 May 30" 1973

Sample Submitted by Mr. Heinrichs GEOExploration. Proj # 769

SAMPLE MARKED	GOLD Ozs. per ton ore	GOLD Value per ton ore	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	Per cent Wet Assay	Per cent Wet Assay
DDH 4		$					
125-135'	Trace		0 10				
135-145'	0 005'		0 15'				
145-155'	0 005'		0 25'				
155-165	Trace		0 25'				
165-170	Trace		0 20				

HEINRICHS GEOEX
Cable: GEOEX
REC'D MAY 31 1973 REC'D
BOX 5064 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

REGISTERED ASSAYER
CERTIFICATE EXPIRES
1041
BENJAMIN P. JACOBS
DEC. 31 1973
Arizona U. S. A.

* Gold Figured $35.00 per oz. Troy

Charges $ 17.50

Very respectfully,

Ben P. Jacobs

1435 S. 10th AVE.
P. O. BOX 1889

Jacobs Assay Office

Registered Assayers

PHONE 622-0813

Certificate No. 59121

TUCSON, ARIZONA 85702 May 24th 1973

Sample Submitted by Mr. Heinrichs Hee Exploration Co Project #769

SAMPLE MARKED	GOLD Ozs. per ton ore	GOLD Value per ton ore *	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	Zinc Per cent Wet Assay	Per cent Wet Assay
D.D.H. 3 - 95-100	Trace	$	0.20		Trace	0.05	
100-105	Trace		0.25		0.05	Trace	
105-110	0.005		0.30		Trace	Trace	
110-115	0.005		0.20		0.05	Trace	
115-120	Trace		0.15		Trace	Trace	
120-125	Trace		0.20		Trace	0.05	
125-130	Trace		0.20		Trace	Trace	
130-135	Trace		0.15		Trace	Trace	
135-140	0.005		0.25		Trace	Trace	
140-145	0.010		0.35		Trace	Trace	
145-150	0.005		0.15		Trace	0.05	
150-155	Trace		0.10		0.05	0.05	
155-160	0.005		0.35		0.15	0.15	
160-165	0.010		0.40		0.10	0.10	
165-170 -	0.005		0.35		0.05	0.10	

* Gold Figured $35.00 per oz. Troy

Charges $ 97.50

Very respectfully,

Ben P. Jacobs

HEINRICHS GEOEX

Cable: GEOE

1435 S. 10th AVE.

P. O. BOX 1889

Jacobs Assay Office

Registered Assayers

RECD MAY 30 19

PHONE 622-0813

BOX 5064 TUCSON, ARIZONA 85703

TUCSON, ARIZONA 85702

Phone: (REA 602) 623-0578

Certificate No. 59122

May 25th 1973

Sample Submitted by Mr. Heinrichs Geoexploration Co. Project 769

SAMPLE MARKED	X	OZS- PER TON Au	Ag
DDH #4			
0-5		0.005	0.25
5-10		Trace	0.20
10-15		Trace	0.20
15-20		Trace	0.30
20-25		0.005	0.35
25-30		0.005	0.20
30-35		Trace	0.15
35-40		Trace	0.15
40-45		Trace	0.20
45-50		Trace	0.10
50-55		0.005	0.20

SAMPLE MARKED	X	OZS- PER TON Au	Ag
DDH #4			
55-65		Trace	0.25
65-75		0.005	0.15
75-85		0.005	0.15
85-95		Trace	0.10
95-105		Trace	0.10
105-115		Trace	0.15
115-125		0.005	0.20

REGISTERED ASSAYER
CERTIFICATE EXPIRES
1041
BENJAMIN P.
JACOBS
Dec. 31, 19 73
Arizona U. S. A.

* Gold Figured $35.00 per oz. Troy

Charges $ 63.00

Very respectfully,

Ben P. Jacobs

1435 S. 10th AVE.
P. O. BOX 1889

Jacobs Assay Office

Registered Assayers

PHONE 622-0813

DUPLICATE

Certificate No. 59120

TUCSON, ARIZONA 85702 May 23rd 1973

Sample Submitted by Mr. Heinrichs Geoexploration Co. Proj 769

SAMPLE MARKED	GOLD Ozs. per ton ore	GOLD Value per ton ore *	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	Zinc Per cent Wet Assay	..... Per cent Wet Assay
34826		$					
DDH 2- 20-25'	0.005		0.35		0.05	0.60	
25-30	0.005		0.30		0.05	0.40	
30-35'	0.005		0.30		Trace	0.55	
35-40	Trace		0.45		Trace	0.65	
40-45'	Trace		0.15		0.05	0.80	
45-50	Trace		0.25		0.05	0.80	
50-55'	0.005		0.35		Trace	0.35	
55-60	Trace		0.35		Trace	0.40	
60-65'	Trace		0.15		Trace	0.45	
65-70	Trace		0.10		0.05	0.20	
70-74	0.005		0.15		0.05	0.30	
DDH. 3- 0-5'	Trace		0.15		0.10	0.30	
5-10	Trace		0.20		0.10	0.45	
10-15'	Trace		0.35		0.20	0.60	
15-20	0.010		0.95		0.40	0.60	
20-25	0.005		0.30		0.10	0.70	
25-30	Trace		0.40		0.15	0.70	
30-35	Trace		0.45		0.20	0.75	
35-40	Trace		0.35		0.20	0.60	
40-45'	0.005		0.70		0.20	0.55	
45-50	Trace		0.60		0.10	0.35	
50-55'	Trace		0.45		0.05	0.45	
55-60	0.005		0.45		0.05	0.40	
(34849) 60-65	Trace		0.35		Trace	0.50	
5201 65-70	Trace		0.15	(15)	Trace	0.35	
70-75	Trace		0.30	(20)	0.10	0.40	
75-80	Trace		0.15		0.05	0.15	
80-85	0.005		0.15		0.05	0.25	
85-90	Trace		0.20		Trace	0.15	
(5206) 90-95'	Trace		0.25		0.05	0.10	

REGISTERED ASSAYER
CERTIFICATE EXPIRES
1041
BENJAMIN P.
JACOBS
DEC. 31, 73
Arizona U. S. A.

* Gold Figured $35.00 per oz. Troy

Very respectfully,

Ben P. Jacobs

Charges $ 195.00

1435 S. 10th AVE.
P. O. BOX 1889

Jacobs Assay Office

Registered Assayers

PHONE 622-0813

DUPLICATE

Certificate No. 59119

TUCSON, ARIZONA 85702 May 18 1973

Sample Submitted by Mr. Heinrich Geoexploration Co. Project 769

SAMPLE MARKED	GOLD Ozs. per ton ore	GOLD Value per ton ore *	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	ZINC Per cent Wet Assay	..... Per cent Wet Assay
034801-		$					
DDH-1- 0-5'	Trace		0.10		Trace	0.05	
5-10	Trace		0.05		0.05	0.20	
10-15	0.005		0.15		0.35	0.60	
15-20	Trace		0.10		0.20	0.40	
20-25	Trace		0.15		0.25	0.40	
25-30	Trace		0.15		0.05	0.10	
30-35	Trace		0.05		Trace	0.05	
35-40	0.005		0.10		Trace	0.20	
40-45	0.005		0.40		0.05	0.60	
45-50	Trace		0.35		0.60	1.00	
50-55	Trace		0.20		0.20	0.30	
55-60	0.005		0.15		0.05	0.10	
60-65	Trace		0.20		0.05	0.10	
65-70	Trace		0.25		0.10	0.35	
70-75	0.005		0.15		0.10	0.20	
75-80	0.005		0.30		0.10	0.20	
80-85	0.005		0.15		0.15	0.25	
85-90	Trace		0.15		0.15	0.30	
90-95	Trace		0.05		0.10	0.25	
95-100	Trace		0.10		0.10	0.20	
(34821) 100-105	Trace		0.10		0.10	0.20	
34822							
DDH-2- 0-5'	Trace		0.30		0.05	0.40	
5-10	0.005		0.40		0.10	0.45	
10-15	Trace		0.15		0.05	0.75	
15-20	Trace		0.35		0.10	0.80	

REGISTERED ASSAYER
CERTIFICATE EXPIRES
1041
BENJAMIN P.
JACOBS
Dec. 31, 73
Arizona U. S. A.

* Gold Figured $35.00 per oz. Troy

Charges $ 162.50

25 | 162.50 (6.50)
150
125

Very respectfully,

Ben P. Jacobs

PHONE (602) 887-2170

WELL DRILLING AND TESTING CONTRACTORS
EARTH MOVING CONTRACTORS

INVOICE No. A-551

A. A. McDANIEL
WELL AND MACHINE COMPANY, INC.

2838 RUTHRAUFF ROAD
TUCSON, ARIZONA 85705

11 May 1973

Mr. Quincy A. Shaw
North American Mines Inc.
c/o Heinrichs Geoexploration Co.
P. O. Box 5964, Tucson, Arizona 85703

		Grading Drill Pads				
3.5	Hours	D7F Dozer & Ripper		45	00	157 50
8	Hours	Peterbilt & Lowboy		27	50	220 00
			Total			377 50
			Arizona State Tax			11 32
			Total Due			$388 82

Thank You!

CHECKED AND APPROVED FOR PAYMENT.

BY: Wm. Hovey Smith
Wm. Hovey Smith
Geologist

GEOLOGIC EXAMINATION OF THE PICO CLAIMS

PINAL COUNTY, ARIZONA

by

Wm. Hovey Smith

for

NORTH AMERICAN MINES

March 1973
HEINRICHS GEOEXPLORATION COMPANY
Mineral Engineering Consultants and Contractors
P.O. Box 5964 Tucson, Arizona

GEOEX Job #770

GEOLOGIC EXAMINATION OF THE PICO CLAIMS

PINAL COUNTY, ARIZONA

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GEOLOGIC EXAMINATION OF THE PICO CLAIMS

PINAL COUNTY, ARIZONA

INTRODUCTION

Heinrichs GEOEXploration Company began work on the Pico Claims on February 19, 1973, and geologic field work was completed March 15. The examination included reconnaissance mapping of the claims and surrounding area, more detailed mapping of two areas within the claims, and surface sampling. The purpose of this work was to determine if there is potential for economically exploitable silver-lead mineralization.

The Pico Claims are located at the southwestern end of the Tat Momoli Mountains principally in Sections 24 and 26, T. 9 S., R. 4 E. of the Gila and Salt River meridian and include the Pico Ace; Pico No. 1, 2, 5, 7, and 8; and Sofpa No. 1 and 2. These claims lie within the Papago Indian Reservation fourteen miles southwest of Casa Grande.

Initial geologic mapping was done by Wm. Hovey Smith and Joseph Bernfeld.

