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Colored Sepia & Zerox Vellum

in Rolled File

Summary of Data
Miners Basin Prospect
Grand County, Utah

Property: (see map)

Owner	Property
Fowler	7 unpatented claims - Unicol group
Fowler	11 unpatented claims - Mineral Mountain group
Patee	22 unpatented claims - Fidelity-Pony group
Conner	10 unpatented claims - Castle Mountain group
CMC (Republic)	21 unpatented claims

Property Acquisition Costs:

Owner	Property	Date due	Amount	
Fowler	Unicol	Aug. 8, 1971	$4,000	option payment
Fowler	Min. Mtn.	Aug. 8, 1971	7,000	" "
Conner	Castle Mtn.	Aug 8, 1971	2,000	" "
Fowler	Unicol	Feb. 8, 1972	12,000	" "
Fowler	Min. Mtn.	Feb. 8, 1972	15,000	" "
Patee	Fidelity-Pony	Feb 8, 1972	10,000	" "
Fowler	Unicol	Aug. 8, 1972	20,000	" "
Fowler	Min. Mtn.	Aug 8, 1972	20,000	" "
Conner	Castle Mtn	Aug 8, 1972	4,500	" "

Owner	Property	Date due	Amount	
Patee	Fidelity-Pony	Feb. 8, 1973	$18,000	option payment
Fowler	Unicol	Feb. 8, 1973	—	execution date
Fowler	Min. Mtn.	Feb. 8, 1973	—	execution date
Conner	Castle Mtn.	Aug. 8, 1973	5,000	option payment
Fowler	Unicol	Jan. 15, 1974	5,000 or 5% NSR (whichever larger)	
Fowler	Min Mtn.	Jan 15, 1974	7,500 or 5% NSR (whichever larger)	
Patee	Fidelity-Pony	Feb 8, 1974	24,000	option payment
Conner	Castle Mtn.	Aug 8, 1974	7,000	option payment
Fowler	Unicol	Jan. 15, 1975	5,000 or 5% NSR (whichever larger)	
Fowler	Min. Mtn.	Jan 15, 1975	7,500 or 5% NSR (whichever larger)	
Patee	Fidelity-Pony	Feb 8, 1975	34,300	~~purchase~~ execution & 1st purchase payment
Conner	Castle Mtn.	Aug 8, 1975	26,670	execution & 1st purchase payment
Fowler	Unicol	Jan. 15, 1976	5,000 or 5% NSR	
Fowler	Min. Mtn.	Jan. 15, 1976	7,500 or 5% NSR	
Patee	Fidelity-Pony	Feb 8, 1976	34,300	purchase payment
Conner	Castle Mtn.	Aug 8, 1976	26,670	purchase payment
Fowler	Unicol	Jan. 15, 1977	5,000 or 5% NSR	
Fowler	Min Mtn	Jan 15, 1977	7,500 or 5% NSR	
Patee	Fidelity-Pony	Feb. 8, 1977	34,300	purchase payment
Conner	Castle Mtn.	Aug 8, 1977	26,660	final purchase payments
Fowler	Unicol	Jan. 15, 1978	5,000 or 5% NSR	
Fowler	Min Mtn.	Jan 15, 1978	7,500 or 5% NSR	
Patee	Fidelity-Pony	Feb 8, 1978	34,300	purchase payment
Fowler	Unicol	Jan. 15, 1979	5,000 or 5% NSR	
Fowler	Min. Mtn.	Jan 15, 1979	7,500 or 5% NSR	
Patee	Fidelity Pony	Feb 8, 1979	34,300	purchase payment

Owner	Property	Date due	Amount
Fowler	Unicol	Jan. 15, 1980	$5,000 on 5% NSR
Fowler	Min. Mtn.	Jan. 15, 1980	7,500 on 5% NSR
Pate	Fidelity-Pony	Feb 8, 1980	34,300 purchase payment
Fowler	Unicol	Jan 15, 1981	5,000 on 5% NSR
Fowler	Min. Mtn.	Jan 15, 1981	7,500 on 5% NSR
Pate	Fidelity-Pony	Feb 8, 1981	34,200 final purchase payment
Fowler	Unicol	Jan 15, 1982	5,000 and $5,000 per year thereafter until total payments reach $125,000. (paid by minimum royalty by 1990)
~~Fowler~~	~~Min. Mtn~~		
Fowler	Min. Mtn	Jan 15, 1982	7,500 and $7,500 per year thereafter until total payments reach $750,000. (paid by minimum royalty by 2067).

Terms:

1. Partner can acquire 49% participating interest by expenditure of $250,000 in exploration and property payments during a three year option period or 50% participating interest by expenditure of $500,000 in exploration and property payments during a five year option period.

2. The partner will be responsible for all taxes, property payments, and assessment work for each option year.

3. A minimum work requirement of $50,000 per year (not including property payments).

To: JEW
From: HTE
Subj: Additional comments on Mineral Basin prospect

1. Only a few corners have been found on the Mineral Mountain claim group. Dr. Fowler has agreed to reduce his next option payment by a maximum of $1500 to help pay for any survey or relocation of these claims.

2. The logical extension of property position by staking is to the southeast (open geochem anomalies and additional breccia pipes)

To: J. E. Worthington

From: H. T. Eyrich

Subject: Miscellaneous notes on the Miners Basin, Utah, prospect.

1. No drilling contract was ever signed with Smith Drilling, Nucla, Colorado for the drilling (plus 500 ft) they did at Miners Basin during the 1970 field season, nor were they ever paid. They pulled off the hole late in the season without reaching sulfides or being snowed out without notice to us. Correspondence on the subject was to be directed to and handled by T.S.M. A $ 5,000 accrual was carried through the end of 1970 pending a decision as to the course of action to take from L. A.

2. Assessment affidavits have been filed in Moab for the 1970-71 assessment year.

3. The Silla claim group, optioned from George J. Patee, is not contiguous with the other claims and has been dropped (1970).

4. Perry, Knox, and Kaufman are not interested in promoting Miners Basin in their group.

5. The Patee claim group option is due for another payment of $ 10,000 on February 8, 1972, then $18,000 in 1973, $24,000 in 1974, and execution by February 8, 1975.

6. The Conner claim group option is due for another payment of $ 2,000 on August 8, 1971, then $ 4,500 in 1972, $ 5,000 in 1973, $7,000 in 1974, and execution by August 8, 1975.

7. Option payments to Dr. Fowler on both the Unicol claim group (7 claims) and the Mineral Mountain claim group (11 claims, unpatented) will be due on August 8, 1971. The interest held by Dr. Fowler in the patented Mineral Mountain claims (10 claims) is not under option, nor is the surface, which is under separate ownership.

8. The Ossana claims (4 patented) are not under option to Cyprus.

9. Unless significant mineralization is found by deepening holes BB-1 or HO-1, the key claim groups are only the Patee group and the CMC claims.

10. Homestake Mining Co. is currently the only company that has expressed an interest in the Miners Basin prospect. Mr. John Hite, ph. 602-296-6176 will keep in touch with CMC regarding their plans.

11. Initially, I would suggest the following terms for joint venture: $ 250,000 expenditure in the ground or option payments to acquire 49% interest, $ 50,000 annually - commitment to work on the ground and option payments.

12. Re-negotiation of the Fowler agreements will be necessary within a year.

13. Mr. and Mrs. William J. Conner have provided camp room and board for the CMC crew for the past two years.

14. The USFS covets the Miners Basin area for a recreation campground, etc.

15. At least through 1969, Dr. Fowler has filed assessment affidavits on the group placer claim which extends from the cabins west down the drainage.

Miners Basin

Proof of Labor for 1970-71

Nov 13, 1970	$2.200	22	Patee claims
Nov 13, 1970	$2300	13	Republic ✓
		10	Conner ✓
No 23, 1970	$2.700	18	Fowler ✓
		9	Republic ✓

Payments Due

Fowler	Unicol Group	(7 u/p claims)	Aug 9, 1971	$4.000
✓	Mineral Mtn. ✓	(11 u/p claims)	Aug 9, 1971	$5.500
Patee		(22 u/p claims)	Feb 9, 1972	$10.000
Conner		(10 u/p claims)	Aug 9, 1971	$2.000

The original option agreements on the 2 Fowler groups, and the Conner group are not in the files. My estimate of the dates is based on memos from HTE → CCG + TSM.

HTE copy

ANALYSIS OF THE MINERS BASIN DATA

John B. Hite, Jr.
December 7, 1970

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ILLUSTRATIONS

SUMMARY

The Miners Basin prospect comprises a number of patented and unpatented lode claims covering a composite igneous stock in the La Sal Mountains, Grand County, Utah. The general geology is shown on the accompanying map and sections. Additional detailed mapping is urgently needed and every effort should be made to accomplish this during the 1971 field season. Problems which need to be solved are the distribution of fracturing, alteration zoning, the genetic relations between mineralization and the various igneous events, and effects of post-mineral events.

A reconnaissance I. P. survey was completed but several problems, such as that of making good electrode-ground contact, attended this work. Additional surveying to provide information on the lateral and depth distributions of sulfides is recommended.

The geochemical prospecting program is fairly comprehensive and outlines several favorable areas. A rough statistical analysis of the data suggests threshold values of 14 ppm for Mo and 300 ppm for Cu. Geochemical overlay maps were constructed using these values. These maps show several large and potentially significant anomalies. They also show the close spatial relationship of these anomalies to the volcanic vents.

The drilling program is inconclusive because few of the holes reached their planned depths owing to poor drilling conditions and to substandard performances from the principal contractor. Most of the holes did intersect spotty but sufficient amounts of copper mineralization to indicate that the property has potential. None of the holes are deep enough to reject potential targets below them, but several have been selected as being especially favorable for deepening.

RECOMMENDATIONS

Geology:

1. Geologic mapping at a scale of 1:6000 or larger should be extended to cover Beaver Basin, the south slopes of Pilot Mountain, and Bachelor Basin as soon as possible. The purposes of this mapping are to study the alteration zoning patterns, to extend the studies of those areas which already show potential, and to detect structural elements which might have a bearing on the localization of mineralization.

2. Mr. T. Irwin's detailed mapping at a scale of 1:1200 around the drill sites should be continued and enlarged to allow for better interpretation of the drilling.

3. A detailed alteration study should be made using both samples from the drilling and from surface sampling.

Geophysics:

1. The original I. P. data should be reviewed by a consultant geophysicist to check the quality of the data.

2. A minimum of three additional I. P. lines, using 1000 or 1500 feet electrode spreads, is recommended. Their locations are an E-W line through Bachelor Basin, an E-W line across Pilot Mountain, and a N-S line through Beaver Basin. The purposes of these lines are to determine sulfide distributions both laterally and at depth.

Geochemical Prospecting:

1. Additional grid or close-spaced traverses are recommended to increase the sample density within the main zones of anomalies.

2. Sampling traverses should be made south of Pilot Mountain and in Beaver Basin to provide information on several open-ended anomalies in these locations.

3. Reconnaissance sampling should be considered for the peripheries of the prospect, throughout the rest of the La Sal Mountains, and for some of the geologically similar ranges on the Colorado Plateau.

Drilling:

1. Hole BB-1 in Bachelor Basin should be deepened by coring. This is a high priority

recommendation as this hole would check the possibilities of either supergene or primary mineralization under one of the better geochemical anomalies on the prospect. This hole is topographically nearly 1000 feet lower than most of the holes on Green Mountain and thus might not have to be drilled as deep to intersect either supergene enriched or primary mineralization.

2. Hole GM-12 (alternately, GM-1, 2, or 3) should be deepened to test possibilities of supergene chalcocite mineralization associated with the Green Mountain vent. However, if the fracturing around the vent decreases with depth, then chalcocite is more likely to occur within the vent than on the margins and this target would better be tested by collaring a new hole near the center of the vent.

3. A diamond drill hole should be sunk on the ridge between Green and Pilot Mountains to test the coincident I. P. and Cu-Mo anomalies here. This area also shows some phyllic alteration similar to that over other porphyry copper-type occurrences.

4. Hole MM-1, which averages 0.215% Cu, may need to be deepened, depending upon the results of additional alteration studies.

Introduction:

At the request of Henry T. Eyrich, I have undertaken an analysis of the data acquired to date from the Miners Basin Project, Grand County, Utah. This included spending ten days in the field at the prospect, logging the drill core and rotary cuttings, study of the geochemical and geophysical data, and conferences with Mr. T. Irwin, the project geologist.

The purposes of this study were to compile all of the data to aid in evaluating the progress of the exploration effort and to identify and recommend additional exploration targets on the property.

Geology:

Figure 1 is a preliminary geologic map abstracted from a report by Hunt (1958) and transposed onto a more accurate topographic base. Figure 1A shows geologic section interpreted from the drilling. Some additional details of the local geology have been obtained by direct observation, from reports by consultants to CMC, and from personal communications with CMC geologist Tom Irwin.

Hunt's map (Figure 1) provides a basic framework for discussion but is too generalized in many critical areas. A detailed map of High Ore basin (in preparation) by Tom Irwin shows several previously unrecognized major structural anomalies whose significance awaits further work. Previous mapping confirms the persistent fracturing throughout the favorable areas, has begun to outline the general gross features of alteration, and provides enough information to interpret the drilling.

Detailed mapping on the prospect is urgently needed and should be completed before the end of the 1971 field season. This mapping should be expanded to include Beaver Basin, Green Mountain, Pilot Mountain, and McCormick Park. The purposes of the mapping would be to detect structural elements which may have served as local controls for mineralization and to solve the problem of alteration facies and their distribution. At present all that can be said about alteration is that the earlier phases of the stock, the metadiorite and diorite, are more altered than later phases. Owing to the number of uncommon rock types present, rocks rich in soda and potash, much of the alteration is distinctly different than that generally associated with porphyry-copper deposits and thus is not easily recognized in the field.

Figure 1A shows two cross sections of the geology as interpreted from the drilling. Owing to the difficulties of logging heavily oxidized rotary cuttings the conclusions are rather tentative. Section A-A' shows that most of the contacts are steep and that the Green Mountain vent is surrounded by a broad zone of intense fracturing within which sulfides have been intensely leached and oxidized. Conditions within the zone are highly favorable for development of supergene chalcocite mineralization. Hole GM-12 should be deepened to test this possibility. Traces of tenorite and cuprite near the bottom of this hole suggest that the top of the sulfide zone may not be too much deeper.

Section B-B' shows the localization of the McCormick Park and Bachelor vents at contacts of the diorite with the Tertiary dike swarm. The significance of this is not known. Other points to be noted are that from the slender evidence of holes GM-1 and 2 the zone of breakage around the Green Mountain vent has a flatter dip than shown on Section A-A'. If true, then the zone of breakage is canoe-shaped, probably elongated in a northwest direction, and any supergene mineralization should have a somewhat similar shape - an important feature to be noted in any subsequent drilling program.

