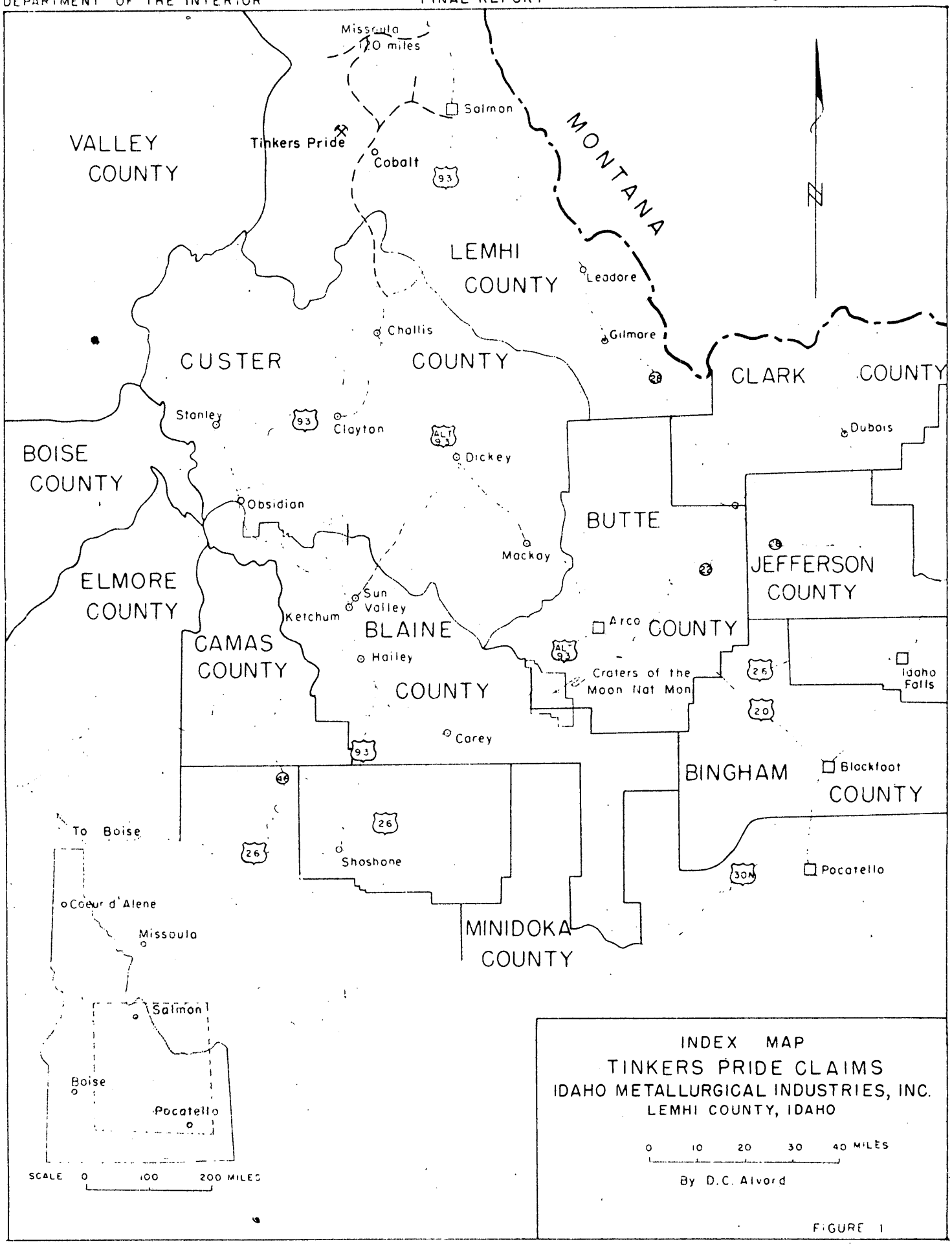
Missoula
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Salmon
Tinkers Pride
Cobalt
VALLEY
COUNTY
MONTANA
LEMHI
COUNTY
Leadore
Gilmore
Challis
CUSTER
COUNTY
CLARK
COUNTY
Stanley
Clayton
Dickey
Dubois
BOISE
COUNTY
Obsidian
BUTTE
Mackay
JEFFERSON
COUNTY
ELMORE
COUNTY
Sun
Valley
Ketchum
BLAINE
COUNTY
Arco
COUNTY
CAMAS
COUNTY
Hailey
Craters of the
Moon Nat Mon
Idaho
Falls
Carey
BINGHAM
COUNTY
Blackfoot
Shoshone
Pocatello
MINIDOKA
COUNTY
To Boise
Coeur d'Alene
Missoula
Salmon
Boise
Pocatello
SCALE 0 100 200 MILES
INDEX MAP
TINKERS PRIDE CLAIMS
IDAHO METALLURGICAL INDUSTRIES, INC.
LEMHI COUNTY, IDAHO
0 10 20 30 40 MILES
By D.C. Alvord

FIGURE 1

GEOLOGIC STUDY
OF THE
BIG DEER CREEK AREA
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO
FOR
IDAHO METALLURGICAL INDUSTRIES, INC.

by

P. J. SHENON, R. P. FULL,
D. M. SNYDER, H. L. BAUER, JR.

MAY 1956

File with
Docket 3739
Idaho Metallurgical
Industries

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SPOKANE, WASH.

GEOLOGIC STUDY

of the

BIG DEER CREEK AREA

BLACKBIRD MINING DISTRICT

LEMHI COUNTY, IDAHO

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MAY 1956

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CONCLUSIONS AND RECOMMENDATIONS

Exploration work in the Big Deer Creek area during the summer and fall of 1955 has delimited two areas in which wide spread cobalt and copper mineralization occur. Both the Tinkers Pride and the Bonanza Copper areas occupy zones which are closely associated with the major structural feature of the district. The position of the major shear zone to the north of Big Deer Creek, as reflected by the latite porphyry dikes, appears to be controlled by the position of the granite contact, even though the two are not coincident on the surface. A change in strike and dip of the shear zone within the Tinkers Pride area is very apparent, and may to a large extent be responsible for the more intense fracturing and structural adjustments in that area. A similar change in strike was mapped in the Bonanza Copper area, but the detailed structure is not well exposed.

Much of the rock has been silicified along the more disturbed structural zones, and rock types do not appear to appreciably influence the localization of mineralization. The sulphides in general are quite closely associated with the silicified rocks.

Geophysical and geochemical methods have been very useful in restricting the areas for more detailed exploration, but neither method can be relied upon alone to specifically indicate mineralized structures. Self-potential anomalies have been recorded over recognized mineralized structures in the Bonanza Copper and Tinkers Pride areas, but extensions of structures are not always apparent. The presence of an anomaly is significant, but the lack of an anomaly is not assurance that favorable structures are not

present. The method requires somewhat specialized conditions and its effectiveness is limited by depth. Structures with iron sulphides also may give large anomalies; however, this relationship is not a disadvantage in the Big Deer Creek area, as any structure with a high sulphide content deserves more detailed exploration for cobalt and copper.

Geochemical analyses of soil samples have produced some very useful results, but the wide variation of conditions under which the samples were taken creates considerable doubt regarding other than general interpretations from the method. Very deep soil mantle covers most of the Bonanza Copper area and soil migration on the steep slopes is very apparent in bulldozer trenches. Anomalies are weak over most of the area, and there is a lack of detail to permit correlation with specific structures.

Soil analyses from the Tinkers Pride slope give much higher values than were obtained in other parts of the area. This may be indicative of stronger mineralization, but the most significant factor appears to be the lack of soil cover over a zone of wide spread mineralization. In many instances soil samples have been collected in close proximity to mineralized outcrops or in slide rock areas below the outcrops. These conditions create doubt regarding the intensity and distribution of the anomalies as compared with areas of deep soil cover.

Bulldozer cuts and trenches were used to obtain geologic information in areas of poor exposures, but a number of areas in which mineralized structures are indicated remain to be tested.

Geologic mapping of surface exposures and bulldozer trenches has added considerably to the knowledge of the structural relations which are associated with the cobalt and copper mineralization. Correlation between this data and the geophysical and geochemical survey has added assurance to interpretations.

Seven diamond drill holes totaling 3,821.3 feet were drilled in the Bonanza Copper and Tinkers Pride areas. All of the holes were directed to intersect structures which were known to be mineralized at the surface. Three holes drilled on the Bonanza Copper zone intersected the mineralized structure, but none of the holes indicates commercial grade mineralization. Four holes were drilled in the Tinkers Pride area - two each on the No. 3 and No. 4 zones. Neither hole on the No. 3 zone cut a definite mineralized structure; however, low grade copper and cobalt values occur in several sections of the hole. Drill holes Nos. 6 and 7 intersected the Tinkers Pride No. 4 zone, but poor core recovery, especially in the No. 6 hole, makes evaluation of the results uncertain. Several well mineralized zones were cut, but a commercial grade can not be assured from existing data.

Diamond drilling during the 1955 season was directed to determine if commercial grade mineralization existed in several of the more favorable zones, and to establish continuity of the structures. A lack of definite commercial grades in the seven holes creates considerable uncertainty regarding the possibilities of the area. Even though low grade mineralization is known to be wide spread, evidence from geologic mapping indicates that the higher grade mineralization is extremely lensy. However, the possibility

of higher grade mineralization has not been fully disproved by seven drill holes in an area as large as the Bonanza Copper-Tinkers Pride zone. The amount of low grade cobalt and copper mineralization that has been exposed, over wide areas, in the drill holes gives some encouragement to search for zones of more intense mineralization. Closer spaced drilling along some of the structures also warrants consideration.

Diamond drilling during the 1955 season with NX and BX size bits has supported the use of the larger size holes to obtain better core recovery. A drilling contract based on shift payment, with emphasis on the core recovery, has increased the cost of drilling but more reliable results have justified the additional cost. The late season drilling, under very adverse weather conditions, has also contributed to the higher costs.

Exploration in the Big Deer Creek area during the past season has indicated several well mineralized areas, none of which has to date been proven to contain ore. Additional work remains to be done before a final decision should be reached. The following program is recommended for the coming summer if serious consideration is to be given to cobalt exploration.

Exploration in the Big Deer Creek area should be directed toward continued drilling in both the Tinkers Pride and Bonanza Copper areas, with some additional trenching for geologic information. Work should be started by July 1 to avoid late season drilling under adverse weather conditions. No consideration should be given to construction of permanent camps or a new access road

along Big Deer Creek for the next stage of exploration.

Underground exploration is not recommended for either the Bonanza Copper or Tinkers Pride areas at the present time. Additional drilling should first more fully investigate the possibilities of commercial mineralization. An evaluation of results during and after the proposed drilling program would be desirable before underground development is considered.

A bulldozer will be required to build roads and prepare drill sites, but it will not be used full time in connection with the drilling. Additional trenching should be considered for the Bonanza Copper and Tinkers Pride areas.

Eight drill holes (Figures 3 to 10, pp. 137 to 144) are recommended for the Tinkers Pride area, one of which is contingent. Four of the holes are recommended (Plates 3 and 6) to more fully explore the No. 4 zone. A fifth hole, TP-8, is proposed to obtain a deeper intersection on the zone.

Drill holes TP-5 and TP-6 are directed to investigate self-potential anomalies on Lines 14-S. and 16-S. Both zones occur within areas of deep slide rock where trenching is impractical. Hole TP-7 is directed to intersect the continuation of the self-potential anomaly from Line 16-S, but it should be contingent upon the results of TP-5.

The proposed drill holes for the Tinkers Pride area are tabulated below:

TINKERS PRIDE AREA
PROPOSED DRILL HOLES

Hole No.	Bearing	Angle	Depth	See Plates
TP-1	N. 85 W.	-40°	600'	3 and 6
TP-2	N. 77 W.	-45°	600'	3 and 6
TP-3	S. 80 W.	-45°	500'	3 and 6
TP-4	S. 75 W.	-40°	600'	3 and 6
TP-5	S. 70 W.	-40°	800'	3 and 6
TP-6	S. 70 W.	-40°	900'	3 and 6
TP-7 (contingent)	S. 70 W.	-40°	700'	3 and 6
TP-8	N. 80 W. (?)	-45°	1,400'	3 and 6
			6,100'	

Several geochemical-geophysical anomalies occur near the west end of Lines 6-S to 12-S. Additional trenching for geologic data in this area should be completed before diamond drilling is considered.

Six drill holes (Figures 11 to 16, pp. 145 to 150) totaling 4,400 feet are proposed for the Bonanza Copper area. Four holes (Plates 9 and 13) are recommended to drill on closer spacing between the three previously drilled holes and to extend the Bonanza Copper zone to the south. A fifth hole, BC-6, is proposed to obtain a deeper intersection on the Bonanza Copper zone. The bearing of BC-6 should be determined by the results of the shallower holes along the zone.

Drill hole BC-5 is proposed to investigate an area of geophysical and geochemical anomalies on the west side of Indian Creek between Lines 22-N and 26-N.

The proposed diamond drill holes for the Bonanza Copper area are tabulated below:

BONANZA COPPER AREA
PROPOSED DRILL HOLES

Hole	Bearing	Angle	Depth	See Plates
BC-1	West	-50°	500'	9 and 13
BC-2	S. 75 W.	-40°	800'	9 and 13
BC-3	S. 85 W.	-45°	500'	9 and 13
BC-4	S. 55 W.	-50°	500'	9 and 13
BC-5	S. 70 W.	-40°	700'	9 and 13
BC-6	S. 50-W. (?)	-60°	1,400'	9 and 13
			4,400'	

Additional trenching should be considered for the west slope of Indian Creek in the Bonanza Copper area.

It is recommended that any additional drilling in the Big Deer Creek area should be done with NX and BX size bits. All holes should be collared with NX and maintained at that size until ground conditions require a reduction in size. No holes should be drilled with smaller than BX size unless adverse drilling conditions make the larger sizes impractical.

A drilling contract should be negotiated with payment on a shift basis, with a differential between drilling and non-drilling shifts. The emphasis should be placed on core recovery and the agreement should specify the use of series "C" core barrels unless the use of the rigid tube barrel is authorized by the project supervisor. The rigid tube should be used only in drilling granite, latite, or other known non-mineralized zones.

The drilling should be started by July 1, with three machines working on a two-shift basis. The program should progress at a rate so that all proposed holes could be completed by November 1st.

A D-8 bulldozer should be moved into the area at least two days ahead of drilling equipment to clear roads and assure access to the area. The bulldozer time should be utilized between drill site preparation and trenching. A total of 50 shifts should be allowed to complete the necessary work.

The estimated cost to carry the project through 10,500 feet of drilling, with a limited amount of trenching, is tabulated below:

Diamond drilling - 10,500 feet		$ 94,500.00
@ an average direct cost of $9/foot, including mobilization, casing, cementing		
Indirect drilling costs		
500 core boxes	$ 1,250.00	
3000 sample sacks and tags	600.00	
Miscellaneous supplies and material	250.00	2,100.00
Bulldozer		
50 shifts @ $14/hr. for drill site preparation and trenching		5,600.00
Assaying		
1000 samples (estimated) to be assayed for copper and cobalt	$ 6,000.00	
Transportation on samples	500.00	6,500.00
		$ 108,700.00

The costs which are tabulated above are exclusive of supervision, logging and sampling of core and sludge, preparation of progress reports, compilation of project results, field expenses of supervisory personnel, and transportation (jeep rental and maintenance).

GEOLOGIC STUDY
of the
BIG DEER CREEK AREA
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

for

IDAHO METALLURGICAL INDUSTRIES, INC.

by

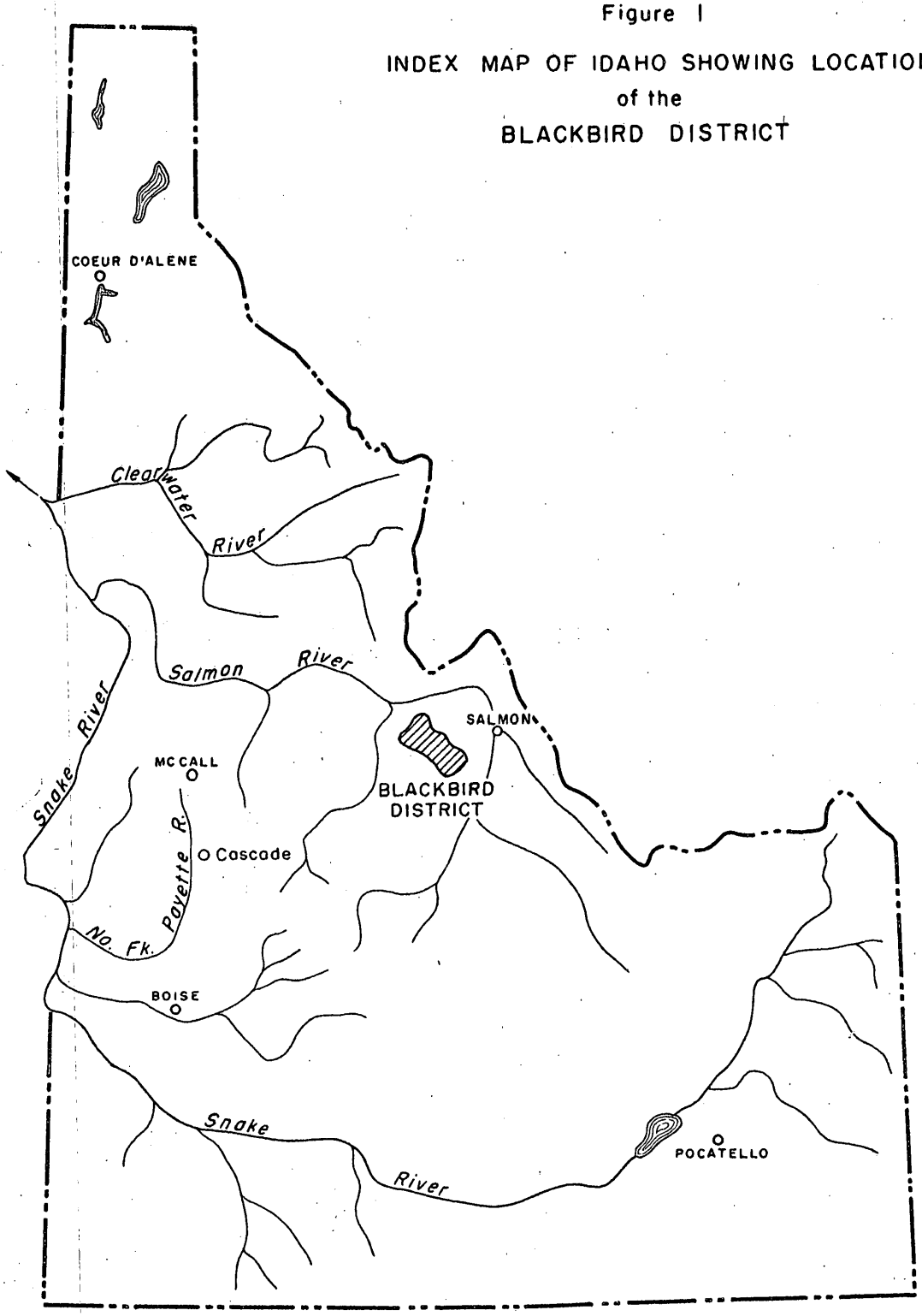
P. J. SHENON, R. P. FULL
D. M. SNYDER, H. L. BAUER, JR.

INTRODUCTION

The Blackbird mining district is in the western part of Lemhi County in east-central Idaho, about 20 miles west of Salmon (Figure 1). The district is in a mountainous region where altitudes range from 4500 to 9000 feet. It is located within the Panther Creek drainage, about 15 miles south of the main Salmon River (Figure 2). The district can be reached by an all-weather road from Northfork on the Salmon River, or by the Morgan Creek road from Challis. The Morgan Creek road is kept open throughout the year, even though snowfall is heavy along the higher parts of the route during the winter months. Snow conditions rarely create a transportation problem on the Northfork road. Both routes are gravel surfaced to their juncture with U. S. Highway 93. The most direct route to Salmon is via Williams Creek Summit, but heavy snowfall at higher elevations makes this road difficult to maintain during winter months. Railroad transportation is available at Mackay, Idaho and Darby, Montana, both of which are about 103 miles from the town of Cobalt.

Figure I

INDEX MAP OF IDAHO SHOWING LOCATION
of the
BLACKBIRD DISTRICT



A branch line of the Union Pacific Railroad has been extended from Blackfoot, Idaho to Mackay, Idaho and the Northern Pacific Railroad services the Bitterroot valley of Montana as far south as Darby.

Geologic work in the Blackbird District during the summer of 1954 indicated wide-spread cobalt and copper mineralization along a well-defined shear zone in the Big Deer Creek area. A large block of mining claims was therefore acquired during the fall and winter months by Quebec Metallurgical Industries, Ltd. These claims were consolidated in 1955 into the holdings of Idaho Metallurgical Industries, Incorporated.

The property of Idaho Metallurgical Industries, Inc. now includes 81 lode claims, one millsite, and six placer claims (Appendix D). Thirty-one lode claims, the millsite, and the placer claims were acquired through purchase agreements, and 50 lode claims were acquired by location.

At the request of Mr. Neil O'Donnell, the writers were engaged in June 1955 by Idaho Metallurgical Industries, Inc. to undertake an evaluation of the Big Deer Creek property. On August 26, 1955 a contract was approved by the Defense Minerals Exploration Administration to participate with Idaho Metallurgical Industries, Inc. in the exploration program. Investigation of the property was by geological mapping, geophysical and geochemical surveys, bulldozer trenching, and diamond drilling.

The writers were assisted in the field by W. M. Browning, E. P. Johnson, D. E. Lee, and J. G. Welsh.

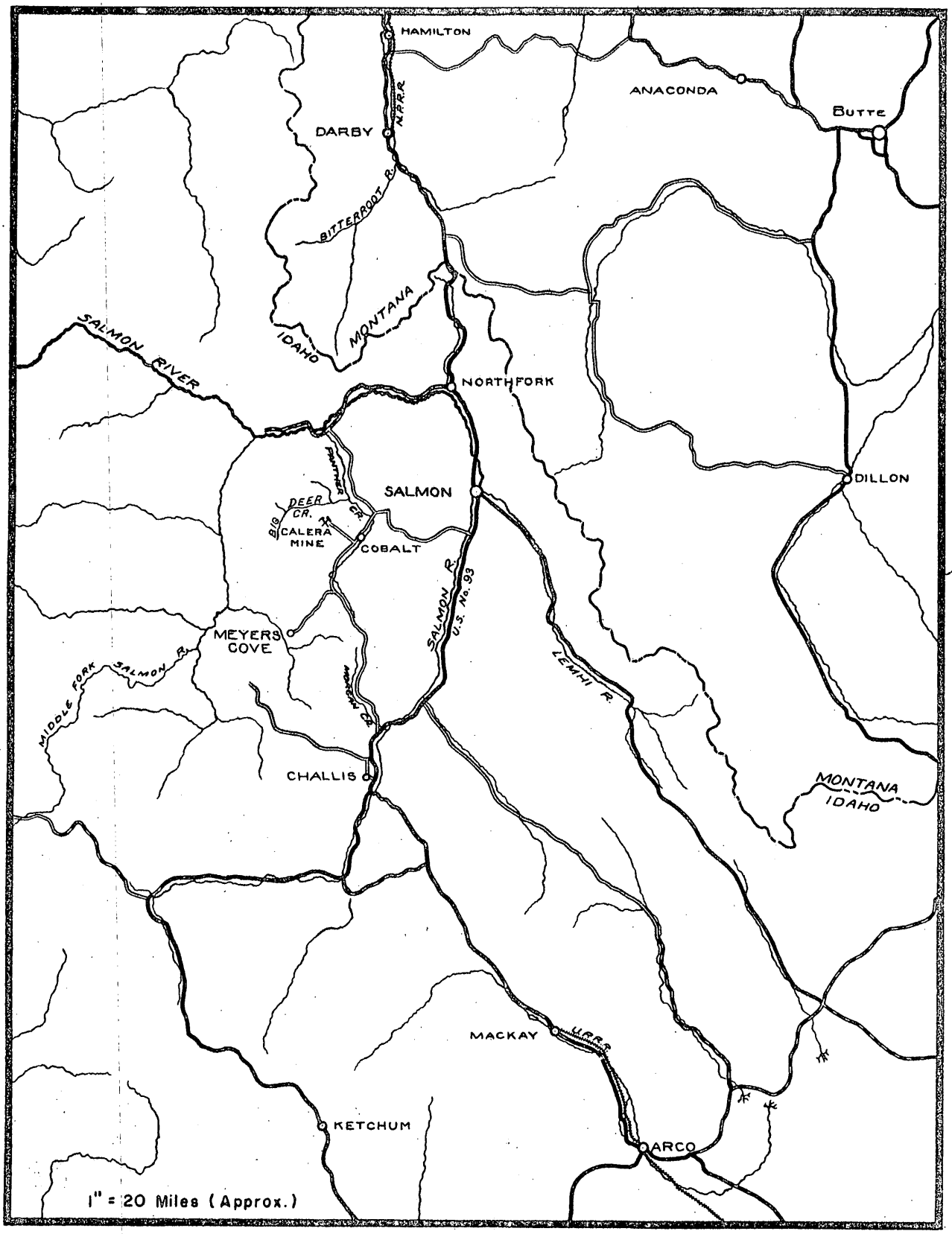


Figure 2

INDEX MAP

Showing Location and Access to Cobalt Area

GEOLOGY

The geology of the Blackbird district was studied by the writers during the summer of 1954, and the results were summarized in a report submitted to Quebec Metallurgical Industries, Ltd. in June 1955. The work during the summer of 1955 was directed toward exploration in the Big Deer Creek area, with no attempt to modify the conclusions of the previous work except to add more detail. The following geologic descriptions are in part from the report of June 1955 and are included here for completeness.

Geologic work was first undertaken in the Blackbird district by J. B. Umpleby in 1910 when he made a reconnaissance study of nineteen mining districts in Lemhi County, Idaho. He covered an area of approximately 3200 square miles between June 30 and October 2. The work of Umpleby was published in 1913 as U. S. Geological Survey Bulletin 528, Geology and Ore Deposits of Lemhi County, Idaho.

Umpleby described a great thickness of pre-Cambrian rocks, but he made no attempt to sub-divide the series. Work by C. P. Ross to the southwest, in the Casto Quadrangle (U.S.G.S. Bulletin 854), correlated these rocks with the Belt series, and two formational units, the Yellowjacket formation and Hoodoo quartzite, were established. The Yellowjacket formation, which is the older, consists of nearly 9,000 feet of dark gray quartzites and argillaceous quartzites with some calcareous beds. The Hoodoo quartzite, described as 3,560 feet thick, is composed principally of white quartzite. A distinctly banded gray, somewhat calcareous, quartzite

in excess of 865 feet is reported to overlie the Hoodoo quartzite.

The sedimentary rocks and their metamorphic equivalents in the Blackbird district have been assigned to the Yellowjacket formation by Vhay. However, alteration effects in the very thick sequence of argillites and quartzites make stratigraphic correlation uncertain.

Granitic rocks of the Idaho batholith have been intruded into the northern part of the district, and both light and dark colored dikes are numerous.

Outcrops over most of the area are scarce and especially so on the broad, flat ridge tops and north-facing slopes. Soil mantle is thick and a dense growth of lodge-pole pine, fir, and spruce covers most of the surface.

Sedimentary Rocks

A thick sequence of sedimentary rocks is exposed in the Blackbird district. The rocks have been classified as part of the Belt series of pre-Cambrian age, and are not unlike the Belt series exposed in northern Idaho and western Montana, but a much broader study than that undertaken in the Blackbird district would be necessary to establish stratigraphic correlations. Within the Blackbird district metamorphism has destroyed many of the original features of the rocks. Thin-banded argillites and quartzites grade into biotite schists and intermediate phyllitic type rocks. Large areas, in which garnet and chloritoid are abundant in the schists, have been mapped in the central part of the district.

The lack of information on the regional stratigraphy, combined with the intense metamorphism, made it impossible to establish

mappable stratigraphic units within the Yellowjacket formation. However, there are several distinctive rock types present which were mapped. Gradational contacts were arbitrarily established between the rock types, as well as between the sedimentary and metamorphic facies. Age relations between some of the stratigraphic units are uncertain, but in general the older rocks appear to lie in the southerly and westerly parts of the area.

White and Light Gray Quartzite

Light gray to white, medium and thick-bedded quartzites are exposed along Big Deer Creek and Dry Gulch. These rocks occupy only a small part of the area which has been mapped and their extent beyond it is unknown. They appear to represent one of the lower stratigraphic units.

Argillaceous Quartzite

A thick sequence of thin to medium-bedded, light and dark gray, and greenish-banded argillaceous quartzites occupy the western part of the Blackbird district. These rocks are well exposed in the vicinity of Blackbird Mountain, where they have been mapped from the West Fork of Blackbird Creek to the north of Big Deer Creek. Some folding is apparent in the rocks, but thick cover over most of the area obscures the detailed structure. A latite porphyry dike marks the contact between the argillaceous quartzite rocks and quartz biotite schist, near the south end of the area, but a gradational contact is apparent northward from Blackbird Creek where metamorphism has developed more schistose rocks.