CONCLUSIONS

The following conclusions were reached as a result of the investigation:

1. The Pico Claims have definite potential for economically exploitable silver-lead mineralization.

2. Most mineralization is in silicified shear zones, but important mineralization is also associated with dikes.

3. Past production has been from underground workings which yielded small high-grade orebodies.

4. In the Andesite adit and Ira's Camp areas, silicification and alteration may indicate the presence of near surface disseminated mineralization.

It is recommended that investigation of these claims continue. A detailed induced polarization study with incidental magnetic coverage should be done over the areas mentioned under item (4) above, followed by a program of shallow drilling. Roughly, the geophysics should cost under $5000.00 and require 2 or 3 weeks in the field and 1 or 2 in the office elapsed time.

GEOLOGY

The small hills which are covered by the Pico claims are primarily composed of sedimentary rocks which include the Escabrosa limestone (figure 1). Other units are possibly present, but were not positively identified. Both the Troy and Apache group quartzites are apparently in fault contact with the Escabrosa (Wilson, 1959). Throughout the claims the strike of the sediments is about N55W with northerly dips of 40-60 degrees.

Dikes and sills of intermediate to basic composition are common. Diabase dikes and a sill were found in the Apache group quartzites northeast of Ira's camp, a complex of small intrusives cuts the sediments on the western half of the hill near the camp, and a quartz-bearing pluton is suspected to underlie the northeastern quarter of the hill south of Ira's camp. An andesite sill or shallowly dipping dike partially controlled ore deposition in the Andesite Adit area (figure 3).

Tactite which varies in composition and consists of more or less garnet, massive magnetite and/or specularite, epidote, and calcite is found outcropping in irregularly shaped masses on the hill north of the

the Orizaba Mine. There is often minor malachite staining at or near the tactite-marble contact, and some staining in adjacent hornfels.

Structure

The structure is complex. In the northern part of the claims Mississippian Escabrosa limestone is in fault contact with late Precambrian Apache group quartzites. These units are probably separated by a normal fault with the Escabrosa on the down thrown block. In the southern part of the claims, the Escabrosa is apparently in fault contact with Troy quartzite. These units are also probably separated by a normal fault, but its position is concealed. There is also a possibility that these units are in thrust contact, but additional investigation will be necessary to resolve this point.

In addition to the hypothesized faults bounding the Escabrosa outcrop area, the limestones are broken by north-easterly trending shears which are important loci for mineralization. Little or no stratigraphic displacement is associated with these shears. Detail mapping in the Ira's camp area also revealed the presence of a conjugate shear set. Both are mineralized, but the northeasterly trending set usually is more intensely silicified and presumably better mineralized. There is some evidence to suggest a shallow dipping northeast striking shear zone in the Ira's camp area (Plate 1). A silicified breccia with altered limestone fragments covers a portion of the ridge-nose above the mine shafts and may be either a fault surface or breccia pipe. This point cannot be definitely resolved without drilling.

Mineralization and Alteration

Ore minerals identified include galena, pyrite, sphalerite, anglesite, bayldonite, malachite, azurite, cerussite, smithsonite, massicot, and platinerite. Undoubtedly this list is incomplete and other secondary lead, silver, zinc, and copper minerals are present. Most analyses reported small quantities of gold, and there are probably minute particles of native gold in the oxidized ores.

Galena is the most abundant sulfide seen in surface outcrop. It occurs in clots in silicified zones and the crystals are commonly surrounded by anglesite, massicot, and cerussite. Occassionally, galena pseudomorphs are found in oxidized veins. Sulfides were not commonly observed and most samples contain only oxidized ore minerals.

Ore minerals were found in silicified areas near shear zones, near dikes and sills, and in smaller silicified areas near tactite bodies. Limestones are recrystallized and lightly iron stained near silicified zones; and in areas of more intense alteration, calcite has been removed leaving an iron stained clayey residue. Andesite at the Andesite Adit is strongly argillized with plagioclase crystals replaced by white clay minerals. In other areas to the southeast of the adit, the andesite is less altered. Alteration here is probably due to low grade contact metamorphism rather than hydrothermal activity. Epidote is found along fractures, biotite appears chloritized, and probably secondary magnetite has been formed. The events which caused this metamorphism were probably responsible for tactite formation.

Near the Orizaba mine the Troy quartzite is bleached near mineralized fractures, but no other alteration effects were recognized.

Sampling and Analyses

A total of 63 samples were taken (figure 2). They were analyzed for gold, silver, copper, lead, and zinc by Jacobs Assay Office in Tucson, Arizona; and 10 of the 63 samples reanalyzed for silver and copper as well as for molybdenum by Rocky Mountain Geochemical Laboratories of Salt Lake City, Utah. Silver analyses by Jacobs were by fire assay, and determinations by Rocky Mountain were by atomic absorption.

Samples were mostly from pits, dumps, and trenches; except for four underground samples from the Andesite Adit, and one sample from a smaller adit to the south (figure 3). During sampling an attempt was made to take as nearly a representative sample as possible. Only two samples were "high graded" (sample numbers 4768 and 4798). Samples were sealed in new canvas bags and locked in the vehicle until they were delivered to the analyst. There is no reasonable possibility of sample to sample contamination or that the samples were tampered with.

Two types of possible analytical error were tested. The first test was to determine if homogeneous sample splits were analyzed. This was done by having the rejects reanalyzed by Jacobs. The second test was a measure of the absolute analytical accuracy to insure that no large errors were made. This was done by having the same sample splits analyzed by both Jacobs and Rocky Mountain.

Table 1. Check analyses (oz/ton)

sample no.	R.M. split no. 1	J. split no. 1	J. split no. 2	mean % error J. no. 1 vrs J. no. 2
4754	0.61	1.70	1.25	15.5
4758	0.32	0.25	0.40	24.2
4767	8.17	9.00	9.15	0.9
4768	19.83	20.00	23.55	8.1
4773	0.43	0.60	0.75	11.7
4774	0.09	0.20	0.15	16.7
4776	0.09	0.15	0.15	0.0
4786	0.20	0.25	0.25	0.0
4790	0.05	0.15	0.20	16.7
4793	0.61	0.35	0.25	16.7

The average mean percent error of 11.05 percent indicates that the samples were not finely enough ground and/or insufficiently mixed to give uniform splits. Better sample preparation in the laboratory will significantly reduce this error. With the exception of the first sample analyzed (4754), the Rocky Mountain analyses compare sufficiently closely with Jacobs' to indicate that there is no major analytical error. It appears possible that number 4754 was the first sample run in this series before the A.A. unit had warmed sufficiently to give reliable data. Greater reliance should be given to the fire assay data for silver in amounts over 0.5 ounces per ton because of possible interference using the A.A. technique.

The same samples listed in Table 1 were also analyzed for molybdenum by Rocky Mountain. No possible economic quantities of molybdenum were detected.

Table 2. Molybdenum, copper, and silver analysis by Rocky Mountain Geochemical Corporation (ppm)

sample no.	Mo.	Cu.	Ag.
4754	-1	155	21
4758	-1	30	11
4767	-1	235	280
4768	-1	650	680
4773	1	90	15
4774	23	455	3
4776	-1	10	3
4786	28	1800	7
4790	2	115	2
4793	10	405	21

AREA DISCUSSION

Andesite Adit

The Andesite Adit was mapped by Brunton and tape methods on a scale of one inch to 30 feet and incorporated into a sketch map to show the relationship of the adit to nearby workings (figure 3). Four samples were taken from this adit, one from a smaller adit to the south, and six from the remainder of the map area.

The Andesite Adit workings are irregular. Relative elevations of the workings are estimated with the floor of the adit entrance as datum. Laterals are approximately parallel to the strike of bedding and stopes are apparently along dip. These stopes appear to be in a bed under the andesite sill, as the sill was not cut by the workings. The sill is exposed for 60 feet east of the portal. A shaft near the adit penetrated an estimated 40 feet of andesite and 5 feet of marble. The marble is not significantly mineralized nor silicified.

It appears that the andesite sill may have exerted only local control over mineralization near a fault which marks the andesite limestone contact. This fault is traceable for approximately 1000 feet along the eastern flank of the hills, and there are a series of pits along strike (figure 1). The strongest area of silicification is exposed from the Andesite Adit south to the pit where sample 4766 was taken (figure 3). Silicification is sufficiently strong to obscure the trace of the fault.

Samples from the Andesite Adit and its dump contain more zinc than was observed elsewhere as well as moderate silver values.

Table 3. Andesite Adit samples

sample no.	analytical results Au oz/ton	Ag oz/ton	Cu%	Pb%	Zn%
4760	0.005	0.70	0.04	0.6	1.0
4761	0.01	2.25	0.02	0.7	7.4
4762	0.02	2.20	Trace	0.6	3.7
4763	0.005	1.45	Trace	0.6	0.9
4771	0.005	3.75	0.02	1.8	2.9

The sample which reported the highest silver values was taken from the surface of a freshly blasted silicified area which exposed some oxidized galena. Sample 4768 from a high grade pile assayed 0.02 oz/ton gold, and 20.0 oz/ton silver; and representative sample of the entire area assayed 9.00 oz/ton silver. These values probably nearly represent the grade of ore mined in the Andesite Adit (figure 3).

The fault at the andesite-limestone contact and the resulting silicificated area should be tested by detailed I.P. coverage and four 200 foot drill holes. There is also a fault which is known to be mineralized

which strikes toward the Andesite Adit from Pico no. 8. The intersection of this fault, the sill, and its bounding fault may have localized mineralization east of the Andesite Adit; and this area should also be covered by I.P.

Ira's Camp

The ridge nose south of Ira Wagnon's camp where the Sofpa shafts are located was mapped on a scale of one inch to 40 feet by plane table methods (plate 1 in pocket). A total of 19 samples were taken from pits, dumps, and trenches in this area, but the underground Sofpa workings were not examined.

A strongly silicified area measuring about 350 by 120 feet was identified and found to be bordered by an area of weaker alteration. Highly silicified carbonate rocks are cut by fine reticulating quartz veinlets and a few larger silicified shear zones. The contact between the highly silicified and moderately silicified units is subjective and gradational. The moderately silicified area contains fewer quartz veinlets and more unaltered carbonate rocks.

Several distinct, steeply dipping shear zones were mapped within the silicified area. There is a strong northeasterly trending set and a weaker conjugate set. The presence of these shear zones may indicate a stockwork orebody; however, another possible interpretation is that this is a low angle silicified fault breccia. Drilling will be necessary to resolve this question.

Carbonate units present in the map area include a soft punky limestone at the limit of outcrop to the south. This is succeeded in the

section by a buff colored carbonate with shaley partings, which is overlain by the gray massive limestone with occasional crinoidal beds typical of the Escabrosa formation. The latter forms the prominant bluff to the west of the map area and forms most of the ridge nose.

A small outcrop of presumed Apache group quartzite was mapped south of the Sofpa shafts. This outcrop is similar in appearance to the Apache group quartzites found north of Ira's Camp.