Geophysics:

A McPhar I. P. survey gives reconnaissance coverage of the area but the 500 feet dipole spread doesn't give too much depth penetration, probably less than the local topographic relief. Locally there is poor correlation of data where lines cross. In addition, some of the rock resistivities look suspiciously high, perhaps owing to poor electrode-ground contact, and the lines are so widely spaced that anomalies cannot be confidently projected between them. For these reasons, additional I. P. coverage at 1000 feet dipole spreads should be considered for Bachelor Basin, Beaver Basin, and McCormick Park. The purpose of this additional work would be to outline a sulfide zoning pattern if present, and to investigate the presence and distribution of sulfides at depth.

Geochemical Prospecting:

The purposes of this review of the geochemical data were to define the local background and threshold values for copper and molybdenum, to see if additional sampling is needed, to see if any potential targets have been overlooked, and to correlate the geochemical data with the geology, geophysical, and drilling data.

Cu (copper) determinations were made on 699 samples; Mo (molybdenum) determinations were made on 565 of these samples. The Mo content ranges from traces to 365 ppm (parts per million) and the Cu content ranges from 5 to >5000 ppm. Graphs 1 and 2 on the following pages show Cu and Mo distribution by classes.

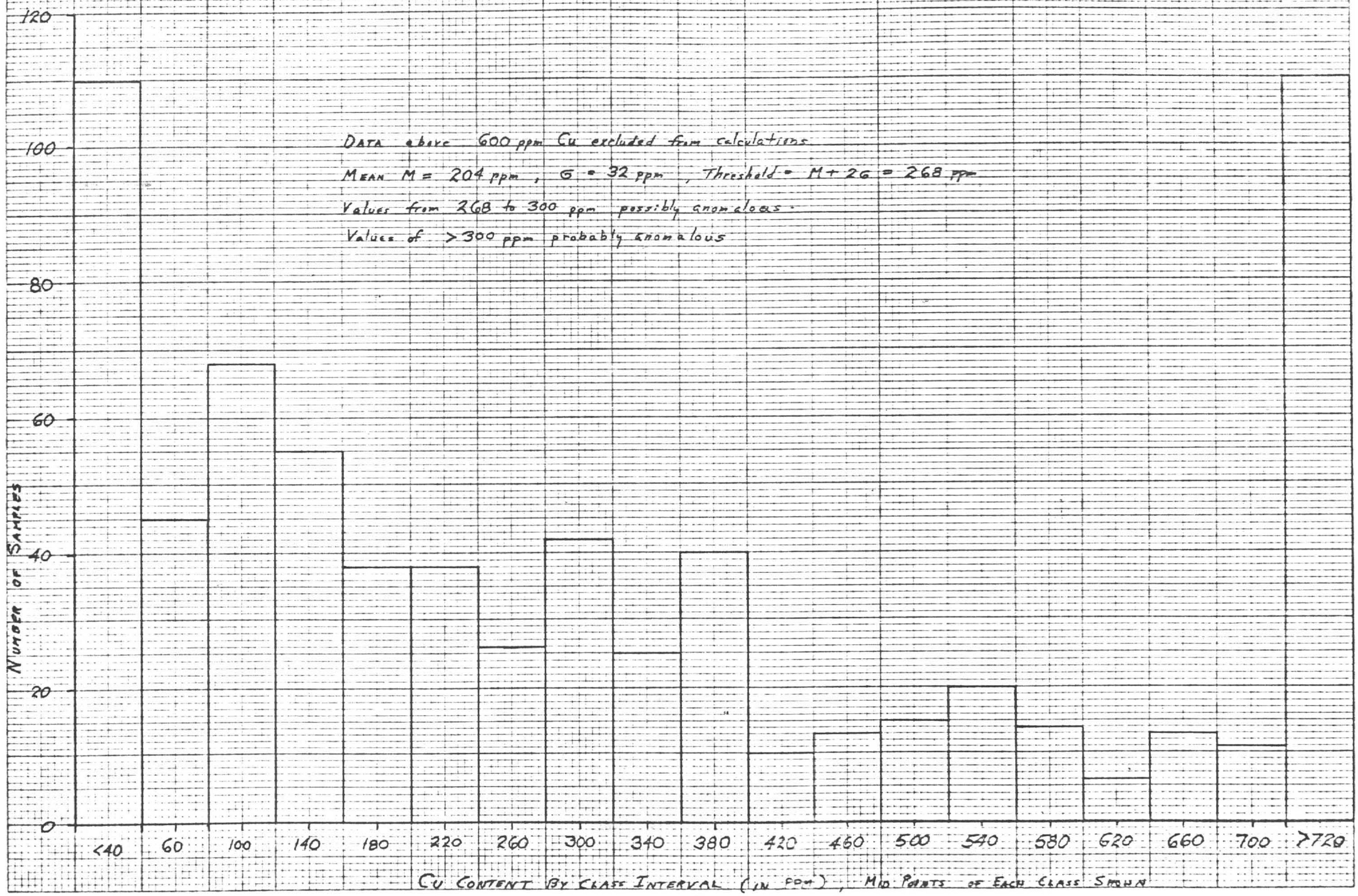
In order to treat the geochemical data the following simplifications were made:

1. Soil and rock chip value were assumed equivalent and grouped together for statistical purposes. This is not a valid assumption but wherever a soil and rock chip sample were taken at the same site the values were usually equivalent within the limits of analytical precision.

2. Values of >44 ppm Mo and >600 ppm Cu were excluded in calculating the arithmetic means and standard deviations to avoid undue weighting of the data toward the high side. This procedure is probably offset by the fact that the preponderance of samples were collected over altered and mineralized areas relative to the number collected over barren zones more representative of the local background so that the sample population is biased toward the high side.

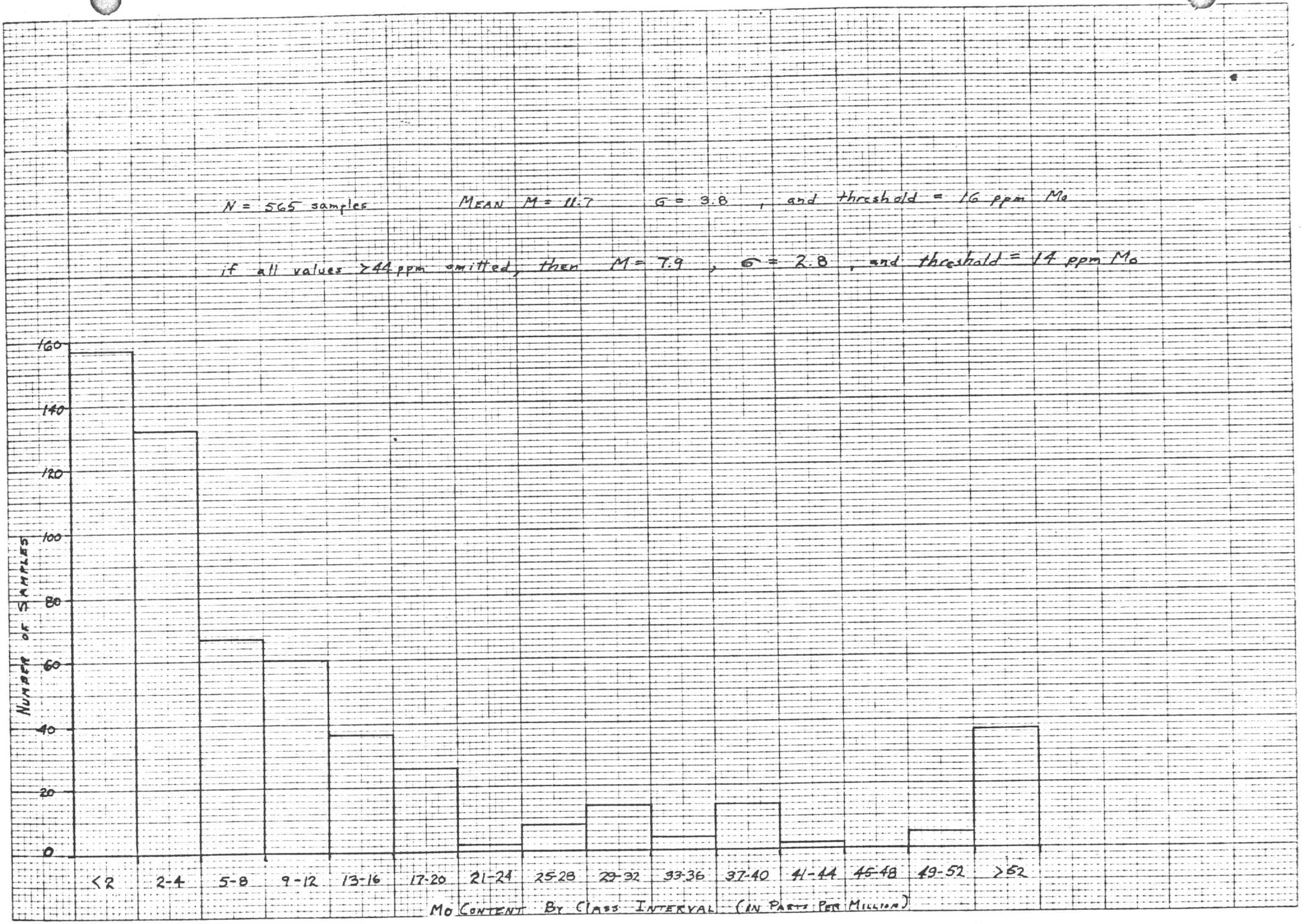
3. The total sample population is assumed to be homogenous but in reality comprises three sets each collected in different years by different people and each set analyzed at a different lab, probably by different digestion and analytical procedures.

After normalizing the raw data by omitting the >44 ppm Mo and >600 ppm Cu values the arithmetic mean M and standard deviation σ were calculated. For Mo the mean is 7.9 ppm and the standard deviation is 2.8 ppm. For Cu the mean is 204 ppm and the standard deviation is 32 ppm. Following the suggestion of Hawkes and Webb (1962) the threshold is taken at the mean plus two standard deviations. Values between $M+2\sigma$ and $M+3\sigma$ are possibly anomalous and those values greater than $M+3\sigma$ are probably anomalous. The corresponding Mo values are approximately 11 and 14 ppm, respectively. For Cu the values are 268 and 300 ppm, respectively.



12-282

20 Squares to the Inch



12-282

20 Squares to the Inch

After calculating the threshold values for Cu and Mo, a series of 1:6000 scale overlays were prepared to exhibit the data. Figure 2 shows the sample site distribution and Figures 3-6 show distribution of anomalous Cu and Mo in soils and rock. In contouring the data single sample site anomalies were ignored, similarly within anomalies single sample site "lows" were also ignored.

Figure 3, an overlay of the geologic map, shows the distribution of Cu values of >300 ppm in rock. A >600 ppm Cu contour is also shown to emphasize the magnitude of the anomalies over this prospect. Several important points to be noted are:

1. The >300 ppm Cu contour encompasses most of Mineral and Green Mountains and extends south along the ridge toward Pilot Mountain. A number of small open-ended anomalies are found south and east of this main area, principally around Beaver Basin.

2. The >600 ppm Cu contour defines a local "high" extending from Mineral Mountain northeast across High Ore Basin and wraps around the north end of the Bachelor vent; geologically the west half can be interpreted as due to disseminated chalcopyrite in soda syenite and the east half from fracture-controlled and disseminated chalcopyrite in the diorite porphyry and in the Bachelor vent.

3. A second "high" lies between the McCormick Park and Green Mountain vents, extending part way into the latter.

4. The >600 ppm Cu contour also defines a number of small "bullseye" anomalies. The significance of these cannot be estimated, but those in Beaver Basin and on the east flank of Pilot Mountain are open-ended.

Owing to the originally high pyrite:chalcopyrite ratio, intense fracturing, and subsequent nearly complete oxidation and leaching of sulfides near the vents the copper distribution pattern is difficult to interpret. For example, some of the very high Cu values represent localization of exotic copper by reactive rocks, a common occurrence in certain calcite-rich portions in the Green Mountain vent. Other anomalies occur over moderate to highly oxidized and leached rocks which certainly must have had fairly high original copper contents. The relationship of the anomalies to the vents is uncertain, whether the copper has been introduced by the volcanic events producing the vents, redistributed by these events, or both is not known.

Additional problems which make interpretation difficult are the wide variations in sample density, the diverse rock types, and, possibly, sampling and analytical errors because the sample population comprises three sets collected and analyzed at three different times.

Figure 4 shows the distribution of anomalous Cu in soil. The patterns are similar to those of Cu in rock but somewhat broader as would be expected, owing to supergene dispersion. Fewer extremely high values were detected, probably because fewer soil samples were taken, particularly in areas of visible mineralization.

Figure 5 shows the distribution of Mo values of >14 ppm in rock. A >30 ppm contour outlines areas of exceptionally high Mo. For this figure the following points are to be noted:

1. Areally, the Mo anomalies coincide well with the Cu anomalies shown in Figure 3, but are uniformly smaller.

2. The largest Mo anomaly extends north from the Green Mountain vent, crosses the south half of the Bachelor vent, and wraps around the north half of the vent.

3. The second largest Mo anomaly lies on the east side of Pilot Mountain and extends north into the West Beaver vent.

4. Ten small "bullseye" anomalies are scattered around the prospect.

5. The absence of Mo anomalies on Mineral Mountain is significant, and is interpreted to confirm that the disseminated copper mineralization on Mineral Mountain is of late magmatic origin unconnected with a hydrothermal event.

Interpretation of the Mo data is more difficult than for Cu. Some of the reasons are that molybdenite has only very rarely been noted on the property and then only with calcite rather than with quartz veins, fewer samples were analyzed for Mo than for Cu, and some of the largest anomalies are open-ended owing to lack of data. Tentatively, the coincidences of Mo with Cu anomalies are interpreted to represent areas of hydrothermal activity. This is confirmed by the more intense rock alteration and fracturing in these zones as well. The Mo anomalies show a close spatial relationship to the vents but the genetic relationships are not known.

Figure 6 shows the distribution of anomalous Mo in soil. The patterns are similar to those of Mo in rock; the anomalous zones are smaller around Green Mountain because of fewer soil samples taken, and bigger around Pilot Mountain because of downslope movement of material and the greater sample density.

Figure 7, showing the distribution of Cu in rock and soil, combines the anomaly patterns of Figures 3 and 4, thus outlining the large areas containing anomalous Cu in rock, soil, or both. Not only are the anomalies large but are also open-ended, particularly around Beaver Basin, south of Pilot Mountain, west-northwest of Mineral Mountain, and around Bachelor Basin.

Figure 8, showing the distribution of Mo in rock and soil, combines the patterns of Figures 5 and 6, thus showing Mo anomalies in soil, rock, or both. The anomaly extending from McCormick Park east across Pilot Mountain into Beaver Basin and open-ended along its south margin is particularly enhanced by this combination.