Haynes-Stellite Quartzite

A thick sequence of quartzitic rock is exposed along the eastern part of the area, extending from the West Fork of Blackbird Creek to the granite contact along Panther Creek. They are mostly thick-bedded to massive, dark-gray rocks in which bedding is fairly well developed. Near Blackbird Creek a fault marks the west contact with the argillite, but to the north the contact is gradational into the metamorphic rocks, with phyllitic and schistose facies developing to the west.

Alluvium

Alluvial deposits, some of fluvioglacial origin, are not uncommon in the Blackbird district. Most of the deposits are confined to the present stream channels, but some are located along old drainage channels at some distance above the existing streams.

Metamorphic Rocks

A large area in the central part of the Blackbird district is underlain by metamorphic rocks. These rocks, which originally were argillites and quartzites, are closely associated with the granitic intrusives and the source of the metamorphism appears obvious.

The metamorphic rocks range widely in type, a condition which might be expected where the original rocks varied in composition. Also, the intensity of the metamorphic processes must have been extremely variable from place to place. Near the southern edge of the district quartz-biotite schist grades into a zone of fine-banded argillite and argillaceous quartzite, and similar relations

are duplicated along much of the western edge of the metamorphic zone, where an arbitrary contact was set between the argillaceous quartzites and the schistose rocks. A fault limits the east side of the zone, along Blackbird Creek, but gradational contacts are the general rule between the quartzites and schists.

The addition of material into the sedimentary rocks to develop the metamorphic facies does not appear necessary. Sufficient argillaceous material is present in all of the original rocks to develop the metamorphic minerals by recrystallization. Two units of metamorphic rocks, garnet schist and quartz-biotite rocks, have been mapped, but the boundaries between them are irregular and indefinite. The garnet schist appears to represent a more intense degree of metamorphism than the quartz-biotite rocks. The contact between the two units has been set by megascopic examination in the field. Microscopic examination shows that the quartz-biotite rocks contain varying amounts of small garnet, further suggesting metamorphic variations between the two rock units.

Garnet Schist

A large area in the central part of the district has been mapped as garnet schist, although, except for the included porphyroblasts of garnet and chloritoid, the rock is not greatly unlike the quartz-biotite rocks. Garnet has a much wider distribution in the rocks than does the chloritoid, but both show selective distributions in the schist and both minerals are more abundant in the schistose bands and less abundant in the quartzitic beds. Individual garnet crystals vary from microscopic size to over a quarter of

an inch in diameter, although the average size is generally well under one-quarter inch.

Chloritoid, which weathers out to give the rock a knobby appearance, is best developed near the head of Bucktail Creek. It is widely distributed in the garnet schist, but generally in much smaller concentrations than the garnet. Microscopic examination suggests that the chloritoid may have developed in part at the expense of the garnet as a result of shearing stress in the garnet schist. These relations, however, are not conclusive.

Quartz-Biotite Rocks

Quartz-biotite rocks crop out over a large area in the central part of the district. These rocks grade through biotite schist, quartz-biotite schist and phyllite, to quartzite containing only minor amounts of biotite. Much of the variation is quite likely due to differences in the original compositions of the sedimentary rocks but some hydrothermal biotite is apparent along sheared zones and mineralized structures. Chlorite, probably developed from the biotite, is also found along the zones of structural disturbance.

Most of the quartz-biotite rocks show definite schistosity, especially in the more argillaceous beds. These are interbedded with quartzites in which the bedding has rarely been destroyed by metamorphism. However, in some places shearing makes recognition of bedding difficult. Some of the more massive rocks along the east edge of the zone do not megascopically display well developed schistosity. These rocks in thin-section show poorly oriented biotite, and more closely approach a quartz-biotite phyllite. Poor

exposures over the greater part of the area did not permit separation of these various rock types and they have been grouped with the quartz-biotite rocks.

Igneous Rocks

Granite

A large mass of granitic rocks crop out in the northern part of the area. They have been correlated with the Idaho batholith of Cretaceous age, and similar rocks to the southwest are reported by Ross[1] to be quartz monzonite. The contact between the granitic rocks and the Belt series is sharp at some places, but the introduction of feldspar into the sediments makes the contact difficult to establish at other places. In general, the intrusive is a medium to coarse-grained granitic rock which forms prominent outcrops in the northern and eastern parts of the district.

Basic Dikes

Basic dikes are wide-spread in the Blackbird district; their greatest concentration, however, appears to be along zones of structural disturbance. A pre-ore age is quite certain for most of the dikes, and the intense metamorphism of many of the dikes indicates their emplacement prior to the major metamorphism in the area.

Fine-grained basic dikes are best exposed in surface trenches and in underground workings, but even in the best exposures their original character is uncertain as they have been metamorphosed to biotite or chlorite schists. These dikes are generally less than

[1]Ross, C. P., U.S.G.S., Bull. 854, pp. 35-37

10 feet in width, but some up to 50 feet wide have been observed. A number of these dikes are very closely associated with the mineralized structures, both at the Calera mine and the Northfield property. The finer-grained basic dikes may have a much wider occurrence than is apparent from surface mapping, as the rocks are very soft and do not show readily in outcrops.

Nearly black diabase dikes have been cut in several drill holes in the Big Deer Creek area. These rocks contain numerous calcite-filled fractures, but they are relatively free from alteration. Relationships observed in drill cores suggest that the diabase is earlier than the quartz latite porphyry dikes described below, but later than the sulphide mineralization. Two surface occurrences of weathered diabase were exposed in bulldozer cuts on the Bonanza Copper property.

Acidic Dikes

A number of light-colored acidic dikes occur in the Blackbird district, especially along the western edge of the metamorphic zone. The largest of these dikes can be traced from near the head of Bucktail Creek northward nearly to the granite at the head of Indian Creek. This dike is well exposed in the bluffs north of Big Deer Creek, where it follows a wide zone of shearing. Its continuation to the south is quite certain, although poor exposures do not permit positive correlation. Several other zones containing acidic dikes have been observed near the head of the West Fork of Blackbird Creek and also in Big Deer Creek.

Microscopic examination of the acidic dike indicates a quartz latite porphyry, containing about 40 per cent quartz, 40 per cent alkali feldspar, 10 per cent biotite, with minor chlorite, and 10 per cent plagioclase. The acidic dikes are very fresh, showing only slight evidence of alteration, even though they occur within intensely mineralized areas in a number of places. Thus post-mineral origin is strongly suggested. Similar rocks are exposed near the mouth of Musgrove Creek where they occur as volcanic flows, and C. P. Ross (U.S.G.S.) has identified quartz latite rocks in the Challis volcanics of Tertiary age in the Casto Quadrangle to the southwest of the Blackbird district. The dikes in the Blackbird district are believed to represent feeders for the Tertiary flows which are wide-spread over much of the adjoining area.

Structure

Folding

A broad, open, north-south trending syncline, with a general north plunge can be traced through the Blackbird district. A number of smaller folds are superimposed on the broad structure and tight folding with some overturning is not uncommon. The axis of the major fold closely parallels the zone of metamorphic rocks in the central part of the district, and it is further complicated by faulting and minor folding. Heavy cover masks the complexity of the structure over most of the area.

The exposures are particularly poor over most of the central metamorphic zone, and the details of much of the folding are difficult to correlate even in closely-spaced trenches or underground

openings. A relationship between the folds and mineralized structures has not been observed.

Faulting

Faulting is wide-spread in the district, no doubt much more so than is apparent in the surface exposures, but faults with large displacements are in general not obvious.

The most continuous recognizable fault is along the White Ledge shear zone, the position of which is marked by a series of quartz latite dikes. This zone is well established in surface exposures and extends from near the head of Indian Creek to the head of Bucktail Creek. The dike along the shear zone appears to split in Bucktail Creek and two parallel dikes have been correlated as far south as the West Fork of Blackbird Creek. Whether this represents a splitting and weakening of the shear zone is not certain, but similar dike rock has been observed on strike to the southwest of the mapped area. The continuity of these dikes suggests a substantial zone of adjustment, although a noticeable change in rock type across the zone is not always obvious. The fault zone is best exposed in the bluffs just north of Big Deer Creek where the rocks are intensely sheared over a width of nearly 800 feet. Several fresh quartz latite dikes occupy this zone, and within the sheared rock considerable cobalt and copper mineralization can be seen, associated with silicification. The dike marks the zone to the north where it is nearly parallel with the granite contact. To the south of Big Deer Creek the zone is poorly exposed and the dike can be seen only in a few places on ridges or in road cuts. The shearing is not apparent as cover is thick in this area.

The change from garnet schist to a quartz-biotite rock across the White Ledge shear zone is quite noticeable along much of its strike length, but no major change in rock type was noticed to the north of Big Deer Creek. The presence of garnet in the schistose rocks to the east of the zone, near the Tinkers Pride tunnels, was the only noticeable change across the structure.

Mineral Deposits

Mineralization is wide-spread in the Blackbird district, but to date only one deposit of commercial grade and tonnage has been discovered. It occurs at the Calera mine where large tonnages of cobalt-copper ore have been developed.

Quite a wide variation in mineral assemblages is apparent within the district, although not all minerals are present in every structure. Early quartz and tourmaline are found as gangue minerals in many of the veins; however, the ratios are extremely variable. Dense fine-grained black tourmaline is also found along a number of brecciated and sheared zones. Microscopic examination indicates a high percentage of quartz with tourmaline, even in the more massive tourmalinized rock. Quartz occurs both as massive replacements and as vein-like lenses, and in zones of silicification in the quartz-biotite rocks. Silicification of the more schistose bands is almost complete in some places, leaving only relic evidence of the schistosity. This type of mineralization is closely associated with a number of the better cobalt showings, and it is believed to represent a favorable environment for cobalt deposition.

Hydrothermal biotite is present along many of the mineralized

structures, in places as books over an inch across. Chlorite also is quite abundant, apparently as an alteration product after biotite. Relic hornblende crystals are found in gouge areas along many of the structures. These crystals are now nearly white, but microscopic examination shows that a fine intergrowth of quartz and feldspar has nearly completely replaced the original crystals.

Cobaltite and chalcopyrite are the principal ore minerals. They occur in variable ratios in the different structures and in places one is present without the other. Cobaltite appears to be earlier than the chalcopyrite. Pyrite and pyrrhotite are present in many of the veins.

Disseminated cobaltite in silicified schist, with minor amounts of iron and copper sulphides, constitutes some of the highest grade ore in the Calera mine, but cobalt mineralization also occurs in massive iron-copper sulphide veins. Cobalt mineralization is also quite common along quartz-tourmaline structures, although to date no commercial deposits have been found. Many weak shears in the quartz-biotite rocks, and even in the unmetamorphosed rocks, show some cobalt mineralization.

Primary cobalt minerals are not uncommon in the silicified zones at the surface but, in general, most of the cobaltite has been leached from the outcrops and in places to depths of over 100 feet. Several secondary minerals, including cobalt-chalcanthite and erythrite (cobalt bloom), are found at the surface. Jarosite in the form of a powdery yellow coating appears to be the most diagnostic mineral associated with weathered outcrops of cobalt

mineralization. It is present in the outcrops over several of the known cobalt ore bodies. The exact relationship between the jarosite and the cobalt mineralization is not known, but the association is quite general over the area.

EXPLORATION

Exploration of the Deer Creek property of Idaho Metallurgical Industries, Inc. was started on June 17, 1955 when a bulldozer was moved into the area to build access roads. Work was continued to December 1. During this time trenching, geophysical and geochemical surveys, geological mapping, and diamond drilling were completed. Transit surveys were made in the area to more accurately establish the locations of the claims and to record the progress of the work.

Trenching

A D-8 Caterpillar tractor was used for the trenching and road building. Weather conditions made trenching impractical after November 9th, at which time the D-8 tractor was released and a D-4 tractor was used to maintain roads while drilling was in progress.

Access to the area was from the South Fork of Big Deer Creek, a mile south of the juncture with Big Deer Creek. Primitive roads used for location work by Calera Mining Company had been built from the head of Bucktail Creek to near the South Fork of Big Deer Creek. These roads were improved and extended to the Big Deer Creek area.

Roads were also built during the early part of the season to give access to the areas of known mineralization, particularly the Tinkers Pride and Bonanza Copper zones. Late season work was confined to trenching and drill-site preparation in the two areas.

Geophysical and Geochemical Surveys

Geophysical and geochemical surveys were extended along the strike of the mineralized zone for 11,200 feet, with cross-lines at 200-foot and 400-foot intervals. The work was laid out along two base lines; one extending 8,200 feet N. 20° W. from Big Deer Creek through the Tinkers Pride-Bonanza Copper area, and a second line through the Gray Copper area for 2400 feet in a S. 20° E. direction.

The self-potential geophysical method was used, with readings taken at 50-foot intervals along the lines. Cross-lines were spaced at 400-foot intervals and closed in to 200 feet where anomalous conditions were observed on the wider-spaced lines.

Soil samples were collected at each self-potential station but analyses were made only on 100-foot intervals. The samples were analyzed for copper and cobalt. Arsenic analyses were made as a check for part of the Bonanza Copper samples, but the results so nearly duplicated those of the cobalt anaylses that the additional work was not justified.

Geological Mapping

Geological mapping was extended over the property of Idaho Metallurgical Industries, Inc. during the progress of the exploration. Geologic features were recorded along the lines concurrently with the geophysical and geochemical survey. Additional detail was obtained from Brunton compass and tape surveys of all roads and trenches. A plane table map was made over the Tinkers Pride area where numerous outcrops revealed considerable geological detail.

Aerial photographs were used in mapping the areas adjacent to the more detailed work.

Transit Surveys

Transit control was carried into the Big Deer Creek area from the coordinate grid established on the Northfield property. Bearings and distances, which had been established by the U. S. Geological Survey crews (Topographic Branch), were used to carry the existing grid from triangulation point "Cobalt" through the net to 1-08A on the ridge west of Indian Creek.

A number of closed transit traverses were run over the property of Idaho Metallurgical Industries, Inc. to establish control for the exploration work and to locate claim corners. Coordinates and elevations of the survey stations are recorded in Appendix "C". The survey stations were set on 2" x 2" x 30" stakes and are identified by numbered metal tags.

Diamond Drilling

Two diamond drills under contract with Nichols and Thompson Drilling Company, Boise, Idaho were moved into the Big Deer Creek area in the latter part of September. Seven holes were completed by December 1 when weather conditions made additional drilling impractical.

Based on the records of previous diamond drilling in the Blackbird District, it was decided that all drilling in the Big Deer Creek area should be of NX and BX size to obtain a maximum core recovery. All seven holes were collared with the larger size bit, but only four were completed without a reduction to BX size.

The following table records the drilling that was completed during the past season:

Hole No.	Depth Feet	Nx	Bx	Nx(Reamed)	Cased Bx	Cemented and Reamed
1	709.0	395.0	314.0	35.0	395.0	
2	552.2	552.2		50.0		15
3	438.7	438.7		57.0		
4	588.0	588.0		55.0		
5	546.0	173.0	373.0	15.0	165.0	48
6	487.4	487.4		25.0		
7	500.0	335.0	165.0	20.0	335.0	
	3821.3	2969.3	852.0	257.0	895.0	63

Assay data and descriptive logs for the seven holes are recorded in Appendices "A" and "B".

Assaying

Samples from diamond drill cores and sludges and from underground openings were sent to Union Assay Office, Inc., in Salt Lake City, Utah during the early part of the drilling program. Arrangements were later made to have the work done by Quebec Metallurgical Industries, Ltd. in their Cobalt, Ontario laboratory. Check analyses were made in Cobalt, Ontario on all of the samples which were sent to Union Assay Office, but results were so close that only the values received first have been recorded in this report.

MINERALIZED AREAS

All of the work during the past summer was directed toward an evaluation of the mineralized shear zone extending in a general north-south direction through the Big Deer Creek area. Quartz latite dikes mark the zone over most of the area, but shearing and mineralization are in some instances far removed from the dikes. Detailed geologic work within the area supports earlier conslusions; that is, that the dikes are later than the cobalt and copper mineralization, but that they have in general followed a pre-mineral zone of shearing.

An abrupt change in strike of the shear zone (Plate 1) is made apparent by the quartz latite dike. A northeast trend of the zone from near the head of Bucktail Creek to Big Deer Creek is well established in road cuts and other surface exposures. Within the area of alluvial cover at Big Deer Creek, the strike of the zone changes sharply to northwest, and farther north on Indian Creek a more westerly trend has been mapped. To the north of Big Deer Creek the position of the quartz latite dike and the shear zone closely parallel the granite contact.

Two areas of more intense mineralization have become apparent during the exploration work - the Tinkers Pride area immediately north of Big Deer Creek and the Bonanza Copper area along Indian Creek. Both of these areas occur within zones of intense shearing where there is a very noticeable strike change in the major structure.

The Gray Copper area to the south of Big Deer Creek was prospected, but the lack of structural controls within the area is very noticeable.

Tinkers Pride Area

The Tinkers Pride area (Plate 2) north of Big Deer Creek is a zone of prominent silicified outcrops in part covered with slide rock. Some timber grows on the slope but, in general, the vegetation is scattered. Prospecting dates back prior to 1900. Several short tunnels have been driven into the more conspicuous zones of mineralization. Copper created the main interest to early prospectors, but considerable cobalt is exposed in some of the tunnels.

Extremely steep and rough terrain makes access difficult to the Tinkers Pride slope, but numerous outcrops permit more detailed geologic mapping than is possible over most of the area.

Two zones of mineralization on the Tinkers Pride slope have been named after the claims on which they occur. The Tinkers Pride No. 3 zone occupies an area high on the slope, to the west of the latite dikes, whereas the Tinkers Pride No. 4 zone is exposed in a number of iron and copper-stained outcrops to the east of the dikes.

Self-Potential Survey

A self-potential survey was run over the Tinkers Pride slope on lines spaced at 200-foot intervals (Plate 3). Anomalous conditions are numerous with the largest single anomaly of 300 millivolts over the Tinkers Pride No. 4 zone on Line 12-S. The lack of continuity of the anomalies is very noticeable.

Several anomalies have been recorded to the west of the base line in areas where exposures are poor. Variations from 150 to 250 millivolts occur near the west ends of Lines 6-S to 14-S. Another

anomalous zone occurs just west of the base line on Lines 16-S and 20-S. Access roads were cut through the area, but the slide rock is extremely deep, making trenching impractical. Some cobalt mineralization occurs in the slide rock.

The full significance of the irregular profiles over the Tinkers Pride area, as compared with the more regular profiles throughout the rest of the area, is not apparent. Some correlation can be made between anomalies and known mineralized structures, and additional work may reveal a similar relationship for some of the other anomalies. Considerable work remains to fully evaluate the results of the work.

Geochemical Survey

Much of the Tinkers Pride slope is under deep slide rock cover or occupied by massive silicified outcrops. The soil depths vary greatly, but generally the soil is not deep. Several of the outcrops are coated with secondary copper and cobalt minerals, which undoubtedly has influenced the metal content of the soil samples in their vicinity. The downhill migration of soil and talus creates some doubt regarding the evaluation of the results, especially when the comparison is made with areas in which soil cover is in general quite deep.

Soil samples were run for cobalt and copper. In general the background count in the Tinkers Pride area appears to be slightly higher than in the nearby areas where the soil mantle is much thicker.

As determined by the results of soil analyses, both copper and cobalt mineralization are wide spread on the slopes of the Tinkers

Pride. Unusually high cobalt values (Plate 4) are, however, quite restricted, the largest anomaly centering over the Tinkers Pride No. 4 zone. Several other fairly high anomalies also occur to the west of the base line. Copper values (Plate 5) are more wide spread than the cobalt values, with several large anomalies indicated at greater than 700 ppm. There is some similarity between the patterns developed from the cobalt and copper analyses, but the copper values are more wide spread. Also, one cobalt anomaly west of the base line between Lines 8-S and 14-S occurs in a zone of low copper values.

Some correlation can be made between known mineralization and the geochemical anomalies. There is also an apparent similarity between some geochemical and geophysical anomalies, but it should be pointed out that there are numerous inconsistencies.

Geological Mapping

The geology of the Tinkers Pride area has been mapped by plane table (Plate 6) as numerous exposures permit more detailed mapping than is possible elsewhere. Trenching for geologic information was difficult on the steep slope facing Big Deer Creek; however, some cuts were put in to gain access for the diamond drills. Very few of the cuts reached bedrock. More trenching was done along the crest of the ridge, and along the east and west facing slopes, where the soil cover is deeper.

Most of the rocks in the Tinkers Pride area are thick-bedded quartz-biotite schists and phyllites. Schistosity is best developed in the more intensely disturbed zones. Some garnet schist

occurs along the east edge of the latite dikes, and extends in most places to the granite contact. Much of the garnet schist in unsilicified areas is quite soft and contains numerous small garnets - most of which are less than a millimeter in diameter.

Bedding along the west edge of the Tinkers Pride area is quite flat, with dips in general to the north and east. The attitudes steepen rapidly to the east as the main disturbed zone is approached. Some folding is apparent but, in general, the beds to the west of the dike zone dip to the east. East of the dike zone the beds dip westerly, forming a broken syncline along the sheared zone which is now in part occupied by the latite dikes. Much of the variation in attitudes of beds appears to be a reflection of the disturbance along the sheared zone. Intense shearing extends over a width of a thousand or more feet.

Mineralization is wide spread in the outcrops on the Tinkers Pride slope and most of it is associated with irregular zones of silicification. The Tinkers Pride No. 3 zone to the west of the latite dikes occupies a zone of intense silicification and shearing. Cobalt bloom and copper stain occur over much of the zone, but definite structures are not conspicuous. The zone appears to continue beyond at least one of the latite dikes to the south. Surface observations indicate east dips near the south end of the zone, whereas west dips are well established in the north part of the zone. This condition also exists in the latite dikes, indicating a reversal of dip in the major shearing which controls the zone.

The Tinkers Pride No. 4 zone has been more extensively prospected than any other in the area. Three old tunnels were driven into the zone (Plate 15) prior to acquisition by Idaho Metallurgical Industries, Inc. All of the tunnels expose zones of copper and cobalt mineralization in which the values are extremely erratic. Most of the better mineralized zones are very lensy, with the higher values closely associated with silicified pods.

Iron and copper staining is wide spread over the Tinkers Pride No. 4 zone. It occurs in silicified garnet schist that forms prominent outcrops in which steeply dipping shearing is well developed. West dipping structures near the north end of the exposures become vertical to east dipping at the south end of the zone. The full extent of the zone to the south is unknown, as slide rock cover is deep on the lower slopes of the hill.

A wide zone of silicified quartz biotite schist forms prominent outcrops along the west edge of the area between coordinates 93,000 E. and 94,000 E. (Plate 6). Several short tunnels have been driven into the zone. The Tinkers Pride No. 1 tunnel, which is caved at the portal, is the most extensive development, but the dump indicates less than 250 feet of work. Copper staining is wide spread over the outcrops. Geochemical analysis also indicated considerable copper in the area, but low cobalt values were recorded. Some anomalous conditions were also observed along the zone by the self-potential survey.

Diamond Drilling

Four holes were drilled in the Tinkers Pride area - two on the No. 3 zone and two on the No. 4 zone (Plate 7). Holes Nos. 2 and 4 were drilled to intersect the No. 3 zone below areas where mineralization was most intense at the surface. Both holes cut wide zones of low-grade copper and cobalt, but no definite structure or concentration of mineralization was apparent.

Drill Holes Nos. 6 and 7 were drilled into the No. 4 zone below areas where surface and underground data had indicated considerable mineralization. Several mineralized sections were cut in Hole No. 6 but core recovery was very poor in those sections. Sludge samples were taken and assayed, but to combine these values with core assays would only be misleading, as the volume of sludge indicated caving in the hole. An area of copper mineralization was cut from 267.0' to 286.0', but with a core recovery of less than 25%. One five-foot section from 308.5' to 313.5' assayed 5.15% Cu and 0.76% Co from 40% core recovered, but the sludge assays were much lower. A wide zone of mineralization was cut from 372.2' to 398.5', but again core recovery was poor in the better mineralized areas.

Hole No. 7 cut a wide zone of mineralization, but all was very low grade. No definite correlation could be made with the structures in the Tinkers Pride No. 4 tunnel.

Gray Copper Area

The Gray Copper area is within a zone of garnetiferous rocks lying to the east of the White Ledge shear zone. Soil cover is quite deep over most of the area, and very little work beyond the geophysical and geochemical survey was done. Several weak

structures, with secondary copper minerals, have been exposed in shallow surface cuts, but a lack of structure and mineralization is very apparent from surface data.

The self-potential survey (Plate 3) gave numerous small irregularities - sufficient in many cases to require lines at 200-foot spacing. None of the anomalies indicates well mineralized structures near the surface, but some can be correlated over several lines.

Soil analysis for copper and cobalt (Plates No. 4 and No. 5) were extremely low, as compared with other parts of the area. Cobalt values rarely exceed 30 ppm. with the larger percentage well below that value. Soil analyses also indicate erratic low-grade copper values. Only a limited area along the base line exceeds 100 ppm. - a value which does not appear to be significant.

Bonanza Copper Area

Shallow cuts and short tunnels in the Bonanza Copper area have exposed copper and cobalt mineralization along a northwest-trending zone, but the exposures did not permit correlations of individual mineralized zones. Geophysical and geochemical surveys, trenching, and geologic mapping were directed toward more complete exploration of the area preliminary to the location of diamond drill holes.

Self-Potential Survey

Self-potential surveys have indicated some anomalous conditions, but in general the lines are quite regular (Plate 9). The largest anomaly was recorded on line 32 N., just north of the Bonanza Copper tunnels. A very narrow 350-millivolt drop occurred

over the projection of the mineralized zone exposed in the tunnels, but the adjoining lines did not show similar anomalous profiles. A general drop is apparent on a number of lines to the west of Indian Creek, but here again the variations are not large or sharp.

A zone of anomalous conditions was recorded between lines 22 N. and 26 N. to the west of Indian Creek, where variations up to 200 millivolts extended over a wide area. However, intensely silicified outcrops over much of this area made trenching difficult and, as a result, only a few cuts were made. Copper staining can be seen in some of the outcrops and cobaltite was exposed in one trench.

The results of the self-potential survey over the Bonanza Copper area are not conclusive, and considerable exploration work remains to be done in order to properly test the area.

Geochemical Survey

Soil samples from the Bonanza Copper area were collected under variable conditions. Prominent outcrops and slide rock are common to the south of line 24 N., on the west side of Indian Creek, but most of the area is under a thick soil mantle. In places bulldozer trenches did not reach bedrock at depths of 25 feet.

Geochemical analyses were made for cobalt, copper, and arsenic (Plates 10, 11, and 12); however, arsenic analyses were made on the samples from only a small area because of the relative similarity to the results of the cobalt analysis. All three elements show very similar anomaly patterns, but the anomalous zones coincide only in part with known mineralization.

The background count for cobalt and copper is quite low over

the Bonanza Copper area. Cobalt analyses over large areas indicate less than 20 ppm. with much of the area below 50 ppm. Copper values are more widely distributed with many values below 30 ppm. The larger part of the area shows values of less than 100 ppm.

Geochemical anomalies of high intensity are rare, but the general pattern of the anomalies of moderate intensity, both in cobalt and copper, closely follow the structural trends of the area. Also a general correlation can be made between the geophysical and the geochemical anomalies.

Geological Mapping

Geological mapping along the Bonanza Copper zone was to a large extent dependent upon exposures made by the bulldozer trenches (Plate 13) for, as previously indicated, outcrops are scarce. Glacial gravels, containing large granite boulders, occupy the stream bed and extend several hundred feet to the east in the vicinity of the Bonanza Copper tunnels (Plate 8).

Quartz biotite rocks underlie most of the Bonanza Copper area. Some garnet schist occurs to the east and north of the mineralized zone - closely paralleling the granite contact. However, there is no apparent relationship between the mineralization and the garnet schist, as both garnetiferous and non-garnetiferous rocks are mineralized.

Most of the rocks within the area are quite blocky, with schistosity well developed only along the more disturbed zones. Thick-bedded phyllitic and quartzitic units occur over most of the area.

The folding has been mapped in the trenches, but not in sufficient detail to make more than a general interpretation. Most of the folding can be closely associated with zones of shearing.

Sericitic alteration is well developed to the west of the Bonanza Copper zone. A part or all of the original biotite in the rock has been altered to sericite. In the trenched area much of the rock displays a mottled appearance due to the inclusions of unaltered biotite in the lighter colored altered zones. No relationship was observed between the alteration and sulphide mineralization. However, nearly all of the mineralization is closely associated with zones of silicification, but in the silicified zones there is very little evidence of sericitic alteration.