A medium to fine-grained diorite intrusive is poorly exposed in the northwestern portion of the map area. Some resistant fragments of this rock were found which contain up to three percent pyrite. Because of poor exposure, the configuration of this intrusive is unknown. I.P. results may help in this regard.

Samples from the map area indicate that the silicified rocks are mineralized. Sample 4798, which was a high graded sample from the Sofpa dump, contained 13.05 oz/ton silver and a representative sample from the surface of the dump (4797) contained 5.90 oz/ton silver.

Table 4. Samples Ira's Camp area

sample no.	analytical results Au oz/ton	Ag oz/ton	Cu%	Pb%	Zn%
4792	0.005	0.40	0.02	0.1	0.3
4793	Trace	0.35	0.03	0.1	0.2
4794	0.01	1.95	0.11	1.2	1.2
4795	0.01	2.15	0.02	0.2	0.1
4796	0.005	1.15	0.02	0.1	0.2
4797	0.01	5.90	0.11	1.0	0.5
4798	0.02	13.05	0.40	3.5	3.6
4799	Trace	0.50	0.02	0.1	0.7
4801					
4802					
4803					
4804					
4805					
4806					
4807					

Table 4 (Cont.) Samples Ira's Camp area

sample no.	analytical results Au oz/ton	Ag oz/ton	Cu%	Pb%	Zn%
4801	Trace	0.15	0.03	Trace	0.7
4802	Trace	0.25	0.02	Trace	0.6
4803	0.01	2.00	0.05	3.6	0.7
4804	0.005	0.55	0.03	0.3	0.3
4805	0.02	3.75	0.18	3.4	1.3
4806	Trace	0.40	0.03	0.2	0.5
4807	0.005	0.75	0.05	0.5	0.7

The widespread, but relatively small quantities of silver mineralization in the samples reflect superficial impoverishment because of leaching. Sample 4779 probably more nearly indicates the general tenor of mineralization. The fact that some detectable quantity of silver was found in every sample is encouraging.

A detailed I.P. survey over the Ira's camp area is recommended to locate hot spots of sulfide mineralization which would guide future drilling. Based on the results of this investigation and the I.P. survey results, probably not less than four 150 foot holes should be planned to properly test the silicified area. Drilling would prove whether the silicified rocks on the surface indicate a stockwork ore body at depth, or whether they are superficial features; and also give more reliable information about silver values.

REFERENCES

Wilson, Eldred D., and Moore, R. T., 1959, Geologic map of Pinal County, Arizona: University of Arizona, Arizona Bureau of Mines.

Submitted by:

Wm. Hovey Smith
Geologist

for:

Walter E. Heinrichs, Jr.
President

WHS:oek
cc: Enclosed
April 4, 1973
P.O. Box 5964
Tucson, AZ 85703

HEINRICHS GEOEXPLORATION COMPANY
Box 5964, Tucson, Arizona 85703
Ph: (602) 623-0578

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DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
19 Feb. '73	4751	Dump	Au TR. Ag 0.40 Cu 0.02 Pb 0.3 Zn 0.1	Sample Location	Composite sample, 3 dumps of old workings, Orizaba mine. White, medium grained quartzite, red medium grained quartzite and brecciated quartzite druzes. Quartz crystals, sparse Cerussite, Anglesite, Malachite, Smithsonite (?).	
19 Feb. '73	4752	Rock Chip	Au TR. Ag .35 Cu .04 Pb .1 Zn TR.	Sample Location	30' of West wall of Orizaba pit, including a 1' vein (N55°W, 50°S) with oxidized lead and Copper minerals. Red (predominating) and white banded fractured quartzite. From vein: Malachite, Anglesite and Cerussite. White banding from leaching and redeposition of Fe. Some mineralization in leached areas of quartzite (disseminated).	
19 Feb. '73	4753	Rock Chip	Au .01 Ag .75 Cu .02 Pb .3 Zn .1	Sample Location	20' of Northeast wall of old Orizaba pit. Red Quartzite, locally bleached near veins and fractures (N60°E, 60°S). Some Cerussite pseudomorphs after Galena. 10' brecciated zone (N80°W, 85°S) and a "flat" ~~area~~ of originally more calcareous sediment. ~~exist.~~	
19 Feb. '73	4754	Dump	Au .01 Ag 1.70 Cu TR. Pb .5 Zn .3	Sample Location	15' wide altered zone in dolomite. Some samples silicified with sulfide casts. Alteration is Argillic; no silicification except in local areas, Largest block of silicified vein material 6". No identifiable minerals.	
20 Feb. '73	4755	Rock Chip	Au TR. Ag .15 Cu .02 Pb TR. Zn .3	Sample Location	6" to 5' wide dense silicified hornfels zone with sparse copper staining. In contact with 6" to 1' thick garnet-epidote-calcite Tactite band (sample No. 4756) which in turn contacts marble. Reticulating fractures with Fe oxide staining present.	
20 Feb. '73	4756	Rock Chip	Au .005 Ag .20 Cu .02 Pb .1 Zn 1.5	Sample Location	From pit in silicified zone (sample No. 4755). 75% marble, 20% garnet-epidote-calcite Tactite, 5% hornfels (N85°W, N75° irregular dip). Local concentrations of Malachite on marble at Calcite-Tactite contact. Cerussite and Baylonite (?) identified. ~~in druze sample~~.	
20 Feb. '73	4757	Rock Chip	Au TR. Ag .10 Cu TR. Pb .2 Zn TR.	Sample Location	8' wide by 20' long silicified zone striking N53°W. Tactite zone near center, no sulfides visible, but gray fractured quartz with ~~and~~ calcite cast ~~in quartz present~~.	
20 Feb. '73	4758	Rock Chip	Au .01 Ag .25 Cu TR. Pb TR. Zn .2	Sample Location	More than 100' long and up to 30' wide silicified zone striking N35°E, dipping (irregularly) about 40°S. Reticulating network of quartz veinlets, incomplete replacement of ~~Dolomite~~ LIMESTONE and unreplaced but recrystallized sections in vein.	

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DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
20 Feb. '73	4759	Rock Chip	Au TR. Ag .10 Cu .03 Pb TR. Zn TR.	Sample Location		silicified hornfels near end of trail to survey station. Some nearby magnetic float material but no indication of mineralization at sample site.
20 Feb. '73	4760	Rock Chip	Au .005 Ag .70 Cu .04 Pb .6 Zn 1.0	Andesite Adit		Underground sample, from pillar below ladder in S.E. winse. 3' of silicified Dolomite with vuggy areas formerly containing oxidized pb-ag (?) minerals.
20 Feb. '73	4761	Rock Chip	Au .01 Ag 2.25 Cu .02 Pb .7 Zn 7.4	Andesite Adit		Underground sample from most of S.E. face of S.E. winse. 3' of silicified Dolomite and altered Dolomite. No recognizable minerals seen on dirty face.
20 Feb. '73	4762	Rock Chip	Au .02 Ag 2.20 Cu TR. Pb .6 Zn 3.7	Andesite Adit		Underground sample of 4' area with 2' of silicified ~~Dolomite~~ LIMESTONE, 2' of dark gray altered ~~Dolomite~~ LIMESTONE, as well as 1' of red mottled altered ~~Dolomite~~ LIMESTONE on N.E. wall of passage from adit to S.E. winse.
20 Feb. '73	4763	Rock Chip	Au .005 Ag 1.45 Cu TR. Pb .6 Zn 0.9	Andesite Adit		Underground sample from end of N.W. winse. Breccia from silicified ~~Dolomite~~ LIMESTONE, Anglesite (?) masses with cerussite in local areas.
21 Feb. '73	4764	Rock Chip	Au TR. Ag .50 Cu .02 Pb .2 Zn .2	Andesite Adit		20' of silicified ~~Dolomite~~ LIMESTONE Near E. contact of Andesite sill. Silicified ~~Dolomite~~ LIMESTONE variegated white, purple and red, separated from Andesite by 6" gouge zone. Some dark druzes present, but no identifiable ore minerals.
21 Feb. '73	4765	Unknown	Au .01 Ag 1.35 Cu .08 Pb .5 Zn .1	Unknown		Ira Wagnon's sample of silicified ~~Dolomite~~ LIMESTONE? with light copper staining and yellow-green clay-appearing mineral.
22 Feb. '73	4766	Rock Chip	Au .01 Ag 1.35 Cu .02 Pb .9 Zn .6	Andesite Adit		Newly blasted silicified ~~Dolomite~~ LIMESTONE at surface near pit on Andesite - ~~Dolomite~~ LIMESTONE contact. 20' of silicified ~~Dolomite~~ LIMESTONE exposed, very vuggy with oxidized Pb and Zn minerals. ~~and~~ Plattnerite. TENTATIVELY IDENTIFIED.

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DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
22 Feb. '73	4767	Rock Chip	Au .02 Ag 9.00 Cu .03 Pb 2.7 Zn 1.0	Andesite Adit		Fresh surface exposure above andesite adit. Collected within a 30' diameter circle. Silicified ~~Dolomite~~ LIMESTONE with much dark staining and Mn oxides.
22 Feb. '73	4768	Rock Chip	Au .02 Ag 20.0 Cu .08 Pb 7.2 Zn .7	Andesite Adit		High grade ore pile from site of sample 4767. Residual galena, Anglesite, Massicot, Cerussite and muck dark Mn staining.
22 Feb. '73	4769	Dump	Au TR. Ag .65 Cu TR Pb .3 Zn .9	Andesite Adit		Porphyritic Biotite Andesite; gray, weathering brown. Plagioclase phenocrysts up to 2 m.m. long.
22 Feb. '73	4770	Dump	Au TR. Ag .20 Cu TR Pb TR Zn .3	Andesite Adit		medium grained, white marble, veined with Limonite, quartz and Epidote. Some quartz is recrystallized chert. From same dump as sample 4769.
22 Feb. '73	4771	Dump	Au .005 Ag 3.75 Cu .02 Pb 1.8 Zn 2.9	Andesite Adit		Screened dump of Andesite Adit. Silicified ~~Dolomite~~ LIMESTONE with siderite or Mn-containing siderite veinlets. Much of dump is darkly stained, some Cu staining noted, No Andesite observed. ~~here.~~
22 Feb. '73	4772	Dump	Au TR. Ag .25 Cu .02 Pb .1 Zn .2	Sample Location		Dump from shaft near center of claim: altered Andesite and Silicified ~~Dolomite~~ LIMESTONE (?). One tiny Galena fragment observed but no other identifiable ore minerals.
22 Feb. '73	4773	Rock Chip	Au .005 Ag .60 Cu .03 Pb .4 Zn .6	Sample Location		40' diameter area surface exposure of silicified ~~Dolomite~~ LIMESTONE. Surface crop is Mn stained. No recognizable ore minerals.
22 Feb. '73	4774	Dump	Au TR. Ag .20 Cu TR Pb .2 Zn 1.0	Sample Location		Hematite-magnetite at marble-Andesite contact. N 25° W (?), Dip 42° E. Epidote, calcite and possibly garnet present.