Comparisons of Figures 7 and 8 show that coincident Cu and Mo anomalies occur in and around the principal volcanic vents. One of these anomalies extends from the north end of the Bachelor vent south to the north margin of the Green Mountain vent; a third lies on the north side of the McCormick Park vent; and a fourth lies between the McCormick Park and Panama vents, and covers most of Pilot Mountain. Increased sampling would undoubtedly show that most of these anomalies are larger than plotted.

The conclusions to be drawn from the geochemical data are that the areal size of the anomalous zones and the amplitudes of the Cu and Mo values are consistent with those to be expected over disseminated porphyry-type mineralization. The limits of these anomalies have not yet been defined, nor has enough work been done to discover whether the best parts of the anomalies have been defined. Further, comparisons of the geochemical maps with the drilling pattern (see Figure 2 for plots of drill holes) suggests that few of the drill holes have been ideally situated to test these anomalies.

Drilling Program:

Nineteen holes have been drilled on the property. Their locations are shown on Figure 2 and status is summarized in Table 1 on the following page. The cores and

$74 \times .148 = 10.95$

$70 \times .24 = 16.80$

$95 \times .128 = 12.16$

$130 \times .177 = 23.01$

$130 \times .215 = 27.95$

$\overline{499}$ $\quad$ 90.87

$$\frac{90.87}{499} = 0.18\%\ Cu$$

TABLE 1 - DRILL HOLE STATUS

Hole	T. D. (ft)	Type	Remarks
MB-1	351	Core	82'-156' averages 0.148% Cu, hole lost.
MB-1A	376	Core	Hole lost.
MB-1B	242	Core	Hole lost.
BB-1	102	Churn	Cased, further deepening recommended.
HO-1	215	Churn	Cased, low priority recommendation for deepening.
GM-1	715	Rotary	580'-650' averages 0.24% Cu, should be deepened.
GM-2	381	Rotary	No further deepening recommended.
GM-3	844	Rotary, core	730'-825' averages 0.128% Cu, should be deepened.
GM-4	840	Rotary	Cuttings lost.
GM-5	621	Rotary	Low priority recommendation for deepening.
GM-6	576.5	Rotary, core	393'-523' averages 0.177% Cu, hole lost.
GM-11	158	Rotary	Low priority recommendation for deepening.
GM-12	692	Rotary, core	Cased, further deepening recommended.
GM-13	215	Rotary	Low priority for core drilling.
GM-13A	26	Rotary	No further drilling recommended.
MM-1	130	Rotary	Averaged 0.215% Cu throughout, should be deepened.
MM-2	60	Rotary	No further drilling recommended.
MM-3	564	Rotary, core	No further drilling recommended.
TB-1	25	Churn	No further drilling recommended.

rotary cuttings were examined under a binocular microscope and detailed logs were constructed for each of the holes. Summary logs for the deeper holes are included in the appendix.

Nine short holes, including the three churn drill holes and rotary holes GM-2, 11, 13, 13A, and MM-1 and 2 were drilled with the intention of penetrating overburden and/or oxidized and weathered bedrock and being deepened later with a core drill. The remaining ten holes range in depth from 242 to 844 feet. Four of these, MB-1, 1A, 1B, and GM-6 were lost due to caving ground and to carelessness by the drillers; GM-4 was arbitrarily abandoned; the three deepest holes GM-1, 3, and 12 are so closely spaced that only one would have sufficed to test the target; and the remaining two, GM-5 and MM-3 only partially tested their respective targets and could have been deepened somewhat.

Rugged terrain, bad weather, short field seasons, the problems of building roads in a national forest, extremely poor performance by the Sprague and Henwood drillers, an under-staffed field crew, and a lack of experience with the unique geology of this prospect have all contributed to the rather spotty record of this drilling program. In spite of these difficulties several limited successes have been achieved.

1. The holes drilled on the margins of Bachelor, McCormick Park, and Green Mountain vents all intersected highly fractured, leached, and oxidized rock indicative of conditions favorable for development of supergene-enriched chalcocite mineralization. This is shown by the high pyrite:chalcopyrite ratios encountered, the presence of 0.05 to 0.20% Cu in unoxidized rocks, and the development of a small perched chalcocite zone in hole GM-3; all of these features are similar to those above other secondarily enriched copper deposits.

2. The drilling on Mineral Mountain confirms the presence of protore grades ranging from 0.04 to 0.2% Cu with the higher grade in matadiorite which explains the geochemical anomaly here.

3. The ubiquitous presence of copper mineralization, both fracture-controlled and disseminated, continues to indicate that some additional drilling is warranted, particularly on Green Mountain, in the Bachelor vent, and secondarily, on Mineral Mountain and on the ridge between Green and Pilot Mountains.

ADDENDUM

On December 9, 1970, the induced polarization (I. P.) data on Miners Basin was reviewed by the writer and Mr. A. Hauck of McPhar. The purposes of this review were to re-evaluate the quality of the data and to re-examine several Apparent Frequency Effect (AFE) anomalies on the prospect.

Mr. Hauck maintains that the data generally looks alright (an understandable position since McPhar performed the survey) but conceded that the rock resistivities look high in a few places throughout the survey. The field data will be re-checked to determine the reason for this. Our new interpretation of the anomalies is in good agreement with the geology as presently understood, (see Figure 9).

Zones A and B are interpreted to represent portions of a pyrite halo marginal to the more intense alteration envelopes. Apparent frequency effect responses in these zones range from 2.0 to 7.0 percent, geochemical anomalies are absent, and abundant pyrite is present.

Zone C comprises the response over the McCormick Park vent and a strong response on the ridge between Green and Pilot Mountain. Apparent frequency effects in this zone range from 3.0 to 6.0 percent, Cu and Mo anomalies coincide with the best I. P. responses, and some copper mineralization is present; thus suggesting this zone as a primary target for further drilling.

Zone D is defined by deep response near the intersection of lines 2 and 3. The shape of the anomaly is consistent with that to be expected from a moderately deep supergene chalcocite "blanket".

Zone E is defined by only line 1 but the apparent frequency effects range from 2.0 to 3.5 percent and coincides well with strong Cu and Mo anomalies.

SUMMARY DRILL HOLE LOG

PROJECT Miners Basin - Explanation

SCALE: 1"= ____ EST. OF FINAL DEPTH ____

PURPOSE ____

RESULTS ____

REMARKS ____

DRILL HOLE NO. ____ PAGE ____ OF ____

BEARING ____ DIP ____

LOCATION ____

TOTAL DEPTH ____ BY ____

START ____ COMPLETED ____

Overburden

Syenite Porphyry, in part gradational to Syenite

Aegirine Granite (?)

Diorite Porphyry, in part, Metadiorite

Qpp Quartz Monzonite Porphyry

Soda Syenite Porphyry

Breccia

SUMMARY DRILL HOLE LOG

PROJECT: *Miners Basin*

DRILL HOLE NO. *1* PAGE *1* OF *1*

SCALE: 1" = *50 ft.*

EST. OF FINAL DEPTH

BEARING *270°* DIP *60°*

PURPOSE

LOCATION

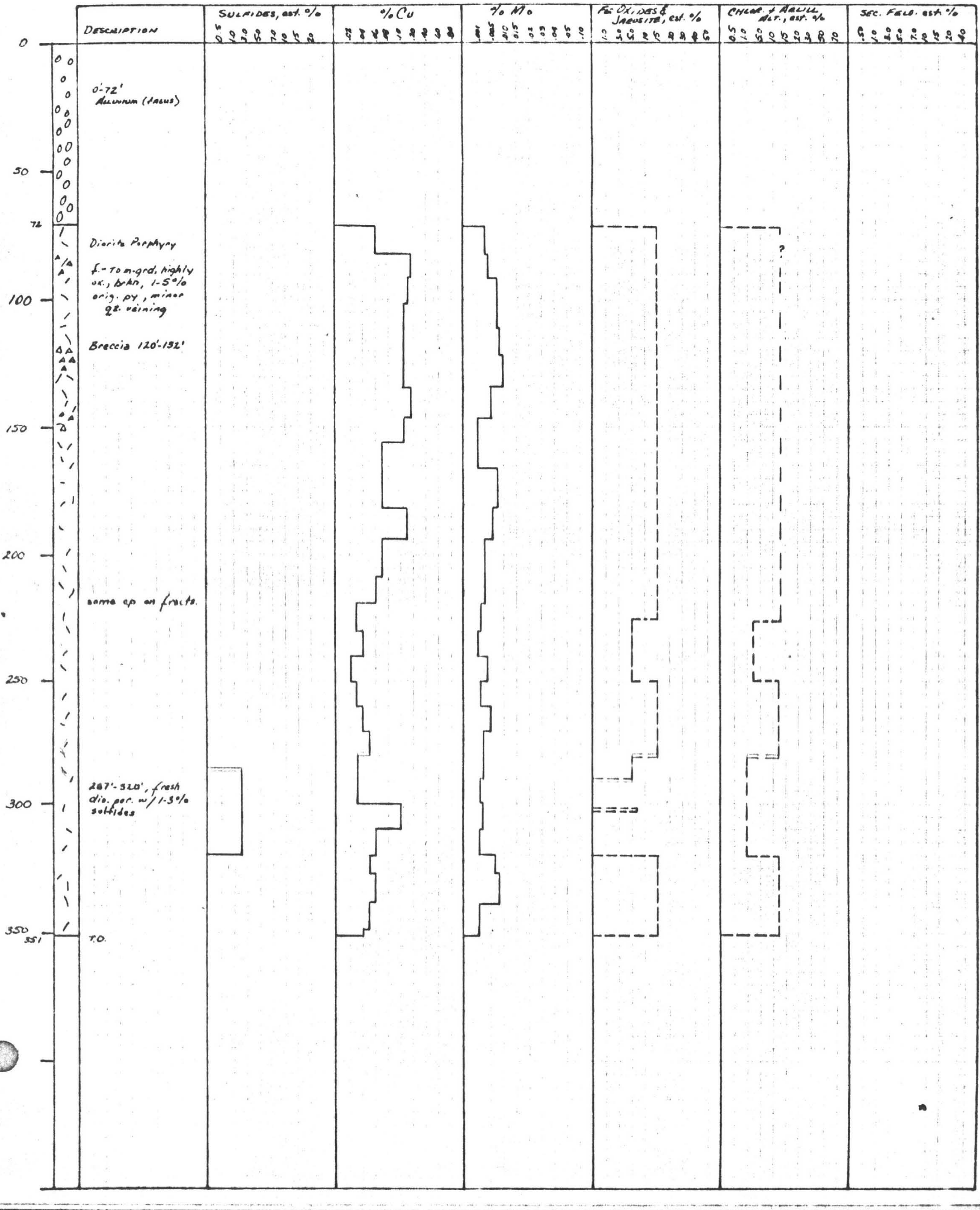
RESULTS

TOTAL DEPTH *351*, BY *J.B.H.*

REMARKS

START

COMPLETED



SUMMARY DRILL HOLE LOG

PROJECT: Miners Basin

DRILL HOLE NO. 1-A PAGE 1 OF 1

SCALE: 1" = 50 ft. EST. OF FINAL DEPTH

BEARING 207°30' DIP 60°

PURPOSE

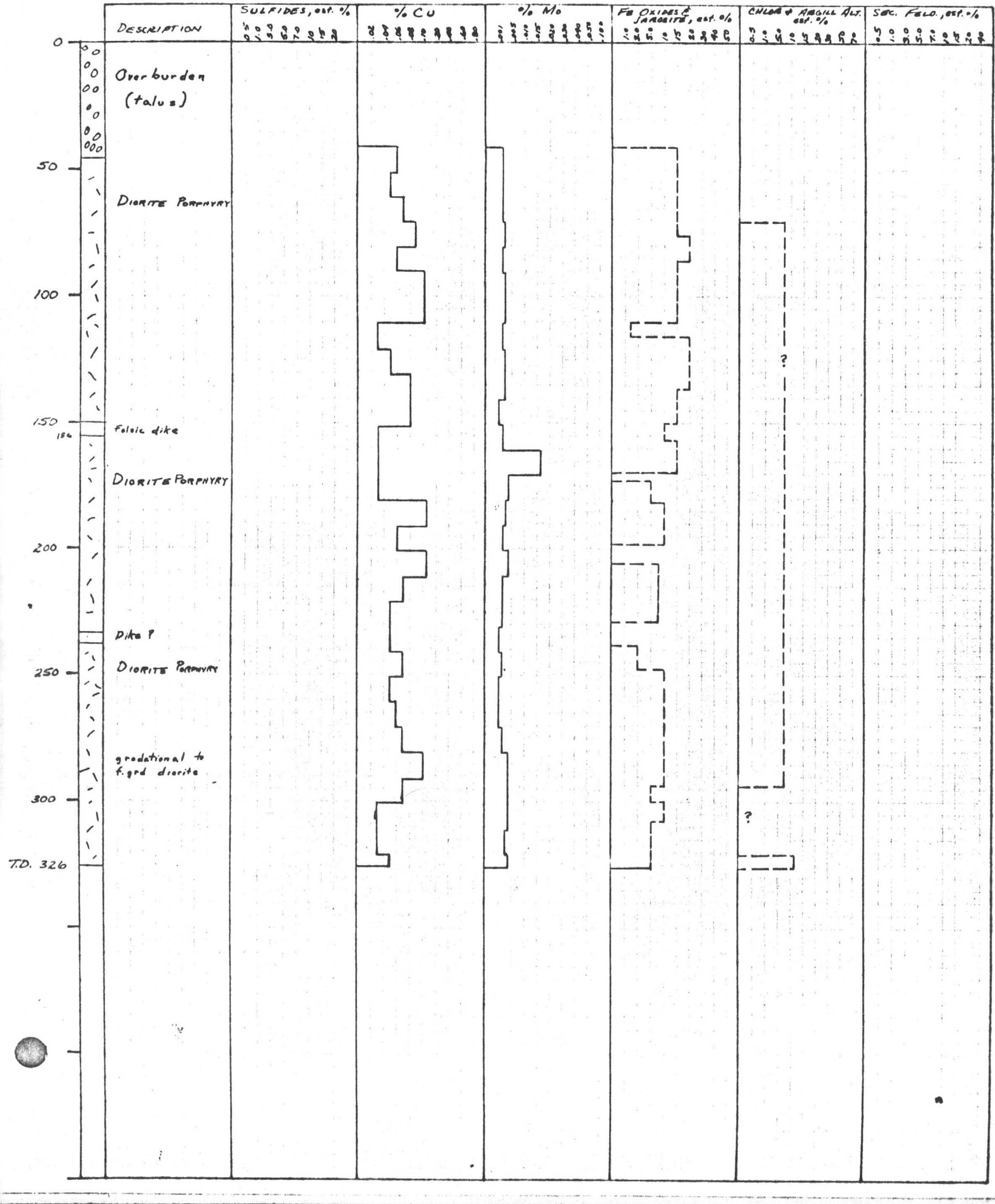
LOCATION

RESULTS

TOTAL DEPTH 326', BY J.B.H.