The Bonanza Copper mineralized zone, which is poorly exposed along the west side of Indian Creek, is the most continuous mineralization that was mapped in the area. Thick soil mantle and adverse terrain made closely-spaced trenching difficult. Several trenches exposed zones of silicification in which cobalt and copper minerals could be seen, but most of the controlling structures could not be projected for any great distance. Both surface and diamond drill data indicate a wide irregular zone of silicification and mineralization, with lenses of better grade material.

About 250 feet west of the main mineralized structure, a second zone containing considerable silicified schist with cobalt mineralization was exposed in one trench. The trend of the structure is questionable, as solid rock was not encountered even at a depth of 30 feet. However, several large pieces of silicified schist con-

taining cobalt were found in the soil mantle covering the slope. The source of the material was not established except in the one trench.

Several outcrops of silicified schist occur to the west of Indian Creek between lines 20 N. and 26 N. Some copper and minor cobalt mineralization can be seen in the outcrops, but definite structures are not apparent. Trenches were cut up to the outcrop from both sides but the outcrops themselves could not be penetrated with a bulldozer. Two zones of mineralization were exposed in one trench at approximately 550 feet west of Indian Creek on coordinate 120,500 N. (Plate 13). One structure showed considerable cobaltite and cobalt bloom over four feet in a zone of intense silicification. The second structure was badly weathered to the depth of the trench but iron staining with irregular gossan was exposed over a width of 23 feet.

Diamond Drilling

Three holes were drilled on the Bonanza Copper zone (Plate 14). Hole No. 1 was drilled to intersect the mineralized zone below the point where the largest self-potential anomaly was recorded. Surface trenches and a prospect tunnel further supported the presence of a mineralized structure. The dip of the structure was not definite from surface evidence; therefore, Hole No. 1 was extended well beyond the surface expression of the first mineralized zone. Two intersections of fair cobalt mineralization were cut at 421.0' to 427.3' and 452.9' to 469.0'. Both of these zones assayed 0.4 per cent cobalt, but copper values are very low.

Holes Nos. 3 and 5 were drilled at approximately 300-foot intervals to the north of Hole No. 1. Hole No. 3 intersected two zones of mineralization at 321.0' to 336.0' and 368.5' to 380.8', in both of which cobalt values ranged from 0.44 to 0.58 per cent. Copper values of approximately 0.8 per cent were obtained from the upper zone, but values were very low in the lower zone. Hole No. 5 cut copper mineralization from 395.0' to 404.0', but the cobalt values were very low.

A plan projection at the 5650-foot elevation (Plate 14) indicates a correlation of the mineralized zones between the three holes. A N. 25° W. trend agrees with the surface data.

Respectfully submitted,

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D. M. Snyder

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APPENDIX A

DRILL HOLE ASSAY DATA

DIAMOND DRILL HOLE NO. 1

ASSAY DATA

Coordinates: 121,787 N
92,671 E
Collar Elevation: 5928'

Direction: S. 50° W.
Inclination: -45°
Depth: 709 Feet

Footage			% Core	Core			Sludge		
From	To	Feet	*Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
55.6	60.4	4.8	95	3201	None	0.014			
60.4	64.4	4.0	100	3202	None	0.014			
64.4	67.3	2.9	100	3203	Tr.	0.022			
67.3	70.8	3.5	95	3204	None	0.014			
70.8	73.3	2.5	100	3205	None	0.007			
73.3	76.3	3.0	70	3206	None	0.014			
76.3	80.0	3.7	25	3207	None	0.007	3208	Tr.	0.014
80.0	81.5	1.5	95	3209	None	0.022			
81.5	85.5	5.0	85	3210	Tr.	0.007			
92.0	95.0	3.0	100	3211	None	0.036			
101.0	102.6	1.6	95	3212	0.037	0.014			
206.0	210.0	4.0	95	3213	0.277	0.146			
254.8	259.6	4.8	90	3214	0.210	0.022			
259.6	264.1	5.5	30	3215	0.033	0.029	3216	0.155	0.014
273.5	277.0	3.5	100	3217	None	0.014			
338.0	343.2	5.2	25	3218	0.046	0.014	3219	0.033	0.007
343.2	345.8	2.6	50	3220	0.029	0.022	3221	0.037	0.029
345.8	346.8	1.0	95	3222	0.399	0.029			
370.5	374.0	3.5	30				3223	0.046	0.073
374.0	378.5	4.5	55	3224	None	0.411	3225	0.033	0.058
387.0	391.6	4.6	90	3226	0.029	0.022			
405.7	409.7	4.0	75	3227	None	0.029			

* Recovery

Footage			% Core	Core			Sludge		
From	To	Feet	Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
409.7	410.7	1.0	100	3228	0.092	0.051			
410.7	415.0	4.3	95	3229	0.075	0.132			
415.0	418.0	3.0	100	3230	0.042	0.132			
418.0	421.0	3.0	70	3231	0.079	0.198			
421.0	423.3	2.3	85	3232	0.050	0.447			
423.3	427.3	4.0	90	3233	0.142	0.484			
427.3	428.7	1.4	100	3234	0.021	0.022			
428.7	431.3	2.6	90	3235	0.130	0.044			
431.3	434.8	3.5	80	3236	0.100	0.051			
434.8	437.4	2.6	100	3237	0.168	0.293			
437.4	439.7	2.3	100	3238	0.037	0.146			
439.7	444.0	4.3	100	3239	0.281	0.278			
444.0	447.9	3.9	90	3240	0.071	0.044			
447.9	452.9	5.0	100	3241	0.252	0.051			
452.9	457.6	4.7	100	3242	0.210	0.381			
457.6	462.0	4.4	100	3243	0.113	0.425			
462.0	465.8	3.8	100	3244	0.420	0.528			
465.8	469.0	3.2	100	3245	0.159	0.308			
469.0	471.4	2.4	100	3246	0.100	0.098			
471.4	473.1	1.7	95	3247	0.306	0.066			
473.1	476.0	2.9	85	3248	None	0.036			
476.0	479.8	3.8	100	3249	None	0.029			
479.8	482.2	2.4	90	3250	None	0.029			

Footage		Feet	% Core Rec'y	Core			Sludge		
From	To			Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
482.2	486.2	4.0	75	3251	None	0.022			
486.2	489.2	3.0	85	3252	None	0.066			
489.2	493.2	4.0	90	3253	0.36	0.146			
493.2	496.0	2.8	80	3254	0.28	0.132			
496.0	499.8	3.8	50	3255	None	0.066	3256	0.05	0.058
578.0	583.0	5.0	100	3257	0.155	0.022			
630.4	632.2	1.8	95	3258	None	0.073			
662.5	666.5	4.0	95	3259	0.147	0.014			

DIAMOND DRILL HOLE NO. 2

ASSAY DATA

Coordinates: 118,105 N
93,843 E
Collar Elevation: 6240'

Direction: S. 80° E.
Inclination: -45°
Depth: 552 Feet

Footage			% Core	Core			Sludge		
From	To	Feet	*Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
392.8	397.8	5.0	95	3260	0.462	0.066			
435.0	440.0	5.0	100	3261	0.092	0.073			
440.0	445.1	5.1	100	3262	0.197	0.051			
445.1	450.2	5.1	95	3263	0.344	0.095			
450.2	454.9	4.7	100	3264	0.155	0.029			
454.9	459.3	4.4	90	3265	0.050	0.036			
459.3	464.2	4.9	100	3266	0.126	0.029			
464.2	466.8	2.6	100	3267	0.054	0.036			
466.8	472.1	5.3	95	3268	0.105	0.029			
472.1	477.5	5.4	80	3269	0.088	0.029			
477.5	482.5	5.0	100	3270	0.037	0.022			
482.5	486.5	4.0	95	3271	0.058	0.036			
486.5	491.3	4.8	100	3272	0.134	0.022			
540.5	542.7	2.2	50	3273	0.142	0.036			
542.7	545.7	3.0	100	3274	0.142	0.176			
545.7	549.5	3.8	85	3275	0.310	0.073			

* Recovery

DIAMOND DRILL HOLE NO. 3

ASSAY DATA

Coordinates: 121,931 N
92,517 E
Collar Elevation: 5937'

Direction: S. 70° W.
Inclination: -45°
Depth: 439 Feet

Footage			% Core	Core			Sludge		
From	To	Feet	*Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
75.5	80.5	5.0	90	3276	None	0.036			
80.5	85.5	5.0	70	3277	None	0.011			
85.5	89.3	3.8	90	3278	0.010	0.011			
89.3	93.3	4.0	65	3279	0.020	0.007			
93.3	95.7	2.4	95	3280	0.020	0.007			
95.7	97.7	2.0	80	3281	None	0.007			
97.7	100.7	3.0	85	3282	None	0.022			
100.7	104.0	3.3	70	3283	None	0.007			
104.0	106.0	2.0	95	3284	0.037	0.014			
106.0	111.0	5.0	40	3285	0.020	0.007			
111.0	114.0	3.0	95	3286	None	0.051			
114.0	117.8	3.8	100	3287	None	0.007			
117.8	121.0	3.2	100	3288	None	0.011			
121.0	124.3	3.3	85	3289	None	0.077			
124.3	129.8	5.5	95	3290	None	0.036			
129.8	133.8	4.0	90	3291	None	0.014			
133.8	139.0	5.2	95	3292	None	0.022			
139.0	144.5	5.5	95	3293	0.030	0.007			
144.5	149.5	5.0	100	3294	0.088	0.102			
149.5	154.5	5.0	100	3295	0.235	0.110			
154.5	159.8	5.3	100	3296	None	0.044			

*Recovery

Footage		Feet	% Core	Core			Sludge		
From	To		*Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
159.8	164.8	5.0	100	3297	0.044	0.029			
164.8	169.8	5.0	95	3298	None	0.014			
258.1	263.2	5.1	95	3299	None	0.007			
263.2	268.2	5.0	100	3300	None	0.003			
268.2	273.5	5.3	85	3301	0.031	0.003			
273.5	279.7	6.2	100	3302	0.056	0.007			
279.7	282.0	2.3	100	3303	None	0.003			
282.0	286.5	4.5	95	3304	None	0.003			
286.5	291.0	4.5	95	3305	None	0.003			
291.0	297.6	6.6	85	3306	0.037	0.007			
297.6	301.3	3.7	100	3308	0.144	0.011			
301.3	306.0	4.7	90	3309	0.056	0.007			
306.0	311.0	5.0	100	3310	0.044	0.011			
311.0	316.0	5.0	100	3311	None	0.014			
316.0	321.0	5.0	95	3312	0.044	0.044			
321.0	326.0	5.0	100	3313	0.882	0.477			
326.0	331.0	5.0	100	3314	0.831	0.161			
331.0	336.0	5.0	100	3315	0.630	0.132			
336.0	340.8	4.8	95	3316	0.472	0.073			
340.8	345.0	4.2	100	3317	0.195	0.066			
345.0	350.0	5.0	100	3318	0.264	0.139			
350.0	355.0	5.0	100	3319	0.201	0.125			

Footage		Feet	% Core Rec'y	Core			Sludge		
From	To			Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
355.0	359.0	4.0	100	3320	0.233	0.088			
359.0	363.5	4.5	100	3321	0.081	0.117			
363.5	368.5	5.0	100	3322	0.365	0.117			
368.5	373.2	4.7	100	3323	0.025	0.227			
373.2	375.5	2.3	100	3324	0.018	0.587			
375.5	380.8	5.3	90	3325	0.031	0.242			
380.8	385.5	4.7	40	3326	0.283	0.044	3327	0.094	0.066
385.5	388.5	3.0	25	3328	None	0.007	3329	0.063	0.029
409.3	414.5	5.2	100	3330	0.182	0.007			
414.5	419.5	5.0	100	3331	0.119	0.007			
419.5	424.0	4.5	100	3332	0.100	0.007			
424.0	429.0	5.0	80	3333	0.378	0.007			
429.0	434.0	5.0	40	3334	None	0.007	3335	0.144	0.014
434.0	438.7	4.7	80	3336	None	0.003			

DIAMOND DRILL HOLE NO. 4

ASSAY DATA

Coordinates: 117,392 N
94,004 E
Collar Elevation: 5704'

Direction: N. 45° E.
Inclination: -35°
Depth: 588 Feet

Footage			% Core	Core			Sludge		
From	To	Feet	*Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
72.8	77.0	4.2	100	3337	0.056	0.323			
95.1	100.1	5.0	100	3338	Nil	0.044			
112.3	117.7	5.4	70	3339	0.069	0.022			
126.1	130.1	4.0	100	3340	0.069	0.044			
155.7	161.5	5.8	90	3341	0.201	0.014			
184.5	186.9	2.4	100	3342	0.371	0.014			
186.9	191.9	5.0	80	3343	0.010	0.007			
191.9	196.0	4.1	95	3344	0.201	0.007			
196.0	202.0	6.0	100	3345	0.069	0.007			
202.0	208.4	6.4	95	3346	0.010	0.007			
235.8	241.3	5.5	95	3347	0.100	0.007			
241.3	246.2	4.9	95	3348	0.081	0.007			
246.2	251.8	5.6	90	3349	0.075	0.011			
251.8	255.8	4.0	75	3350	0.010	0.007			
278.0	280.5	2.5	95	3359	0.31	Nil			
280.5	285.0	4.5	95	3360	0.05	Nil			
285.0	291.0	6.0	85	3361	0.038	Nil			
291.0	296.0	5.0	90	3362	0.014	Nil			
309.3	311.5	2.2	100	3363	0.054	Nil			
311.5	315.1	3.6	5				3364	0.05	0.018

*Recovery

Footage		Feet	% Core Rec'y	Core			Sludge		
From	To			Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
372.5	377.8	5.3	85	3365	0.03	0.04			
377.8	383.1	5.3	90	3366	0.11	0.29			
383.1	387.2	4.1	90	3367	0.15	Tr.			
387.2	390.5	3.3	80	3368	0.03	Tr.			
390.5	394.5	4.0	95	3369	0.17	0.07			
466.8	470.2	3.4	95	3370	0.07	Tr.			
470.2	475.4	5.2	95	3371	0.02	Tr.			
475.4	482.8	7.4	65	3372	0.025	Nil			
482.8	486.5	3.7	75	3373	0.15	Nil			
486.5	490.8	4.3	90	3374	0.026	0.02			
490.8	494.7	3.9	100	3375	0.28	Tr.			
494.7	499.8	5.1	100	3376	0.025	Tr.			
499.8	505.6	5.8	60	3377	0.05	Tr.			
523.7	529.8	6.1	15				3378	0.04	0.012
538.8	543.7	4.9	90	3379	0.012	Tr.			
543.7	546.8	3.1	100	3380	0.023	0.11			
546.8	553.4	6.6	80	3381	0.009	Tr.			
553.4	560.3	6.9	70	3382	0.02	0.03			

DIAMOND DRILL HOLE NO. 5

ASSAY DATA

Coordinates: 122,245 N
92,352 E
Collar Elevation: 5964'

Direction: S. 50° W.
Inclination: -45°
Depth: 546 Feet

Footage			% Core	Core			Sludge		
From	To	Feet	*Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
43.0	47.5	4.5	95	3351	0.020	0.036			
47.5	50.5	3.0	85	3352	0.711	0.198			
71.5	74.7	3.2	95	3353	Nil	0.014			
78.9	83.4	4.5	85	3354	0.270	0.066			
83.4	88.5	5.1	95	3355	0.094	0.029			
100.0	105.0	5.0	80	3356	0.020	0.022			
105.0	110.0	5.0	85	3357	0.535	0.029			
110.0	114.5	4.5	95	3358	0.056	0.007			
215.5	220.3	4.8	0				3383	0.018	0.009
243.0	248.0	5.0	100	3384	0.15	Tr.			
248.0	252.0	4.0	100	3385	0.155	Tr.			
344.5	349.5	5.0	100	3386	0.029	Nil			
349.5	354.5	5.0	80	3387	0.032	Nil			
354.5	359.5	5.0	70	3388	0.012	Nil			
359.5	364.5	5.0	50	3389	0.019	Nil			
364.5	369.5	5.0	75	3390	0.013	Nil			
369.5	374.5	5.0	75	3391	0.04	Nil			
374.5	379.5	5.0	65	3392	0.03	Nil			
379.5	385.0	5.5	50	3393	0.36	0.03	3394	0.03	0.015
385.0	390.0	5.0	50	3395	0.027	Tr.	3396	0.06	0.014

*Recovery

Footage		Feet	% Core Rec'y	Core			Sludge		
From	To			Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
390.0	395.0	5.0	40	3397	0.11	Tr	3398	0.17	0.029
395.0	400.0	5.0	50	3399	0.88	0.09	3400	0.37	0.048
400.0	404.0	4.0	85	3401	0.51	0.012			
404.0	408.8	4.8	25	3402	0.010	0.014	3403	0.075	0.02
408.8	413.8	5.0	25	3404	0.096	0.028	3405	0.12	0.025
413.8	418.8	5.0	15	3406	0.008	Nil	3407	0.32	0.016
418.8	426.0	7.2	80	3408	0.005	0.062			
426.0	431.0	5.0	95	3409	0.016	0.064			
431.0	435.5	4.5	95	3410	0.013	0.177			
435.5	439.5	4.0	50	3411	0.012	0.006	3412	0.05	0.08
439.5	444.0	4.5	65	3413	0.023	0.015			
444.0	448.0	4.0	95	3414	0.015	0.007			
448.0	452.3	4.3	85	3415	0.014	Nil			
452.3	456.4	4.1	90	3416	0.015	Nil			
456.4	461.0	4.7	100	3417	0.18	Nil			
461.0	466.0	5.0	100	3418	0.028	Nil			
466.0	470.5	4.5	90	3419	0.22	0.006			
470.5	475.5	5.0	90	3420	0.036	0.002			
495.2	500.3	5.1	65	3421	0.056	0.032			
500.3	508.0	7.7	90	3422	0.012	Nil			
516.0	521.0	5.0	80	3423	0.71	0.001			
521.0	526.0	5.0	70	3424	0.13	Nil			
526.0	531.0	5.0	50	3425	0.36	Nil	3426	0.15	0.02

DIAMOND DRILL HOLE NO. 6

ASSAY DATA

Coordinates: 117,831 N
94,946 E
Collar Elevation: 5642'

Direction: N. 80° W.
Inclination: -40°
Depth: 487 Feet

Footage			% Core	Core			Sludge		
From	To	Feet	*Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
129.3	134.3	5.0	0				3427	0.018	0.005
154.5	159.5	5.0	50	3428	0.35	Nil			
159.5	164.5	5.0	100	3429	0.037	Nil			
164.5	169.5	5.0	100	3430	0.15	Nil			
169.5	174.5	5.0	50	3431	0.37	Nil	3432	0.10	0.004
174.5	179.5	5.0	90	3433	0.20	0.006			
179.5	184.5	5.0	95	3434	0.022	Nil			
264.0	267.0	3.0	40	3435	0.034	0.02	3436	0.02	0.024
267.0	273.0	6.0	25	3437	0.45	Nil	3438	0.08	0.02
273.0	279.0	6.0	5	3439	6.56	0.036	3440	0.25	0.01
279.0	286.0	7.0	10	3441	2.19	0.182	3442	0.685	0.03
286.0	291.0	5.0	35	3443	0.12	Nil	3444	0.585	0.05
291.0	295.5	4.5	40	3445	0.13	Nil	3446	0.23	0.018
295.5	299.5	4.0	50	3447	0.014	0.010	3448	0.165	0.014
299.5	304.0	4.5	45	3449	0.049	Nil	3450	0.17	0.018
304.0	308.5	4.5	60	3451	0.016	Nil	3452	0.09	0.02
308.5	313.5	5.0	40	3453	5.15	0.76	3454	0.27	0.027
313.5	318.7	5.2	0				3455	0.17	0.04
318.7	324.3	5.6	50	3456	0.016	Nil	3457	0.09	0.014
324.3	330.0	5.7	50	3458	0.072	0.008	3459	0.095	0.025
330.0	333.0	3.0	60	3460	0.09	0.67			
333.0	338.0	5.0	65	3461	0.034	Nil			
338.0	341.5	3.5	50	3462	0.40	Nil			

*Recovery

Footage			% Core	Core			Sludge		
From	To	Feet	Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
341.5	345.0	3.5	90	3463	0.15	0.011			
345.0	348.0	3.0	5				3464	0.20	0.02
348.0	352.5	4.5	40	3465	0.24	0.030	3466	0.17	0.02
352.5	358.9	6.4	70	3467	0.50	0.147			
358.9	365.2	6.3	75	3468	0.084	0.039			
365.2	372.2	7.0	60	3469	0.37	0.013	3470	0.12	0.034
372.2	375.8	3.6	50	3471	0.575	0.015	3472	0.19	0.027
375.8	380.0	4.2	5	3473	7.28	0.58	3474	0.27	0.057
380.0	385.0	5.0	5	3475	0.51	0.50	3476	0.51	0.09
385.0	389.5	4.5	70	3477	0.22	0.357			
389.5	393.5	4.0	75	3478	0.89	0.324			
393.5	398.5	5.0	35	3479	1.61	0.312	3480	0.22	0.043
398.5	401.0	2.5	0				3481	0.32	0.065
401.0	405.5	4.5	70	3482	0.27	0.08	3483	0.24	0.028
405.5	410.5	5.0	35	3484	0.16	Nil	3485	0.225	0.034
410.5	416.2	5.7	40	3486	0.34	0.21	3487	0.15	0.037
416.2	420.3	4.1	80	3488	0.037	Tr.			
440.5	444.5	4.0	80	3489	0.38	0.16			
473.5	478.5	5.0	0				3490	0.09	0.035

DIAMOND DRILL HOLE NO. 7

ASSAY DATA

Coordinates: 117,693 N
94,971 E
Collar Elevation: 5564'

Direction: S. 85° W
Inclination: -45°
Depth: 500 Feet

Footage			% Core	Core			Sludge		
From	To	Feet	*Rec'y	Sample Number	% Cu	% Co	Sample Number	% Cu	% Co
337.5	342.5	5.0	20	3491	0.012	Nil	3492	0.03	0.024
342.5	344.5	2.0	75	3493	0.13	0.11			
351.5	354.6	3.1	95	3494	0.11	0.05			
354.6	357.0	2.4	100	3495	0.017	Tr.			
357.0	363.0	6.0	90	3496	0.03	Tr.			
363.0	365.4	2.4	50	3497	0.08	0.05	3498	0.05	0.025
365.4	369.4	4.0	30	3499	0.015	0.01	3500	0.045	0.013
369.4	372.0	2.6	95	2443	0.84	0.45			
372.0	375.4	3.4	60	2444	0.13	0.01	2445	0.19	0.039
375.4	379.3	3.9	75	2446	0.05	0.01			
385.5	389.3	3.8	90	2447	0.27	0.01			
389.3	394.0	4.7	90	2448	0.03	0.02			
394.0	397.0	3.0	80	2449	0.015	0.006			
397.0	402.0	5.0	75	2450	0.02	0.01			
402.0	406.5	4.5	50	2451	0.08	0.02	2452	0.05	0.012
413.3	416.8	3.5	95	2453	0.02	0.02			
416.8	421.0	4.2	35	2454	0.02	0.01	2455	0.015	0.035
421.0	426.3	5.3	70	2456	0.02	0.01			
426.3	432.0	5.7	80	2457	0.04	0.02			

*Recovery

Footage From	Footage To	Feet	% Core Rec'y	Core Sample Number	Core % Cu	Core % Co	Sludge Sample Number	Sludge % Cu	Sludge % Co
432.0	438.0	6.0	50	2458	0.08	0.01	2459	0.024	0.002
438.0	443.0	5.0	40	2460	0.013	0.007	2461	0.02	0.008
443.0	448.0	5.0	85	2462	0.58	0.06			
448.0	454.0	6.0	90	2463	0.06	0.01			
454.0	459.0	5.0	100	2464	0.03	0.01			
459.0	462.3	3.3	100	2465	0.34	0.007			
462.3	466.5	3.2	100	2466	0.19	0.01			
466.5	470.0	3.5	90	2467	0.13	0.015			
470.0	476.0	6.0	85	2468	0.105	0.016			
476.0	480.0	4.0	70	2469	0.07	0.017	2470	0.02	0.017
480.0	484.0	4.0	90	2471	0.13	0.024			
484.0	489.0	5.0	100	2472	0.29	0.10			
489.0	493.0	4.0	50	2473	0.04	0.013	2474	0.04	0.013

APPENDIX B

DIAMOND DRILL HOLE LOGS

DIAMOND DRILL HOLE NO. 1

DESCRIPTIVE LOG

Coordinates: 121,787 N
92,671 E
Collar Elevation: 5928'

Direction: S. 50° W.
Inclination: -45°
Depth: 709 Feet

Footage From	To	% Core Rec'y	Size	Description
0.0	6.0	100	Nx	QBS, qtzitic and quite massive, occ garnets
6.0	11.0	100	Nx	Blocky QBS, occ garnet, no apparent min
11.0	15.0	97	Nx	Blocky QBS, quite qtzitic, occ garnet, no apparent min
15.0	19.0	97	Nx	QBS, minor garnet, more schistose than previous rock, no apparent min
19.0	24.0	100	Nx	QBS, minor garnet, 3" of quartz at 22', no apparent min
24.0	30.0	85	Nx	QBS with minor garnet, blocky to schistose
30.0	35.0	100	Nx	Micaceous QBS with consid garnet from 32.0 to 34.0, massive white quartz from 34.0 to 35.0, no apparent min
35.0	38.0	90	Nx	QBS with irreg garnet, quite schistose
38.0	40.0	95	Nx	QBS, consid fractured and iron stained, minor garnet, minor silic
40.0	42.7	100	Nx	Schistose QBS, irreg garnet, slight silic
42.7	45.3	100	Nx	QBS from 42.7 to 45.0, minor silic with consid garnet, minor chalco at 43.7, biotite schist from basic dike from 45.0 to 45.3
45.3	47.8	100	Nx	Biotite schist from basic dike from 45.3 to 45.8, minor silic in QBS with consid garnet
47.8	48.9	80	Nx	Broken and schistose QBS, no apparent min
48.9	53.1	100	Nx	QBS, thin to medium banded, minor garnet, minor silic from 52.0 to 53.1

Footage From	Footage To	% Core Rec'y	Size	Description
53.1	55.6	90	Nx	Soft QBS with minor garnet, minor flecks of chalco in upper 0.2' of run, a few garnets
55.6	60.4	95	Nx	Soft QBS with minor garnet, rock quite soft and biotitic, with some silic, minor chalco, pyrrhotite and pyrite along fractures
60.4	64.4	100	Nx	Soft frag QBS, minor sulphides
64.4	67.3	100	Nx	Some fine-banded QBS, minor garnets, weak sulphide min
67.3	70.8	95	Nx	QBS, weak silic, minor sulphides
70.8	73.3	100	Nx	Soft QBS with some garnet, weak min
73.3	76.3	70	Nx	Soft QBS, rock intensely broken
76.3	80.0	25	Nx	Soft QBS, minor garnets, weak min
80.0	81.5	95	Nx	Soft QBS, very micaceous and frag, weak silic, weak min
81.5	85.5	85	Nx	Soft frag QBS, weak min
85.5	88.1	90	Nx	Soft QBS, min not apparent
88.1	92.0	85	Nx	Soft QBS, weak silic, no apparent min
92.0	95.0	100	Nx	QBS, consid silic, minor garnet sulphides in silic zones
95.0	98.0	100	Nx	Meta basic dike from 95.0 to 95.2, QBS, minor min, minor garnet
98.0	102.5	95	Nx	QBS, consid garnet, consid silic, minor sulphides from 101.0 to 102.5
102.5	105.5	100	Nx	Soft QBS from 102.5 to 104.5, biotite schist, probably basic dike, from 104.5 to 105.0, silic QBS, weak min from 105.0 to 105.5
105.5	111.0	95	Nx	Blocky QBS, minor silic, consid garnet, minor chalco at 110.0
111.0	114.4	90	Nx	QBS, minor garnet, mod qtzitic, weak silic, minor min

Footage From	Footage To	% Core Rec'y	Size	Description
114.4	119.7	100	Nx	QBS, consid garnet, min weak
119.7	124.7	98	Nx	QBS, consid garnet, some silic, min very minor
124.7	129.8	100	Nx	QBS, consid garnet, minor chalco, silic in lower 18" of run, with minor chalco, min weak
129.8	134.8	100	Nx	QBS, consid silic, irreg garnet, weak min from 129.8 to 131.0
134.8	139.8	97	Nx	Silicified QBS, some garnet, no apparent min, biotite schist, probably basic dike, bottom 2" of run
139.8	144.8	100	Nx	Blocky QBS, consid garnet, with only minor silic
144.8	149.8	80	Nx	Blocky QBS, consid garnet, no apparent min
149.8	154.8	100	Nx	QBS, consid garnet and silic, no apparent min
154.8	159.5	97	Nx	Silic QBS, minor garnet, no apparent min
159.5	164.5	97	Nx	Silic QBS, minor garnet, weak min
164.5	166.1	100	Nx	Silic QBS, minor garnet, no apparent min
166.1	171.3	100	Nx	Blocky, silic QBS, minor garnet, no apparent min
171.3	175.7	85	Nx	Frag QBS, minor chalco
175.7	178.5	95	Nx	Soft QBS, no apparent min
178.5	180.5	100	Nx	Soft QBS, 3" of diss chalco at 180.0
180.5	182.9	80	Nx	Soft QBS, quite frag, weak chalco
182.9	184.9	100	Nx	Soft QBS, weak chalco min
184.9	189.0	85	Nx	QBS, weak silic, very weak min
189.0	194.5	82	Nx	QBS, minor garnet, min weak, silic moderate
194.5	195.3	67	Nx	Silic QBS, weak diss chalco and pyrite