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22 Feb. '73	4775	Dump	Au .01 Ag 2.35 Cu .03 Pb .2 Zn .3	Sample Location	Dump from shaft along claim line. Chlorite and silicified marble, hematite masses with coarsely crystalline calcite. Light green chlorite in altered Andesite.	
27 Feb. '73	4776	Rock Chip	Au TR ~~0.05~~ Ag 0.15 Cu TR. Pb 0.2 Zn 0.2	Sample Location	Fragmented gray Dolomite along face of N 60°W striking fault. Calcite and quartz cementing breccia fragments; weak alteration visible.	
27 Feb. '73	4777	Dump	Au 0.005 Ag 1.30 Cu 0.03 Pb 0.1 Zn 0.2	Sample Location	N-S striking fault zone with 10' of Altered reddish Limestone with areas of broken silicified material. No recognizable ore minerals.	
27 Feb. '73	4778	Dump	Au 0.005 Ag 1.65 Cu 0.02 Pb 0.2 Zn 0.3	Sample Location	Dump from prospect hole on N 50°E Striking fault zone. 3' wide silicified altered ~~Dolomite~~ LIMESTONE with reticulating quartz veinlets. No recognizable ore minerals.	
27 Feb. '73	4779	Rock Chip	Au 0.005 Ag 1.00 Cu TR. Pb 0.1 Zn 0.1	Sample Location	Silicified area in ~~Dolomite~~ LIMESTONE near Discovery Post on hill top. Calcite, Jasper, Limonite and Mn staining. No identifiable sulfides.	
27 Feb. '73	4780	Dump	Au TR. Ag 0.30 ~~TR.~~ Cu 0.53 ~~0.30~~ Pb TR ~~0.5~~ Zn 1.2 ~~TR~~	Sample Location	Dump from Shallow pit. Garnetite marble, with Cu stain and silicification. Tactite area 20'x50'	
28 Feb. '73	4781	Dump	Au 0.005 Ag 1.05 Cu 0.11 Pb TR. Zn 0.1	Sample Location	Dump from pit in x-bedded gray to purple ferrugenous sandstone, Brecciated quartzite with malachite and azurite staining particularly on fractures, some samples have a light yellow-green staining.	
28 Feb. '73	4782	Rock Chip	Au TR. Ag 0.35 Cu TR. Pb TR. Zn TR.	Sample Location	pit exposes a N50°E striking shear zone 4' thick. Quartzite walls and fragments, light yellow staining common in fracture zone.	

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DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
28 Feb. '73	4783	Dump	Au 0.01 Ag 1.50 Cu 0.11 Pb 1.9 Zn 0.5	Sample Location	Quartzite and silicified carbonate at Limestone-quartzite contact. Hole and shallow drift 15' long comprise the workings. Malachite staining on fractures and along bedding.	
1 Mar. '73	4784	Rock Chip	Au TR. Ag 0.40 Cu TR. Pb 0.1 Zn 0.1	Sample Location	From pit near portal of adit. Adit follows thin fracture zone ½" thick. Alteration, silicification and Iron staining in nearby thinly bedded limestone.	
1 Mar. '73	4785	Rock Chip	Au TR. Ag 0.15 Cu 0.02 Pb TR. Zn 0.2	Sample Location	Poorly exposed breccia zone about 4'-5' wide by 30'(?) long. Some quartzite fragments with Limonite staining in siliceous matrix. Sample of surface float.	
1 Mar. '73	4786	Dump	Au TR Ag 0.25 Cu 0.17 Pb TR Zn 0.3	Sample Location	From 4' by 8' dump in N70°E striking fault zone, dip about 83° S. Chrysocolla and Malachite staining on fractures and in veinlets.	
1 Mar. '73	4787	Dump	Au TR. Ag 0.15 Cu 0.09 Pb 0.1 Zn TR	Sample Location	Dump from shaft through basic sill in quartzite. Sill N50°W, dipping 45°N, 20' outcrop width, has small amount of malachite staining on bleached quartzite.	
1 Mar. '73	4788	Dump	Au 0.01 Ag 0.70 Cu 0.03 Pb 0.1 Zn TR	Sample Location	Dump from 30' shaft in quartzite. Iron oxide filled fractures.	
1 Mar. '73	4789	Dump	Au 0.01 Ag 0.80 Cu 0.02 Pb 0.1 Zn TR	Sample Location	Dump from 4'x 6' pit in altered intrusive. Red stained, altered silicified zone N65°E, dipping 85° S.E.	
1 Mar. '73	4790	Rock Chip	Au TR Ag 0.15 Cu 0.02 Pb TR Zn TR	Sample Location	4' from E. wall of 10'x10' hole sampled. Heavily red and yellow iron stained fractured quartzite. No recognizable ore minerals.	

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1 Mar. '73	4791	Rock Chip	Au 0.005 Ag 0.25 Cu 0.04 Pb 0.7 Zn 1.2	Sample Location		marble and Tactite, garnet and magnetite with slight amount of malachite staining. From 5'x5' pit 10' deep.
1 Mar. '73	4792	Dump	Au 0.005 Ag 0.40 Cu 0.02 Pb 0.1 Zn 0.3	~~Sample Location~~ Ira's Camp Area		High graded ore from dumps of pits in altered intrusive. One sample contains druze filled with flexable black hair-like crystals and quartz, selenite and Iron oxide filled fractures. Also brown siderite present.
1 Mar. '73	4793	Rock Chip	Au Tr. Ag 0.35 Cu 0.03 Pb 0.1 Zn 0.2	~~Sample Location~~ Ira's Camp Area		From 8' altered zone, 4' chip sample from face of altered intrusive, gouge and quartz vein material. One quartz vein 2" thick, one 4" thick.
2 Mar. '73	4794	Rock Chip	Au 0.01 Ag 1.95 Cu 0.11 Pb 1.2 Zn 1.2	~~Sample Location~~ Ira's Camp Area		From 8'x6'x8' pit exposing fault zone N75°-85°W, Dipping 44°N. Sample from 3 sides of pit: total of 9'. Altered limestone with light Cu staining on a few fragments. Quartz crystals to 2 m.m. in matrix between breccia fragments.
2 Mar. '73	4795	Rock Chip	Au 0.01 Ag 2.15 Cu 0.02 Pb 0.2 Zn 0.1	~~Sample Location~~ Ira's Camp Area		From pit in altered carbonate and gouge, irregular silicified area. 5' of fault N70°E, 60°S exposed in pit.
2 Mar. '73.	4796	Dump	Au 0.005 Ag 1.15 Cu 0.02 Pb 0.1 Zn 0.2	~~Sample Location~~ Ira's Camp Area		From dump in pit on N70°E striking shear zone, brecciated silicified limestone. Nearby brecciated zone strikes N10°W.
2 Mar '73	4797	Dump	Au 0.01 Ag 5.90 Cu 0.11 Pb 1.0 Zn 0.5	~~Sample Location~~ Ira's Camp Area		Dump of shaft south of Ira Wagnon's camp. 16 sample sites over surface of dump.
2 Mar '73	4798	Dump	Au 0.02 Ag 13.05 Cu 0.40 Pb 3.5 Zn 3.6	~~Sample Location~~ Ira's Camp Area		High grade sample from "ore piles" around W. side of main shaft of sample 4794. Moderate Cu staining, malachite, little chrysocolla and rare azurite cerussite (?). Also possibly oxidized zinc minerals.

HEINRICHS GEOEXPLORATION COMPANY
Box 5964, Tucson, Arizona 85703
Ph: (602) 623-0578

JOB NUMBER: 770
AREA: Pico Claims
Page 7 of

DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
2 Mar. '73	4799	Dump	Au TR Ag 0.50 Cu 0.02 Pb 0.1 Zn 0.7	~~Sample~~ ~~Location~~ Ira's Camp Area	From old pit at base of silicified zone N88E. Zone has a maximum width of 5'. Quartz and Siderite present, no sulfides observed. Alteration of carbonates extends 20' around area.	
2 Mar. '73	4800	Dump	Au TR Ag 0.20 Cu 0.04 Pb TR Zn 0.1	Sample Location	Dump sample of Quartzite breccia. Quartzite fragments, clay gouge, sparse silicified carbonate rock - some copper staining.	
15 Mar. '73	4801	Rock Chip	Au TR Ag 0.15 Cu 0.03 Pb TR Zn 0.7	Ira's Camp Area	Surface sample over 20' diameter circle of strongly altered and silicified limestone. Some brecciation, iron staining along fractures, some calcite filled veins. Zone apparently 50' wide and 200' long (or more).	
15 Mar. '73	4802	Rock Chip	Au TR Ag 0.25 Cu 0.02 Pb TR. Zn 0.6	Ira's Camp Area	Same zone as 4801 but uphill 100'. Limonite (?) staining gives dark reddish-brown appearance to weathered surface. Some small flecks of altered pyrite (?) visible internally. Zone forms 20' scarp on N. side of summit where it contacts unaltered limestone.	
15 Mar. '73	4803	Dump	Au 0.01 Ag 2.00 Cu 0.05 Pb 3.6 Zn 0.7	"	From 5'x5'x10' long pit in altered, brecciated material. Well fractured with silica in veins & vugs. Greater development of silicification than in 4801-02. Just downhill (15') of approx. N-S striking fault, dipping 80° E.	
"	4804	Rock Chip	Au 0.005 Ag 0.55 Cu 0.03 Pb 0.3 Zn 0.3	"	Brecciated, silicified quartzite; abundant quartz & breccia-filled veins, weathers to Mn-stained brown-black mottled with light tan spots. Sample taken over 20' diameter area. Some quartz crystals up to 2mm. long	
"	4805	Dump	Au 0.02 Ag 3.75 Cu 0.18 Pb 3.4 Zn 1.3	"	6'x6'x10' deep hole along well brecciated; Altered limestone. Abundant quartz along veins & between breccia fragments. Some Iron staining, some ~~material~~ material looks like low grade ore.	
"	4806	Rock Chip	Au TR. Ag 0.40 Cu 0.03 Pb 0.2 Zn 0.5	"	Chip sample of partly silicified, partly unaltered limestone.	

HEINRICHS GEOEXPLORATION COMPANY
Box 5964, Tucson, Arizona 85703
Ph: (602) 623-0578

JOB NUMBER: 770
AREA: Pico Claims
Page 8 of

DATE	SAMPLE NO.	TYPE	ANALYSIS	MAP REF.	SEC.-TWSP.-RANGE	DESCRIPTION
15 Mar. '73	4807	Dump	Au 0.005 Ag 0.75 Cu 0.05 Pb 0.5 Zn 0.7	Ira's camp Area		From 4'x 10' x 5' deep pit. Altered limestone, some brecciation & fracturing with quartz apparently filling many of veins. Crystal casts present in several samples.