REMARKS

START COMPLETED



SUMMARY DRILL HOLE LOG

PROJECT: Miners Basin

SCALE: 1" = 50 ft

EST. OF FINAL DEPTH:

PURPOSE:

RESULTS:

REMARKS:

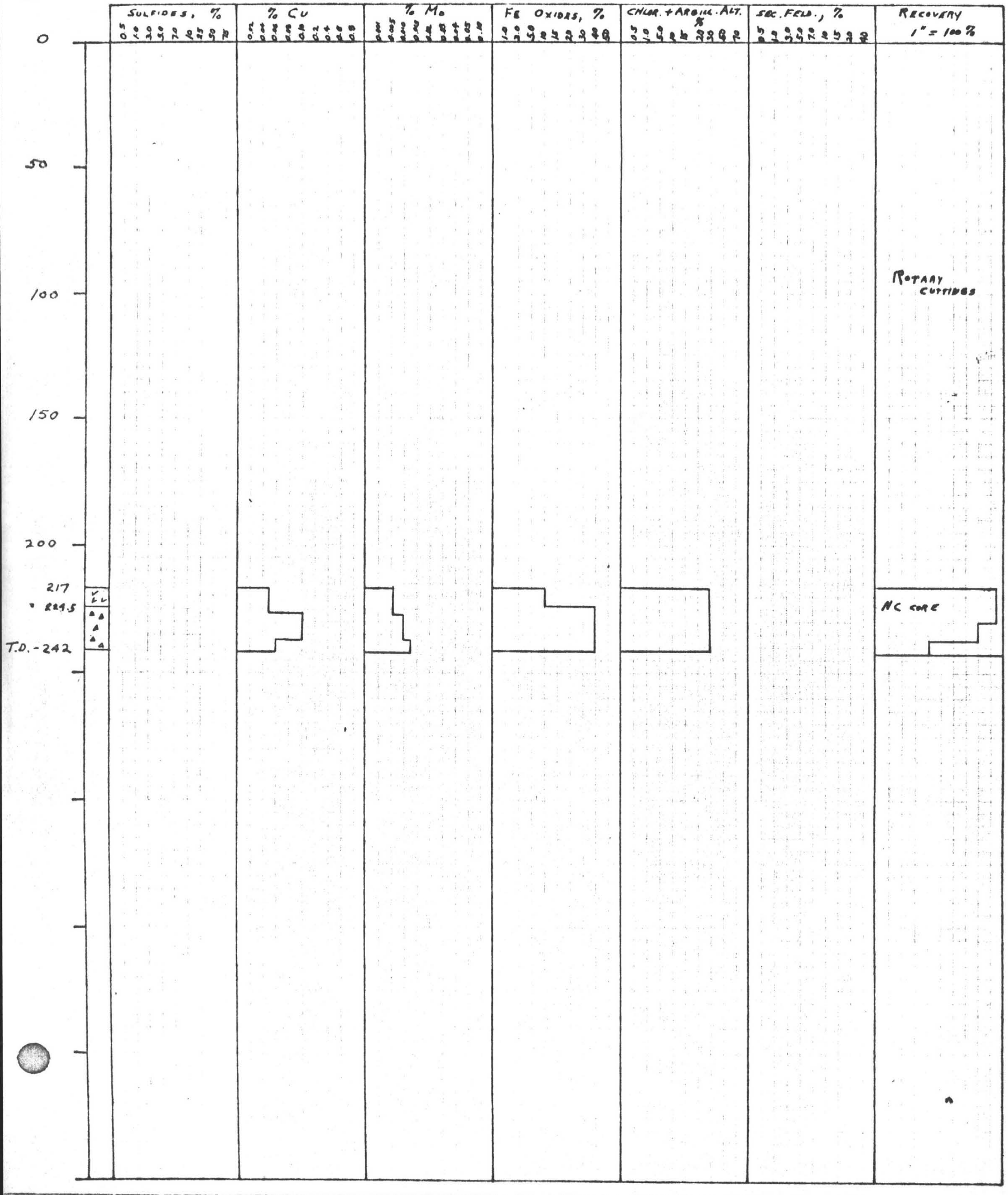
DRILL HOLE NO. 1-B PAGE 1 OF 1

BEARING: — DIP: 90°

LOCATION:

TOTAL DEPTH: 242, BY: JBH

START: COMPLETED:



PROJECT Miners Basin

SCALE: 1" = 50 ft. EST. OF FINAL DEPTH

PURPOSE

RESULTS

REMARKS

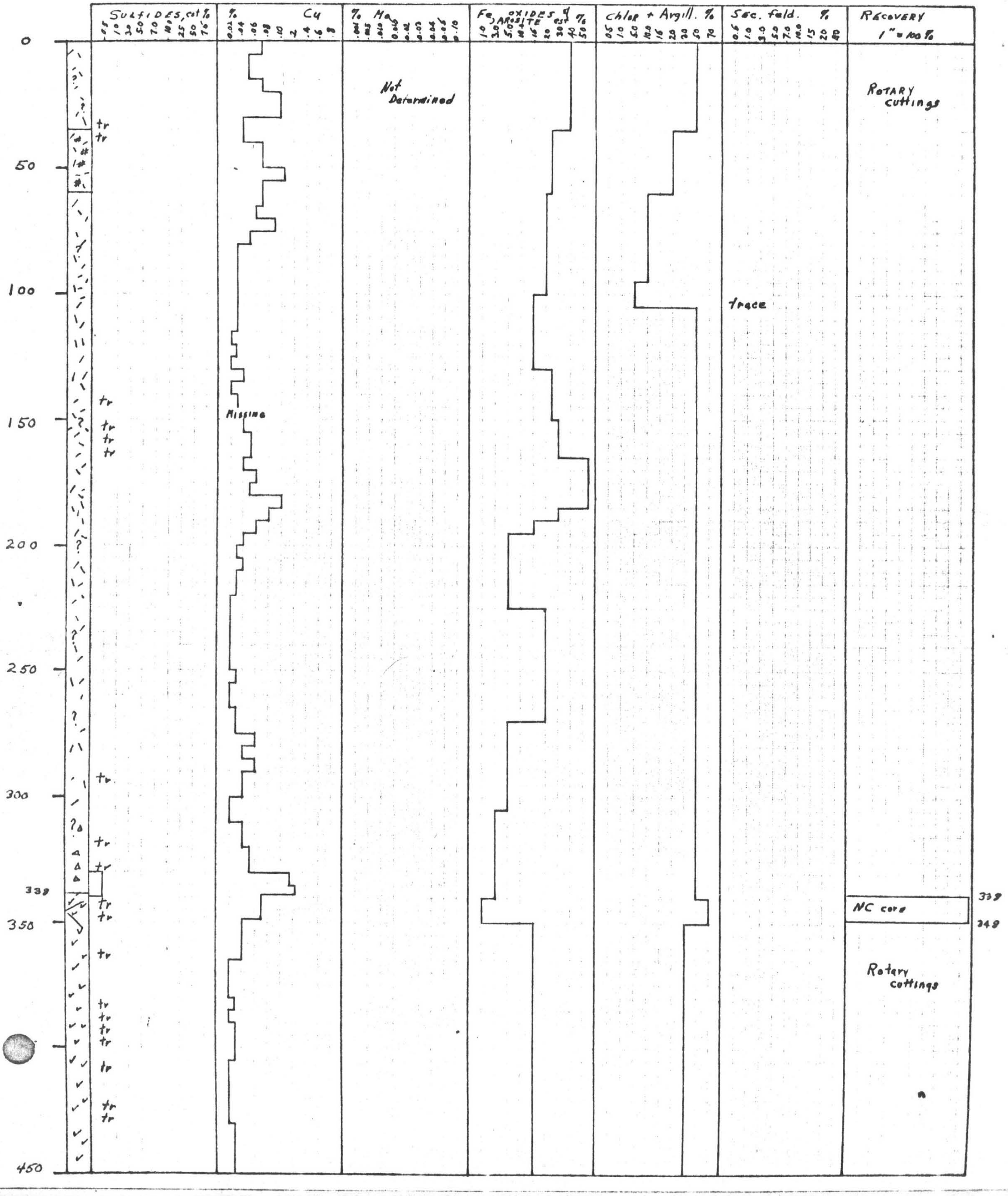
DRILL HOLE NO. GM-1 PAGE 1 OF 2

BEARING — DIP 90°

LOCATION

TOTAL DEPTH 715, BY JBH

START COMPLETED



PROJECT: MINERS BASIN

DRILL HOLE NO: GM-1 PAGE 2 OF 2

SCALE: 1" = 50 ft.

EST. OF FINAL DEPTH:

BEARING: -

DIP: 90°

PURPOSE:

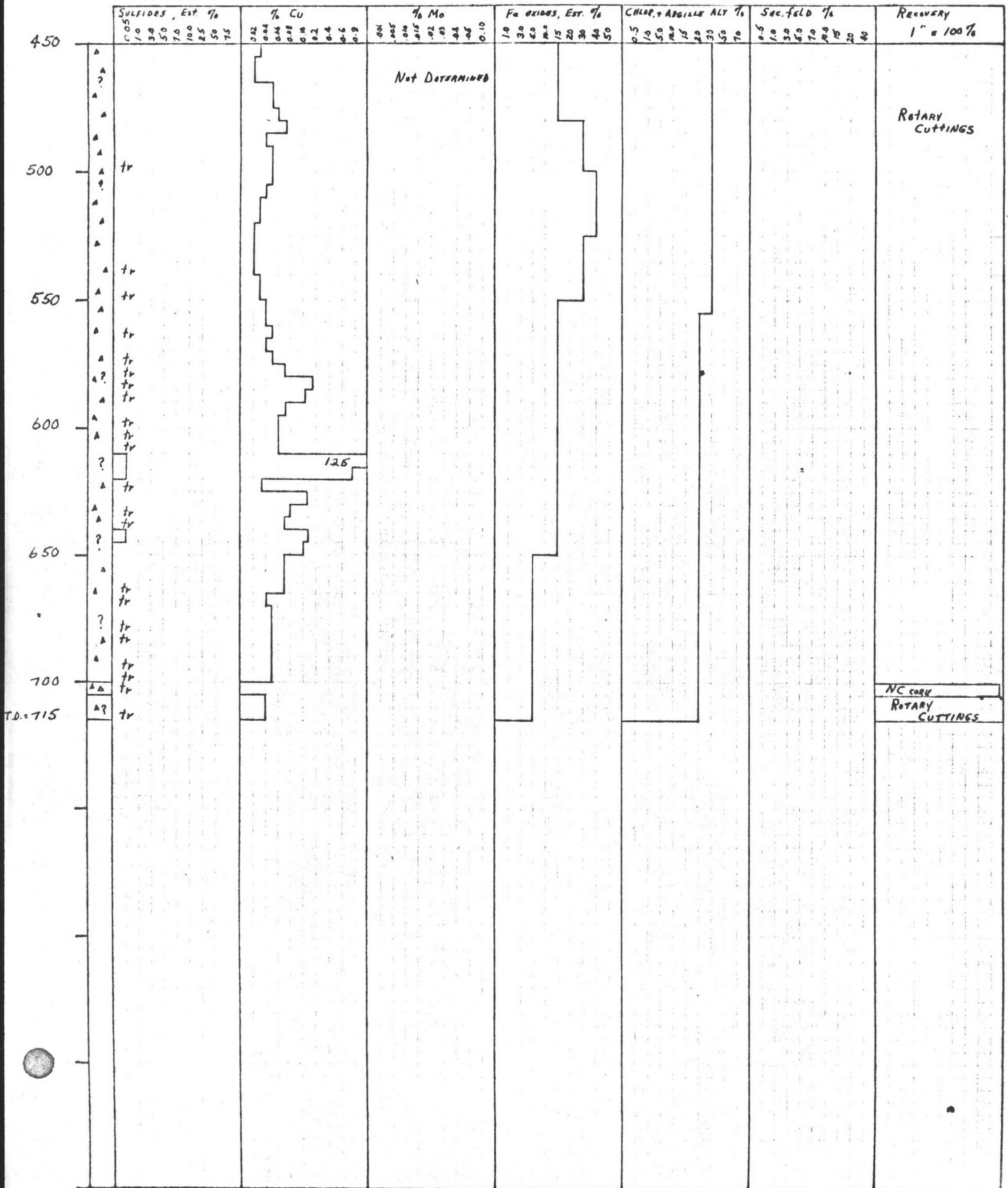
LOCATION:

RESULTS:

TOTAL DEPTH: 715, BY: JBH

REMARKS:

START: COMPLETED:



SUMMARY DRILL HOLE LOG

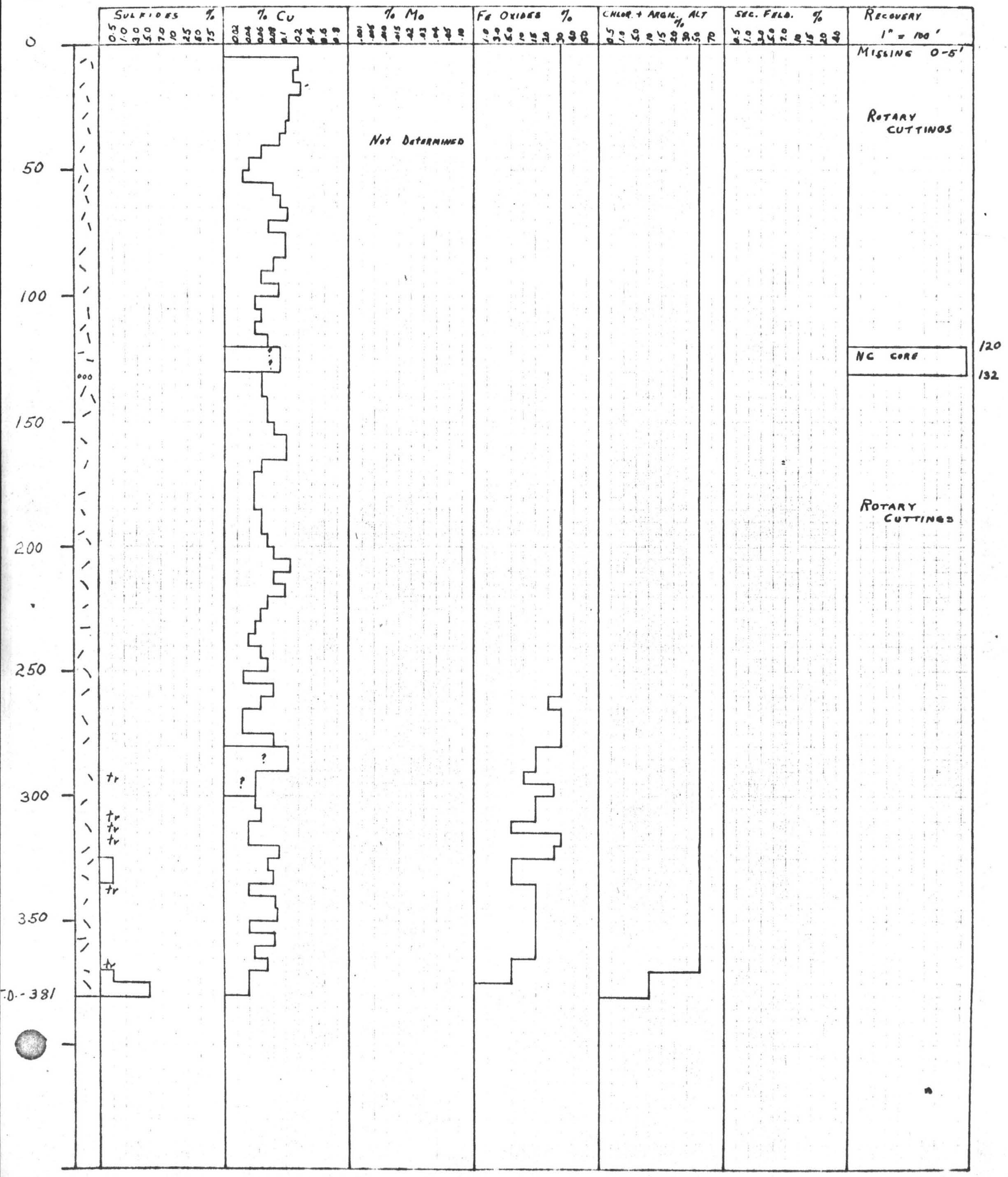
PROJECT Miners Basin | DRILL HOLE NO GM-2 | PAGE 1 OF 1

SCALE: 1" = 50 ft. | EST. OF FINAL DEPTH | BEARING – | DIP 90°

PURPOSE | LOCATION

RESULTS | TOTAL DEPTH 381, BY JBH

REMARKS | START | COMPLETED



PROJECT Miners Basin

DRILL HOLE NO. GM-3 PAGE 1 OF 2

SCALE: 1" = 50 ft.