Footage From	To	% Core Rec'y	Size	Description
195.3	198.8	100	Nx	Silic QBS, small stringers of chalco at irreg intervals
198.8	202.0	100	Nx	Silic QBS, minor garnet; biotite schist, probably basic dike, from 200.5 to 201.3, weak pyrrhotite, min very weak
202.0	206.0	100	Nx	QBS, irreg garnet stringers, mod silic, weak chalco
206.0	210.0	95	Nx	Silic QBS, minor garnet, irreg stringers of chalco, pyrite, and pyrrhotite, min weak
210.0	215.0	100	Nx	Silic QBS, minor garnet
215.0	219.5	80	Nx	QBS, mod silic, some garnet, min very weak
219.5	220.5	70	Nx	QBS, minor garnets, no apparent min
220.5	225.5	90	Nx	QBS, minor silic, some garnet; run quite blocky, weak chalco and pyrrhotite at 223.0
225.5	230.0	100	Nx	Mod silic QBS, few garnets, no apparent min
230.0	232.0	100	Nx	Soft QBS, minor garnets, no apparent min, very weak silic
232.0	232.9	100	Nx	Top 0.5' of run in silic QBS, bottom 0.4' of run is black biotite schist, probably basic dike
232.9	237.8	100	Nx	Silic QBS, some garnet, very weak chalco at 235.0
237.8	243.3	100	Nx	QBS, minor garnets, minor silic, min not apparent
243.3	245.8	95	Nx	Silic QBS
245.8	249.8	100	Nx	Banded QBS, moderately silic, min very weak, few minor stringers of chalco
249.8	254.8	100	Nx	Soft, black QBS, minor silic, very minor chalco
254.8	259.6	90-	Nx	Mod silic QBS, minor stringers of chalco

Footage From	To	% Core Rec'y	Size	Description
259.6	264.1	30	Nx	Silic QBS, quite frag.
264.1	268.0	90	Nx	Banded QBS, minor garnet, min not apparent
268.0	271.3	100	Nx	Soft QBS, chlorite along fractures, min not apparent
271.3	273.5	100	Nx	Soft QBS, chlorite along fractures, no apparent min
273.5	277.0	100	Nx	Soft QBS, min very weak
277.0	282.0	90	Nx	Dark biotitic schist from 277.0 to 278.0, may be basic dike; mod silic QBS from 278.0 to 282.0, very weak min
282.0	285.0	95	Nx	Mod silic QBS, quite badly fractured, chlorite along fractures, min not apparent
285.0	290.0	100	Nx	Silic QBS from 285.0 to 286.0, biotite schist from 286.0 to 287.0, may be meta basic dike, mod silic QBS from 287.0 to 290.0, no min apparent
290.0	293.7	95	Nx	Soft QBS, minor silic, min not apparent
293.7	298.8	80	Nx	Broken QBS, mod silic, very weak min, smal chalco stringer at 298.7
298.8	301.8	100	Nx	Soft fract QBS, no apparent min
301.8	303.8	90	Nx	Mod fract QBS, no min apparent
303.8	308.4	100	Nx	Mod silic QBS, some garnets, no min apparent
308.4	312.4	100	Nx	Silic QBS with garnets from 308.4 to 310.2; biotite schist from 310.2 to 311.7, looks like meta basic dike, silic QBS from 311.7 to 312.4
312.4	317.5	100	Nx	Mod silic QBS, consid garnet, no apparent min
317.5	322.5	100	Nx	Mod silic QBS, consid crumbling, minor chalco in first 6" of run, no apparent min in balance of run

Footage From	Footage To	% Core Rec'y	Size	Description
322.5	325.5	100	Nx	Mod silic to soft black QBS, no apparent min
325.5	329.0	100	Nx	Mod soft QBS, consid fract; no apparent min
329.0	330.2	95	Nx	Mod silic QBS, no apparent min
330.2	332.0	100	Nx	Fine-banded QBS, mod soft, no apparent min
332.0	335.0	100	Nx	Mod soft black QBS, no apparent min
335.0	338.0	70	Nx	Fine-banded, soft QBS, no apparent min
338.0	343.2	25	Nx	Soft frag QBS, some pyrite and chalco in silic fragments
343.2	345.8	50	Nx	Soft, gougy, biotite schist, looks sheared
345.8	349.2	95	Nx	Mod silic QBS in upper foot of run, with stringers of chalco, balance of run mod silic to soft QBS, no apparent min
349.2	352.3	95	Nx	Soft QBS, no silic or min
352.3	357.5	95	Nx	Soft black QBS, no apparent min
357.5	362.0	60	Nx	Mod silic QBS, min weak, minor pyrrhotite, pyrite and chalco stringers
362.0	366.5	100	Nx	Mod silic QBS, few specks of chalco, min very weak
366.5	368.5	78	Nx	Soft QBS, min weak
368.5	370.5	100	Nx	Mod silic QBS, min not apparent
370.5	374.0	30	Nx	Frag of white quartz and mica, some chalco frag
374.0	378.5	55	Nx	Silic QBS, weak min
378.5	381.0	90-	Nx	Top 6" of run int silic, no apparent min; balance of run soft micaceous QBS, some chlorite on fract

Footage From	Footage To	% Core Rec'y	Size	Description
381.0	383.5	95	Nx	Mod silic QBS, some quartz, very weak min
383.5	385.0	100	Nx	Soft QBS, no apparent min
385.0	387.0	100	Nx	Mod silic QBS, min not apparent
387.0	391.5	90	Nx	Mod silic, dark QBS, some silic and spotty min
391.5	396.0	85	Nx	Mod soft banded QBS, slight silic, minor min
396.0	400.3	100	Bx	Soft QBS, min not apparent
400.3	405.7	90	Bx	Soft black biotite schist, weak silic, min not apparent
405.7	409.7	75	Bx	Silic biotite schist, weak min
409.7	410.7	100	Bx	Silic QBS, consid min along stringers
410.7	415.0	95	Bx	Black silic biotite schist, consid stringers of pyrrhotite, chalco and pyrite
415.0	418.0	100	Bx	Mod to int silic QBS, irreg min, some pyrite and chalco
418.0	419.0	100	Bx	Int silic QBS and quartz, weak min
419.0	421.0	60	Bx	Int silic QBS, weak min
421.0	423.3	85	Bx	Frag, int silic QBS, consid min, cobaltite can be seen
423.3	427.3	90	Bx	Int silic QBS, chalco and pyrite can be seen, some cobaltite apparent
427.3	428.7	100	Bx	Mod silic QBS, finely diss weak min
428.7	431.3	90	Bx	Int silic QBS, diss sulphides, min not strong
431.3	434.8	80	Bx	Silic QBS, consid diss pyrrhotite and chalco
434.8	437.4	100	Bx	Int silic QBS, numerous stringers and irreg blebs of pyrite, chalco and cobaltite
437.4	439.7	100	Bx	Mod silic black QBS, some diss sulphides

Footage From	To	% Core Rec'y	Size	Description
439.7	444.0	100	Bx	Mod silic QBS, with stringers and diss chalco and pyrrhotite
444.0	447.9	90	Bx	Int silic QBS, with stringers of chalco and pyrite, some cobaltite
447.9	452.9	100	Bx	Mod silic QBS, a few stringers of sulphides
452.9	457.6	100	Bx	Int silic QBS, consid min with stringers of chalco, pyrrhotite, and cobaltite along schistosity
457.6	462.0	100	Bx	Int silic and min QBS
462.0	465.8	100	Bx	Int silic QBS, diss sulphides, cobaltite apparent
465.8	469.0	100	Bx	Int silic QBS, diss sulphides thruout run
469.0	471.4	100	Bx	Int silic QBS
471.4	473.1	95	Bx	Silic QBS, some garnet, chalco, and pyrrhotite, min mod
473.1	476.0	85	Bx	Int silic QBS, weak min
476.0	479.8	100	Bx	Int silic schist, min weak
479.8	482.2	90	Bx	Int silic QBS, min weak
482.2	486.2	75	Bx	Int silic schist and white quartz, min weak
486.2	489.2	85	Bx	Int silic QBS, meta basic dike from 487.2 to 487.8
489.2	493.2	90	Bx	Int silic QBS, weak sulphides
493.2	496.0	80	Bx	Int silic QBS, weak min
496.0	499.8	50	Bx	Int silic and fract QBS, weak min
499.8	504.0	80	Bx	Int fract sericitic qtzite, numerous stringers of chlorite along fract, no apparent min
504.0	508.3	95	Bx	Int fract sericitic qtzite, no apparent min
508.3	513.1	95	Bx	Int fract QBS, minor silic, no apparent min

Footage From	To	% Core Rec'y	Size	Description
513.1	515.1	90	Bx	Mod silic QBS, a few blebs of chalco
515.1	517.1	95	Bx	Mod silic dark gray QBS, a few blebs of pyrite and chalco, min very weak
517.1	522.1	100	Bx	Mod silic dark gray QBS, few small blebs of pyrite and chalco, min very weak, lower 10" of run crystalline basic dike
522.1	527.1	80	Bx	Basic dike to 523.0. Rest of run silic QBS, no apparent min
527.1	529.1	75	Bx	Mod silic dark gray QBS, min not apparent
529.1	534.3	95	Bx	Mod silic QBS, few garnets, min not apparent
534.3	539.3	90	Bx	Mod silic QBS, min very weak
539.3	541.0	90	Bx	Mod silic QBS, min not apparent
541.0	545.8	95	Bx	Mod soft QBS, few blebs of chalco, but min very weak
545.8	549.2	80	Bx	Soft QBS, minor silic, no apparent min
549.2	554.0	95	Bx	Mod silic QBS, no apparent min
554.0	556.7	90	Bx	Mod silic dark gray QBS, a few blebs of chalco in bottom 6" of run, min very weak
556.7	561.0	65	Bx	Frag QBS, mod silic, min not apparent
561.0	563.6	95	Bx	Mod to int silic QBS, few blebs of pyrite and chalco at 562.5 feet
563.6	568.6	85	Bx	Mod silic QBS, no apparent min
568.6	572.8	80	Bx	Soft to mod silic QBS, no apparent min
572.8	575.1	95	Bx	Soft to mod silic dark gray QBS, no apparent min
575.1	578.0	85	Bx	Mod soft light and dark gray QBS, quite micaceous, no apparent min
578.0	583.0	100	Bx	Mod to int silic QBS, weak stringers of pyrrhotite and chalco

Footage From	To	% Core Rec'y	Size	Description
583.0	586.0	100	Bx	Soft mod silic QBS, no apparent min
586.0	589.0	90	Bx	Soft to mod silic QBS, no apparent min
589.0	592.0	90	Bx	Soft to mod silic dark gray QBS, no apparent min
592.0	595.0	90	Bx	Mod silic QBS, no apparent min, few garnets
595.0	597.3	100	Bx	Mod silic QBS, some garnet, biotite schist in bottom foot of run
597.3	602.0	100	Bx	Soft to mod silic QBS, scattered garnet, no apparent min
602.0	607.3	95	Bx	Soft banded dark and light gray QBS, no apparent min, silic very weak
607.3	612.3	95	Bx	Mod silic QBS, some garnets; dark, nearly black, finely crystalline basic dike from 611.0 to 612.3
612.3	615.8	55	Bx	Black crystalline basic dike
615.8	619.0	100	Bx	Dark, finely crystalline basic dike
619.0	624.0	100	Bx	Fine crystalline, nearly black basic dike to 621.0, mod to int silic QBS to 624.0, quite frag, no apparent min
624.0	628.8	100	Bx	Mod to int silic QBS, no apparent min
628.8	632.2	95	Bx	Top 18" of run is fine-grained basic dike, balance of run int silic QBS, some quartz, minor min, a little cobaltite apparent
632.2	633.8	90	Bx	Mod silic QBS, no apparent min
633.8	637.0	100	Bx	Mod silic QBS, no apparent min
637.0	640.0	100	Bx	Mod silic QBS, a few garnets, no apparent min
640.0	645.0	95	Bx	Vitreous white quartz and muscovite to 641.0, balance of run mod silic QBS, very minor min
645.0	647.5	90	Bx	Frag QBS, a little quartz, min not apparent

Footage From	Footage To	% Core Rec'y	Size	Description
647.5	650.0	95	Bx	Soft to mod silic dark gray to black QBS, no apparent min
650.0	652.0	30	Bx	Blocky QBS, no apparent min
652.0	654.0	25	Bx	Mod silic QBS, no apparent min
654.0	656.4	100	Bx	Dark gray nearly black, soft to mod silic QBS, no apparent min
656.4	661.4	40	Bx	Mod silic dark gray to black, blocky QBS, no apparent min
661.4	662.5	100	Bx	Soft, black QBS, no apparent min
662.5	666.5	95	Bx	Soft to mod silic, nearly black, QBS, few stringers of chalco in silic zones,
666.5	670.5	95	Bx	Nearly black, soft to mod silic QBS, no apparent min
670.5	674.0	95	Bx	Soft to mod silic, nearly black, QBS, no apparent min
674.0	676.0	75	Bx	Mod silic QBS, no apparent min
676.0	678.3	90	Bx	Mod to int silic QBS, minor stringers of pyrite and chalco, min very weak
678.3	680.3	95	Bx	Mod silic QBS, no apparent min
680.3	684.5	90	Bx	Mod silic blocky QBS, few stringers of siderite and chalcite bottom 4" of run, no apparent min
684.5	687.5	95	Bx	Blocky, mod silic QBS, no apparent min
687.5	691.5	85	Bx	Mod silic, blocky QBS, no apparent min
691.5	696.0	95	Bx	Int. silic QBS, with white quartz and muscovite to 693.0, lower part of run mod to int silic QBS, no apparent min
696.0	700.0	100	Bx	Soft to mod silic, nearly black, banded QBS, no apparent min
700.0	704.0	100	Bx	Soft black, finely-banded QBS, no apparent min
704.0	709.0	100	Bx	Soft to mod silic QBS, fine banding, no apparent min

DIAMOND DRILL HOLE NO. 2

DESCRIPTIVE LOG

Coordinates: 118,105 N
93,843 E
Collar Elevation: 6240'

Direction: S. 80° E.
Inclination: -45°
Depth: 552 Feet

Footage From	Footage To	% Core Rec'y	Size	Description
0.0	22.0	15	Nc	Frag QBS with iron staining on fract
22.0	26.0	30	Nx	Frag iron stained QBS, int silic
26.0	31.0	60	Nx	Soft QBS, consid iron staining
31.0	31.9	20	Nx	A few frag iron stained pieces of soft biotite schist
31.9	34.1	65	Nx	Int weathered QBS, a little chalco in top 6" of run
34.1	35.3	90	Nx	Frag QBS, int weathered, iron staining on fract
35.3	36.1	90	Nx	Frag, iron stained and weathered QBS
36.1	37.2	90	Nx	Frag QBS, iron staining along fract and joints
37.2	40.8	25	Nx	Frag, iron stained, int weathered QBS
40.8	41.5	50	Nx	Frag, iron stained QBS
41.5	42.8	80	Nx	Frag, iron stained QBS
42.8	44.4	75	Nx	Frag, nearly black QBS, with iron staining along fract
44.4	45.3	100	Nx	Frag QBS, some iron staining on fract
45.3	47.3	75	Nx	Frag QBS, mod weathered, with iron staining along fract
47.3	48.5	100	Nx	Frag iron stained QBS, mod weathered
48.5	50.0	90	Nx	Light gray, soft, frag QBS, minor iron staining along fract
50.0	51.2	70	Nx	Very frag, dark gray to black QBS
51.2	54.2	40	Nx	Frag, dark gray to black QBS, mod weathered

Footage From	To	% Core Rec'y	Size	Description
54.2	55.5	90	Nx	Blocky, gray QBS, mod weathered, with iron staining on fract
55.5	56.5	100	Nx	Frag QBS, nearly black, some iron staining along fract
56.5	60.4	75	Nx	Blocky, gray QBS, iron staining along fractures, weathering not int
60.4	60.8	90	Nx	Frag QBS, no min apparent
60.8	61.5	50	Nx	Dark gray QBS, no apparent min
61.5	63.9	60	Nx	Blocky, frag, dark gray to black QBS, some iron staining on fract, rock looks fresh, min not apparent
63.9	64.9	50	Nx	Black frag QBS, no min apparent
64.9	70.5	90	Nx	Dark gray to black QBS, irreg quartz stringers along schistosity, no min apparent
70.5	75.5	80	Nx	Frag QBS, iron staining along fract, minor silic, no apparent min
75.5	80.5	60	Nx	Mod soft, fine banded QBS, no apparent min
80.5	84.7	75	Nx	Frag, gray QBS, mod silic, no min apparent
84.7	88.5	60	Nx	Int fractured gray QBS, consid iron staining along fract, no apparent min
88.5	93.5	90	Nx	Blocky, mod silic QBS, some soft biotite schist bands
93.5	98.3	85	Nx	Mod silic QBS, consid fract and iron stained, no min apparent
98.3	102.3	85	Nx	Gray, mod silic QBS, no apparent min
102.3	105.8	85	Nx	Int fract QBS, iron staining along fract, no min apparent
105.8	110.7	90	Nx	Mod silic QBS, int fract, no apparent min
110.7	112.3	55	Nx	Int fract and iron stained QBS, no apparent min

Footage From	To	% Core Rec'y	Size	Description
112.3	114.0	80	Nx	Int fract QBS, a little copper staining in silic zone at 113.5, min very weak
114.0	114.5	100	Nx	Frag, mod silic QBS, no apparent min
114.5	117.0	90	Nx	Soft QBS, iron staining along fract, no apparent min
117.0	117.4	100	Nx	Dark gray, mod silic QBS, min not apparent
117.4	120.5	95	Nx	Dark gray, blocky QBS, minor iron staining along fract, no apparent min
120.5	122.0	35	Nx	Mod silic QBS, no apparent min
122.0	125.5	100	Nx	Mod silic QBS, no apparent min
125.5	127.0	70	Nx	Soft to mod silic QBS, minor iron staining along fract, does not appear min
127.0	136.5	85	Nx	Soft to mod silic QBS, quartz from 129.0 to 130.0, no apparent min
136.5	141.0	50	Nx	Frag, soft QBS, minor silic, no min apparent
141.0	143.4	60	Nx	Frag silic QBS and quartz, consid iron staining along fract, no apparent min
143.4	148.8	95	Nx	Mod soft, dark gray to black QBS, minor iron staining along fract, no apparent min
148.8	154.0	70	Nx	Dark gray to black, mod silic QBS, no apparent min
154.0	157.3	65	Nx	Mod silic to soft QBS, no apparent min
157.3	163.3	65	Nx	Soft to mod silic light to dark gray QBS, no apparent min
163.3	166.5	100	Nx	Mod silic to soft frag QBS, no apparent min
166.5	167.8	90	Nx	Soft black QBS, minor silic, min not apparent
167.8	170.8	70	Nx	Soft, frag QBS, minor iron staining, no apparent min

Footage From	To	% Core Rec'y	Size	Description
170.8	172.5	90	Nx	Mod silic QBS, no apparent min
172.5	174.8	95	Nx	Dark gray, nearly black QBS, rock qtzitic, minor silic
174.8	178.3	85	Nx	Light and gray banded QBS, silic minor, no apparent min
178.3	183.2	95	Nx	Dark gray QBS, minor silic, no apparent min
183.2	185.8	80	Nx	Soft black QBS, no apparent min
185.8	190.8	95	Nx	Top 10" of run in silic QBS followed by 12" of soft biotite schist, balance of run mod silic to blocky QBS, minor garnets, no apparent min
190.8	193.1	95	Nx	Mod silic QBS, some garnets
193.1	194.9	90	Nx	Soft to mod silic dark gray to black QBS, no apparent min
194.9	200.0	85	Nx	Light and dark gray banded QBS, silic mod, min weak
200.0	205.0	90	Nx	Mod to int silic QBS, quite int fract, min weak
205.0	208.3	90	Nx	Mod silic QBS, con iron staining along fract, min weak
208.3	211.1	60	Nx	Frag, iron stained QBS, no apparent min, silic mod
211.1	216.0	95	Nx	Blocky, gray QBS, minor silic, weak iron staining on fract, no apparent min
216.0	218.5	100	Nx	Mod silic, blocky QBS, no apparent min
218.5	221.5	50	Nx	Frag, gray QBS, minor silic, no apparent min
221.5	224.0	100	Nx	Mod silic, blocky, gray QBS, no apparent min
224.0	229.0	40	Nx	Mod silic, dark gray QBS, no apparent min
229.0	230.3	90	Nx	Mod silic, blocky QBS, no apparent min
230.3	234.0	75	Nx	Mod silic QBS, no apparent min

Footage From	Footage To	% Core Rec'y	Size	Description
234.0	237.3	70	Nx	Mod silic, blocky QBS, no apparent min
237.3	240.3	95	Nx	Mod silic, blocky QBS, no apparent min
240.3	243.2	90	Nx	Mod silic to soft gray and black banded QBS, no apparent min
243.2	245.0	100	Nx	Frag, mod silic to soft, black banded QBS, no apparent min
245.0	249.3	35	Nx	Dark QBS, no apparent min
249.3	251.2	60	Nx	Dark gray to black, mod silic QBS,no apparent min
251.2	254.5	70	Nx	Mod silic QBS, no apparent min
254.5	256.8	50	Nx	Mod silic QBS, some quartz stringers
256.8	259.5	55	Nx	Mod silic QBS, min weak
259.5	261.0	75	Nx	Mod silic to soft, black QBS, jarosite staining along fract, no apparent min
261.0	266.0	85	Nx	Dark gray to nearly black QBS, minor silic, a few specks of chalco, min very weak
266.0	271.0	100	Nx	Soft to mod silic, black banded QBS, weak iron staining along fract
271.0	276.0	100	Nx	Mod silic, int crumpled black and gray banded QBS, no apparent min
276.0	281.0	95	Nx	Mod silic, blocky QBS, not strongly min
281.0	286.1	95	Nx	Fract QBS, box-work structure indicates that sulphides have been oxidized, this rock could have been quite int min, but is extremely weathered now
286.1	288.8	90	Nx	Mod to int silic gray QBS, not strongly min
288.8	291.8	95	Nx	Mod to int silic QBS, some iron staining along joints, not strongly min
291.8	292.2	25	Nx	Mod silic QBS, no apparent min

Footage From	To	% Core Rec'y	Size	Description
292.2	295.1	50	Nx	Mod silic QBS, some quartz stringers, minor iron staining along fract, does not indicate primary min
295.1	298.3	70	Nx	Mod silic QBS, consid iron staining along fract, does not indicate primary min
298.3	300.4	55	Nx	Mod silic QBS, no apparent primary min
300.4	301.4	50	Nx	Mod silic black to gray QBS, no apparent min
301.4	302.3	100	Nx	Mod silic dark gray, blocky QBS, no apparent primary min
302.3	302.8	100	Nx	Dark gray,massive QBS, no apparent min
302.8	304.3	100	Nx	Mass, dark gray QBS, no apparent min
304.3	307.5	100	Nx	Blocky, dark gray QBS, no apparent min
307.5	312.5	95	Nx	Blocky, dark gray to black QBS, no apparent primary min
312.5	315.0	95	Nx	Mod silic QBS, no apparent min
315.0	318.6	95	Nx	Mod silic, light and dark gray banded QBS, jarosite on fract, min weak
318.6	318.8	100	Nx	Frag QBS
318.8	323.8	100	Nx	Mod silic dark gray QBS, upper 3' of run contains small gossan stringers, some jarosite staining
323.8	327.4	100	Nx	Soft to mod silic QBS, some evidence of oxidized sulphide, though min does not appear strong
327.4	332.8	20	Nx	Soft biotite schist, with a few quartz stringers in remaining frag
332.8	335.3	60	Nx	Soft to mod silic dark gray QBS, min weak
335.3	338.8	100	Nx	Blocky, dark gray QBS, no apparent min
338.8	342.2	95	Nx	Dark gray, blocky QBS, min not strong
342.2	347.0	90	Nx	Soft to mod silic QBS, no apparent min

Footage From	To	% Core Rec'y	Size	Description
347.0	349.5	95	Nx	Mass, blocky, dark gray QBS, no apparent min
349.5	352.5	90	Nx	Blocky QBS, no apparent min
352.5	357.0	60	Nx	Mod silic QBS, not strongly min
357.0	362.0	95	Nx	Qtzitic to soft, dark gray to black QBS, min not strong
362.0	367.0	100	Nx	Soft dark gray to black QBS, some jarosite on fract. A few blebs of pyrite and chalco, min weak
367.0	367.7	80	Nx	Dark gray to black, soft QBS, not strongly min
367.7	370.7	95	Nx	Mod soft to soft, dark gray to black QBS, no apparent min
370.7	375.7	90	Nx	Mod soft to silic QBS, numerous irreg vuggy intervals, which indicate oxidized sulphides, some jarosite staining along fract
375.7	377.0	40	Nx	Mod silic dark gray QBS, no apparent min
377.0	380.0	85	Nx	Mod silic, dark gray to black QBS, a little iron and jarosite staining along fract, min not intense
380.0	383.7	85	Nx	Dark gray, nearly black, mod silic QBS, no apparent min
383.7	387.8	90	Nx	Soft, dark gray QBS, with a few silic stringers up to 2", no apparent min, a few garnets near silic zones
387.8	390.2	90	Nx	Mod silic dark to light gray QBS with a few garnets, no apparent min
390.2	392.8	75	Nx	Soft, black biotite schist with some irreg quartz, min not apparent
392.8	397.8	95	Nx	Dark gray to nearly black QBS, a few irreg quartz stringers, some chalco and pyrite
397.8	402.7	95	Nx	Mod to int silic QBS, Min not apparent

Footage From	Footage To	% Core Rec'y	Size	Description
402.7	405.7	85	Nx	Mod soft, dark gray to black QBS, no apparent min
405.7	407.7	80	Nx	Mod hard, dark gray to nearly black QBS, no apparent min
407.7	412.8	95	Nx	Mod hard and silic dark gray to black QBS, a few blebs of chalco, min weak, a few garnets in softer bands
412.8	415.5	90	Nx	Dark gray, nearly black, blocky QBS, no apparent min
415.5	417.8	70	Nx	Mod soft, dark gray QBS, weak min
417.8	421.0	90	Nx	Dark gray, nearly black, mod soft QBS, a few garnets, weak min
421.0	423.3	60	Nx	Dark gray, nearly black, hard QBS, silic mod, no apparent min
423.3	428.1	60	Nx	Dark gray, nearly black, mass QBS, some garnets, no apparent min
428.1	430.0	80	Nx	Black, mod soft QBS, minor garnet, no apparent min
430.0	435.0	100	Nx	Mod hard, blocky QBS, minor garnets, a little jarosite staining along fract, not strongly min
435.0	440.0	100	Nx	Soft to mod hard QBS, some garnets, some jarosite staining along fract, min not strong
440.0	445.1	100	Nx	Blocky, mod to int silic QBS, minor garnet, some sulphide min, min weak, consid jarosite staining along fract
445.1	450.2	95	Nx	Mod to int silic QBS, consid garnet, some jarosite staining along fract
450.2	454.9	100	Nx	Mod silic QBS, consid garnet, diss sulphide min
454.9	459.3	90	Nx	Soft to mod silic QBS, consid garnet, weak sulphide min
459.3	464.2	100	Nx	Mod silic QBS, consid garnet, no apparent min
464.2	466.8	100	Nx	Soft to mod silic QBS, dark and light banded, a few garnets, min not strong