ROCKY MOUNTAIN GEOCHEMICAL CORP.
P. O. BOX 337 • 1323 W. 7900 SOUTH • MIDVALE, UTAH 84047 • PHONE: (801) 255-3558
MIDVALE OFFICE

Certificate of Analysis

RMGC Numbers:
Local Job No.: 73-41-29SL-C
Foreign Job No.:
Invoice No.: M-972

Date: March 16, 1973

Client: Heinrichs Geoexploration Co.
P.O. Box 5964
Tucson, Arizaon 85703

Client Order No.: None

Report On: 10 samples

Submitted by: Mr. Wm. Hovey Smith

Date Received: March 12, 1973

Analysis: Copper, Molybdenum, Silver

Analytical Methods: Molybdenum determined colorimetrically; all others done by atomic absorption.

Remarks:

cc: Enc.
File (2)

LRR:kmm

HEINRICHS GEOEX
Cable: GEOEX
REC'D MAR 17 1973 REC'D
BOX 5964 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-0578

All values are reported in parts per million unless specified otherwise. A minus sign (—) is to be read "less than" and a plus sign (+) "greater than." Values in parenthesis are estimates. This analytical report is the confidential property of the above mentioned client and for the protection of this client and ourselves we reserve the right to forbid publication or reproduction of this report or any part thereof without written permission.

ND = None Detected 1 ppm = 0.0001% 1 Troy oz./ton = 34.286 ppm 1 ppm = 0.0292 Troy oz./ton

Heinrichs Geoxploration Date 3/16/73 RMGC Job No. 73-41-29SL-C

Sample No.	ppm Copper	ppm Molybdenum	ppm Silver	
4754	155	-1	21	.61
4758	30	-1	11	.32
4767	235	-1	280	8.17 oz/TON
4768	650	-1	680	19.83
4773	90	1	15	.43
4774	455	23	3	.09
4776	10	-1	3	.09
4786	.18%	28	7	.20
4790	115	2	2	.05
4793	405	10	21	.61

By Lawrence R. Reid

Lawrence R. Reid

1435 S. 10th AVE.
P. O. BOX 1889

Jacobs Assay Office

Registered Assayers

PHONE 622-0813

Certificate No. 59095

TUCSON, ARIZONA 85702 Mar. 20th 1973

Sample Submitted by Mr. Heinrichs Geoexploration. Mr. H Smith Job # 770

SAMPLE MARKED	GOLD Ozs. per ton ore	GOLD Value per ton ore *	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	Zinc Per cent Wet Assay	X Per cent Wet Assay
		$					
4801	Trace		0.15	0.03	Trace	0.7	
4802	Trace		0.25	0.02	Trace	0.6	
4803	0.01		2.00	0.05	3.6	0.7	
4804	0.005		0.55	0.03	0.3	0.3	
4805	0.02		3.75	0.18	3.4	1.3	
4806	Trace		0.40	0.03	0.2	0.5	
4807	0.005		0.75	0.05	0.5	0.7	

HEINRICHS
GEOEX
Cable: GEOEX

REC'D MAR 21 1973 REC'D

REGISTERED ASSAYER
CERTIFICATE EXPIRES
1041
BENJAMIN P.
JACOBS
Dec. 31 1973
Arizona U. S. A.

BOX 5001 TUCSON, ARIZONA 85703
-0578

* Gold Figured $85.00 per oz. Troy

Charges $ 54.25

Very respectfully,

Ben P. Jacobs

RECORDING DATA

of

PICO AND SOFPA LODE MINING CLAIMS.

****

OWNERS OF RECORD:

Ira W. Wagnon, Casa Grande, Arizona, Box 382	¼ interest
Ralph J. Smith, Casa Grande, Arizona, Box 382	¼ interest
Leroy Achey, Creswell, Oregon.	¼ interest
Richard L. Clemans, Bettie Clemans, and Bettie Clemans Trust, ~~Florence,~~ Arizona.	¼ interest

****

All of the Pico and Sofpa claims were located on the 5th day of April, 1955, by Ira W. Wagnon and W.L. Kirby, and were recorded in the office of the County Recorder of Pinal County on the 18th. day of April. 1955, as follows:

PICO ACE	in Docket	125	at page	152
PICO No. 1	"	125	"	153
PICO NO. 2	"	125	"	154
PICO No. 5	"	125	"	157
PICO No. 7	"	125	"	159
PICO No. 8	"	125	"	160

On the 9th. day of May, 1955, the same locators recorded the lode claims listed below:

SOFPA No. 1	Docket	126	at page	587
SOFPA No. 2	"	126	"	588

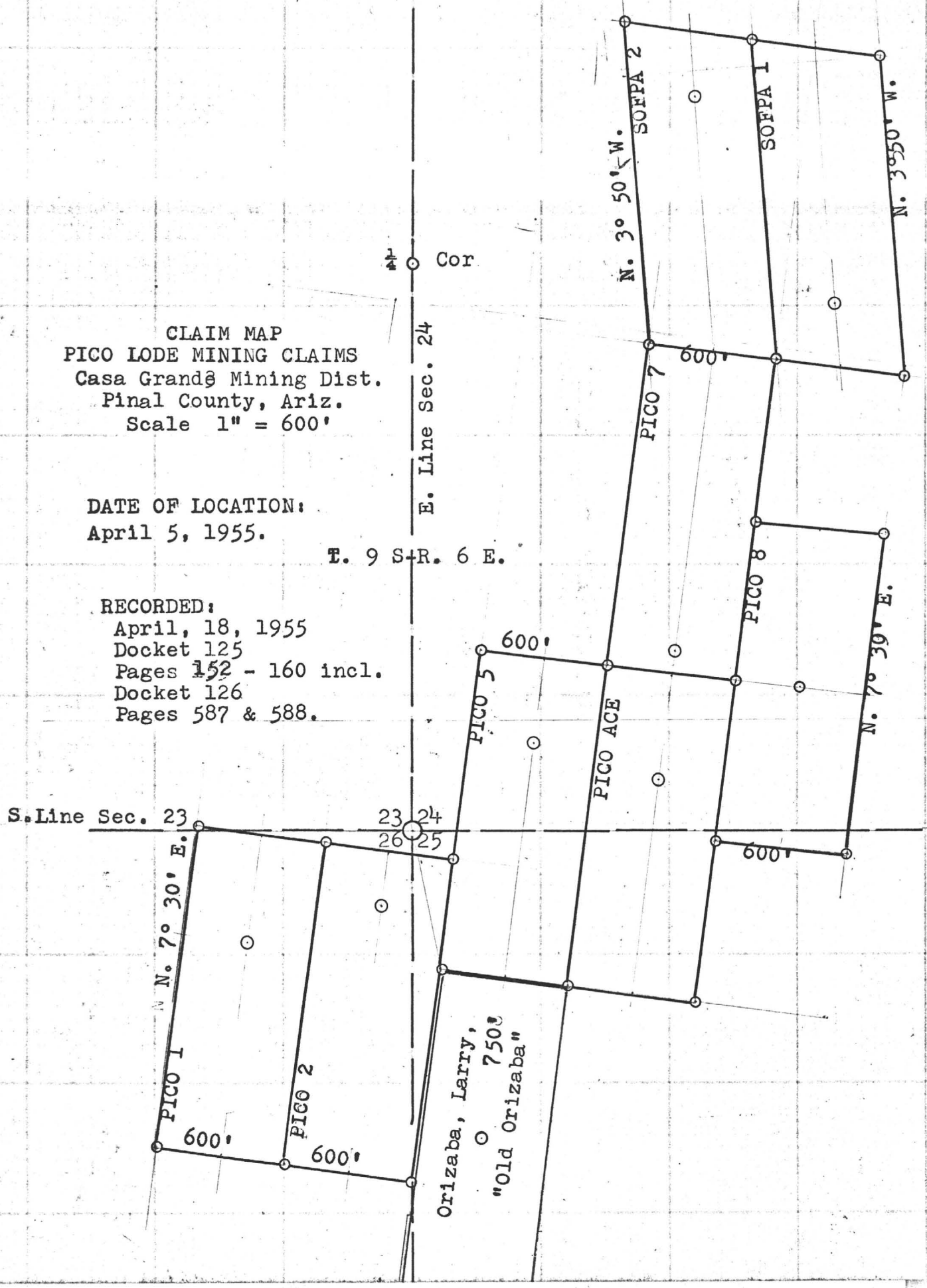
These claims were also located on the 5th. day of April, 1955.