EST. OF FINAL DEPTH

BEARING — DIP 90°

PURPOSE

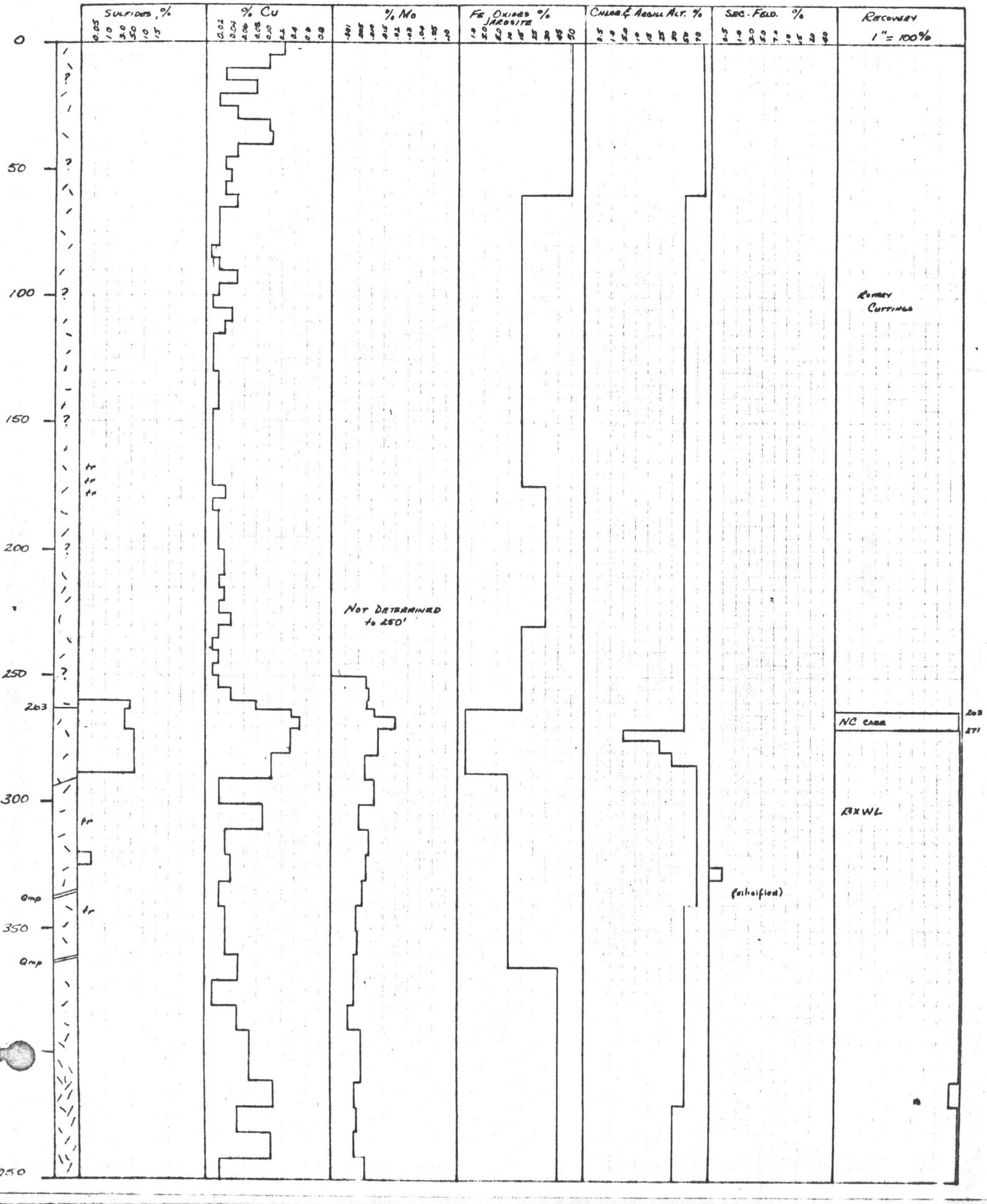
LOCATION

RESULTS

TOTAL DEPTH 844, BY JBH.

REMARKS

START COMPLETED



PROJECT *Miners Basin*

DRILL HOLE NO. *GM-3* PAGE *2* OF *2*

SCALE: 1" = *50 ft.*

EST. OF FINAL DEPTH

BEARING *—* DIP *90°*

PURPOSE

LOCATION

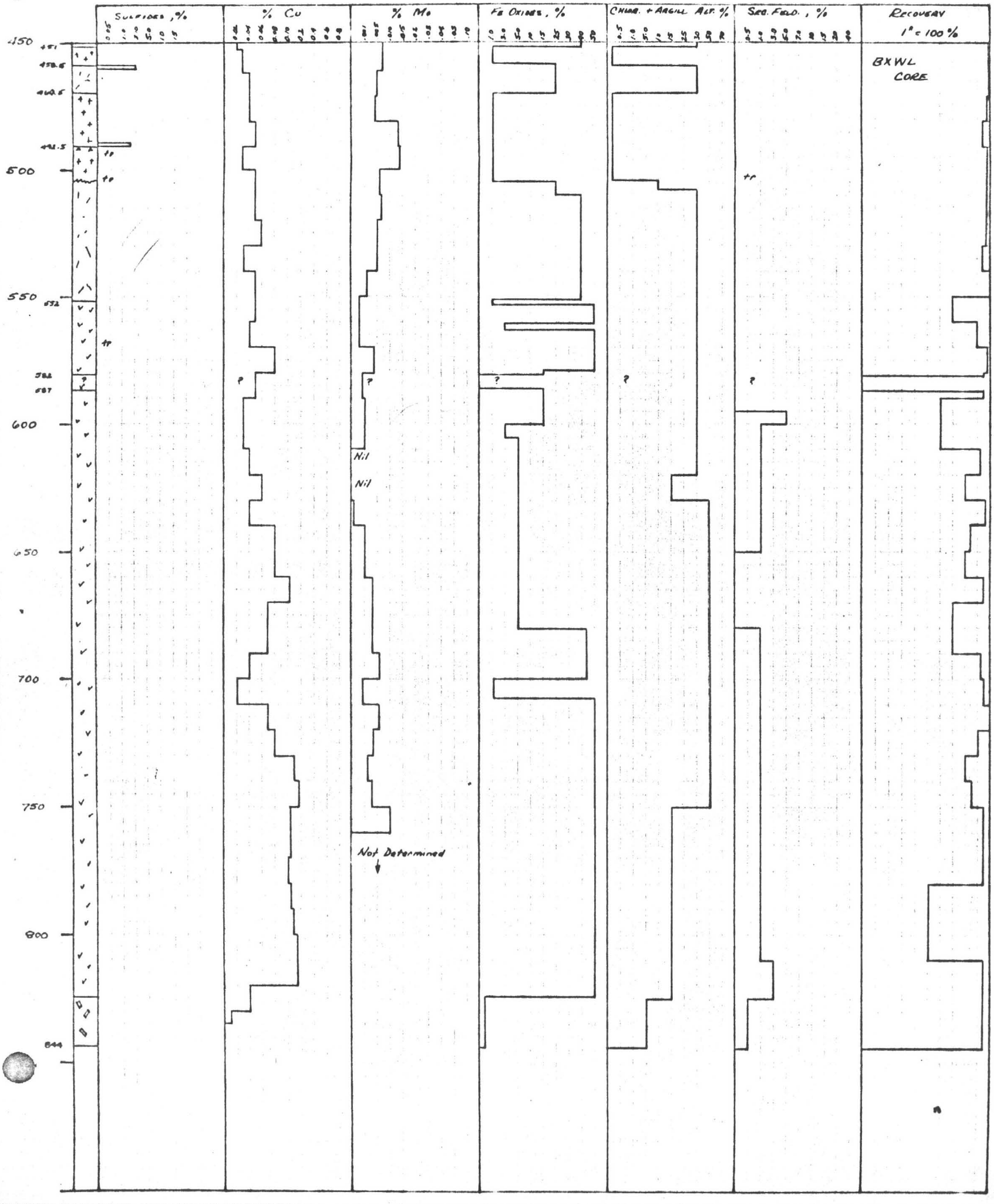
RESULTS

TOTAL DEPTH *844*, BY *J.B.H.*

REMARKS

START

COMPLETED



SUMMARY DRILL HOLE LOG

PROJECT Mineral Basin

SCALE: 1" = 50 ft.

EST. OF FINAL DEPTH

PURPOSE

RESULTS

REMARKS

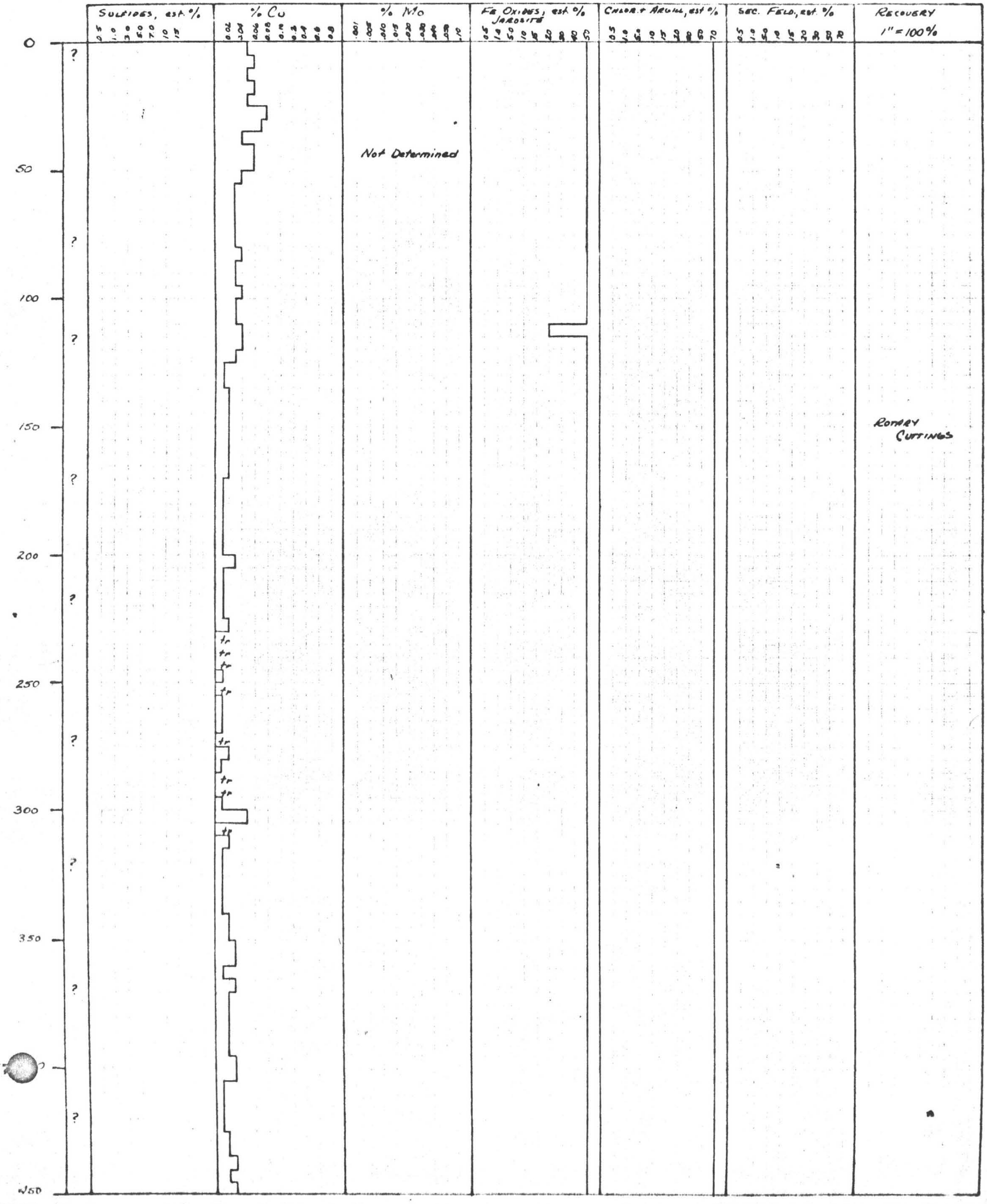
DRILL HOLE NO. GM-5 PAGE 1 OF 2

BEARING – DIP 90°

LOCATION

TOTAL DEPTH 621, BY JBH.

START COMPLETED



SUMMARY DRILL HOLE LOG

PROJECT Miners Basin

DRILL HOLE NO. GM-5 PAGE 2 OF 2

SCALE: 1" = 50 ft.