Footage From	To	% Core Rec'y	Size	Description
466.8	472.1	95	Nx	Mod to int silic, light and dark banded QBS, some garnets in softer bands, minor stringers of chalco, pyrite and cobaltite
472.1	477.5	80	Nx	Light gray to dark gray, soft QBS, minor silic, a few garnets, min not strong
477.5	482.5	100	Nx	Light and dark gray banded QBS, consid garnet, minor sulphide min
482.5	486.5	95	Nx	Int silic QBS, min not strong, some sulphides in silic zones
486.5	491.0	100	Nx	Mod silic dark and light banded QBS, minor garnets, chalco apparent thruout run, some jarosite staining along fract
491.0	496.0	100	Nx	Silic QBS to 491.3, from 491.3 to bottom of run, latite porphyry dike, dike looks fresh, but is mod fract for upper 2', with some iron staining, balance of dike is fract, but hard and fresh.
496.0	540.5	60	Nx	Latite porphyry dike
540.5	542.7	50	Nx	Frag, int silic QBS, with some iron staining, weak min
542.7	545.7	100	Nx	Quartz tourmaline rock, with some white quartz and biotite at top of run, fine-grained sulphide can be seen in quartz tourmaline zone
545.7	550.0	85	Nx	Soft to mod silic QBS, consid garnet, bottom 6" of vein in latite porphyry dike
550.0	552.2	100	Nx	Light gray latite porphyry dike, with minor copper staining along fract, dike is not min, copper staining is secondary

DIAMOND DRILL HOLE NO. 3

DESCRIPTIVE LOG

Coordinates: 121,931 N
92,517 E
Collar Elevation: 5937'

Direction: S. 70° W.
Inclination: -45°
Depth: 439 Feet

Footage From	Footage To	% Core Rec'y	Size	Description
0.0	20.0	-	Nx	Broken and weathered QBS
20.0	25.0	-	Nx	A few pieces of dark gray QBS
25.0	30.0	-	Nx	No core
30.0	35.0	-	Nx	A few frag pieces of weathered gray QBS
35.0	40.0	-	Nx	Weathered surface material, a few frag pieces of QBS
40.0	45.0	40	Nx	Mixed granite from boulders and mod silic QBS; this run has intersected an old channel from which the granite boulders come
45.0	47.5	25	Nx	Dark gray blocky, mod silic QBS, no apparent min
47.5	48.5	60	Nx	Mod blocky QBS with granite frag near bottom of run; this run has intersected old erosion surface
48.5	55.0	20	Nx	Mixed dark gray QBS and granite from old erosion channel
55.0	60.5	15	Nx	Dark gray, mod silic QBS, no apparent min
60.5	63.0	40	Nx	Dark gray, blocky QBS, mod silic
63.0	65.5	50	Nx	Dark gray to nearly black QBS, mod silic, softer bands containing garnet, no apparent min
65.5	70.5	40	Nx	Light to dark gray, soft to mod silic QBS
70.5	75.5	100	Nx	Soft to mod silic, dark gray QBS, no apparent min, a few garnets in softer bands
75.5	80.5	90	Nx	Mod silic, dark gray to nearly black QBS, some garnet in softer bands, weak min, a few stringers of chalco and pyrite in silic zones

Footage From	Footage To	% Core Rec'y	Size	Description
80.5	85.5	70	Nx	Soft to mod silic, dark to light gray QBS, some garnet along softer bands, no apparent min
85.5	89.3	90	Nx	Dark gray to nearly black, soft to mod silic QBS, weak min; small blebs of chalco in siliceous zones
89.3	93.3	65	Nx	Mod to int silic, gray QBS, weak min chalco and pyrite in more siliceous bands
93.3	95.7	95	Nx	Soft to mod silic black QBS, a little pyrite in more siliceous zone
95.7	97.7	80	Nx	Dark gray to black frag QBS, min not apparent
97.7	100.7	85	Nx	Mod soft, nearly black QBS, numerous garnets, a little silic near bottom of run, weak cobaltite vein
100.7	104.0	70	Nx	Mod silic QBS to 101.0, weak min, lower part of run is black biotite schist
104.0	106.0	95	Nx	Chloritic siliceous QBS, weak min
106.0	111.0	40	Nx	Mod silic QBS, some garnet, not min
111.0	114.0	95	Nx	Mod to int silic light and dark gray QBS, a few garnets along softer bands, weak sulphide min
114.0	117.8	100	Nx	Mod to int silic QBS, irreg garnets in soft bands, min very weak
117.8	121.0	100	Nx	Mass blocky QBS, garnets along soft biotitic bands, few specks of sulphide min
121.0	124.3	85	Nx	Soft to mod silic blocky QBS, a few garnets, min very weak
124.3	129.8	95	Nx	Blocky, mod silic, dark gray QBS, a few small blebs of pyrite and chalco, min very weak
129.8	133.8	90	Nx	Frag, light and dark gray QBS, silic mod, a few small blebs of sulphide min
133.8	135.8	85	Nx	Mod silic, light gray to nearly black QBS, minor garnet

Footage From	Footage To	% Core Rec'y	Size	Description
135.8	139.0	100	Nx	Mod silic light to dark gray QBS, a few small specks of sulphides
139.0	144.5	95	Nx	Light to dark gray, blocky, siliceous QBS, sericitic alteration along fract, weak sulphide min
144.5	149.5	100	Nx	Light to dark gray banded QBS, garnets in darker bands, mod silic, weak stringers of chalco, pyrite and cobaltite, min very weak
149.5	154.5	100	Nx	Gray banded QBS, garnets along dark bands, min mod strong, numerous stringers and blebs of chalco, pyrrhotite and pyrite, some cobaltite
154.5	159.8	100	Nx	Dark gray to nearly black, soft to mod silic QBS, a few garnets along softer bands, very weak min
159.8	164.8	100	Nx	Light to dark gray banded QBS, silic mod, garnet along more biotitic bands, min weak, a few stringers and blebs of pyrite, chalco, pyrrhotite and cobaltite
164.8	169.8	95	Nx	Mod silic, dark gray QBS, some garnet, weak min, diss fine-grained pyrite and chalco
169.8	174.8	100	Nx	Light gray, mod silic, finely banded QBS, consid garnet along darker bands, no apparent min
174.8	179.8	100	Nx	Light and dark gray banded QBS, consid garnet along darker bands, no apparent min, a few blebs of chalco and pyrite in bottom 10"
179.8	183.8	100	Nx	Blocky, light to dark gray banded QBS, garnet along darker bands, no apparent min
183.8	188.8	100	Nx	Dark gray, blocky QBS, numerous garnets, no apparent min
188.8	193.8	100	Nx	Light to dark gray banded QBS, garnet along darker bands, min weak

Footage From	Footage To	% Core Rec'y	Size	Description
193.8	198.5	95	Nx	Mod silic, light to dark gray banded QBS, scattered garnet in darker bands, sericitic alteration along fract
198.5	202.8	35	Nx	Mixed white quartz and sericitic QBS, with black remnants of original rock left, no apparent min
202.8	206.3	60	Nx	Broken QBS, consid sericitic alteration along fract, leaving only black remnants of original rock, no apparent min
206.3	211.0	95	Nx	Mod to int silic light gray QBS, a few weak chalco blebs and stringers, min very weak
211.0	215.5	90	Nx	Mod to int silic QBS, with consid sericitic alteration along fract, weak chalco and pyrite along fract, min very weak
215.5	220.5	100	Nx	Light to dark gray, mod silic QBS, garnet along darker bands, a few minor blebs of pyrite and chalco, min very weak
220.5	225.0	100	Nx	Mod silic light and dark gray banded QBS, silic more intense in lower 2' of run, consid sericitic alteration, min not apparent
225.0	230.0	95	Nx	Light gray banded QBS, mod to int silic, consid garnet along darker bands, a few small stringers and blebs of pyrite and chalco, min extremely weak
230.0	235.0	100	Nx	Mod to int silic QBS, garnet along darker bands, min weak
235.0	240.3	100	Nx	Mod silic light and dark gray banded QBS, consid garnet along darker bands, min not apparent
240.3	245.0	100	Nx	Mixed white quartz and QBS, weak chalco, some garnet, min weak
245.0	248.3	90	Nx	Soft to mod silic dark gray QBS, a few scattered garnets, a few blebs of pyrite, min weak

Footage From	Footage To	% Core Rec'y	Size	Description
248.3	250.3	90	Nx	Frag, mod soft, black QBS, irreg garnet, no apparent min
250.3	253.0	90	Nx	Mod soft, dark gray to nearly black QBS, consid garnet in darker bands, no min apparent
253.0	254.2	100	Nx	Soft to mod silic QBS, scattered garnets, no apparent min
254.2	256.2	90	Nx	Dark gray banded QBS, mod silic, garnet along darker bands, no apparent min
256.2	258.1	90	Nx	Mod silic dark gray to black QBS, a few garnets along more biotitic bands, no apparent min
258.1	263.2	95	Nx	Light to dark gray, mod silic QBS, consid garnet along darker bands, a few stringers and blebs of pyrite and chalco
263.2	268.2	100	Nx	Mod silic dark to light gray banded QBS, consid garnet, irreg diss min, min mod
268.2	270.5	90	Nx	Mod silic dark gray to black QBS, min weak
270.5	273.5	80	Nx	Soft to mod silic dark gray to black QBS, a few garnets along darker bands, some sericitic alteration along fract, a few weak stringers and blebs of sulphide min
273.5	276.5	100	Nx	Dark gray, nearly black, banded QBS, a few garnets along darker bands, weak stringers of pyrite and chalco, min weak
276.5	279.7	100	Nx	Dark gray to nearly black, soft to mod silic QBS, weak sulphide min diss thru core
279.7	282.0	100	Nx	Dark gray to black QBS, mod silic, weak stringers of sulphide min along more siliceous zone
282.0	286.5	95	Nx	Dark gray, blocky, mod silic QBS, numerous blebs of pyrite and chalco, min weak

Footage From	To	% Core Rec'y	Size	Description
286.5	291.0	95	Nx	Dark gray to nearly black QBS, mod silic, vitreous white quartz from 288.0 to 289.5, no min in quartz, but QBS shows weak sulphide min
291.0	294.5	70	Nx	Frag, dark gray to nearly black, mod silic QBS, min very weak
294.5	297.6	95	Nx	Frag, dark gray to black QBS, a few mod silic bands, weak sulphide in more siliceous zones
297.6	301.3	100	Nx	Dark gray to black, soft QBS, a few mod silic bands, min very weak
301.3	306.0	90	Nx	Soft to mod silic dark gray to black QBS, diss sulphides and stringers thruout most of run, min weak to mod
306.0	311.0	100	Nx	Mod to int silic garnetiferous QBS, weak diss sulphide min
311.0	316.0	100	Nx	Soft biotite schist to 314.0, probably meta dike, garnetiferous QBS to 316.0, minor sulphides apparent
316.0	321.0	95	Nx	Dark gray to nearly black garnetiferous QBS, mod silic, min weak, some chalco, pyrite and pyrrhotite
321.0	326.0	100	Nx	Dark gray, mod to int silic QBS, min quite strong, stringers and diss sulphides thruout run, some cobaltite
326.0	331.0	100	Nx	Dark gray to nearly black, mod to int silic QBS, well min with irreg stringers of chalco, pyrite and some cobaltite
331.0	336.0	100	Nx	Dark gray, nearly black, mod silic, blocky QBS, diss sulphides and stringers thruout run, chalco, pyrite, pyrrhotite, marcasite and cobaltite apparent
336.0	340.8	95	Nx	Mod to int silic dark gray to black QBS, min weaker but still consid sulphides present
340.8	345.0	100	Nx	Dark gray to nearly black, mod silic QBS, weak sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
345.0	350.0	100	Nx	Dark gray, nearly black, silic QBS, irreg stringers of sulphides thruout run, can see pyrite, pyrrhotite, chalco, and cobaltite
350.0	355.0	100	Nx	Dark gray to nearly black, mod to int silic QBS, min mod, irreg stringers of chalco, pyrite and pyrrhotite
355.0	359.0	100	Nx	Dark gray to black, mod to int silic QBS, irreg stringers of pyrite and chalco, min weak to mod
359.0	363.5	100	Nx	Dark gray to nearly black, mod to int silic QBS, irreg stringers of sulphide thruout run
363.5	368.5	100	Nx	Dark gray, nearly black, mass QBS, silic mod int, min quite strong, sulphides occur in stringers up to 1/2" wide
368.5	373.2	100	Nx	Dark gray, nearly black, mod silic QBS, diss sulphides, min weak
373.2	375.5	100	Nx	Int silic gray QBS, some sulphide min as stringers
375.5	378.8	100	Nx	Mod to int silic, dark gray QBS, weak diss min
378.8	380.8	75	Nx	Int silic QBS, some stringers of sulphide min
380.8	385.5	40	Nx	Dark gray, int silic QBS, consid vitreous quartz near bottom of run, min weak
385.5	388.5	25	Nx	Dark gray, int silic QBS, weak min
388.5	391.0	70	Nx	Int silic dark gray QBS, min not apparent
391.0	394.0	85	Nx	Dark gray, blocky, int silic QBS, no apparent min
394.0	396.5	85	Nx	Int silic, blocky QBS, min not apparent
396.5	400.5	90	Nx	Light gray to nearly white QBS, some quartz, sericitic alteration apparent, consid gouge and mud along fract

Footage From	Footage To	% Core Rec'y	Size	Description
400.5	405.5	85	Nx	Mod silic, light to dark gray banded QBS, run shows sericitic alteration, min not apparent
405.5	409.3	90	Nx	Light to dark gray, mod silic QBS, consid sericitic alteration along fract, no apparent min
409.3	414.5	100	Nx	Mod silic QBS, consid sericitic alteration along fract, stringers and blebs of chalco, pyrrhotite and cobaltite in lower 2 feet of run
414.5	419.5	100	Nx	Dark gray, mod silic QBS, a few stringers of chalco and pyrite
419.5	424.0	100	Nx	Mod silic, dark gray QBS, some stringers and blebs of chalco
424.0	429.0	80	Nx	Mod to int silic, frag QBS, weak sulphides present
429.0	434.0	40	Nx	Dark gray, nearly black, mod silic frag QBS, weak min
434.0	438.7	80	Nx	Dark gray, mass QBS, mod silic, sericitic alteration along fract, weak min

DIAMOND DRILL HOLE NO. 4

DESCRIPTIVE LOG

Coordinates: 117,392 N
94,004 E
Collar Elevation: 5704'

Direction: N. 45° E
Inclination: -35°
Depth: 588 Feet

Footage From	Footage To	% Core Rec'y	Size	Description
0.0	41.0	-	Nx	Hole in over-burden to 41-foot depth
41.0	46.0	20	Nx	Dark gray, silic QBS, no apparent min
46.0	48.0	95	Nx	Dark gray, mod silic QBS
48.0	50.5	95	Nx	Light to dark gray, mod silic QBS, no apparent sulphide min
50.5	53.5	100	Nx	Dark gray, blocky, mod silic QBS, min not apparent
53.5	55.0	95	Nx	Dark gray, mass QBS, no apparent min
55.0	57.0	100	Nx	Dark gray, mass QBS, no apparent min
57.0	59.0	95	Nx	Dark gray, finely banded, mod silic QBS, no apparent min
59.0	62.6	95	Nx	Dark gray, blocky, mod silic QBS, no apparent min
62.6	65.9	90	Nx	Dark gray, mod silic, blocky QBS, no apparent min
65.9	67.8	100	Nx	Mod silic dark gray QBS, no apparent min
67.8	72.8	100	Nx	Light to dark gray, mod silic QBS, no apparent min
72.8	77.0	100	Nx	Mod to int silic, dark gray QBS, some cobalt bloom at 74.5', min weak
77.0	80.0	100	Nx	Mod silic gray QBS, garnets in soft biotite bands, min very weak
80.0	83.0	95	Nx	Dark and light gray banded QBS, mod silic, garnets along more schistose beds, min weak
83.0	86.5	90	Nx	Light and dark gray banded QBS, some garnet in softer bands, min weak

Footage From	Footage To	% Core Rec'y	Size	Description
86.5	88.5	95	Nx	Gray, micaceous QBS, silic very weak, no apparent min
88.5	90.5	90	Nx	Dark gray, soft QBS, no apparent min
90.5	91.5	85	Nx	Mod soft, gray QBS, very little silic, no apparent min
91.5	94.0	75	Nx	Dark green to nearly black biotite schist, no apparent min
94.0	94.8	100	Nx	Mod to int silic light gray QBS, sericitic alteration along fract, no apparent min
94.8	95.1	100	Nx	Mod silic gray QBS, no apparent min
95.1	100.1	100	Nx	Mod to int silic gray QBS, diss chalco, min weak, lower 2-1/2 feet of vein is white quartz, some irreg blebs of chalco and pyrite
100.1	101.8	95	Nx	White quartz mixed with light gray int silic QBS, no apparent min
101.8	104.0	95	Nx	Light gray, int silic QBS
104.0	107.3	100	Nx	Mod to int silic, light gray, blocky QBS, no apparent min
107.3	112.3	95	Nx	Light gray, mod silic QBS
112.3	117.7	70	Nx	Light gray, mod silic QBS, small stringers of chalco up to an eighth of an inch, min weak
117.7	119.3	90	Nx	Light gray, mod silic QBS, no apparent min
119.3	123.0	95	Nx	Light gray, soft to mod silic QBS, no apparent min
123.0	126.1	100	Nx	Light gray, banded, int silic QBS to 124.5 feet, rock changes to dark chloritic green biotite schist, contact not sharp, may be meta basic dike
126.1	130.1	100	Nx	Dark gray QBS, consid chlorite along fract, int silic, a few irreg stringers of chalco, pyrrhotite and pyrite
130.1	132.8	95	Nx	Light to dark gray, int silic, frag QBS, no apparent min

Footage From	Footage To	% Core Rec'y	Size	Description
132.8	133.5	90	Nx	Int silic light gray QBS, very frag, no apparent min
133.5	138.0	100	Nx	Dark gray, soft to mod silic QBS, no apparent min
138.0	140.8	95	Nx	Int silic light gray QBS, no apparent min
140.8	142.7	90	Nx	Frag, light gray QBS, some sericitic alteration, no apparent min
142.7	145.8	90	Nx	Dark gray to nearly black, frag QBS, minor silic, consid chlorite along fract, no apparent min
145.8	149.0	65	Nx	Soft to mod silic light and dark gray QBS, no apparent min
149.0	152.8	75	Nx	Soft, dark gray to black, int crumpled QBS, a few tiny blebs of chalco in upper 6" of run, min very weak
152.8	155.7	90	Nx	Light to dark gray, soft QBS, few weak spots of sulphide min
155.7	159.0	90	Nx	Light to dark gray, banded QBS, mod to int silic, some chalco and pyrite along banding
159.0	161.5	90	Nx	Dark gray to black, mod silic QBS, min very weak
161.5	164.0	90	Nx	Light to dark gray, soft frag QBS, no apparent min
164.0	168.5	100	Nx	Mod to int silic, light gray QBS, a few blebs of chalco in more silic rock, min very weak
168.5	171.5	50	Nx	Dark gray to nearly black, soft QBS, no apparent min
171.5	173.5	50	Nx	Very frag, mod silic gray QBS, no apparent min
173.5	177.5	50	Nx	Int broken, light gray, mod silic QBS, no apparent min
177.5	179.5	100	Nx	Soft to mod silic light and dark gray QBS, min very weak
181.6	184.5	90	Nx	Light to dark gray, mod silic to soft QBS, no apparent min

Footage From	Footage To	% Core Rec'y	Size	Description
184.5	186.9	100	Nx	Dark and light gray banded QBS, silic mod, consid chalco as stringers along banding
186.9	189.3	75	Nx	Mod silic to soft, dark to light gray QBS, min weak
189.3	191.9	100	Nx	Light and dark gray banded QBS, min very weak
191.9	196.0	95	Nx	Light to dark gray, mod to int silic QBS, consid min in upper part of run, cobaltite and chalco
196.0	198.5	100	Nx	Light to dark gray, mod to int silic QBS, min very weak
198.5	202.0	100	Nx	Dark and light gray banded, mod silic QBS, min weak
202.0	205.3	95	Nx	Mod to int silic dark and light gray banded QBS, min weak
205.3	208.4	90	Nx	Mod to int silic dark and light gray QBS, some diss sulphide min
208.4	211.2	90	Nx	Light gray, mod silic QBS, consid sericitic alteration along fract, no apparent min
211.2	214.0	80	Nx	Light gray, mod silic QBS, consid sericitic alteration, no apparent min
214.0	216.0	95	Nx	Light to dark gray banded, mod silic QBS, no apparent min
216.0	218.0	100	Nx	Mod silic, gray QBS, min very weak
218.0	221.5	100	Nx	Mod silic, dark gray banded QBS, min very weak, a few tiny blebs of pyrite and chalco
221.5	223.5	90	Nx	Dark gray, nearly black, soft QBS, no apparent min
223.5	225.5	95	Nx	Dark gray, soft to mod silic QBS, min very weak
225.5	228.0	85	Nx	Soft to mod silic dark gray to nearly black QBS

Footage From	Footage To	% Core Rec'y	Size	Description
228.0	231.0	95	Nx	Dark gray, mod silic QBS, a few stringers of sulphides parallel to banding, min very weak
231.0	233.0	75	Nx	Light to dark gray banded QBS, min very weak
233.0	235.8	95	Nx	Dark gray, mod silic QBS, min very weak
235.8	237.5	95	Nx	Mod silic gray QBS, weak min
237.5	241.3	95	Nx	Light and dark gray banded, mod silic QBS, weak sulphide min, some pyrite and chalco
241.3	246.2	95	Nx	Dark and light gray, mod silic QBS, 6" of int silic rock near center of run shows consid chalco along fract, min in general very weak
246.2	248.3	90	Nx	Frag, mod silic QBS, min weak
248.3	251.8	95	Nx	Mod silic, dark and light gray banded QBS, min very weak
251.8	255.8	75	Nx	Mod to int silic, light and dark banded QBS, min very weak
255.8	256.7	90	Nx	Black biotite schist appears to be meta dike
256.7	261.8	70	Nx	Dark gray, banded, mod silic QBS, chlorite along fract
261.8	264.7	50	Nx	Light and dark gray, finely banded QBS, no silic, no apparent min
264.7	267.1	70	Nx	Soft to mod silic, frag, gray QBS, no apparent min
267.1	271.0	30	Nx	Broken, light and dark banded QBS, no apparent min
271.0	276.5	65	Nx	Frag, mod silic, dark gray QBS, no apparent min
276.5	278.0	95	Nx	Light gray, soft QBS, no apparent min
278.0	280.5	95	Nx	Light gray, mod silic QBS, a few stringers of chalco
280.5	285.0	95	Nx	Light gray, mod silic, frag QBS, a few weak stringers of chalco

Footage From	Footage To	% Core Rec'y	Size	Description
285.0	288.5	75	Nx	Frag, light gray, mod silic QBS, min weak
288.5	291.0	100	Nx	Mod silic QBS, weak sulphide min along fract
291.0	293.5	100	Nx	Light gray, soft to mod silic QBS, minor min
293.5	296.0	80	Nx	Mod soft QBS, weak sulphide min
296.0	299.0	80	Nx	Light to dark gray banded, mod soft QBS, no apparent min
299.0	301.5	100	Nx	Soft, light gray QBS, no apparent min
301.5	303.1	90	Nx	Frag, soft, light gray QBS, no apparent min
303.1	305.2	95	Nx	Soft to mod silic QBS, weak min
305.2	306.9	90	Nx	Soft to mod silic, light and dark gray banded QBS, no apparent min
306.9	309.3	95	Nx	Mod silic, dark and light gray QBS, no min
309.3	311.5	100	Nx	Soft to mod silic, light to dark gray banded QBS, a few garnets, a few stringers of chalco in upper 6" of run, min very weak
311.5	313.7	10	Nx	Mod silic light gray QBS, a few weak stringers of chalco
313.7	315.1	0	Nx	No core
315.1	318.7	90	Nx	Dark gray, nearly black, fine grained basic dike
318.7	319.8	100	Nx	Dark gray to black basic dike
319.8	325.0	100	Nx	Black, fine grained basic dike, this dike is very fresh, shows no alteration
325.0	330.0	95	Nx	Upper 2' of run is dark gray to black basic dike, lower 3' of run is latite porphyry dike
330.0	335.0	100	Nx	Latite porphyry dike
335.0	339.5	100	Nx	Latite porphyry dike

Footage From	Footage To	% Core Rec'y	Size	Description
339.5	344.2	100	Nx	Latite porphyry dike
344.2	348.0	100	Nx	Latite porphyry dike
348.0	353.8	100	Nx	Latite porphyry dike
353.8	358.2	100	Nx	Latite porphyry dike
358.2	362.8	100	Nx	Latite porphyry dike
362.8	367.2	100	Nx	Latite porphyry dike
367.2	372.0	100	Nx	Latite porphyry dike, except for lower 16" of run, which is dark gray to black fine grained basic dike, contact sharp between two dike rocks, relation between acid and basic dikes indicates that acid dikes may be later than basic dikes
372.0	377.8	85	Nx	Top 6" of run is black, fine grained basic dike, balance of run mod silic, frag, gray QBS, weak min
377.8	383.1	90	Nx	Frag, light and dark gray QBS, weak min
383.1	387.2	90	Nx	Frag, soft to mod silic, gray QBS, min weak
387.2	390.5	80	Nx	Light to dark gray, mod soft QBS, min weak
390.5	393.5	95	Nx	Frag, light gray QBS, weak min
393.5	398.0	100	Nx	Top 12" of run int silic QBS, some min, lower part of run is latite porphyry dike
398.0	403.0	100	Nx	Latite porphyry dike
403.0	408.0	100	Nx	Latite porphyry dike
408.0	411.8	100	Nx	Latite porphyry dike
411.8	416.8	100	Nx	Latite porphyry dike
416.8	421.7	100	Nx	Latite porphyry dike
421.7	426.6	100	Nx	Latite porphyry dike

Footage From	Footage To	% Core Rec'y	Size	Description
426.6	427.8	100	Nx	Latite porphyry dike
427.8	430.7	90	Nx	Latite porphyry dike
430.7	434.8	100	Nx	Latite porphyry dike
434.8	439.8	100	Nx	Latite porphyry dike
439.8	441.0	80	Nx	Latite porphyry dike
441.0	445.0	100	Nx	Latite porphyry dike
445.0	449.0	100	Nx	Latite porphyry dike
449.0	454.0	100	Nx	Latite porphyry dike
454.0	456.6	95	Nx	Top 14" of run is latite porphyry dike, lower part of run is soft, gray QBS, no apparent min
456.6	461.1	80	Nx	Mod soft, light gray QBS, no apparent min
464.6	466.8	95	Nx	Frag, soft, light gray QBS, no apparent min
466.8	468.8	100	Nx	Mod silic gray QBS, weak min
468.8	470.2	80	Nx	Frag, mod silic gray QBS, weak min
470.2	473.0	100	Nx	Mod silic gray QBS, very weak min
473.0	475.4	90	Nx	Frag, soft to mod silic, gray QBS, min weak
475.4	477.7	50	Nx	Mod silic gray QBS, min very weak
477.7	482.7	75	Nx	Mod to int silic, gray QBS, weak min
482.7	486.5	75	Nx	Mod silic, gray QBS, no apparent min
486.5	490.8	90	Nx	Mod silic gray QBS, a few garnets, weak min
490.8	494.7	100	Nx	Mod silic gray QBS, a 2" zone of chalco, pyrrhotite and pyrite at 492.0', rest of run very weak min
494.7	496.2	100	Nx	Frag, soft gray QBS, min very weak

Footage From	Footage To	% Core Rec'y	Size	Description
496.2	497.6	100	Nx	Mod silic gray QBS, min very weak
497.6	499.8	100	Nx	Mod silic gray QBS, min very weak
499.8	503.2	30	Nx	Gray, mod silic QBS, several little stringers of chalco and pyrite, min not strong
503.2	505.6	100	Nx	Mod silic gray QBS, min very weak
505.6	507.9	85	Nx	Soft, frag, dark gray QBS, no apparent min
507.9	513.2	75	Nx	Frag, soft to mod silic QBS, no apparent min
513.2	518.3	80	Nx	Dark gray, frag, mod silic QBS, a few garnets in softer bands, no apparent min
518.3	523.7	30	Nx	Frag, siliceous QBS, min very weak
523.7	529.8	15	Nx	Dark greenish-black biotite schist, may be meta basic dike, no apparent min
529.8	533.2	55	Nx	Mod silic, frag, dark gray QBS, min not apparent
533.2	535.5	75	Nx	Mod silic, frag, gray QBS, no apparent min
535.5	538.8	100	Nx	Dark gray, mod silic QBS, no apparent min
538.8	542.4	95	Nx	Dark and light gray banded, mod silic QBS, no apparent sulphide min
542.4	543.7	90	Nx	Int fract, frag, mod silic gray QBS, weak min
543.7	545.3	80	Nx	Mod silic, frag, dark gray QBS, no apparent sulphide min
545.3	546.8	100	Nx	Mod silic, frag, dark gray QBS, no apparent sulphide min
546.8	550.0	75	Nx	Frag, mod silic, dark gray QBS, no apparent sulphide min
550.0	553.4	85	Nx	Mod silic to soft gray QBS, no apparent sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
553.4	555.6	85	Nx	Fract, mod silic gray QBS, with consid white quartz, no apparent sulphide min
555.6	560.3	50	Nx	Frag, soft QBS, with consid white quartz, no apparent sulphide min
560.3	565.3	90	Nx	Top 8" of run is soft, dark gray QBS, no apparent min, balance of run is fine grained gray latite porphyry dike
565.3	569.6	95	Nx	Dark gray latite porphyry dike
569.6	572.7	100	Nx	Latite porphyry dike
572.7	573.3	100	Nx	Latite porphyry dike
573.3	578.0	100	Nx	Latite porphyry dike
578.0	583.1	100	Nx	Latite porphyry dike
583.1	588.0	100	Nx	Latite porphyry dike