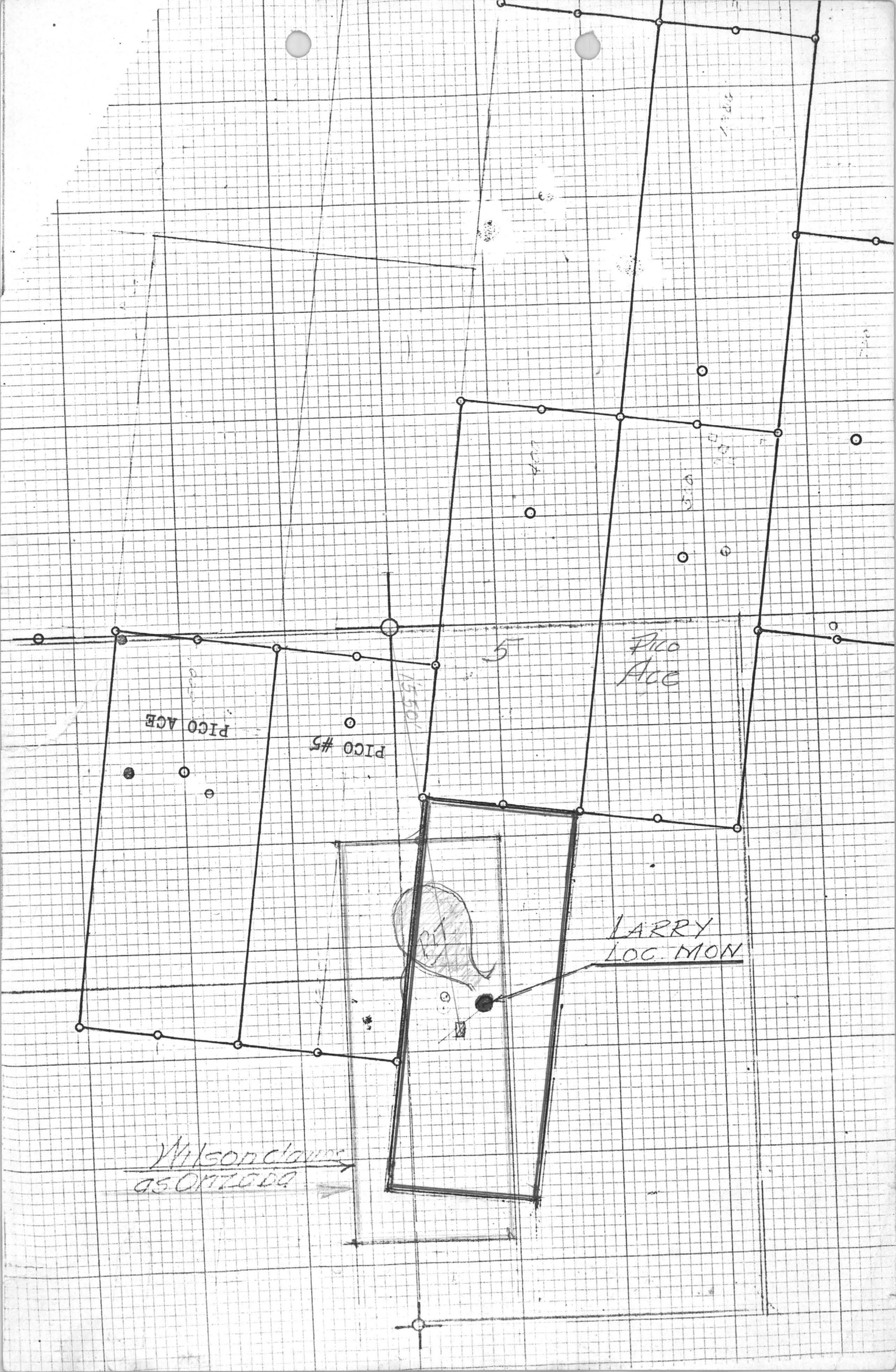
Return to Ora

CLAIM MAP
PICO LODE MINING CLAIMS
Casa Grande Mining Dist.
Pinal County, Ariz.
Scale 1" = 600'

DATE OF LOCATION:
April 5, 1955.

RECORDED:
April, 18, 1955
Docket 125
Pages 152 - 160 incl.
Docket 126
Pages 587 & 588.

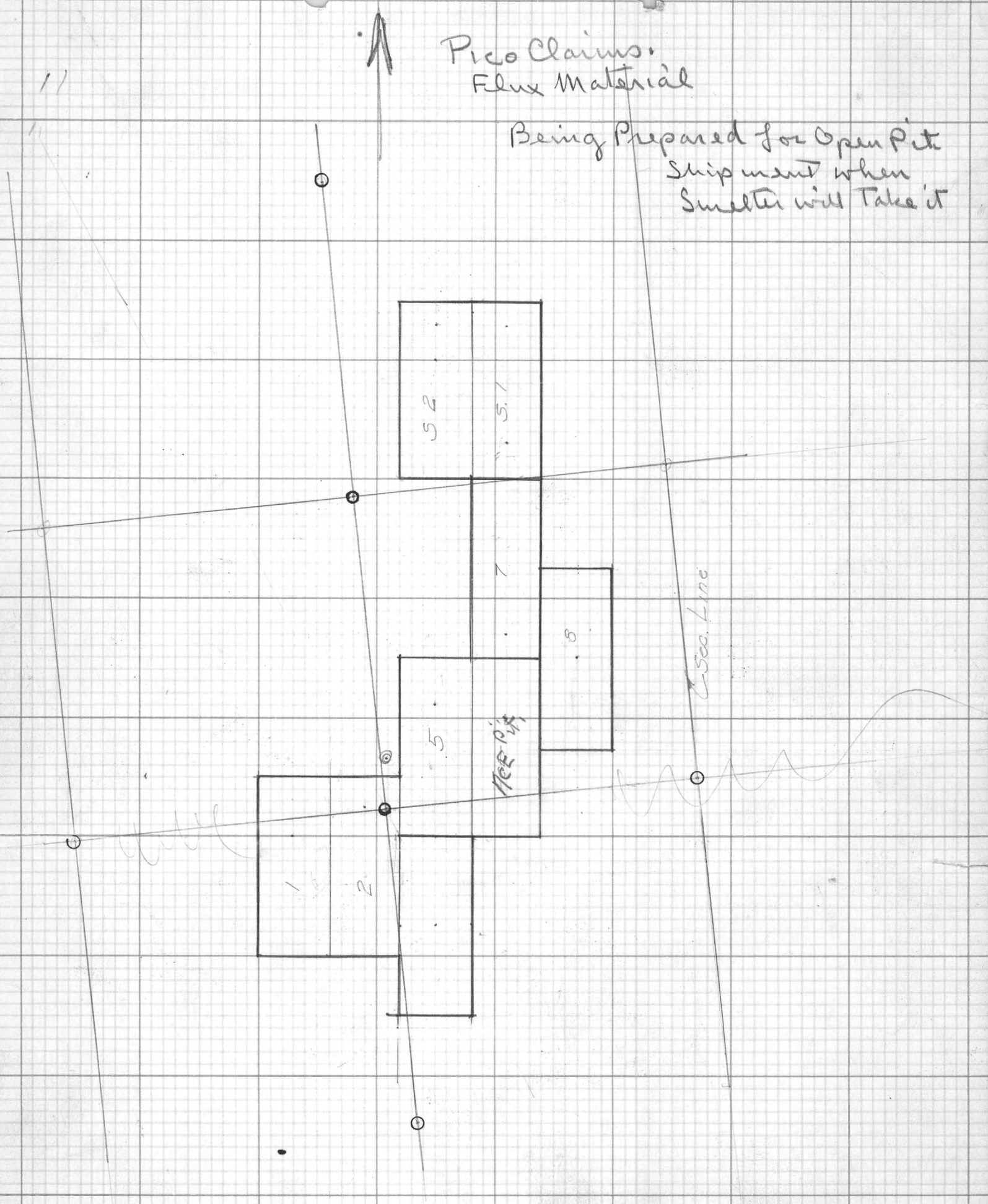



PICO ACE
PICO #5
5
Pico
Ace
LARRY
LOC. MON
Wilson claims
as ORIGINAL

10/31/72

Pico Claims:
Flux Material

Being Prepared for Open Pit
Shipment when
Smelter will Take it



11/29/72

Pico - N.A.M. JOB# 770

Talked to Dra Wagnon & Mr. Clemons in Casa Grande
Meet on Wednesday 10:30 or later
or Thursday (or Saturday)
December 6 or 7, 1972
Wagnon & Clemons - Verity & GEOEX

Mr. Richard G. Clemons Attny
1-836-2450 Office > Casa Grande
1-723-3910 Residence

They want to discuss a standard option
They do <u>not</u> want to give Quinny an interest in the property

SET UP APPT. WITH
WIC'S OFFICE

1435 SOUTH 10TH AVENUE
P. O. Box 1889

Jacobs Assay Office

Registered Assayers

PHONE 622-0813

85702 Tucson, Arizona, Nov. 7th, 1972

Sample Submitted by Mr. Heinrichs Geo exploration project 437

Sample Marked	GOLD Ozs. per ton ore	GOLD Value per ton ore * $	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	Mo Per Cent Wet Assay	~~Per Cent~~ Wet Assay	~~Per Cent~~ Wet Assay
							10 Sta	
#5613	0.02	0.70	57 6/10	0.34	23 5/10	0.013	770.	
5614	0.01	0.35	0 4/10	1.93	~~~~	~~~~	769	
5615	0.02	0.70	28 5/10	0.12	8 6/10	0.002	770	

HEINRICHS GEOEX
CENTER GEOEX
REC'D NOV 9 1972
BOX 1 TUCSON, ARIZONA 85703
Phone (602) 623-1578

REGISTERED ASSAYER
JACOBS
TUCSON, ARIZONA
72

* Gold Figured $35.00 per oz. Troy

Charges $ 21.75

Very respectfully,

Ben P. Jacobs

March 15, 1973

Mr. Quincy A. Shaw
North American Mines, Inc.
50 Congress Street, Room 920
Boston, Massachusetts 02109

Dear Mr. Shaw,

Preliminary investigations of the Pico Claims were completed today with some supplemental sampling and map checking near Ira's Camp.

In brief, the Pico Claims are mineralized with silver, lead, and zinc minerals in silicified zones associated with northeasterly striking shears and with silicification near dikes and sills in the sedimentary sequence. All samples contained silver in greater than trace amounts, although relatively few samples contained potentially economic quantities. This may be explained by the fact that most samples were from leached outcrop.

Based on our own observations, there is little doubt that ore averaging about 20 oz/ton silver was taken from the old workings. In the "Andesite Adit" the observed size of the stopes would indicate that the high grade ore was present in irregular masses perhaps 10 feet by 30 feet by 2 feet. The indicated size of stopes in the Sofpa Shafts are perhaps comparable (based on a cross sectional map by Ira Wagnon). The ore extracted to date has been from small high grade ore bodies with relatively lean walls.

The altered area near Ira's Camp which I described in my letter of March 12, and the silicified area near the "Andesite Adit" offer greatest potential for development of an easily mineable near surface ore body. To obtain some idea of the possible extent of mineralization, I recommend detailed I.P. coverage for these areas. For optimum results, a gradient array with 60 foot spacing and a 200 foot line spacing is indicated for these two areas, with less detailed fill-in coverage between them. This investigation would take a maximum of two weeks, but we would not be able to start until mid-April or possibly later. We can discuss this in detail when you come out the end of the month.

If you would like a formal report on our findings to date, I can prepare one for you presently; or I can give you a report later incoppprateng the I.P. results.

Sincerely yours,

Wm. Hovey Smith
Geologist

WHS:mt

March 12, 1973

Mr. Q. A. Shaw
North American Mines
50 Congress Street Room 920
Boston, Mass 02109

Dear Mr. Shaw:

Enclosed is a brief progress report on our work on the Pico Claims, a sketch of the area that would be flooded under 1540 feet, and a map showing sample locations and analytical results.

We have mapped a block of altered and silicified limestone measuring approximately 360 by 140 feet near Ira's camp. In this area, there are numerous irregular veinlets and silicified zones with strong to moderate alteration of the limestone. Five samples from pits and dumps contain an average of 4.5 oz/ton silver. Included in these samples was a high graded dump sample which contained 10.05 oz/ton and a representative sample with 5.90 oz/ton. Probably unleached material in the altered area would average about6 oz/ton silver. This area is sufficiently large to be an attractive exploration target; however, the possible thickness of this altered area is unknown and it is possible that it may only be a superficial feature.

Sincerely yours,

Heinrichs GEOEXploration Co.