EST. OF FINAL DEPTH

BEARING – DIP 90°

PURPOSE

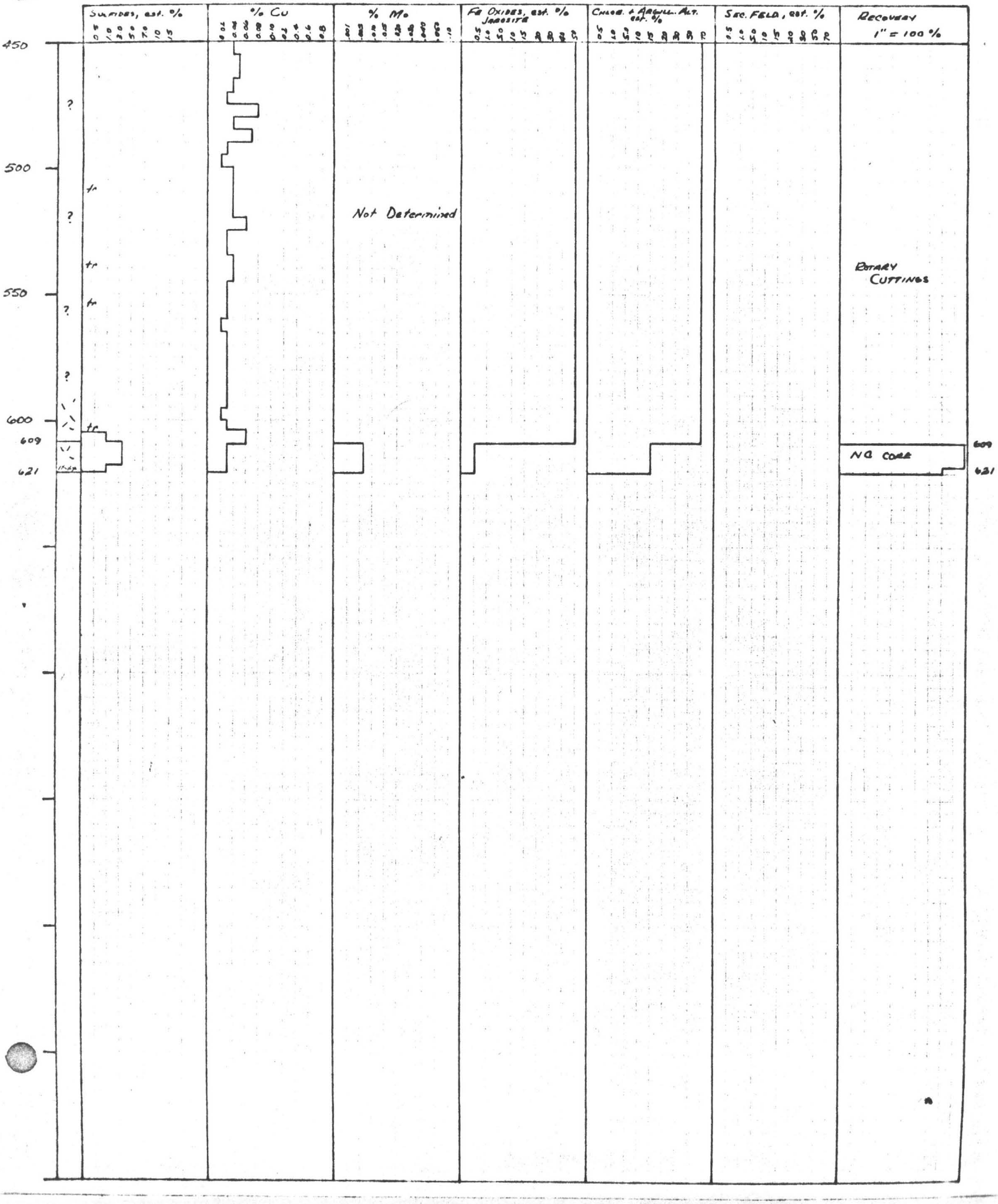
LOCATION

RESULTS

TOTAL DEPTH 621, BY JBH.

REMARKS

START COMPLETED



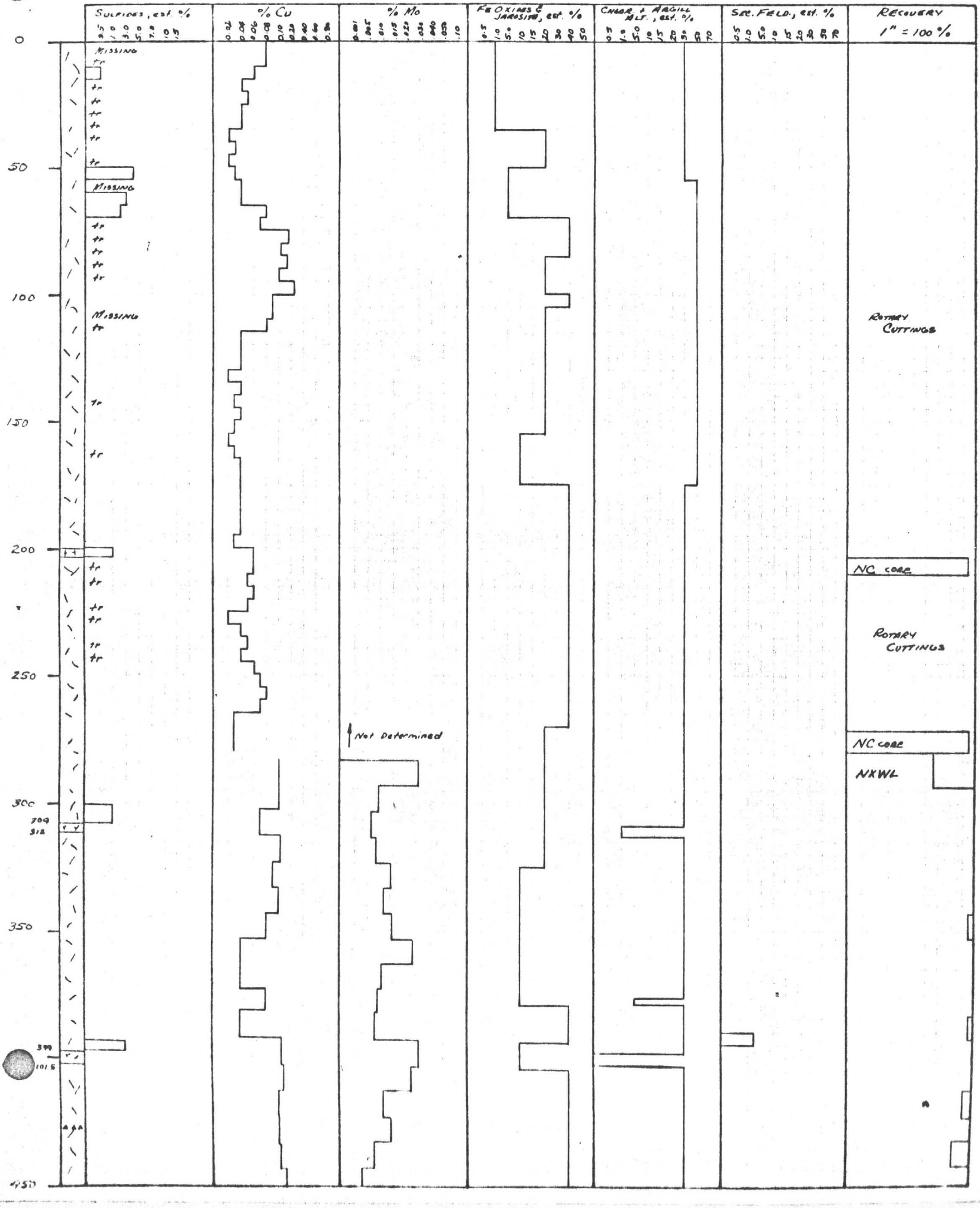
PROJECT Miners Basin　　　　DRILL HOLE NO. GM-6　　PAGE 1 OF 2

SCALE: 1" = 50 ft.　　EST. OF FINAL DEPTH ______　　BEARING —　　DIP 90°

PURPOSE ______　　LOCATION ______

RESULTS ______　　TOTAL DEPTH 576.5, BY J.B.H.

REMARKS ______　　START ______ COMPLETED ______



SUMMARY DRILL HOLE LOG

PROJECT: Miners Basin

DRILL HOLE NO. GM-6 PAGE 2 OF 2

SCALE: 1" = 50 ft.

EST. OF FINAL DEPTH

BEARING: –

DIP: 90°

PURPOSE

LOCATION

RESULTS

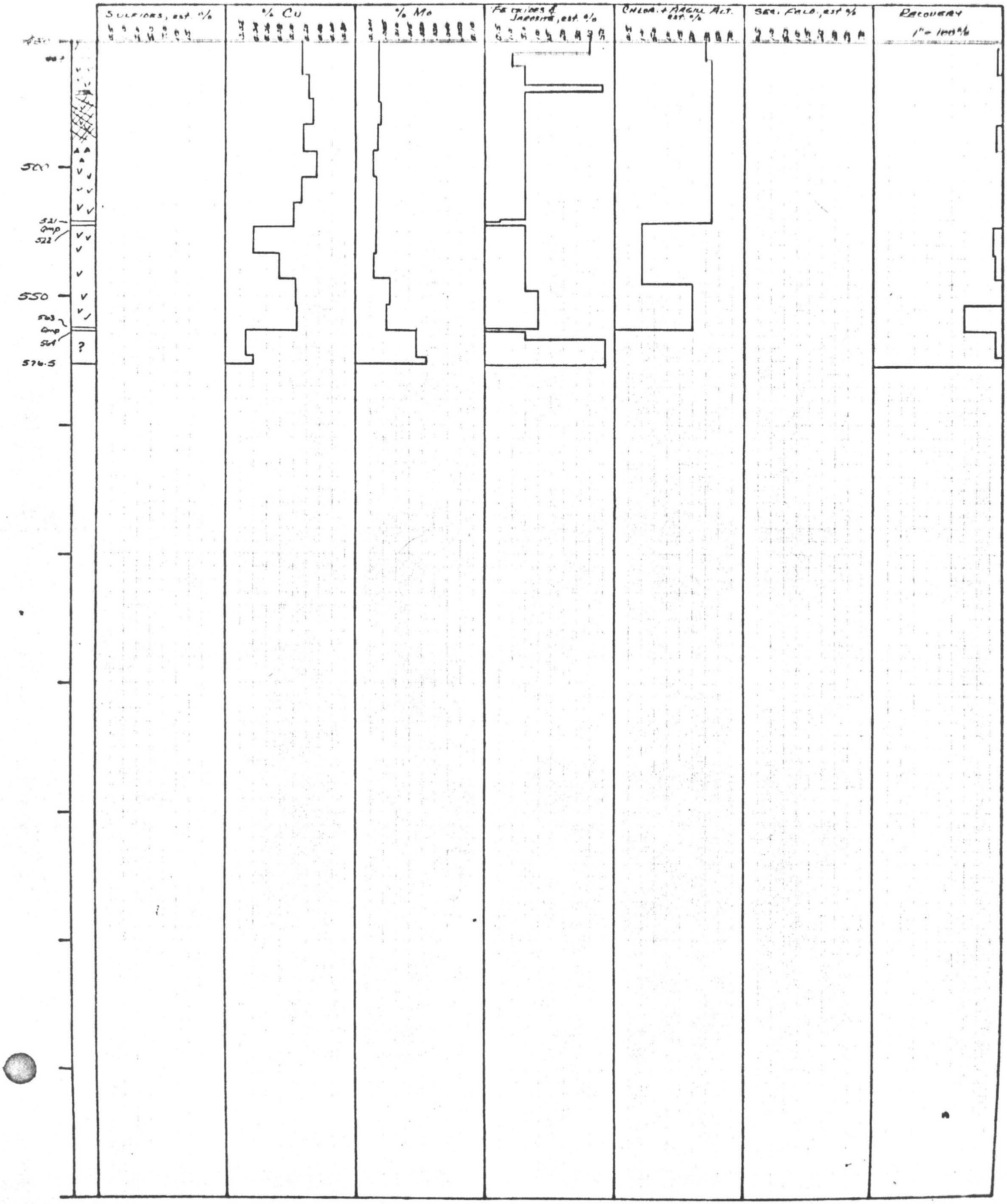
TOTAL DEPTH: 576.5

BY: J.B.H.

REMARKS

START

COMPLETED



SUMMARY DRILL HOLE LOG

PROJECT: Miners Basin

DRILL HOLE NO.: GM-11 PAGE 1 OF 2

SCALE: 1" = 50 ft

EST. OF FINAL DEPTH:

BEARING: –

DIP: 90°

PURPOSE:

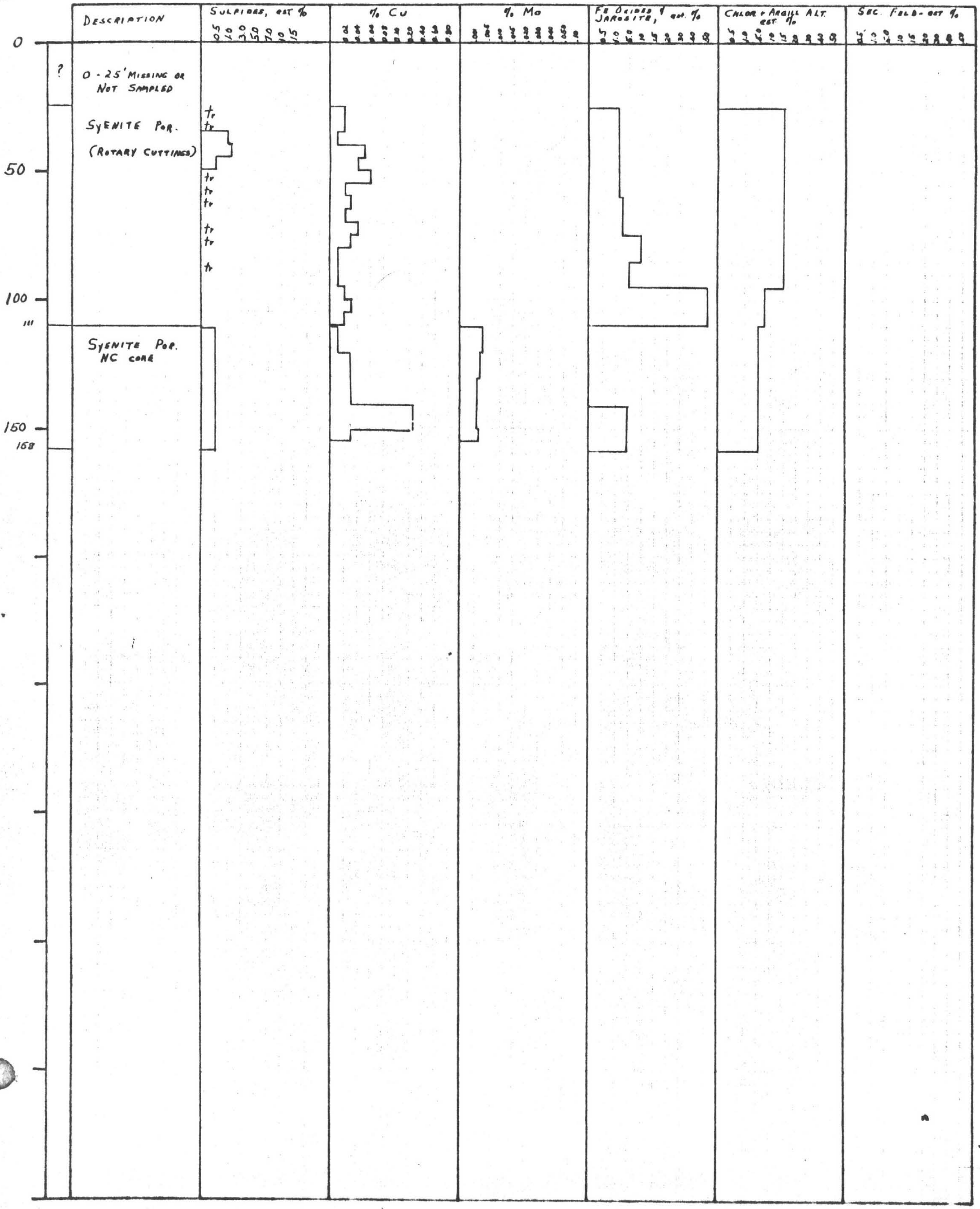
LOCATION:

RESULTS:

TOTAL DEPTH: 158, BY: JBH

REMARKS: 0-111' Rotary, 111'-158 NC core

START: COMPLETED:



PROJECT: Miner's Basin

DRILL HOLE NO. MM-3 PAGE 1 OF 2

SCALE: 1" = 50 ft.