DIAMOND DRILL HOLE NO. 5

DESCRIPTIVE LOG

Coordinates: 122,245 N
92,352 E
Collar Elevation: 5964'

Direction: S. 50° W.
Inclination: -45°
Depth: 546 Feet

Footage From	Footage To	% Core Rec'y	Size	Description
0.0	15.0	-	Nc	A few iron stained frag of QBS
15.0	17.3	85	Nx	Frag, iron satined, mod silic QBS, no apparent min
17.3	20.0	75	Nx	Soft to mod silic QBS, a 6" latite porphyry dike 12" below top of run
20.0	24.0	80	Nx	Frag, silic gray QBS
24.0	29.0	70	Nx	Dark gray, mod silic QBS, no apparent min
29.0	32.0	90	Nx	Mod silic, blocky gray QBS, no apparent min
32.0	35.0	95	Nx	Soft to mod silic dark gray QBS, no apparent min
35.0	38.5	85	Nx	Dark gray to nearly black QBS, no silic
38.5	41.5	90	Nx	Dark gray, blocky, mod silic QBS, no apparent min
41.5	43.0	70	Nx	Dark gray, blocky QBS, no apparent min
43.0	47.5	95	Nx	Light to dark gray QBS, silic mod, some calcite along fract, weak min
47.5	50.5	85	Nx	Dark gray QBS, some garnet, several irreg sulphide bands from 48.5 to 49.5, min mod
50.5	55.0	60	Nx	Soft, dark and light banded QBS, no apparent min
55.0	60.0	80	Nx	Soft, frag, gray to black QBS, no apparent min
60.0	64.0	90	Nx	Gray to black banded QBS, with numerous red garnets in black bands to 63.0, lower foot of run is soft biotite schist, may be meta basic dike, no apparent min

Footage From	Footage To	% Core Rec'y	Size	Description
64.0	68.0	90	Nx	Top 16" of run is soft biotite schist, balance of run is mod silic QBS, with consid garnets
68.0	71.5	90	Nx	Top 12" of run int silic gray QBS, followed by 6" of soft biotite schist, 16" of vitreous white quartz below biotite schist, balance of run is mod silic garnet schist, min very weak
71.5	73.9	100	Nx	Light gray, dark banded QBS, with consid garnet, silic intense, some diss chalco
73.9	78.9	60	Nx	Top 10" of run is gray garnet schist, some weak min, balance of run is soft biotite schist, meta basic dike
78.9	83.4	85	Nx	Top 4" of core is soft biotite schist, balance of run is mod to int silic garnet schist, some diss sulphides
83.4	88.5	95	Nx	Mod silic garnet schist, weak diss sulphide min
88.5	90.5	10	Nx	Dark gray to black garnetiferous schist, min very weak
90.5	92.0	70	Nx	Gray to nearly black garnetiferous QBS, no apparent min
92.0	95.0	90	Nx	Light to dark gray garnetiferous QBS, chlorite along fract, a little pyrite, no other min apparent
95.0	100.0	80	Nx	Silic chloritic QBS, no sulphides
100.0	102.5	90	Nx	Mod to int silic, dark gray QBS, with consid garnet, weak sulphides
102.5	105.0	70	Nx	Very frag, light gray silic QBS, consid chlorite along fract, weak sulphides
105.0	110.0	85	Nx	Upper 18" of run light gray, int silic QBS, consid chalco and pyrite as stringers and blebs, lower part of run is dark gray QBS, weak sulphides

Footage From	Footage To	% Core Rec'y	Size	Description
110.0	114.5	95	Nx	Blocky QBS, with garnet along darker bands, very weak sulphide min
114.5	116.5	100	Nx	Dark gray, nearly black, fine grained basic dike. This rock is very fresh
116.5	121.0	100	Nx	Basic dike
121.0	125.0	100	Nx	Basic dike
125.0	129.4	100	Nx	Fresh basic dike
129.4	133.5	75	Nx	Basic dike, lower part of run becomes very soft and frag, with consid calcite on fract
133.5	137.5	85	Nx	Top 10" of run is dark green to black basic dike, rest of run is mod soft QBS, no apparent min
137.5	142.5	95	Nx	Top 16" of run is dark gray QBS, some garnet, balance of run is basic dike, with consid calcite along fract
142.5	145.5	50	Nx	Frag black basic dike
145.5	149.5	70	Nx	Black basic dike, consid calcite on fract
149.5	154.0	75	Nx	Nearly black basic dike
154.0	156.0	100	Nx	Dark gray to black basic dike, quite gougy in lower 12" of run
156.0	159.5	70	Nx	Black, int fract basic dike, consid calcite on fract
159.5	162.0	80	Nx	Soft, int fract, black basic dike, consid calcite on fract
162.0	164.0	70	Nx	Black basic dike, int fract, consid calcite on fract
164.0	166.0	90	Nx	Black, fine grained basic dike, calcite on fract
166.0	168.0	100	Nx	Blocky, black, fine grained basic dike, calcite on fract
168.0	169.5	70	Nx	Frag, black, fine grained basic dike

Footage From	Footage To	% Core Rec'y	Size	Description
169.5	173.5	40	Nx	Dark gray to black, fine grained basic dike, very soft in lower part of run
173.5	174.8	75	Bx	Frag, black, fine grained basic dike, calcite along fract
174.8	177.0	40	Bx	Fine grained basic dike
177.0	180.0	30	Bx	Very soft, frag basic dike, looks gougy in lower part of run
180.0	184.3	100	Bx	Blocky, fine grained basic dike
184.3	186.3	75	Bx	Fine grained black basic dike
186.3	188.5	90	Bx	Fine grained basic dike
188.5	193.1	100	Bx	Blocky, fine grained black basic dike
193.1	198.0	100	Bx	Blocky, fine grained basic dike
198.0	203.0	80	Bx	Basic dike, becoming quite soft in lower part of run
203.0	204.5	75	Bx	Frag basic dike, int broken, consid calcite along fract
204.5	208.5	95	Bx	Top 3' of run mod silic, gray QBS, no apparent min; lower foot of run is black basic dike
208.5	213.5	90	Bx	Light gray, mod silic QBS, a few garnets, no apparent sulphide min
213.5	215.5	25	Bx	Mod silic gray QBS, no apparent sulphide min
215.5	220.3	0	Bx	No core
220.3	223.0	95	Bx	Mod silic light and dark gray QBS, no apparent sulphide min
223.0	228.3	70	Bx	Light gray, mod to int silic QBS, no apparent sulphide min
228.3	230.2	95	Bx	Upper 6" of run is black fine grained basic dike, lower part of run is int silic QBS, no apparent sulphide min
230.2	233.2	100	Bx	Greenish-gray basic dike with consid calcite fract

Footage From	Footage To	% Core Rec'y	Size	Description
233.2	238.0	90	Bx	Top 4" of run is dark basic dike, followed by int silic QBS to 237.0, 12" of basic dike in lower part of run, no apparent sulphide min
238.0	243.0	95	Bx	Mod silic dark gray QBS, a few garnets, no apparent sulphide min
243.0	248.0	100	Bx	Light and dark gray banded, mod silic QBS, minor stringers of pyrite and chalco
248.0	252.0	100	Bx	Dark and light gray banded QBS, irreg stringers of chalco and pyrite, min not strong
252.0	256.5	95	Bx	Mod silic dark and light gray banded QBS, no apparent sulphide min
256.5	260.0	95	Bx	Light and dark gray QBS, int silic in lower part of run, a few garnets, no apparent min
260.0	263.5	80	Bx	Top 6" of run is fine grained black basic dike, lower part of run is mod to int silic dark and gray banded QBS, some garnets, no apparent sulphide min
263.5	268.0	80	Bx	Light and dark gray banded, mod silic QBS, garnets along softer bands, no apparent sulphide min
268.0	273.0	100	Bx	Upper 2-1/2 feet of run is light and dark gray banded, mod silic QBS; lower 2-1/2 feet of run is int fract, dark gray to black, fine grained basic dike
273.0	277.7	100	Bx	Fine grained, blocky basic dike
277.7	284.7	50	Bx	Fine grained, blocky basic dike
284.7	289.5	100	Bx	Fine grained, dark gray to black basic dike
289.5	294.5	75	Bx	Light and dark gray banded QBS, with garnets along darker bands, not silic
294.5	298.5	50	Bx	Soft, gray, banded QBS, no apparent sulphide min
298.5	304.5	60	Bx	Soft gray QBS, no apparent sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
304.5	309.5	75	Bx	Soft gray QBS, a few garnets in darker bands, no apparent sulphide min
309.5	314.5	60	Bx	Frag, soft QBS, a few garnets in darker bands, no apparent sulphide min
314.5	320.0	90	Bx	Top 2-1/2 feet of run is soft QBS, consid garnet, lower part of run is meta basic dike, calcite stringers along fract, no apparent sulphide min
320.0	325.0	95	Bx	Blocky, fine grained black basic dike
325.0	330.0	100	Bx	Upper 4' of run is blocky, fine grained black basic dike, lower foot of run is int silic gray QBS, no apparent sulphide min
330.0	334.8	60	Bx	Mod silic gray QBS, no apparent sulphide min
334.8	339.8	75	Bx	Mod silic to soft gray QBS, no apparent sulphide min
339.8	344.5	70	Bx	Light and dark gray banded QBS, minor garnets, silic mod, no apparent sulphide min
344.5	349.5	100	Bx	Mod silic, light and dark gray banded QBS, minor stringers of sulphide toward lower part of run
349.5	354.5	80	Bx	Soft to mod silic dark gray QBS, weak min in upper part of run
354.5	359.5	70	Bx	Mod silic light and dark gray QBS, weak sulphide min
359.5	364.5	50	Bx	Light and dark gray banded QBS, minor sulphide min
364.5	369.5	75	Bx	Light and dark gray, mod silic QBS, weak min
369.5	374.5	75	Bx	Light to dark gray, mod silic QBS, minor sulphides
374.5	379.5	65	Bx	Light and dark gray, mod to int silic QBS, a few stringers of pyrite and chalco

Footage From	Footage To	% Core Rec'y	Size	Description
379.5	385.0	50	Bx	Fract, int silic dark and light gray QBS, a few sulphide stringers
385.0	390.0	50	Bx	Mod silic, frag gray QBS, very weak min
390.0	395.0	40	Bx	Mod silic dark gray QBS, several small stringers and blebs of chalco
395.0	400.0	50	Bx	Dark and light gray, mod silic QBS, several stringers and blebs of chalco and pyrite
400.0	404.0	85	Bx	Dark to light gray, mod silic QBS, consid chalco along banding
404.0	408.8	25	Bx	Soft to mod silic gray QBS, weak sulphide
408.8	413.8	25	Bx	Light and dark gray, mod silic QBS, a few stringers of chalco and pyrite
413.8	418.8	15	Bx	Dark gray to nearly black, soft to mod silic QBS, very weak sulphide min
418.8	421.0	70	Bx	Dark gray to nearly black, soft to mod silic QBS, no apparent sulphide min
421.0	426.0	90	Bx	Dark gray to nearly black, blocky QBS, silic mod
426.0	431.0	95	Bx	Mod to int silic, dark gray to black QBS, a few tiny sulphide stringers
431.0	435.5	95	Bx	Mod to int silic dark gray QBS, very weak sulphide min
435.5	439.5	50	Bx	Dark gray to black, mod silic QBS, min very weak
439.5	444.0	65	Bx	Dark gray to nearly black, mod silic QBS, no apparent sulphide min
444.0	448.0	95	Bx	Mod silic dark gray QBS, very weak chalco and pyrite along fract, min very weak
448.0	449.8	80	Bx	Dark gray, mod silic QBS, min very weak
449.8	452.3	90	Bx	Mod silic dark and light gray QBS, a few stringers of sulphides, min weak

Footage From	Footage To	% Core Rec'y	Size	Description
452.3	455.0	90	Bx	Mod silic dark gray QBS
455.0	456.4	90	Bx	Dark gray, mod silic QBS, some sericitic alteration along fract, a few small blebs of chalco and pyrite
456.4	461.0	100	Bx	Dark gray, nearly black, mod silic QBS, a few weak sulphide stringers
461.0	466.0	100	BX	Top 2' of run is dark brownish-black biotite schist with consid calcite stringers, meta basic dike; lower 3' of run is dark gray, mod silic QBS, a few weak sulphide stringers
466.0	467.8	90	Bx	Mod to int silic, light to dark gray QBS, consid sericitic alteration, min weak
467.8	470.5	95	Bx	Dark gray to nearly black, mod silic QBS, some chalco stringers, not strongly min
470.5	475.5	90	Bx	Dark and light gray, mod silic QBS, no apparent sulphide min
475.5	480.5	65	Bx	Dark gray to black, mod silic QBS, no apparent sulphide min
480.5	485.5	100	Bx	Dark and light gray banded, mod silic QBS, consid sericitic alteration along fract, no apparent sulphide min
485.5	490.5	100	Bx	Dark gray, mod silic QBS, weak sericitic alteration along fract, a little pyrite, but no other sulphide min
490.5	495.2	70	Bx	Dark gray to nearly black QBS
495.2	500.3	65	Bx	Dark gray to black, mod silic QBS, a few stringers of sulphides, min weak
500.3	505.5	95	Bx	Dark and light gray banded mod silic QBS, a few weak stringers of pyrite and chalco
505.5	508.0	90	Bx	Dark gray to black, mod silic QBS, very weak sulphide min
508.0	513.0	90	Bx	Upper and lower foot of run light gray, int silic QBS, center part of run is dark brown, nearly black biotite schist, may be meta basic dike, no apparent sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
513.0	516.0	60	Bx	Light to dark gray, mod silic QBS, no apparent sulphide min
516.0	521.0	80	Bx	Mod silic, dark gray to nearly black QBS, some chalco, pyrrhotite and pyrite near center part of run
521.0	526.0	70	Bx	Dark gray to nearly black, mod silic QBS, several small chalco and pyrite stringers
526.0	531.0	50	Bx	Dark gray QBS, minor sulphide min
531.0	536.0	50	Bx	Frag, dark gray to nearly black QBS, no apparent sulphide min
536.0	541.0	35	Bx	Light gray QBS, no apparent sulphide min
541.0	546.0	5	Bx	Frag of dark gray to nearly black QBS, no apparent sulphide min

DIAMOND DRILL HOLE NO. 6

DESCRIPTIVE LOG

Coordinates: 117,831 N
94,946 E
Collar Elevation: 5642'

Direction: N. 80° W.
Inclination: -40°
Depth: 487 Feet

Footage From	Footage To	% Core Rec'y	Size	Description
0.0	13.0	0	Nx	Frag dark gray QBS
13.0	15.0	80	Nx	Dark gray, nearly black qtzitic QBS
15.0	18.5	80	Nx	Dark gray, nearly black qtzitic QBS
18.5	23.5	75	Nx	Dark gray, nearly black qtzitic QBS
23.5	28.0	85	Nx	Blocky qtzitic QBS, no apparent sulphide min
28.0	31.0	60	Nx	Soft to mod hard, dark gray qtzitic QBS, no apparent sulphide min
31.0	36.0	40	Nx	Dark gray, mod soft QBS, no apparent min
36.0	37.0	50	Nx	Dark gray, nearly black qtzitic QBS, no apparent sulphide min
37.0	38.6	80	Nx	Dark gray qtzitic QBS
38.6	44.3	30	Nx	Soft, light and dark gray QBS, no apparent sulphide min
44.3	49.4	25	Nx	Dark gray, blocky QBS, no apparent sulphide min
49.4	54.5	75	Nx	Mod soft, dark gray QBS, no apparent sulphide min
54.5	59.1	100	Nx	Dark gray, blocky QBS, no apparent sulphide min
59.1	64.0	25	Nx	Dark gray, qtzitic QBS, no apparent sulphide min
64.0	69.0	80	Nx	Soft QBS, no apparent sulphide min
69.0	74.0	55	Nx	Blocky, gray QBS, no apparent sulphide min
74.0	77.0	95	Nx	Blocky, dark gray QBS

Footage From	Footage To	% Core Rec'y	Size	Description
77.0	82.3	60	Nx	Top 8" of run is dark gray, mod silic QBS, next 12" is latite porphyry dike, lower part of run is frag QBS
82.3	87.3	40	Nx	Dark gray to black QBS
87.3	92.0	60	Nx	Soft gray QBS
92.0	98.0	45	Nx	Dark gray, soft to mod silic QBS, no apparent sulphide min
98.0	101.0	40	Nx	Blocky, gray qtzitic QBS, no apparent sulphide min
101.0	105.5	35	Nx	Blocky to soft, dark gray QBS
105.5	110.5	20	Nx	Soft, black QBS, no apparent sulphide min
110.5	115.0	50	Nx	Dark gray, frag QBS, no apparent sulphide min
115.0	120.0	90	Nx	Soft, dark gray to black QBS, no apparent sulphide min
120.0	125.0	20	Nx	Soft, dark gray, frag QBS, no apparent sulphide min
125.0	128.0	50	Nx	Dark gray, mod hard to soft QBS, no apparent sulphide min
128.0	129.3	10	Nx	Silic QBS, weak pyrite
129.3	134.3	0	Nx	No core
134.3	139.3	15	Nx	Frag dark gray QBS, no apparent sulphide min
139.3	144.3	70	Nx	Frag dark gray, silic QBS, no apparent sulphide min
144.3	149.5	50	Nx	Dark gray, soft, frag QBS, a few small blebs of chalco in bottom of run
149.5	154.5	45	Nx	Dark gray, soft to mod hard QBS, no apparent sulphide min
154.5	159.5	50	Nx	Soft, dark gray QBS, no apparent sulphide min
159.5	164.5	100	Nx	Soft to mod silic, dark and light gray QBS, a few blebs of pyrite and chalco in silic zone

Footage From	Footage To	% Core Rec'y	Size	Description
164.5	169.5	100	Nx	Mod to int silic, dark and light gray QBS, several irreg pyrite and chalco stringers in silic zone, min mod
169.5	174.5	50	Nx	Mod to int silic light gray QBS, several small stringers of chalco in core
174.5	179.5	90	Nx	Upper 18" of run is mostly quartz, with irreg stringers of chalco and pyrite; lower part of run int silic, weak sulphide min
179.5	184.5	95	Nx	Gray, soft to mod hard QBS, a few weak sulphide stringers
184.5	189.5	60	Nx	Soft, dark gray QBS, no apparent sulphide min
189.5	193.0	50	Nx	Soft gray QBS, no apparent sulphide min
193.0	200.0	20	Nx	Soft, dark gray QBS, no apparent sulphide min
200.0	205.0	90	Nx	Dark gray, soft QBS, consid fine garnet in rock
205.0	210.0	95	Nx	Dark gray, soft QBS, with fine garnet, no apparent sulphide min
210.0	215.0	100	Nx	Soft, dark gray QBS, consid fine garnet, no apparent sulphide min
215.0	220.0	95	Nx	Soft, dark gray QBS, consid garnet
220.0	225.0	100	Nx	Soft gray QBS, numerous fine garnets
225.0	227.2	100	Nx	Soft gray QBS, with numerous garnets
227.2	232.7	90	Nx	Top 16" of run dark green chloritic rock, probably meta basic dike, a few specks of pyrite and quartz in this rock; lower part of run is mod silic dark gray QBS, with consid fine garnet
232.7	238.0	95	Nx	Soft dark gray QBS, much fine garnet, no apparent sulphide min
238.0	243.0	100	Nx	Soft gray QBS, with consid fine garnet, no apparent sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
243.0	248.4	100	Nx	Dark gray, soft QBS, run specked with fine garnet, no apparent sulphide min
248.4	253.4	85	Nx	Soft, dark gray QBS, rock specked with fine garnet
253.4	258.4	100	Nx	Dark gray to greenish-gray QBS, very soft, consid fine garnet
258.4	263.0	40	Nx	Top 2" is soft gray QBS, balance of run is frag latite porphyry dike
263.0	267.0	40	Nx	Top 12" of run is latite porphyry dike, balance of run is dark brownish-black biotite schist, may be meta basic dike, no apparent sulphide min
267.0	273.0	25	Nx	Dark brownish-black biotite schist, appears to be meta basic dike, some chalco and pyrrhotite
273.0	279.0	5	Nx	A few small pieces of biotite schist, one larger piece with irreg sulphides, this rock may not be representative of run
279.0	286.0	10	Nx	Most of core is soft, dark gray biotite schist, with 3 frag pieces of heavily min material in bottom of run
286.0	291.0	35	Nx	Very frag, soft, dark gray to nearly black biotite schist. No apparent min
291.0	295.5	40	Nx	Frag, dark gray, nearly black QBS, a few garnets, some stringers of pyrite and chalco
295.5	299.5	50	Nx	Dark gray, nearly black QBS, a few garnets, no apparent sulphide min
299.5	304.0	45	Nx	Dark gray to nearly black QBS, some sulphide min at top of run, min not strong, some garnets
304.0	306.5	50	Nx	Dark gray to nearly black, mod silic QBS, no apparent sulphide min
306.5	308.5	75	Nx	Dark gray qtzitic QBS, some garnet along darker bands, no apparent sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
308.5	313.5	40	Nx	Gray, mod soft QBS, near center of run is an 8" section of heavily min rock, can see pyrite, chalco, pyrrhotite and cobaltite
313.5	318.7	0	Nx	No core
318.7	321.7	55	Nx	Frag, soft gray QBS, no apparent sulphide min
321.7	324.3	50	Nx	Frag, black, fine grained QBS, meta basic dike, no apparent sulphide min
324.3	325.7	75	Nx	Upper part of run is gray QBS, a few large garnets; lower part of run is dark green, soft biotite schist, may be meta basic dike, a little pyrite and chalco in upper part of run
325.7	330.0	40	Nx	Upper part of run is dark gray QBS, a few garnets, grading into a dark, nearly black QBS in lower part of run, some weak sulphides in both rock
330.0	333.0	60	Nx	Dark gray to nearly black QBS, with consid large garnet, a little sulphide min along silic zones
333.0	338.0	65	Nx	Dark gray to light gray QBS with numerous irreg large garnets up to 1/4 of an inch
338.0	341.5	50	Nx	Dark gray, nearly black frag siliceous QBS, min weak, a few garnets along darker bands
341.5	345.0	90	Nx	Frag, dark gray to black QBS, with consid irreg sulphide stringers thruout, min mod, a few garnets
345.0	348.0	5	Nx	4" of frag dark gray to black QBS, weak min
348.0	352.5	40	Nx	Black, mod silic QBS, consid chalco and pyrite stringers
352.5	355.0	80	Nx	Black QBS, a few irreg large garnets, consid sulphides in upper part of run, with diss min in lower part

Footage From	Footage To	% Core Rec'y	Size	Description
355.0	358.9	65	Nx	Black, frag QBS, some irreg sulphides
358.9	362.1	55	Nx	Dark gray to black, mod silic QBS, a few garnets in darker bands, min very weak
362.1	365.2	100	Nx	Dark gray to black QBS, mod silic, a few blebs of sulphide in more silic zones
365.2	368.4	70	Nx	Light and dark gray, mod silic QBS, very weak sulphide min, a few garnets in softer bands
368.4	372.2	50	Nx	Dark gray to black QBS, becoming lighter colored, more blocky toward middle of run, with quartz and chalco in lower 6" of run. Most of lower 6" is ground up chalco and pyrite
372.2	375.8	50	Nx	Light gray QBS, consid garnet, some sulphide min
375.8	380.0	5	Nx	One four-inch piece of blocky white quartz, with consid pyrite, chalco and cobaltite
380.0	385.0	5	Nx	Gray, mod silic QBS, with consid sulphides
385.0	389.5	70	Nx	Light to dark gray, mod silic QBS, some irreg stringers of chalco, pyrite and cobaltite
389.5	393.5	75	Nx	Blocky, gray QBS, several chalco and pyrite stringers, min mod
393.5	398.5	35	Nx	Light and dark gray, mod soft QBS, with consid irreg sulphides. Lower 2" of run almost solid chalco and pyrrhotite
398.5	401.0	0	Nx	No core
401.0	405.5	70	Nx	Soft gray, frag QBS, with consid pyrite, chalco and pyrrhotite in small stringers, some cobaltite
405.5	410.5	35	Nx	Soft, frag QBS, some garnet
410.5	416.2	40	Nx	Soft gray QBS, weak sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
416.2	418.2	75	Nx	Dark gray, nearly black, mod soft QBS, consid garnet, no apparent sulphide min
418.2	420.3	80	Nx	Dark gray, mod soft, garnetiferous QBS, min very weak
420.3	425.4	15	Nx	Frag, dark gray QBS, no apparent sulphide min
425.4	426.5	50	Nx	Frag, dark gray QBS, sulphide min not apparent
426.5	428.0	25	Nx	Frag, dark gray, soft QBS
428.0	432.5	40	Nx	Dark gray to nearly black, mod silic, frag QBS, no apparent sulphide min
432.5	437.5	40	Nx	Dark gray, mod soft QBS, consid garnet in darker bands, sulphide min not apparent
437.5	440.5	85	Nx	Blocky, mod hard, gray QBS, consid large garnet, a few small blebs of chalco, but min extremely weak
440.5	444.5	80	Nx	Blocky, gray, mod silic QBS, some garnet along softer bands, weak chalco, pyrite and pyrrhotite min
444.5	447.5	85	Nx	Mod soft, dark gray, garnetiferous QBS, no apparent min
447.5	451.0	60	Nx	Soft to mod silic gray QBS, a few garnets in darker bands, sulphide min not apparent
451.0	456.3	60	Nx	Soft to mod silic dark gray garnetiferous QBS, no apparent sulphide min
456.3	461.5	70	Nx	Soft, dark gray garnetiferous QBS, no apparent sulphide min
461.5	466.0	55	Nx	Very soft dark gray QBS, no apparent sulphide min
466.0	467.9	95	Nx	Soft to mod silic gray QBS, no apparent sulphide min
467.9	471.7	50	Nx	Very soft, sandy QBS, no apparent sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
471.7	472.3	100	Nx	Frag, mod silic QBS, no apparent min
472.3	473.5	80	Nx	Soft to mod silic, frag, gray QBS, no apparent sulphide min
473.5	478.5	0	Nx	No core
478.5	482.7	35	Nx	Mod silic gray, garnetiferous QBS, no apparent sulphide min
482.7	487.4	25	Nx	Mod silic, frag, gray QBS, some white quartz, no apparent sulphide min

DIAMOND DRILL HOLE NO. 7

DESCRIPTIVE LOG

Coordinates: 117,693 N
94,971 E
Collar Elevation: 5564'

Direction: S. 85° W.
Inclination: -45°
Depth: 500 Feet

Footage From	Footage To	% Core Rec'y	Size	Description
0.0	13.2	0	Nx	Mod silic gray QBS, no apparent min
13.2	14.7	75	Nx	Soft, gray QBS
14.7	20.0	100	Nx	Blocky, gray, mod silic QBS, no apparent sulphide min
20.0	23.3	50	Nx	Soft to mod silic gray QBS, a few garnets in darker bands, sulphide min not apparent
23.3	25.4	90	Nx	Fract, mod silic QBS, no apparent sulphide min
25.4	30.4	95	Nx	Soft gray QBS, becomes quite sandy in some parts, no apparent sulphide min
30.4	35.4	100	Nx	Mod soft QBS, garnets along darker bands, no apparent sulphide min
35.4	39.9	90	Nx	Mod soft, frag, gray QBS, no apparent sulphide min
39.9	42.3	95	Nx	Soft to mod hard, gray QBS, no apparent sulphide min
42.3	45.4	100	Nx	Soft, gray QBS, no apparent sulphide min
45.4	49.0	100	Nx	Mod soft to soft, gray QBS, no apparent sulphide min
49.0	51.2	90	Nx	Dark gray to nearly black, soft QBS, no apparent sulphide min
51.2	56.4	100	Nx	Mod soft, dark gray QBS specked with tiny garnets, no apparent sulphide min
56.4	59.3	100	Nx	Soft, dark gray QBS, fine garnet thruout run, no apparent sulphide min
59.3	64.4	100	Nx	Soft, dark gray QBS, consid fine garnet, no apparent sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
64.4	69.0	95	Nx	Mod soft, dark gray QBS, contains numerous fine garnets, no apparent sulphide min
69.0	72.2	95	Nx	Soft, dark gray QBS, numerous fine garnets, sulphide min not apparent
72.2	77.0	95	Nx	Soft, gray QBS, with fine garnets
77.0	81.5	100	Nx	Gray, mod soft QBS, rock specked with fine garnets, no apparent sulphide min
81.5	86.0	80	Nx	Mod soft, gray QBS, fine garnet thruout run, no apparent sulphide min
86.0	91.0	90	Nx	Dark gray,mod soft QBS, with fine garnet thruout, no apparent sulphide min
91.0	96.0	45	Nx	Mod soft to soft, gray QBS, consid fine-grained garnet, no apparent sulphide min
96.0	101.0	100	Nx	Mod soft to soft, gray garnetiferous QBS, no apparent sulphide min
101.0	106.0	100	Nx	Soft gray QBS, with numerous fine garnets
106.0	111.0	90	Nx	Soft gray QBS, with consid fine-grained garnet, no apparent sulphide min
111.0	116.0	90	Nx	Soft gray QBS, with consid fine-grained garnet, no apparent sulphide min
116.0	121.0	90	Nx	Soft gray QBS, with consid fine garnet, no apparent sulphide min
121.0	126.0	55	Nx	Soft gray QBS, with fine garnet, no apparent sulphide min
126.0	131.0	100	Nx	Soft gray QBS, with fine garnet, no apparent sulphide min
131.0	136.0	95	Nx	Soft gray QBS, entire run specked with fine garnet, no apparent sulphide min
136.0	141.0	100	Nx	Soft gray QBS, with fine garnet thruout run, no apparent sulphide min
141.0	146.0	95	Nx	Soft gray QBS, fine garnet specked thruout run