Wm. Hovey Smith
Geologist

WHS:oek

Enclosure

PROGRESS REPORT

OF PICO CLAIMS, PINAL COUNTY, ARIZONA

March 13, 1973

The week of Monday, February 19 began with sampling and general geologic mapping of the southern area of the claims, including Pico 2, 5, 7, 8, Pico Ace, and Orizaba. Work began at the old Orizaba pit and progressed to the north. Part of the week was spent mapping and sampling underground in the "Andesite Adit," as well as collecting dump and rock chip samples from the surface nearby. Fifteen samples were turned in for analysis. The area appeared to have some mineralization at the surface with some low grade ore underground. Mineralization seems to be controlled by an andesite intrusive and associated faulting.

Ten more samples were taken to the analyst from the area around the "Andesite Adit" at the beginning of the week of Monday, February 26. During this week the northern area of the claims was sampled and mapped. The area covered included the claims Sofpa 1 and 2, the hill due west, along with a general tour of the old workings within approximately 1/2 mile to the northeast and northwest. More surface mineralization was visible, occurring mainly in an area of about 200 by 400 feet on the hill above Ira Wagnon's camp. Here, mineralization appears controlled by a northeasterly trending structure. There is strong altered breccia associated with the zone.

The week of Monday, March 5, began with a preliminary look at the sample results received from the analyst. A return trip was warranted in order to

map an area of alteration and silicification on the hill above Ira Wagnon's camp. This area was plain table mapped on a scale of one inch to forty feet, enabling better detail and more control.

The analytical results, averaged from all 50 samples, showed 0.0065 ounces per ton of gold, 1.73 ounces per ton of silver, 0.05% of copper, 0.58% of lead, and 0.72% of zinc. Dropping out the two highest and two lowest samples and averaging the remaining 46, showed 0.0060 ounces per ton of gold, 1.16 ounces per ton of silver, 0.04% of copper, 0.39% of lead, and 0.54% of zinc. The mean percent of error among 10 of the samples that were re-analyzed turned out to be 11.05%. Ten of the samples were sent to Rocky Mountain Geochemical Laboratories of Salt Lake City, Utah, for confirmatory silver analysis.

Joseph Bernfeld
Joseph Bernfeld
Geologic Assistant

Wm. Hovey Smith
Wm. Hovey Smith
Geologist

JB:oek
March 13, 1973
Heinrichs GEOEXploration Co.
P.O. Box 5964
Tucson, Arizona 85703

1435-B TUCSON, ARIZONA
P. O. BOX 5964

Certificate No. 59092 TUCSON, ARIZONA 85703 Mar. 10th 1973

Sample Submitted by Mr. Heinrichs Geoexploration - Mr. H. Smith. Job # 770

SAMPLE NUMBER	GOLD Ounces per Ton	X	SILVER Ounces per Ton	COPPER Percent Weight	LEAD Percent Weight	Zinc Percent Weight	X
# 4751	Trace		0.40	0.02	0.3	0.1	
52	Trace		0.35	0.04	0.1	Trace	
53	0.01		0.75	0.02	0.3	0.1	
54	0.01		1.70	Trace	0.5	0.3	
55	Trace		0.15	0.02	Trace	0.3	
56	0.005		0.20	0.02	0.1	1.5	
57	Trace		0.10	Trace	0.2	Trace	
58	0.01		0.25	Trace	Trace	0.7	
59	Trace		0.10	0.03	Trace	Trace	
60	0.005		0.70	0.04	0.6	1.0	
61	0.01		2.25	0.02	0.7	7.4	
62	0.02		2.20	Trace	0.6	3.7	
63	0.005		1.45	Trace	0.6	0.9	
64	Trace		0.50	0.02	0.2	0.2	
65	0.01		1.35	0.08	0.5	0.1	
66	0.01		1.35	0.02	0.9	0.6	
67	0.02		9.00	0.03	2.7	1.0	
68	0.02		20.00	0.08	7.2	0.7	
69	Trace		0.65	Trace	0.3	0.9	
70	Trace		0.20	Trace	Trace	0.3	
71	0.005		3.75	0.02	1.8	2.9	
72	Trace		0.25	0.02	0.1	0.2	
73	0.005		0.60	0.03	0.4	0.6	
74	Trace		0.20	Trace	0.2	1.0	
75	0.01		2.35	0.03	0.2	0.3	
76	Trace		0.15	Trace	0.2	0.2	
77	0.005		1.30	0.03	0.1	0.2	
78	0.005		1.65	0.02	0.2	0.3	
79	0.005		1.00	Trace	0.1	0.1	
80	Trace		0.30	0.53	Trace	1.2	
81	0.005		1.05	0.11	Trace	0.1	
82	Trace		0.35	Trace	Trace	Trace	
83	0.01		1.50	0.11	1.9	0.5	
84	Trace		0.40	Trace	0.1	0.1	
85	Trace		0.15	0.02	Trace	0.2	
86	Trace		0.25	0.17	Trace	0.3	
87	Trace		[illegible]	0.09	0.1	Trace	

HEINRICHS GEOEX
Cable: GEOEX

Gold Figured $35.00 per oz. Troy

REC'D MAR 12 1973 REC'D

Charges $ 286.25

BOX 5964 TUCSON, ARIZONA 85703
Phone: (AREA 602) 623-05[illegible]

Ben P. Jacobs

435 S. 10th AVE.
P. O. BOX 1889

Jacobs Assay Office

Registered Assayers

PHONE 622-0813

DUPLICATE

Certificate No. 590.92

TUCSON, ARIZONA 85702 Mar. 10th 1973

Sample Submitted by Mr. Heinrichs Geoexploration. Mr. H. Smith. Job # 770

SAMPLE MARKED	GOLD Ozs. per ton ore	GOLD Value per ton ore * $	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	ZINC Per cent Wet Assay	..X.. Per cent Wet Assay
# 4751	Trace		0.40	0.02	0.3	0.1	
52	Trace		0.35	0.04	0.1	Trace	
53	0.01		0.75	0.02	0.3	0.1	
54	0.01		1.70	Trace	0.5	0.3	
55	Trace		0.15	0.02	Trace	0.3	
56	0.005		0.20	0.02	0.1	1.5	
57	Trace		0.10	Trace	0.2	Trace	
58	0.01		0.25	Trace	Trace	0.2	
59	Trace		0.10	0.03	Trace	Trace	
60	0.005		0.70	0.04	0.6	1.0	
61	0.01		2.25	0.02	0.7	7.4	
62	0.02		2.20	Trace	0.6	3.7	
63	0.005		1.45	Trace	0.6	0.9	
64	Trace		0.50	0.02	0.2	0.2	
65	0.01		1.35	0.08	0.5	0.1	
66	0.01		1.35	0.02	0.9	0.6	
67	0.02		9.00	0.03	2.7	1.0	
68	0.02		20.00	0.08	7.2	0.7	
69	Trace		0.65	Trace	0.3	0.9	
70	Trace		0.20	Trace	Trace	0.3	
71	0.005		3.75	0.02	1.8	2.9	
72	Trace		0.25	0.02	0.1	0.2	
73	0.005		0.60	0.03	0.4	0.6	
74	Trace		0.20	Trace	0.2	1.0	
75	0.01		2.35	0.03	0.2	0.3	
76	Trace		0.15	Trace	0.2	0.2	
77	0.005		1.30	0.03	0.1	0.2	
78	0.005		1.65	0.02	0.2	0.3	
79	0.005		1.00	Trace	0.1	0.1	
80	Trace		0.30	0.53	Trace	1.2	
81	0.005		1.05	0.11	Trace	0.1	
82	Trace		0.35	Trace	Trace	Trace	
83	0.01		1.50	0.11	1.9	0.5	
84	Trace		0.40	Trace	0.1	0.1	
85	Trace		0.15	0.02	Trace	0.2	
86	Trace		0.25	0.17	Trace	0.3	
87	Trace		0.15	0.09	0.1	Trace	

* Gold Figured $35.00 per oz. Troy

Charges $ 286.75

Very respectfully,

Ben P. Jacobs

JACOBS & TAYLOR
P. O. BOX 1000

Certificate No. 39093 Tucson, Arizona 85702 Mar 10th 1973

Sample Submitted by Heinrich Geo exploration - Mr. H Smith - Job 770

SAMPLE MARKED	GOLD Certificate Oz	GOLD Value $	X	SILVER Certificate Oz	SILVER Value $	LEAD Per cent Value $	Zinc Per cent Value $	X
#4788	0.01			0.70	0.03	0.1	Trace	
89	0.01			0.80	0.02	0.1	Trace	
90	Trace			0.15	0.02	Trace	Trace	
91	0.005			0.25	0.04	0.7	1.2	
92	0.005			0.40	0.02	0.1	0.3	
93	Trace			0.35	0.03	0.1	0.2	
94	0.01			1.95	0.11	1.2	1.2	
95	0.01			2.15	0.02	0.2	0.1	
96	0.005			1.15	0.02	0.1	0.2	
97	0.01			5.90	0.11	1.0	0.5	
98	0.02			13.05	0.40	3.5	3.6	
99	Trace			0.50	0.02	0.1	0.7	
4800	Trace			0.20	0.04	Trace	0.1	
Re-sample coarse rejects								
#4754				1.25				
4758				0.40				
4767				9.15				
4768				23.55				
4773				0.75				
4774				0.15				
4776				0.15				
4786				0.25				
4790				0.20				
4793				0.25				

REGISTERED ASSAYER
CERTIFICATE EXPIRES
1041
BENJAMIN P.
JACOBS
Dec. 31, 73
Arizona U. S. A.

* Gold Figured $135.00 per oz. Troy

Very respectfully,
Ben P. Jacobs

Charges $ 125.75

1435 S. 10th AVE.
P. O. BOX 1889

Jacobs Assay Office

Registered Assayers

PHONE 622-0813

DUPLICATE

Certificate No. 39093

TUCSON, ARIZONA 85702 Mar. 10 1973

Sample Submitted by Mr. Hennicke Geo exploration - Mr. H Smith - Job 770

SAMPLE MARKED	GOLD Ozs. per ton ore	GOLD Value per ton ore *	SILVER Ozs. per ton ore	COPPER Per cent Wet Assay	LEAD Per cent Wet Assay	Zinc Per cent Wet Assay	X Per cent Wet Assay
		$					
#4788	0.01		0.70	0.03	0.1	Trace	
89	0.01		0.80	0.02	0.1	Trace	
90	Trace		0.15	0.02	Trace	Trace	
91	0.005		0.25	0.04	0.7	1.2	
92	0.005		0.40	0.02	0.1	0.3	
93	Trace		0.35	0.03	0.1	0.2	
94	0.01		1.95	0.11	1.2	1.2	
95	0.01		2.15	0.02	0.2	0.1	
96	0.005		1.15	0.02	0.1	0.2	
97	0.01		5.90	0.11	1.0	0.5	
98	0.02		13.05	0.40	3.5	3.6	
99	Trace		0.50	0.02	0.1	0.7	
4800	Trace		0.20	0.04	Trace	0.1	
Re-sample coarse rejects							
#4754			1.25				
4758			0.40				
4767			9.15				
4768			23.55				
4773			0.75				
4774			0.15				
4776			0.15				
4786			0.25				
4790			0.20				
4793			0.25				

REGISTERED ASSAYER
CERTIFICATE EXPIRES
1041
BENJAMIN P.
JACOBS
Arizona U.S.A.