EST. OF FINAL DEPTH:

BEARING: —

DIP: 90°

PURPOSE:

LOCATION:

RESULTS:

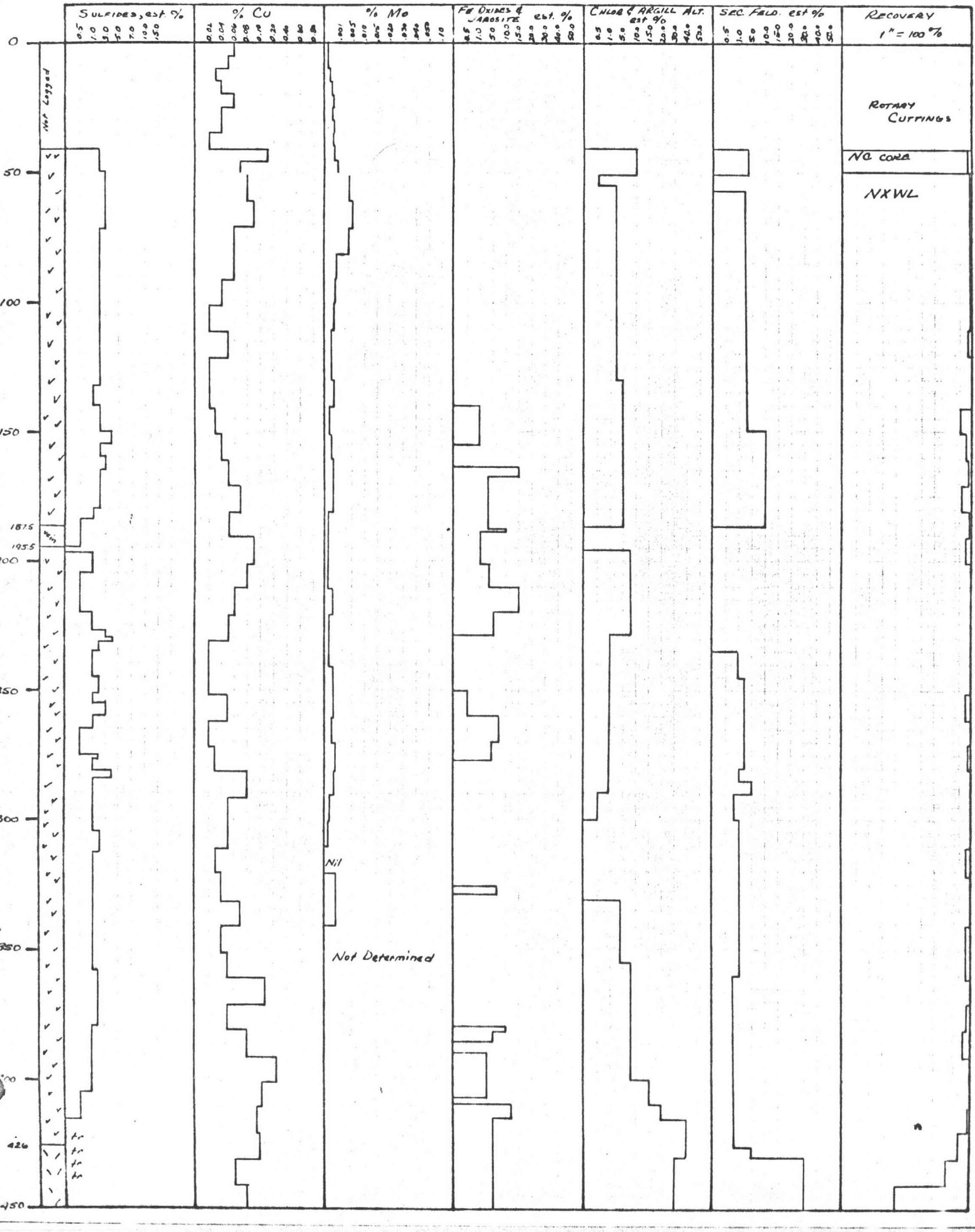
TOTAL DEPTH: 564 ft.

BY: JBH

REMARKS:

START:

COMPLETED:



SUMMARY DRILL HOLE LOG

PROJECT: Miners Basin

SCALE: 1" = 50'

EST. OF FINAL DEPTH:

PURPOSE:

RESULTS:

REMARKS:

DRILL HOLE NO. MM-3

PAGE 2 OF 2

BEARING: —

DIP: 90°

LOCATION:

TOTAL DEPTH: 564 ft.

BY: JBH

START:

COMPLETED:

FIGURE 2

GEOCHEMICAL SAMPLE AND DRILL HOLE LOCATION MAP

EXPLANATION

○ GEOCHEMICAL SAMPLE SITE

○GM-3 DRILL HOLE

△ MINERAL 11,558.9 TRIANGULATION STATION

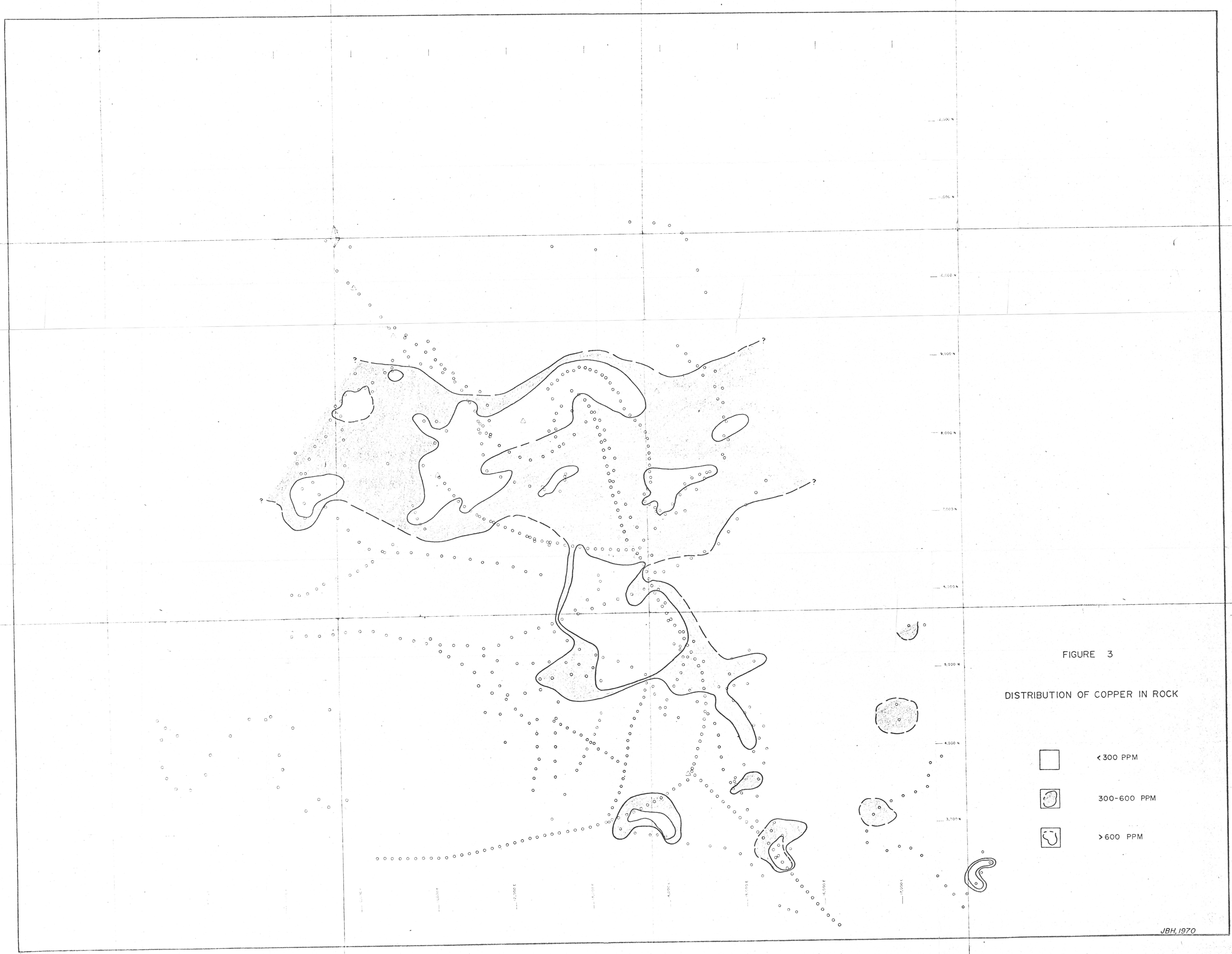


FIGURE 3
DISTRIBUTION OF COPPER IN ROCK
<300 PPM
300-600 PPM
>600 PPM
JBH, 1970

FIGURE 4

DISTRIBUTION OF COPPER IN SOIL

< 300 PPM

300-600 PPM

> 600 PPM

JBH, 1970

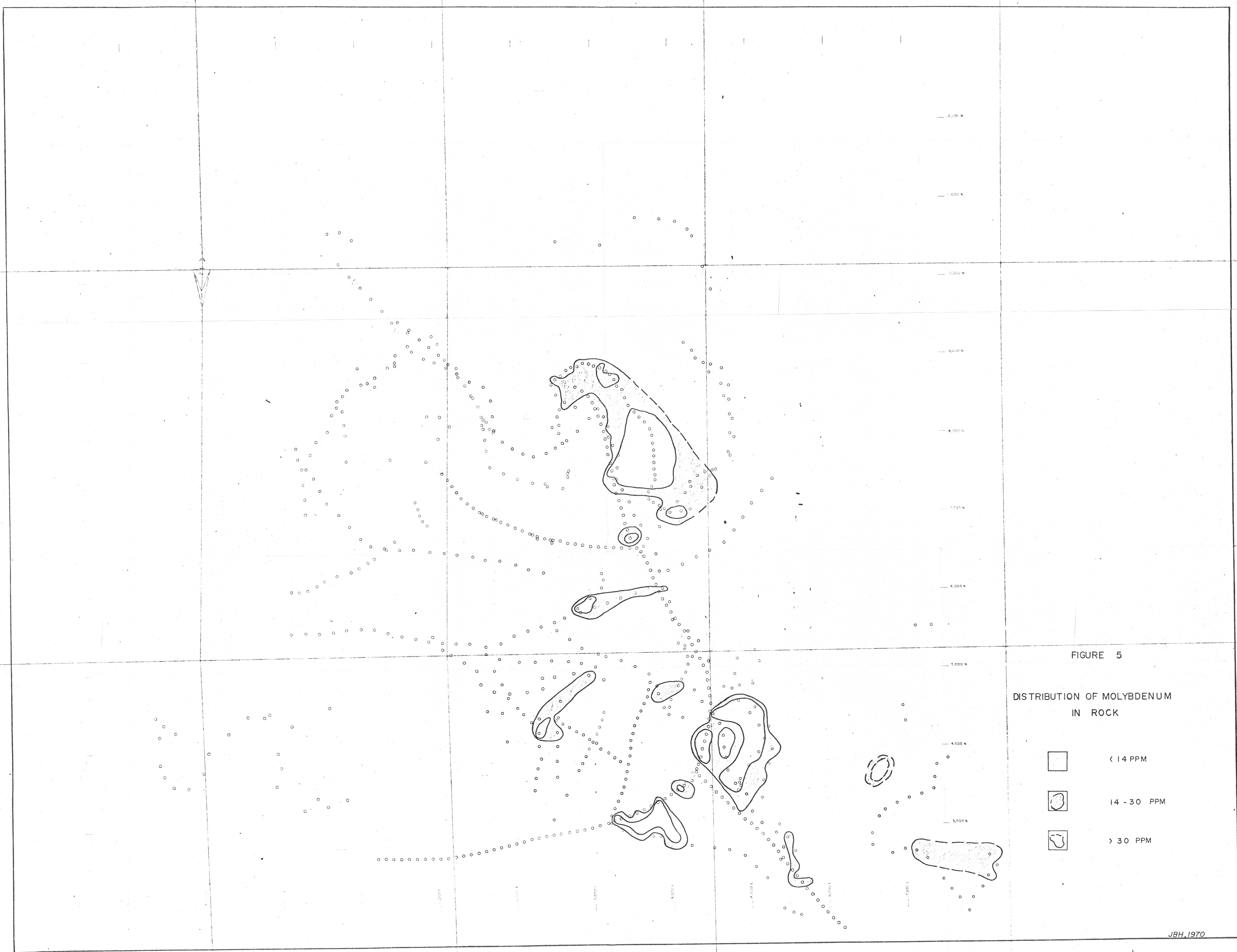


FIGURE 5
DISTRIBUTION OF MOLYBDENUM
IN ROCK
< 14 PPM
14 - 30 PPM
> 30 PPM
JBH, 1970

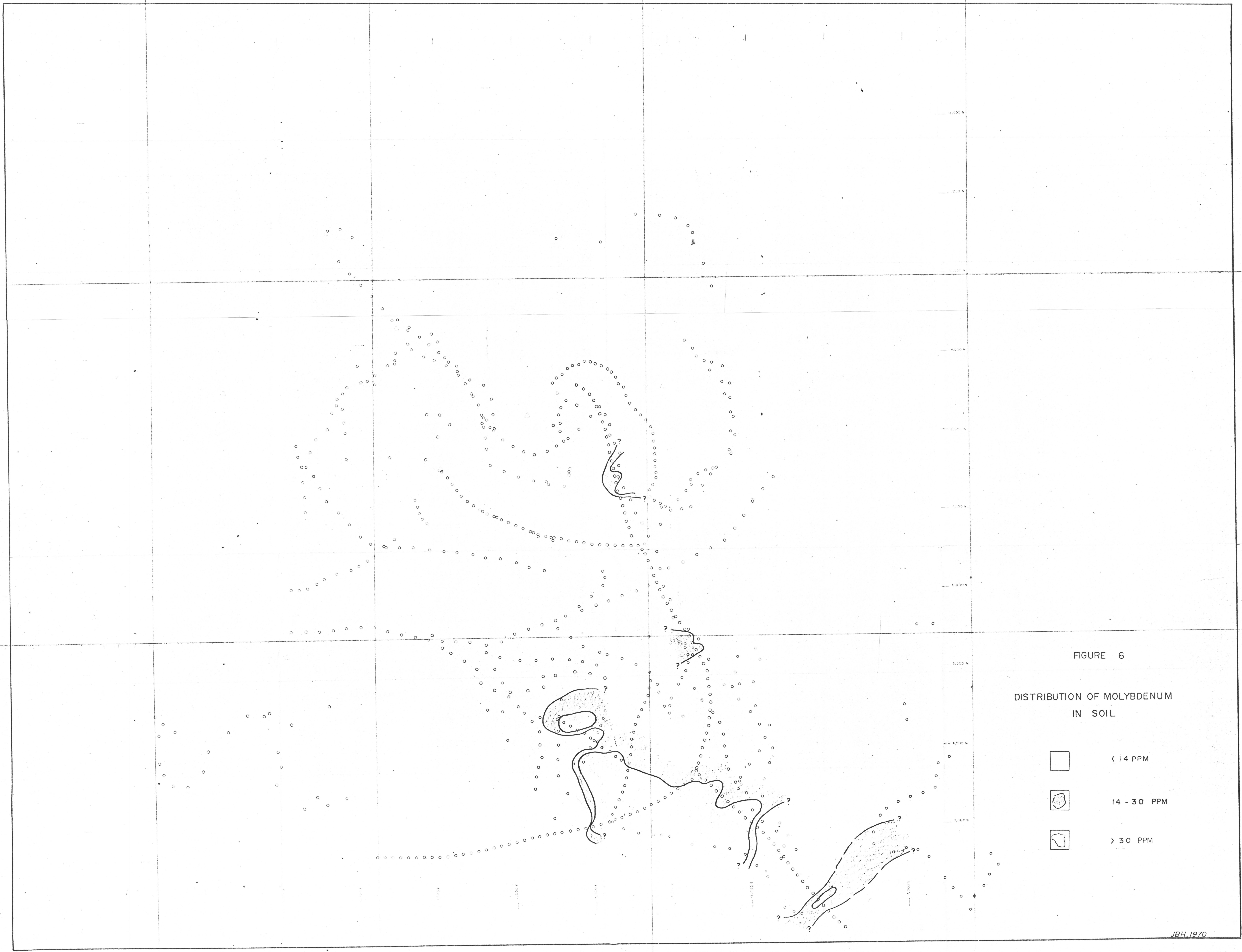


FIGURE 6

DISTRIBUTION OF MOLYBDENUM IN SOIL

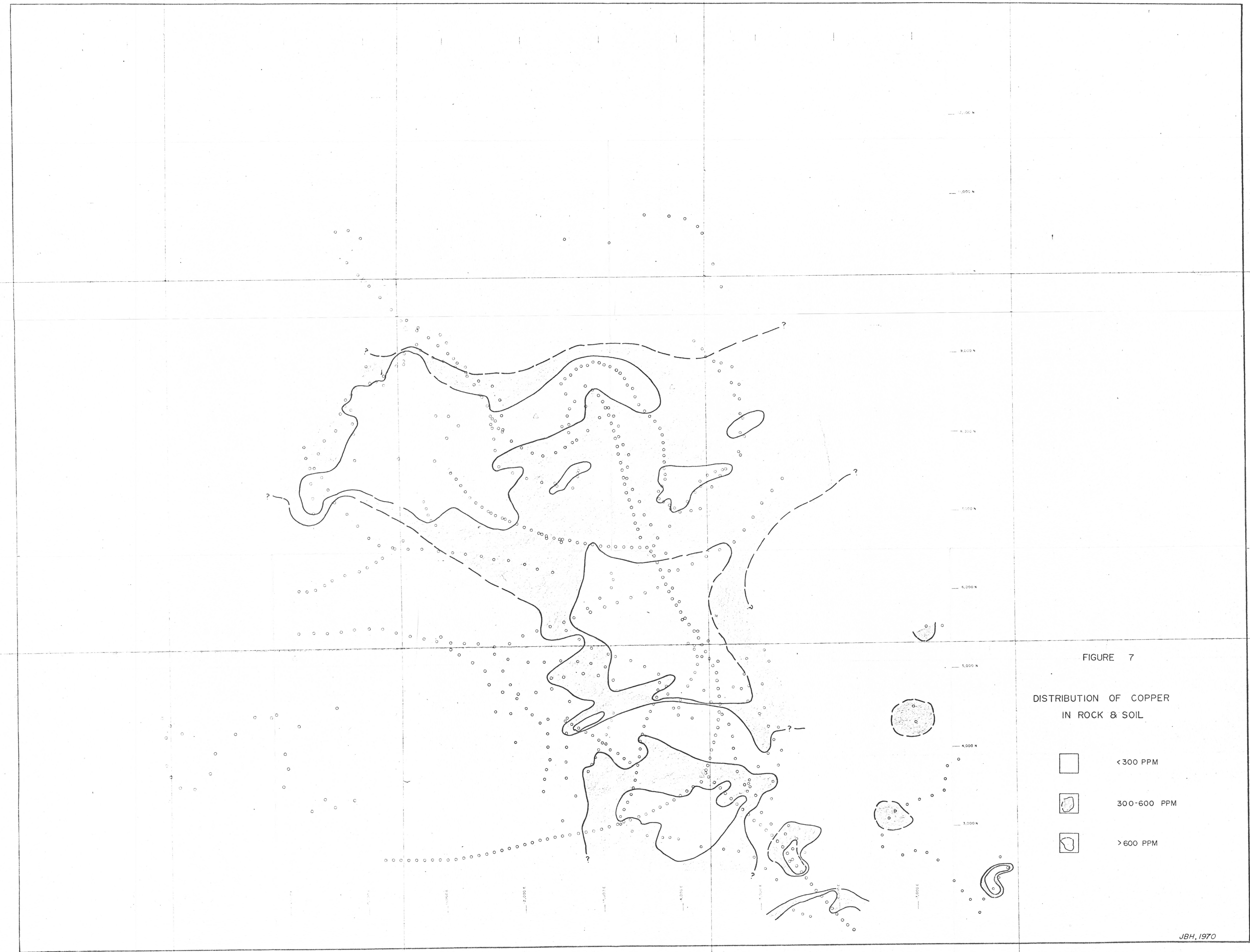


FIGURE 7

DISTRIBUTION OF COPPER IN ROCK & SOIL

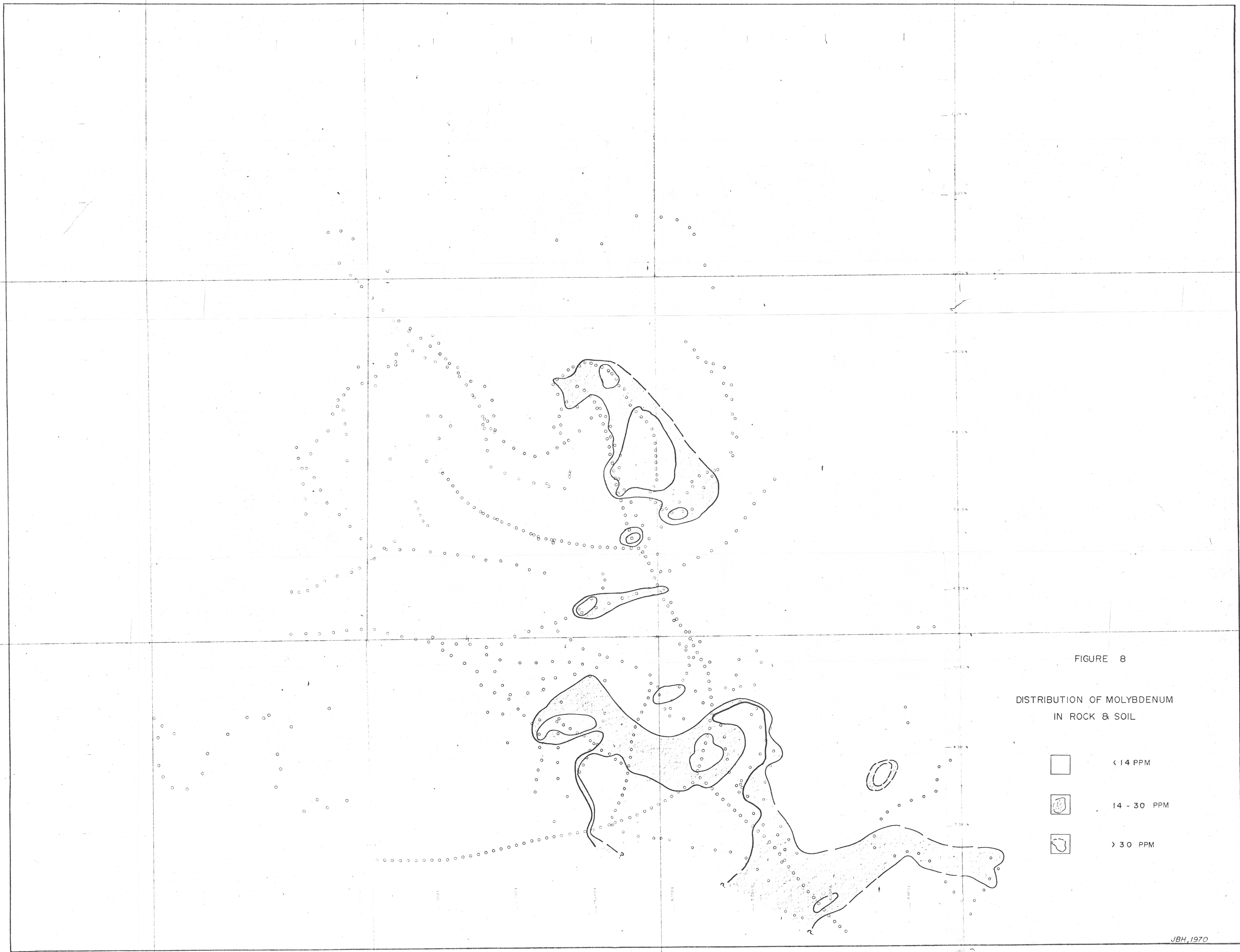


FIGURE 8

DISTRIBUTION OF MOLYBDENUM
IN ROCK & SOIL

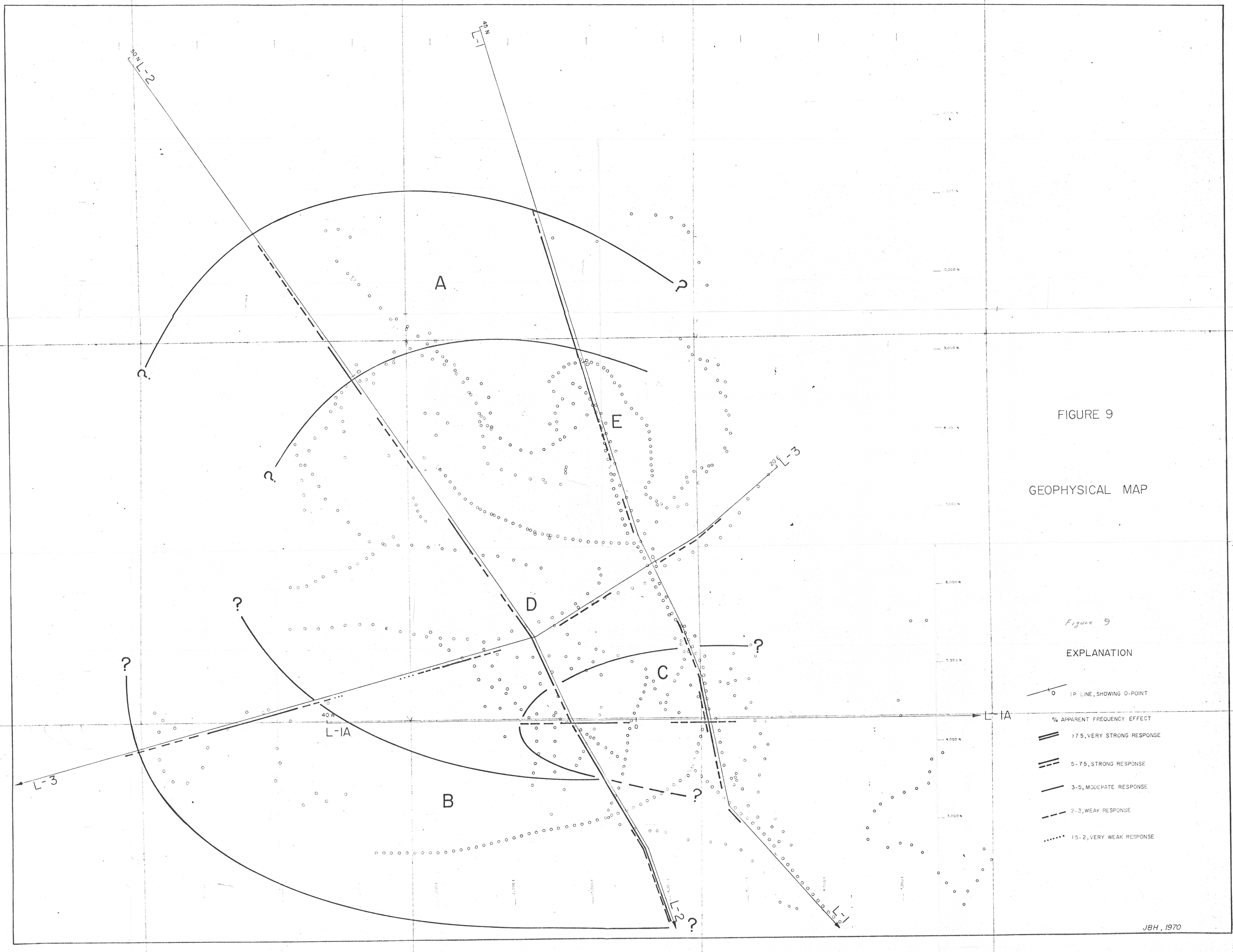


FIGURE 9
GEOPHYSICAL MAP
Figure 9
EXPLANATION
IP LINE, SHOWING O-POINT
% APPARENT FREQUENCY EFFECT
>7.5, VERY STRONG RESPONSE
5-7.5, STRONG RESPONSE
3-5, MODERATE RESPONSE
2-3, WEAK RESPONSE
1.5-2, VERY WEAK RESPONSE
A
B
C
D
E
L-1
L-2
L-3
L-1A
45 N
50 N
20 E
40 W
JBH, 1970