Footage From	Footage To	% Core Rec'y	Size	Description
146.0	151.0	90	Nx	Soft gray QBS with consid fine garnet
151.0	156.0	85	Nx	Soft gray QBS with fine garnet
156.0	161.0	95	Nx	Soft gray QBS with fine garnet
161.0	166.0	95	Nx	Soft gray QBS with fine garnet
166.0	171.0	95	Nx	Soft gray QBS with fine garnet, no apparent sulphide min
171.0	175.5	75	Nx	Soft gray QBS with numerous fine garnets, no apparent sulphide min
175.5	180.0	80	Nx	Soft gray QBS, with consid fine garnet
180.0	185.0	90	Nx	Soft, dark gray banded QBS, with consid fine garnet, no apparent sulphide min
185.0	189.4	90	Nx	Soft gray QBS with fine garnet
189.4	194.4	80	Nx	Light gray, soft QBS with fine garnet, no apparent sulphide min
194.4	199.7	95	Nx	Soft gray QBS with fine garnet
199.7	204.7	40	Nx	Dark gray, soft QBS with fine garnet, no apparent sulphide min
204.7	209.7	55	Nx	Soft gray QBS with fine garnet
209.7	215.0	80	Nx	Very soft, dark and light gray QBS with fine garnet, no apparent sulphide min
215.0	220.4	95	Nx	Soft gray QBS with fine garnet, no apparent sulphide min
220.4	225.4	90	Nx	Soft light gray QBS with fine garnet, no apparent sulphide min
225.4	230.4	100	Nx	Soft gray QBS, fine garnet, no apparent sulphide min
230.4	235.4	90	Nx	Soft, light to dark gray QBS, with fine garnet, no apparent sulphide min
235.4	239.4	50	Nx	Very soft, frag, gray QBS, a few garnets in upper part of run, no sulphide min apparent

Footage From	Footage To	% Core Rec'y	Size	Description
239.4	244.4	75	Nx	Very soft light gray QBS, fine garnet, no apparent sulphide min
244.4	249.0	100	Nx	Gray, mod soft QBS, with a few garnets, no apparent sulphide min
249.0	254.0	100	Nx	Soft, light gray to dark gray QBS, with fine garnet, no apparent sulphide min
254.0	257.0	90	Nx	Frag, soft, dark gray QBS, consid fine garnet, no apparent min
257.0	259.0	80	Nx	Soft, almost gougy, chloritic QBS, this rock appears quite int disturbed, no apparent sulphide min
259.0	263.0	90	Nx	Latite porphyry dike
263.0	268.5	95	Nx	Frag latite porphyry dike, upper part of run more blocky
268.5	278.5	60	Nx	Frag latite porphyry dike
278.5	284.0	50	Nx	Upper 12" of run is soft gray QBS, balance of run is mod frag latite porphyry dike
284.0	288.5	100	Nx	Latite porphyry dike
288.5	293.0	100	Nx	Latite porphyry dike
293.0	297.5	100	Nx	Latite porphyry dike
297.5	302.5	100	Nx	Latite porphyry dike
302.5	308.0	90	Nx	Latite porphyry dike
308.0	318.5	80	Nx	Latite porphyry dike to 317.8, dark gray, nearly black silic QBS to 318.5, no apparent sulphide min
318.5	322.5	70	Nx	Dark gray, nearly black, mod silic QBS, with a few garnets, no apparent sulphide min
322.5	328.5	25	Nx	Dark gray to nearly black, mod silic QBS, grading into fine sandy pink garnet mixed with garnetiferous QBS, no apparent sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
328.5	329.4	90	Nx	Soft dark gray to nearly black garnetiferous QBS, no apparent sulphide min
329.4	334.4	30	Nx	Mod silic dark and light gray QBS, consid garnet, min extremely weak
334.4	337.5	40	Bx	Mod silic dark and light gray garnetiferous QBS, no apparent sulphide min
337.5	342.5	20	Bx	Mod silic gray QBS with consid garnet
342.5	344.5	75	Bx	Dark gray, mod silic QBS, with consid garnet, chalco, pyrite and pyrrhotite and cobaltite
344.5	349.5	95	Bx	Dark gray to nearly black basic dike, consid calcite along fract
349.5	354.6	95	Bx	Top 2' of run is black basic dike, bottom of run is mod to int silic gray QBS, weak sulphide min
354.6	357.0	100	Bx	Dark gray, mod silic QBS, a few garnets, no apparent sulphide min
357.0	363.0	90	Bx	Dark gray, mod silic QBS, no apparent sulphide min
363.0	365.4	50	Bx	Mod to int silic gray QBS, a few blebs and stringers of chalco and pyrrhotite, min not strong
365.4	369.4	30	Bx	Frag, dark gray QBS, weak min
369.4	372.0	95	Bx	Int silic gray QBS, consid sulphides along fract, some garnet
372.0	375.4	60	Bx	Mod to int silic gray QBS, with some garnets, weak sulphide min
375.4	379.3	75	Bx	Mixed white quartz and mod to int silic gray QBS, no sulphide min
379.3	383.5	50	Bx	Mod silic gray QBS with some frag brown biotite schist near center part of run, may be meta basic dike, no apparent sulphide min
383.5	385.5	80	Bx	Dark gray to nearly black, fine grained basic dike, consid calcite along fract

Footage From	Footage To	% Core Rec'y	Size	Description
385.5	389.3	90	Bx	Mod to int silic dark gray QBS, some garnets along darker bands, consid sulphide min diss thru lower part of run
389.3	394.0	90	Bx	Mod to int silic gray garnetiferous QBS, min weak
394.0	397.0	80	Bx	Frag, mod silic gray garnetiferous QBS, no sulphide min
397.0	402.0	75	Bx	Mod to int silic, frag, gray QBS, some garnets, min very weak
402.0	406.5	50	Bx	Mixed quartz and mod silic QBS, min weak
406.5	408.0	75	Bx	Fine grained dark gray to nearly black basic dike, consid calcite along fract
408.0	413.3	75	Bx	Upper 12" of run is fine grained basic dike, lower part of run is frag, mod silic QBS, consid garnet, no apparent sulph min
413.3	416.8	95	Bx	Mod silic gray QBS with consid garnet, a few tiny blebs of pyrite
416.8	421.0	35	Bx	Dark gray, frag, mod silic garnetiferous QBS, no apparent sulphide min
421.0	426.3	70	Bx	Frag, dark gray, mod silic QBS, consid garnet, no sulphides apparent
426.3	432.0	80	Bx	Mixed soft brown biotite schist and mod silic QBS, some sulphides in upper part of run
432.0	436.0	50	Bx	Frag, soft to mod silic gray QBS, consid garnet, several stringers of chalco in upper part of run
436.0	438.0	50	Bx	Frag, mod silic gray QBS, some garnets
438.0	443.0	40	Bx	Frag, soft to mod silic gray QBS, a few tiny specks of sulphides, min weak
443.0	446.0	75	Bx	Frag, gray, mod silic, garnetiferous QBS, very minor sulphides
446.0	448.0	100	Bx	Frag, soft, gray garnetiferous QBS, no apparent sulphide min

Footage From	Footage To	% Core Rec'y	Size	Description
448.0	451.3	100	Bx	Light gray, mod silic QBS, weak sulphide stringers, min not strong
451.3	454.0	80	Bx	Mod soft to silic gray QBS, a few weak sulphide stringers
454.0	455.5	100	Bx	Light gray, mod silic to soft QBS, several blebs and tiny stringers of sulphides
455.5	459.0	100	Bx	Mod to int silic light gray QBS, a few small specks of sulphides but min not strong
459.0	462.3	100	Bx	Mod to int silic light gray to greenish-gray QBS, consid sulphides specked thru rock, several small stringers of chalco and pyrite near bottom of run
462.3	466.5	100	Bx	Dark gray to light gray, mod silic garnetiferous QBS, a few stringers and blebs of chalco, min not strong
466.5	470.0	90	Bx	Dark gray, nearly black, mod silic QBS, a few blebs of sulphides, although min not strong
470.0	474.3	80	Bx	Dark gray, mod fract QBS, a few small blebs and streaks of chalco, min not strong
474.3	476.0	90	Bx	Mod silic, dark and light gray QBS, a few small blebs of sulphide, min not strong
476.0	480.0	70	Bx	Dark and light gray QBS, consid silic in center foot of run, min not strong, silic zone contains cobaltite
480.0	484.0	90	Bx	Mod silic, dark and light gray QBS, some blebs of chalco and pyrite, weak cobaltite
484.0	489.0	100	Bx	Mod to int silic gray QBS, several blebs and stringers of chalco and pyrite, min mod
489.0	493.0	50	Bx	Dark gray, mod silic QBS, weak sulphide min
493.0	497.0	100	Bx	Latite porphyry dike
497.0	500.0	100	Bx	Latite porphyry dike, shearing within dike

APPENDIX C

TRANSIT SURVEY DATA

TRANSIT SURVEY
IDAHO METALLURGICAL INDUSTRIES, INC.
LEMHI COUNTY, IDAHO

STATION	COORDINATES NORTH	EAST	ELEVATION
101	116,050.62	91,467.87	5167.81
102	116,296.77	91,341.86	5193.88
103	116,430.69	91,283.93	5217.86
104	116,663,44	91.248.80	5252.12
105	116,789.92	91,261.42	5283.84
106	117,067.64	91,229.29	5337.20
107	117,206.11	91,222.94	5347.44
108	117,333.60	91,476.61	5416.28
109	117,514.30	91,616.10	5468.33
110	117,701.60	91,789.34	5521.24
111	117,830.28	91,882.92	5554.93
112	117,979.64	91,963.34	5584.89
113	118,193.57	92,073.76	5599.49
114	118,388.60	92,193.04	5621.97
115	118,578.12	92,303.78	5648.66
116	118,753.60	92,369.18	5655.83
117	119,019.55	92,480.84	5688.31
118	119,248.74	92,576.40	5724.69
119	119,436.96	92,661.58	
120	119,637.42	92,749.54	
121	119,792.57	92,802.89	
122	119,934.61	92,828.85	
123	120,004.68	92,875.36	

STATION	COORDINATES NORTH	EAST	ELEVATION
124	120,126.83	92,857.45	
125	120,345.04	92,899.24	
126	120,593.79	92,924.69	
127	120,872.66	92,879.77	
128	121,138.05	92,774.74	
129	121,321.70	92,631.13	5813.49
130	121,349.42	92,505.66	5806.80
131	121,334.15	92,771.38	5897.73
132	121,307.88	92,868.76	5939.40
133	121,462.62	93,055.12	6090.18
134	121,505.74	93,128.22	6142.12
135	121,593.18	93,197.69	6189.61
136	121,578.85	93,276.83	6194.15
137	121,636.93	93,570.11	6186.65
138	121,459.31	93,803.55	6245.95
139	121,389.33	93,891.53	6263.78
140	121,199.78	94,021.52	6269.31
141	120,933.52	93,899.57	6239.43
142	120,874.65	93,945.62	6259.97
143	120,804.07	93,925.10	6244.80
144	120,593.81	93,882.51	6199.99
145	120,436.54	93,822.11	6161.48
146	120,222.05	93,789.77	6176.75
147	119,943.64	93,703.72	6189.32
148	119,723.84	93,682.43	6204.87

STATION	COORDINATES NORTH	EAST	ELEVATION
149	119,565.29	93,729.72	6246.32
150	119,378.50	93,729.96	6266.64
151	119,133.41	93,633.21	6274.68
152	118,852.04	93,615.92	6300.67
153	118,618.05	93,581.09	6350.13
154	118,446.28	93,573.01	6394.34
155	118,366.34	93,560.34	6406.50
156	118,320.54	93,639.72	6403.20
157	118,253.46	93,913.70	6360.62
158	118,171.67	94,051.96	6316.52
159	118,093.57	93,443.95	6404.09
160	117,942.34	93,408.62	6414.75
161	117,870.87	93,331.62	6403.10
162	117,765.46	93,176.18	6315.84
163	117,605.71	93,100.95	6270.58
164	117,539.67	93,059.26	6230.91
165	117,405.15	93,087.74	6119.56
166	117,208.91	92,958.61	5939.37
167	116,984.69	92,851.06	5777.26
168	116,735.40	92,890.54	5633.31
169	116,567.93	92,695.61	5484.22
170	116,392.56	92,501.07	5346.74
171	116,222.45	92,622.97	5249.38
172	116,050.10	92,401.98	5144.08

STATION	COORDINATES NORTH	EAST	ELEVATION
173	116,138.77	92,197.02	5200.51
174	116,047.72	91,955.33	5178.30
175	115,954.19	91,706.94	5195.39
176	115,652.28	91,721.89	5140.38
177	115,806.13	91,564.74	5154.39
178	115,420.04	91,873.77	5140.07
179	115,195.97	92,068.50	5157.01
180	115,131.32	92,131.54	5193.58
181	114,906.18	92,305.23	5278.16
182	114,778.86	92,376.39	5337.37
183	114,825.70	92,660.08	5379.80
184	114,807.73	92,747.17	5398.42
185	114,747.50	93,014.06	5448.41
186	114,715.59	93,149.82	5465.96
187	114,744.18	93,294.86	5490.94
188	114,801.26	93,573.90	5532.46
189	114,815.78	93,643.70	5547.95
190	114,851.18	93,782.65	5554.18
191	114,864.81	93,869.38	5561.09
192	114,891.61	94,096.90	5575.32
193	114,880.73	94,141.36	5585.02
194	114,849.10	94,187.24	5594.45
195	114,801.63	94,235.46	5611.00
196	114,741.62	94,275.61	5606.08
197	114,536.35	94,372.71	5601.54

STATION	COORDINATES NORTH	EAST	ELEVATION
198	114,452.98	94,379.81	5597.98
199	114,215.41	94,491.65	5599.43
200	114,162.75	94,666.81	5582.58
201	114,117.80	94,791.84	5602.94
202	114,096.52	94,818.85	5589.74
203	114,066.66	95,088.26	5575.93
204	114,196.59	95,185.02	5584.36
205	114,124.08	95,280.58	5641.09
206	114,140.69	95,384.81	5681.46
207	114,187.20	95,463.12	5692.38
208	114,277.78	95,734.72	5758.21
209	114,549.92	95,834.71	5814.40
210	114,653.63	95,851.15	5834.38
211	114,910.56	95,903.35	5858.85
212	114,998.94	95,768.46	5794.30
213	115,177.74	95,616.55	5685.60
214	115,315.26	95,541.65	5609.37
215	115,312.98	95,324.54	5486.84
216	115,438.49	95,137.58	5345.78
217	115,563.03	95,166.41	5316.14
218	115,721.81	95,157.83	5249.29
219	115,885.75	95,057.43	5194.41
220	116,016.08	94,937.34	5173.74
221	116,225.07	94,902.68	5135.49
222	116,273.03	94,786.99	5133.55

STATION	COORDINATES NORTH	EAST	ELEVATION
223	116,386.68	94,688.77	5112.92
224	116,484.14	94,621.52	5091.31
225	116,575.13	94,398.27	5141.49
226	116,412.05	94,157.55	5135.01
227	116,321.66	93,938.61	5146.08
228	116,308.34	93,776.34	5167.38
229	116,209.40	93,511.43	5185.02
230	116,190.80	93,434.33	5187.75
231	116,154.23	93,141.07	5195.06
232	116,123.27	93,068.36	5190.59
233	116,002.79	92,847.13	5128.62
234	116,048.44	92,558.11	5148.21
235	116,072.68	91,291.38	5185.67
236	115,908.12	91,154.72	5227.99
237	115,990.86	91,009.66	5271.90
238	116,275.43	90,911.07	5296.83
239	116,559.90	90,845.57	5327.48
240	116,823.57	90,718.49	5359.86
241	117,071.91	90,578.40	5433.14
242	117,293.51	90,452.41	5564.20
243	117,513.15	90,291.33	5683.62
244	117,574.91	90,222.60	5734.00
245	117,742.76	90,188.53	5808.78
246	117,953.96	90,035.20	5913.76

STATION	COORDINATES NORTH	EAST	ELEVATION
247	118,068.25	89,975.34	5961.53
248	118,330.42	89,961.83	6073.33
249	118,379.19	89,924.38	6107.09
250	118,514.01	89,893.75	6162.10
251	118,752.92	89,974.73	6283.04
252	119,038.91	89,944.21	6376.09
253	119,292.00	89,811.32	6426.33
254	119,556.86	89,699.03	6509.22
255	119,703.14	89,634.97	6560.73
256	119,936.66	89,461.88	6595.36
257	119,998.37	89,416.95	6614.33
258	120,121.16	89,345.00	6633.68
259	120,382.97	89,202.01	6649.45
260	120,446.08	88,975.07	6659.28
261	120,589.56	88,819.17	6747.82
262	120,673.96	88,543.76	6761.95
263	Not used		
264	Not used		
265	Not used		
266	120,696.40	88,507.94	6766.73
267	120,759.56	88,483.18	6780.69
268	121,042.96	88,425.26	6832.88
269	121,100.42	88,365.49	6813.09
270	121,321.47	88,245.58	6815.45
271	121,409.98	88,126.51	6816.35

STATION	COORDINATES NORTH	EAST	ELEVATION
272	121,444.71	87,998.45	6842.26
273	121,415.67	87,883.88	6861.72
274	121,507.44	87,789.51	6911.12
275	121,705.76	87,573.48	6958.27
276	121,768.73	87,488.38	7001.00
277	121,453.91	92,381.01	5840.30
278	121,458.45	92,471.62	5831.24
279	121,600.26	92,497.41	5870.33
280	121,800.47	92,564.37	5929.26
281	121,964.90	92,428.53	5932.14
282	122,151.03	92,465.30	5975.73
283	122,208.84	92,347.85	5960.36
284	122,368.77	92,242.01	6003.36
285	122,553.14	92,016.46	6005.28
286	122,707.51	91,943.60	6035.04
287	122,784.80	91,893.37	6045.70
288	122,862.63	91,881.37	6077.05
289	123,009.60	91,737.74	6090.11
290	123,079.59	91,661.91	6111.27
291	123,266.40	91,433.32	6112.09
292	123,331.32	91,345.02	6142.31
293	123,362.26	91,096.22	6157.69
294	123,388.19	91,048.35	6164.71
295	123,418.79	91,023.77	6168.10
296	123,552.00	90,934.07	6178.11

STATION	COORDINATES NORTH	EAST	ELEVATION
297	123,577.59	90,799.90	6172.57
298	123,682.22	90,725.40	6189.99
299	123,790.83	90,692.99	6228.61
300	123,803.15	90,588.87	6231.54
301	123,852.35	90,458.09	6255.68
302	123,878.37	90,308.77	6284.45
303	123,859.68	90,135.05	6298.49
304	123,850.49	89,936.51	6324.41
305	123,856.44	89,761.82	6353.36
306	123,838.42	89,658.82	6358.72
307	123,885.03	89,533.43	6381.93
308	123,863.35	89,380.96	6368.87
309	123,821.37	89,147.45	6380.46
310	123,733.86	89,048.83	6386.30
311	123,694.51	88,892.18	6409.37
312	123,631.95	88,780.99	6448.04
313	123,605.78	88,732.94	6447.32
314	123,600.44	88,680.12	6454.03
315	123,603.95	88,639.44	6454.41
316	123,627.25	88,574.51	6450.35
317	123,638.12	88,551.34	6450.50
318	123,420.88	88,523.90	6462.08
319	123,337.39	88,566.79	6484.01
320	123,252.58	88,539.93	6509.74
321	123,103.67	88,457.95	6578.59

STATION	COORDINATES NORTH	EAST	ELEVATION
322	123,025.25	88,451.70	6615.24
323	122,838.92	88,558.21	6682.83
324	122,782.47	88,533.46	6695.89
325	122,708.85	88,476.57	6705.67
326	122,624.41	88,348.72	6721.42
327	122,538.33	88,235.93	6757.08
328	122,485.48	88,153.02	6809.43
329	122,448.24	88,022.63	6854.66
330	122,446.85	87,921.97	6915.92
331	122,387.66	87,845.77	6973.30
332	122,452.75	87,636.60	7023.83
333	122,383.18	87,590.23	7060.68
334	122,316.86	87,520.55	7098.40
335	122,154.00	87,511.66	7170.05
336	122,081.48	87,273.03	7197.09
337	122,013.30	87,178.39	7221.79
338	121,976.98	87,268.42	7172.65
339	121,852.58	87,334.38	7113.33
340	119,141.05	92,786.88	5852.86
341	118,994.18	92,915.26	5950.06
342	119,107.17	93,044.10	5998.60
343	119,213.21	93,225.62	6063.80
344	119,321.40	93,430.96	6170.39
345	119,262.33	93,494.40	6206.81
346	119,226.20	93,632.05	6263.81

STATION	COORDINATES NORTH	EAST	ELEVATION
347	118,127.70	94,107.01	6294.34
348	118,277.29	94,277.09	6184.49
349	118,134.96	94,459.39	6060.85
350	117,947.14	94,597.74	5911.21
351	117,709.88	94,520.89	5749.26
352	117,669.39	94,643.07	5692.39
353	117,582.91	94,726.58	5595.20
354	117,387.63	94,862.47	5415.08
355	117,274.91	95,082.36	5287.14
356	117,021.61	95,106.94	5159.70
357	116,935.72	94,982.28	5144.81
358	116,822.83	94,720.67	5136.41
359	116,649.50	94,494.93	5137.20
360	116,618.88	94,458.37	5143.48
361	115,947.62	95,316.31	5181.86
362	116,014.71	95,425.36	5165.95
363	116,177.64	94,620.60	5136.96
364	116,298.98	94,475.56	5108.59
365	116,240.19	94,414.82	5119.91
366	116,120.84	94,233.24	5122.28
367	115,976.89	94,125.39	5127.37
368	115,887.12	93,955.31	5119.58
369	115,666.22	93,752.53	5126.33
370	115,527.11	93,604.40	5142.24
371	115,447.64	93,367.93	5148.46

STATION	COORDINATES NORTH	EAST	ELEVATION
372	115,384.97	93,203.45	5164.80
373	115,269.54	93,094.51	5194.63
374	115,237.08	92,988.67	5200.50
375	115,305.85	92,778.48	5174.83
376	115,328.25	92,614.06	5162.73
377	115,330.85	92,325.87	5164.05
378	115,289.75	92,179.48	5174.70
379	115,262.83	92,155.51	5179.41
380	114,917.21	92,040.62	
381	114,674.93	92,026.65	
382	114,441.66	91,929.35	
383	114,284.95	91,830.86	
384	114,027.22	91,819.50	
385	113,800.39	91,814.29	
386	113,605.12	91,690.01	
387	113,506.48	91,687.57	
388	113,309.92	91,656.03	
389	113,125.57	91,538,02	
390	113,032.54	91,543.95	
391	112,879.14	91,503.85	
392	112,761.03	91,506.58	
393	112,521.66	91,547.57	
394	112,388.73	91,681.20	
395	112,216.43	91,822.23	
396	112,232.57	91,911.54	

STATION	COORDINATES NORTH	EAST	ELEVATION
397	112,212.17	92,006.09	
398	112,182.00	92,246.57	
399	112,300.03	92,506.19	5843.77
400	112,474.15	92,549.20	5851.44
401	112,576.01	92,597.19	5851.41
402	112,606.43	92,652.61	5856.72
403	112,779.47	92,740.97	5827.29
404	112,893.56	92,811.64	5783.44
405	113,020.77	92,975.10	5776.38
406	113,048.86	93,045.42	5804.01
407	113,035.80	93,130.43	5819.67
408	112,995.60	93,273.44	5822.51
409	113,049.90	93,364.87	5831.18
410	113,199.23	93,404.70	5842.64
411	113,382.18	93,419.93	5855.44
412	113,533.99	93,520.63	5846.87
413	113,724.76	93,649.39	5850.02
414	113,795.39	93,816.73	5796.76
415	113,923.50	94,079.11	5732.76
416	114,030.79	94,146.89	5719.56
417	114,093.21	94,226.59	5680.57
418	114,213.46	94,311.47	5639.99
419	121,231.99	92,457.95	5865.57
420	121,105.49	92,409.01	5895.98
421	121,114.05	92,215.61	6000.05
422	121,175.40	92,059.07	6109.93

STATION	COORDINATES NORTH	EAST	ELEVATION
423	121,261.56	91,893.96	6208.67
424	121,212.02	91,770.99	6290.47
425	121,294.55	91,745.85	6298.10
426	121,317.64	91,645.82	6357.09
427	121,505.99	91,517.70	6409.90
428	121,562.19	91,650.27	6331.28
429	121,701.76	91,875.45	6208.18
430	121,991.98	91,871.14	6189.77
431	121,897.77	92,096.81	6025.22
432	122,053.11	92,228.20	5974.48
433	107,650.68	93,370.40	6872.15
434	107,701.33	93,525.44	6852.73
435	107,734.16	93,577.22	6828.17
436	107,821.21	93,636.58	6761.07
437	107,928.89	93,747.60	6717.48
438	108,133.68	93,815.13	6739.76
439	108,390.47	93,669.65	6701.48
440	108,597.23	93,546.19	6692.06
441	108,596.88	93,361.67	6564.40
442	108,827.36	93,183.38	6543.09
443	108,854.92	92,988.94	6463.56
444	108,828.60	92,822.16	6382.50
445	108,789.77	92,617.98	6263.02
446	108,868.66	92,613.03	6259.88
447	109,042.32	92,617.40	6237.95

STATION	COORDINATES NORTH	EAST	ELEVATION
448	109,277.00	92,622.59	6200.62
449	109,496.95	92,701.16	6214.05
450	109,712.58	92,715.14	6187.03
451	109,924.35	92,806.45	6160.74
452	110,098.61	92,743.77	6058.90
453	110,362.77	92,872.80	6040.90
454	110,498.05	92,842.09	6009.07
455	110,662.43	92,955.21	6023.02
456	110,822.46	93,201.71	6073.97
457	111,092.15	93,317.25	6071.16
458	111,273.26	93,344.26	6183.93
459	111,347.10	93,226.35	6188.79
460	111,188.99	93,627.55	6182.07
461	111,361.79	93,159.53	6180.89
462	111,446.20	93,100.94	6148.48
463	111,583.27	93,044.42	6106.61
464	111,746.15	93,036.45	6078.80
465	112,000.04	92,905.97	5997.38
466	112,160.25	92,817.98	5953.11
467	112,238.68	92,610.69	5879.50
468	111,168.47	93,889.69	6280.66
469	111,157.30	94,040.01	6354.08
470	111,150.00	94,305.57	6487.67
471	111,097.34	94,384.01	6528.16
472	111,005.56	94,448.83	6556.18
473	110,808.94	94,655.84	6644.78

STATION	COORDINATES NORTH	EAST	ELEVATION
474	110,671.81	94,708.43	6660.81
475	110,565.96	94,797.17	6704.11
476	110,485.23	94,924.30	6793.76
477	109,751.97	96,293.66	7495.21
478	109,715.23	96,270.72	7493.99
479	109,874.15	96,073.48	7450.97
480	110,023.36	95,897.38	7357.37
481	110,088.26	95,746.80	7300.61
482	110,161.59	95,663.51	7251.89
483	110,229.73	95,582.97	7235.56
484	110,341.98	95,441.64	7185.83
485	110,430.60	95,394.98	7141.84
486	110,501.91	95,325.98	7108.14
487	110,580.67	95,165.21	7003.47
488	110,437.05	95,044.66	6854.28
489	110,477.61	94,964.94	6820.64
490	109,743.03	96,388.64	7504.21
491	109,842.65	96,451.57	7479.80
492	109,949.77	96,512.67	7433.72
493	110,027.47	96,514.42	7400.57
494	110,100.09	96,509.16	7370.37
495	110,178.23	96,573.14	7326.99
496	110,211.56	96,645.16	7307.92
497	110,249.53	96,769.49	7275.27
498	110,316.85	96,863.72	7239.54

STATION	COORDINATES NORTH	EAST	ELEVATION
499	110,460.66	96,935.08	7274.65
500	110,597.54	96,939.32	7255.46
501	110,756.41	96,980.68	7283.13
502	110,922.10	96,897.25	7202.06
503	110,789.32	96,751.41	7085.02
504	110,827.94	96,660.33	7000.66
505	111,001.44	96,631.43	6999.01
506	111,123.40	96,579.31	6953.52
507	111,231.22	96,483.92	6935.68
508	111,354.51	96,338.12	6886.65
509	113,943.40	94,755.04	5642.19
510	113,801.87	94,720.91	5687.07
511	113,679.21	94,702.18	5694.39
512	113,431.74	94,601.40	5753.78
513	113,137.13	94,635.75	5767.98
514	113,072.24	94,584.69	5816.09
515	112,949.82	94,697.46	5785.27
516	112,995.32	94,930.29	5789.30
517	112,923.82	95,031.96	5866.65
518	112,798.01	95,108.83	5921.48
519	112,736.89	95,034.62	5889.28
520	112,635.29	95,114.07	5952.39
521	112,369.87	95,138.81	5992.68
522	112,252.45	95,286.83	6108.69

STATION	COORDINATES NORTH	EAST	ELEVATION
523	112,141.63	95,438.34	6226.70
524	111,941.56	95,633.07	6336.28
525	111,794.30	95,718.63	6394.01
526	111,616.18	95,878.31	6536.05
527	111,447.62	95,956.23	6565.75
528	111,492.46	96,205.87	6739.23
529	111,966.55	92,840.43	5977.50
530	111,831.96	92,590.20	5887.69
531	111,652.55	92,497.90	5868.19
532	111,497.12	92,608.43	5912.53
533	111,289.82	92,750.33	5958.19
534	111,009.50	92,700.65	5927.01
535	110,830.06	92,810.54	5964.43
1-08 A (U.S.G.S.)	121,998.00	87,042.50	7238.00
Rock Cairn (Tinkers Pride)	118,230.18	93,599.52	6407.77

STATION	COORDINATES NORTH	EAST	ELEVATION
Upper Tinkers Pride Tunnel	117,614.47	94,731.21	5594
Lower Tinkers Pride Tunnel	117,529.77	94,794.96	5520
Upper Bonanza Copper Tunnel	121,439.75	92,390.70	5831
Lower Bonanza Copper Tunnel	121,418.23	92,428.69	5808
Blackrock No. 4 Tunnel	115,191.32	92,990.59	

U. S. Geological Survey Triangulation Points

Cobalt	101,504.60	97,869.96	
Blackbird Mountain	98,176	79,580	8178
BML - 24	102,224	87,668	9096
1 - 08A	121,998	87,042.5	7237
Indian Point	132,386	85,265	

Bearings and Distances Between Triangulation Points as Established by U. S. Geological Survey

Cobalt-Blackbird Mountain	S. 79° 41' 06.1" W.	18,590'
Blackbird Mountain-BML-24	N. 63° 24' 38.1" E.	9,045'
BML-24 - 1 - 08A	N. 01° 48' 06.5" W.	19,784'
Blackbird Mountain - Indian Point	N. 09° 26' 05" E.	34,679'
Indian Point - 1 - 08A	S. 09° 41' 44.5" E.	10,539'

APPENDIX D

CLAIM TABULATION

MINING CLAIMS

IDAHO METALLURGICAL INDUSTRIES, INC.