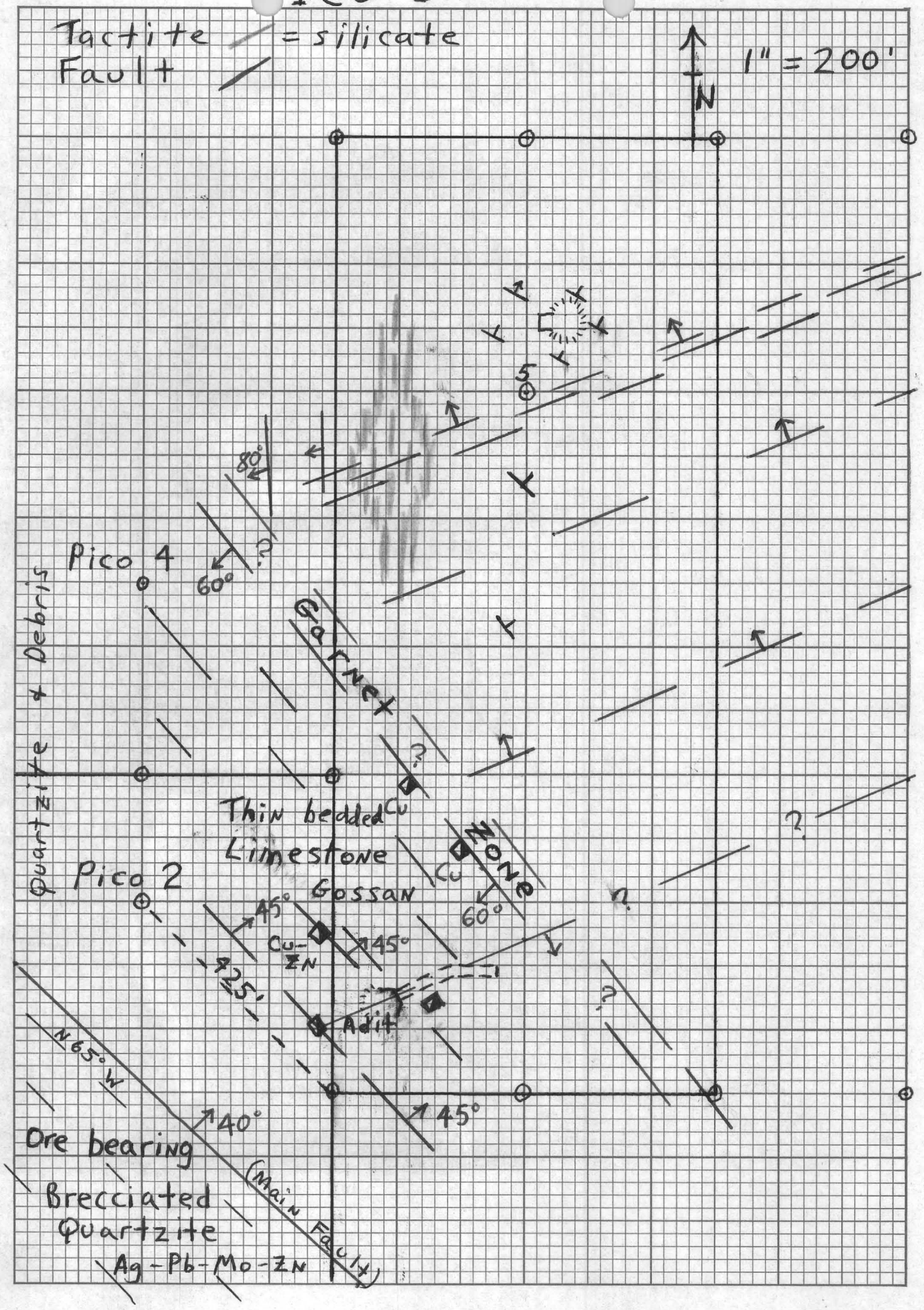
* Gold Figured $35.00 per oz. Troy

Very respectfully,

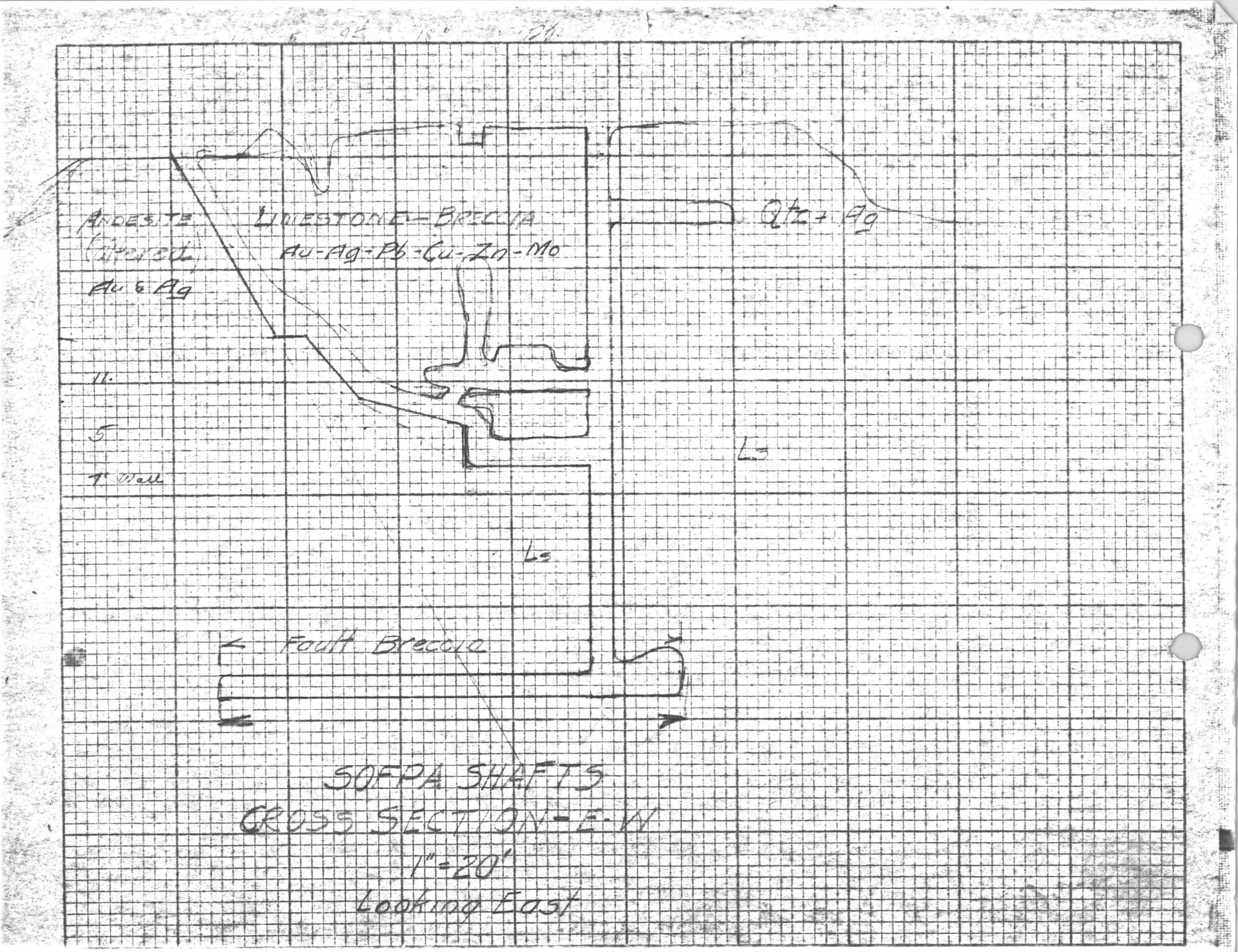
Ben P. Jacobs

Charges $ 125.75

PICO 5



K+E 10 X 10 TO THE INCH 46 0782
7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.


Andesite
Limestone-Breccia
Au-Ag-Pb-Cu-Zn-Mo
Qtz + Ag
Au & Ag
Ls
Ls
Fault Breccia
SOFPA SHAFTS
CROSS SECTION-E-W
1" = 20'
Looking East

6 March 1969

Mr. Q. A. Shaw
North American Mines
60 State Street
Boston, Massachutes

Re: Memo Report
Pico Claim Area
Pinal Co., Ariz.
Job # 350-69

Dear Mr. Shaw:

The day of 3 March 1969, was spent traversing the Pico Claims with MR. Ira Wagnon. The claims appear to be in good shape and apparently have been approved as ligitimate claims by the BLM, which is helpful in establishing a valid title.

These claims are mineralized but not spectacularly so. The economic minerals are some oxides of copper, galena (usually oxidized), silver halides and some wulfenite. The deposits appear to be contact tactite or skarn types with much garnet, some hematite, both specular and massive, and some epidote.

A porphyritic andesite which appears to be altered has intruded a series of quartzites and limestones and produced the tactite zone. The andesite is kaolinized, but at the depths to which it has been seen it might be weathering rather than alteration.

The drill core left on the property by American Exploration Company shows sulfide mineralization especially in some diabase (sills?) near the bottom of the hole. This core does not appear to have been split and assayed and if not, possibly should be. The failure of one hole to prove economic mineralization should not eliminate the area from further consideration. The information from the geophysical surveys across the property would be of great help and an effort should be made to obtain them.

This property is one in which a few randomly spaced holes about 2,000 feet deep seems to be warranted. If no information is forth coming from American Exploration Company on the I.P. and magnetic surveys probably three wide spaced, 1000' dipole I.P. lines would give sufficient information to help place the drill holes. Part of its attraction, to be sure, is the emergence of the Lakeshore as a probable large important mine (500,000,000 Ton). The necessity of deal-

ing with the Indians for leases may be a deterrent to the property, especially as some sort of check dam is proposed by the Corps of Engineers across Santa Rosa Wash immediately to the west. In fact someone (probably the Corps of Engineers) has recently paneled the section corners in this area for aerial photographs.

Based on the present increased activity in the general area and the fairly firm land position, it is thought perhaps an option if reasonably obtained would be worthwhile.

It may be possible to joint venture any deep drilling in order to defray expenses. Whatever is done is going to be quite expensive because of the possible depth involved.

Sincerely yours,
HEINRICHS GEOEXPLORATION COMPANY

Donald B. Cooley, Geologist

DBC/pp