BIG DEER CREEK AREA
LEMHI COUNTY, IDAHO

Name of Lode Claim		Book of Mining Claims	Page	Date of Location	Locator
Black Rock		2	60	Mar. 15, 1943	Hagel
"	No. 1	3	279	Nov. 6, 1947	"
"	No. 2	3	279	Nov. 6, 1947	"
"	No. 3	3	280	Nov. 6, 1947	"
"	No. 4	3	280	Nov. 6, 1947	"
"	No. 5	3	281	Nov. 6, 1947	"
"	No. 6	3	281	Nov. 7, 1947	"
"	No. 7	3	282	Nov. 7, 1947	"
"	No. 8	3	282	Nov. 7, 1947	"
"	No. 9	6	159	Oct. 14, 1954	Stranahan
"	No. 10	6	159	Oct. 16, 1954	"
"	No. 11	6	160	Oct. 16, 1954	"
"	No. 12	6	160	Oct. 14, 1954	"
"	No. 13	6	161	Oct. 14, 1954	"
"	No. 14	6	161	Oct. 14, 1954	"
"	No. 15	6	162	Oct. 15, 1954	"
"	No. 16	6	162	Oct. 15, 1954	"
"	No. 17	6	163	Oct. 15, 1954	"
"	No. 18	6	163	Oct. 15, 1954	"
Bonanza Copper		2	56		Hagel
"	No. 1	2	57		"
"	No. 2	3	277	Nov. 6, 1947	"
"	No. 3	3	277-278	Nov. 6, 1947	"
"	No. 4	3	278	Nov. 6, 1947	"
"	No. 5	3	278	Nov. 6, 1947	"
"	No. 6	4	212	Sept. 1, 1951	"
"	No. 7	4	213	Sept. 1, 1951	"
Fraction	No. 1	4	210	Aug. 29, 1951	"
"	No. 2	4	211	Aug. 29, 1951	"
Bonanza Extension	No. 1	4	214	Sept. 1, 1951	"
Bonanza Copper Millsite		3	600	Apr. 10, 1951	"
Bonanza Copper	No. 8	6	164	Nov. 12, 1954	Stranahan
"	No. 9	6	164	Nov. 12, 1954	"
"	No. 10	6	165	Nov. 29, 1954	"
"	No. 11	6	165	Nov. 29, 1954	"

Name of Lode Claim		Book of Mining Claims	Page	Date of Location	Locator
Bonanza Copper	No. 12	6	166	Nov. 29, 1954	Stranahan
"	No. 13	6	166	Nov. 17, 1954	"
"	No. 14	6	167	Nov. 17, 1954	"
"	No. 15	6	167	Nov. 17, 1954	"
"	No. 16	6	168	Nov. 16, 1954	"
"	No. 17	6	168	Nov. 16, 1954	"
"	No. 18	6	169	Nov. 16, 1954	"
"	No. 19	6	169	Nov. 16, 1954	"
"	No. 20	6	170	Nov. 16, 1954	"
"	No. 21	6	170	Nov. 15, 1954	"
"	No. 22	6	171	Nov. 15, 1954	"
"	No. 23	6	171	Nov. 15, 1954	"
"	No. 24	6	172	Nov. 13, 1954	"
"	No. 25	6	172	Nov. 13, 1954	"
"	No. 26	6	173	Nov. 13, 1954	"
"	No. 27	6	173	Nov. 13, 1954	"
"	No. 28	6	174	Nov. 13, 1954	"
"	No. 29	6	174	Nov. 29, 1954	"
"	No. 30	6	175	Nov. 29, 1954	"
"	No. 31	6	175	Nov. 29, 1954	"
"	No. 32	6	176	Nov. 30, 1954	"
"	No. 33	6	176	Nov. 30, 1954	"
"	No. 34	6	177	Nov. 30, 1954	"
"	No. 35	6	177	Nov. 27, 1954	"
Camp Bird		6	178	Oct. 12, 1954	"
"	No. 1	6	178	Oct. 12, 1954	"
"	No. 2	6	179	Oct. 12, 1954	"
"	No. 3	6	179	Oct. 12, 1954	"
"	No. 4	6	180	Oct. 12, 1954	"
"	No. 5	6	180	Oct. 12, 1954	"
"	No. 6	6	181	Oct. 20, 1954	"
"	No. 7	6	181	Dec. 2, 1954	"
"	No. 8	6	182	Dec. 2, 1954	"
"	No. 9	6	182	Dec. 2, 1954	"
"	No. 10	6	183	Dec. 2, 1954	"
"	No. 11	6	183	Dec. 2, 1954	"
Tinkers Pride	No. 1	1	151	May 1, 1939	Simi and
"	No. 2	1	152	May 2, 1939	Harmon
"	No. 3	1	153	May 3, 1939	"
"	No. 4	1	154	May 3, 1939	"
Grey Copper		3	541	Oct. 1, 1950	Westfall
"	No. 1	3	542	Oct. 1, 1950	"
"	No. 2	3	574	Jan. 5, 1951	"
"	No. 3	3	575	Jan. 5, 1951	"
"	No. 4	3	634	May 23, 1951	"
"	No. 5	3	635	May 23, 1951	"
"	No. 6	3	636	May 24, 1951	"

Name of Placer Claims	Book of Mining Claims	Page	Date of Location	Locator
Indian Creek Placer	Z	629	June 5, 1942	Hagel
Bar Placer	3	42	July 15, 1944	"
South Fork	Z	607	Mar. 21, 1942	"
Rancho Grande	Z	281	July 1, 1938	Harman
Meadow Brook	Z	605	Mar. 20, 1942	"
Papoose	Z	549	May 20, 1941	Knowles and Harman

APPENDIX E

PROPOSED DIAMOND DRILL HOLES

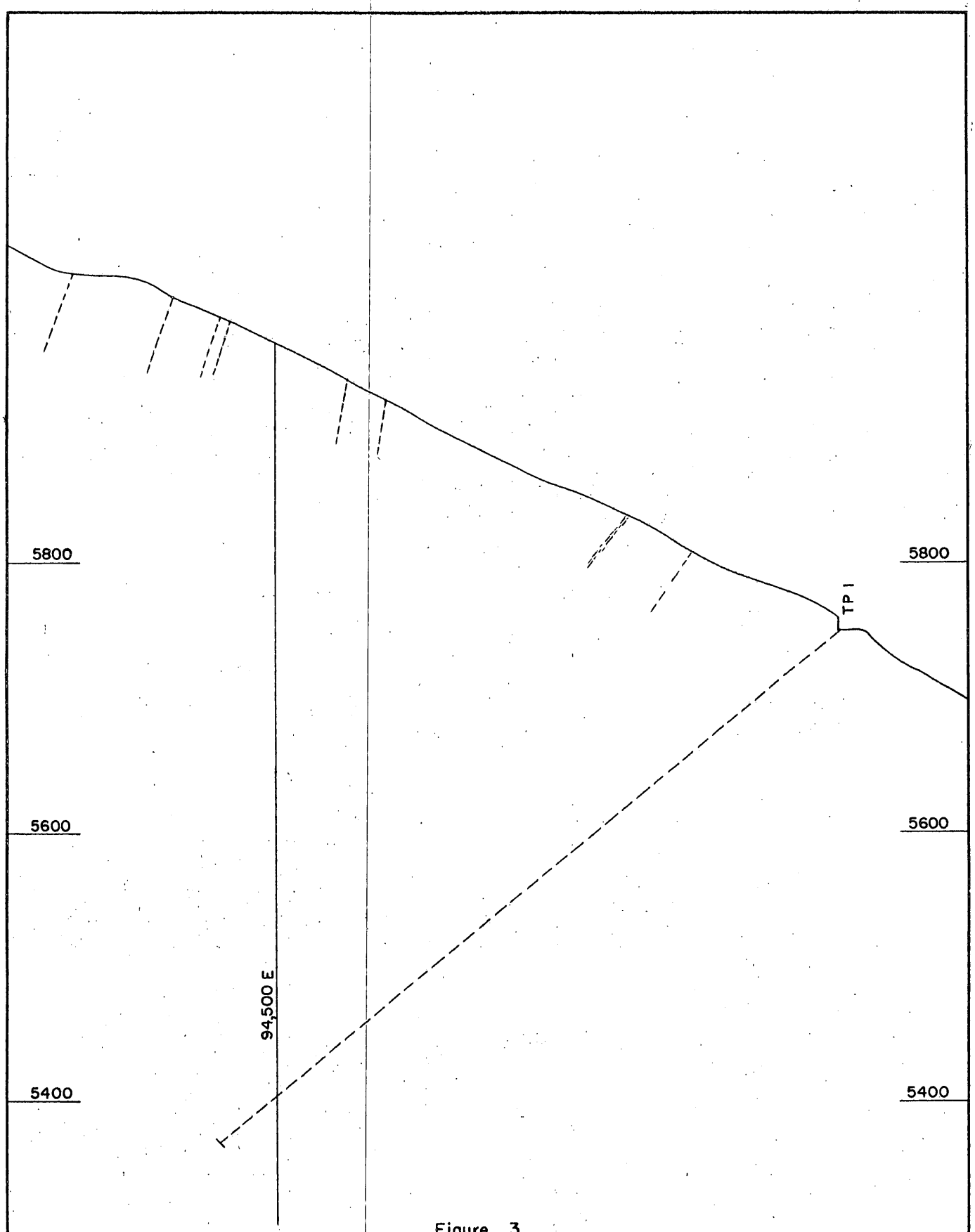

Figure 3

CROSS-SECTION OF DDH NO. TP I

N 85 W -40° 600'

SCALE 1" = 100' LOOKING N 5 E

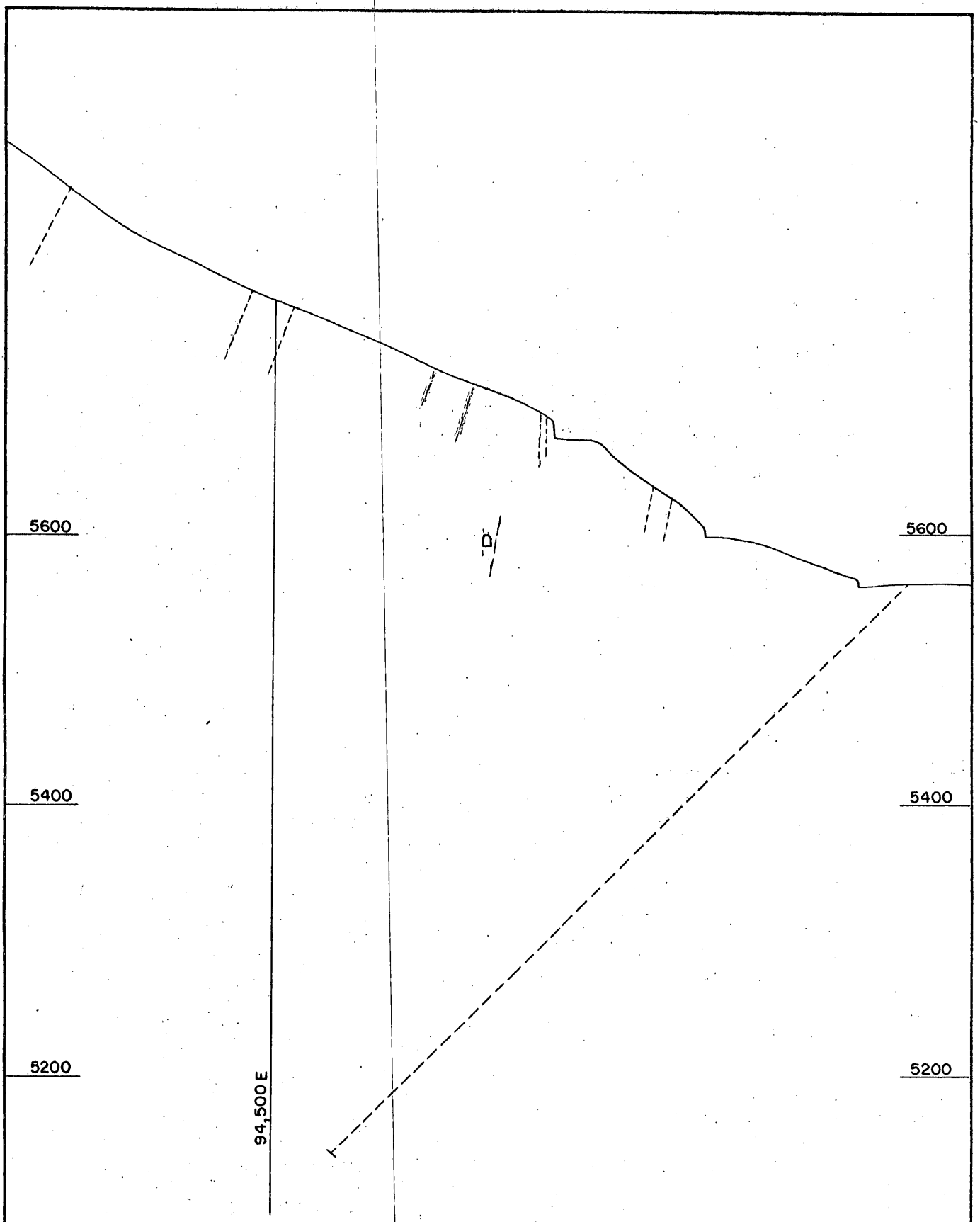

Figure 4

CROSS-SECTION OF DDH NO. TP 2

N 77 W -45° 600'

SCALE 1" = 100' LOOKING N 13 E

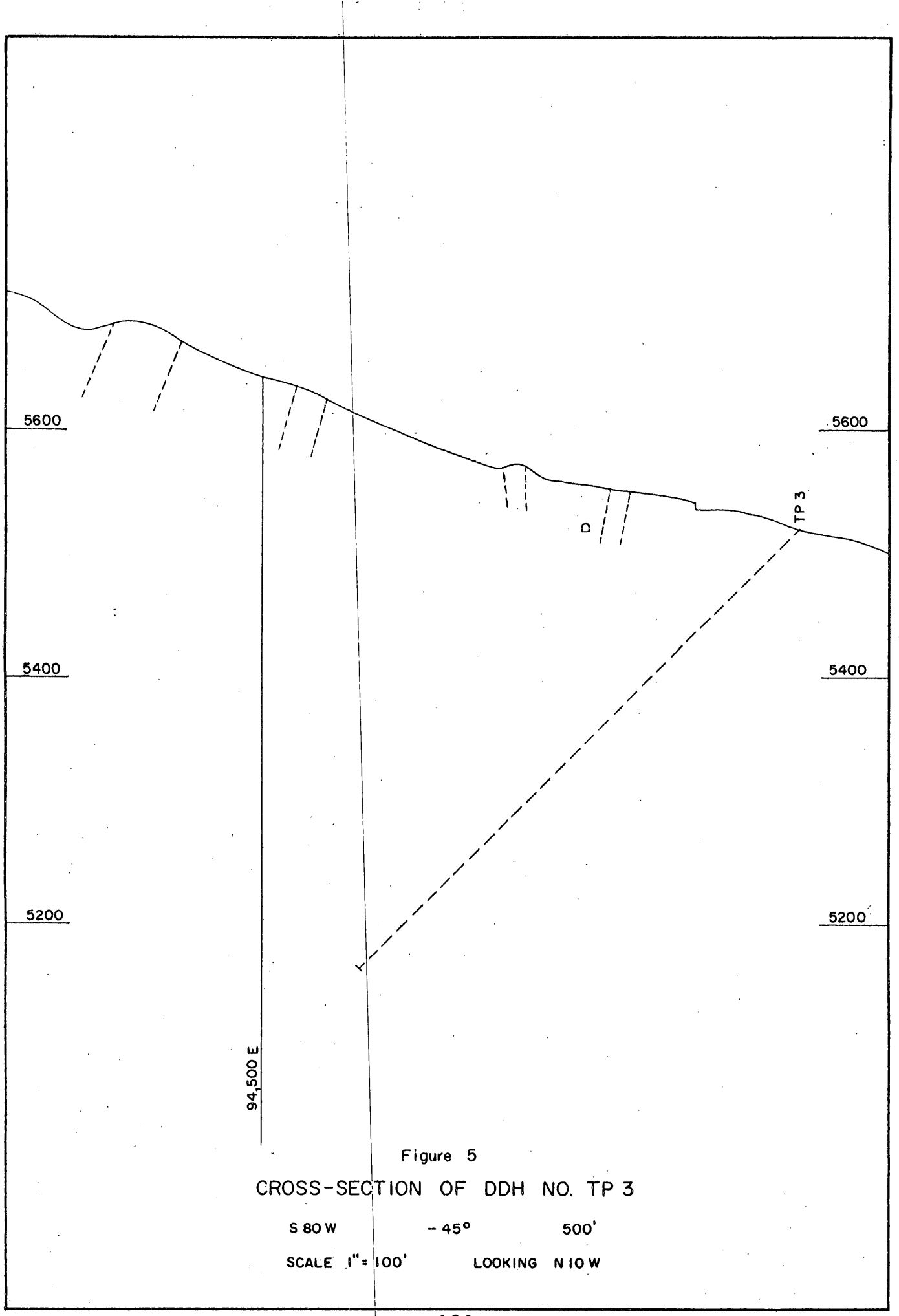

Figure 5

CROSS-SECTION OF DDH NO. TP 3

S 80 W - 45° 500'

SCALE 1" = 100' LOOKING N 10 W

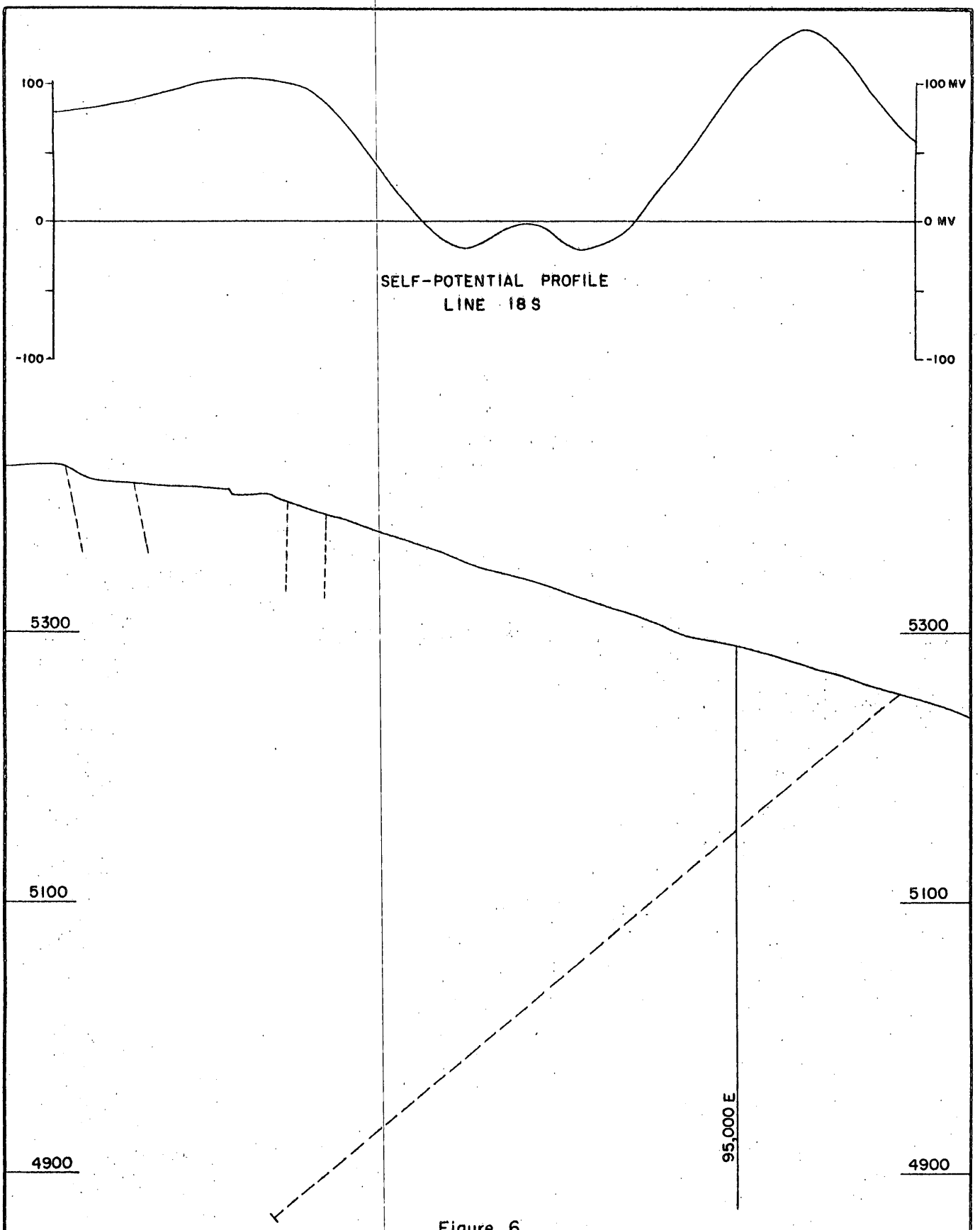

Figure 6

CROSS-SECTION OF DDH NO. TP 4

S 75 W — 40° 600'

SCALE 1" = 100' LOOKING N 15 W

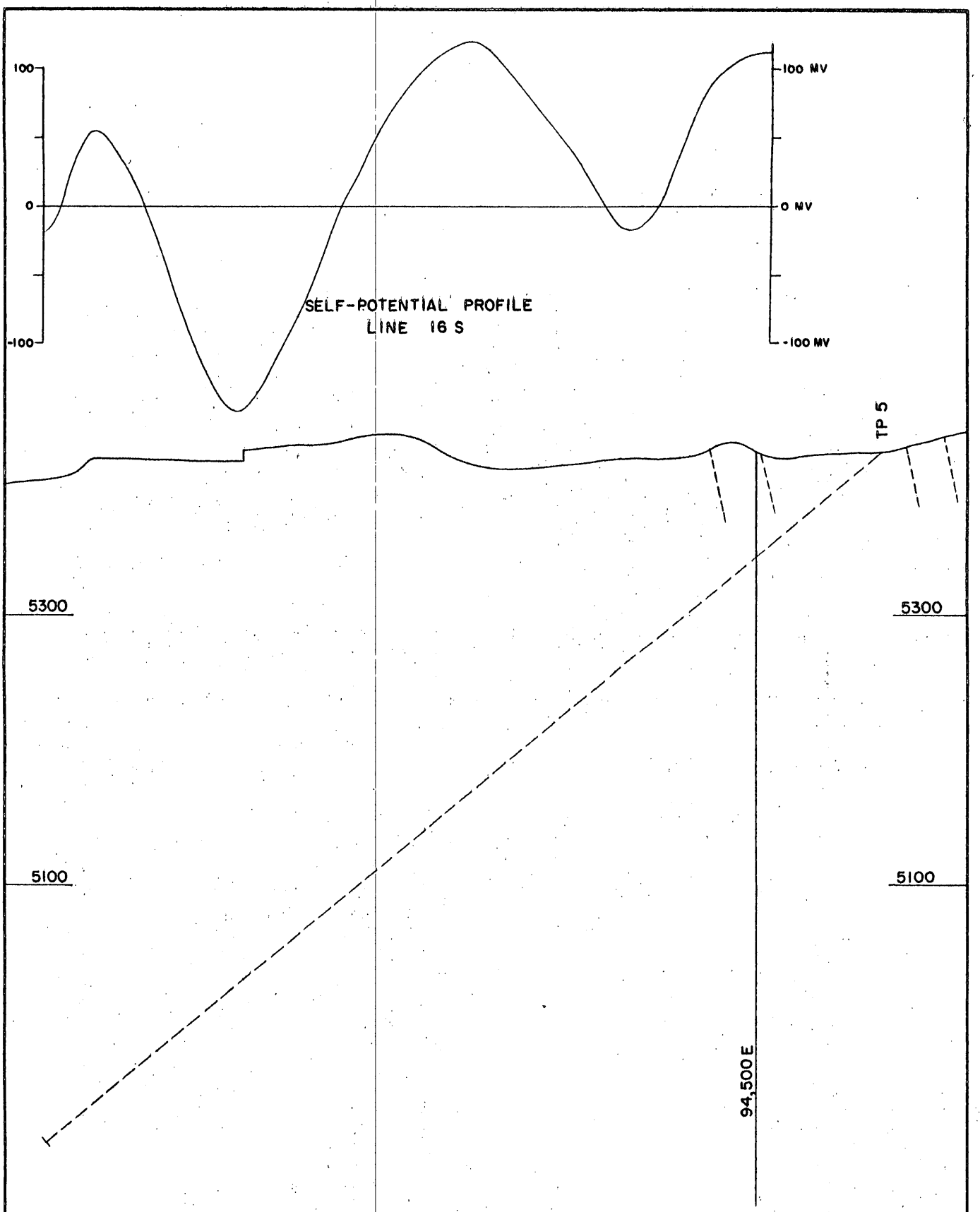

Figure 7

CROSS-SECTION OF DDH NO. TP 5

S 70 W -40° 800'

SCALE 1" = 100' LOOKING N 20 W

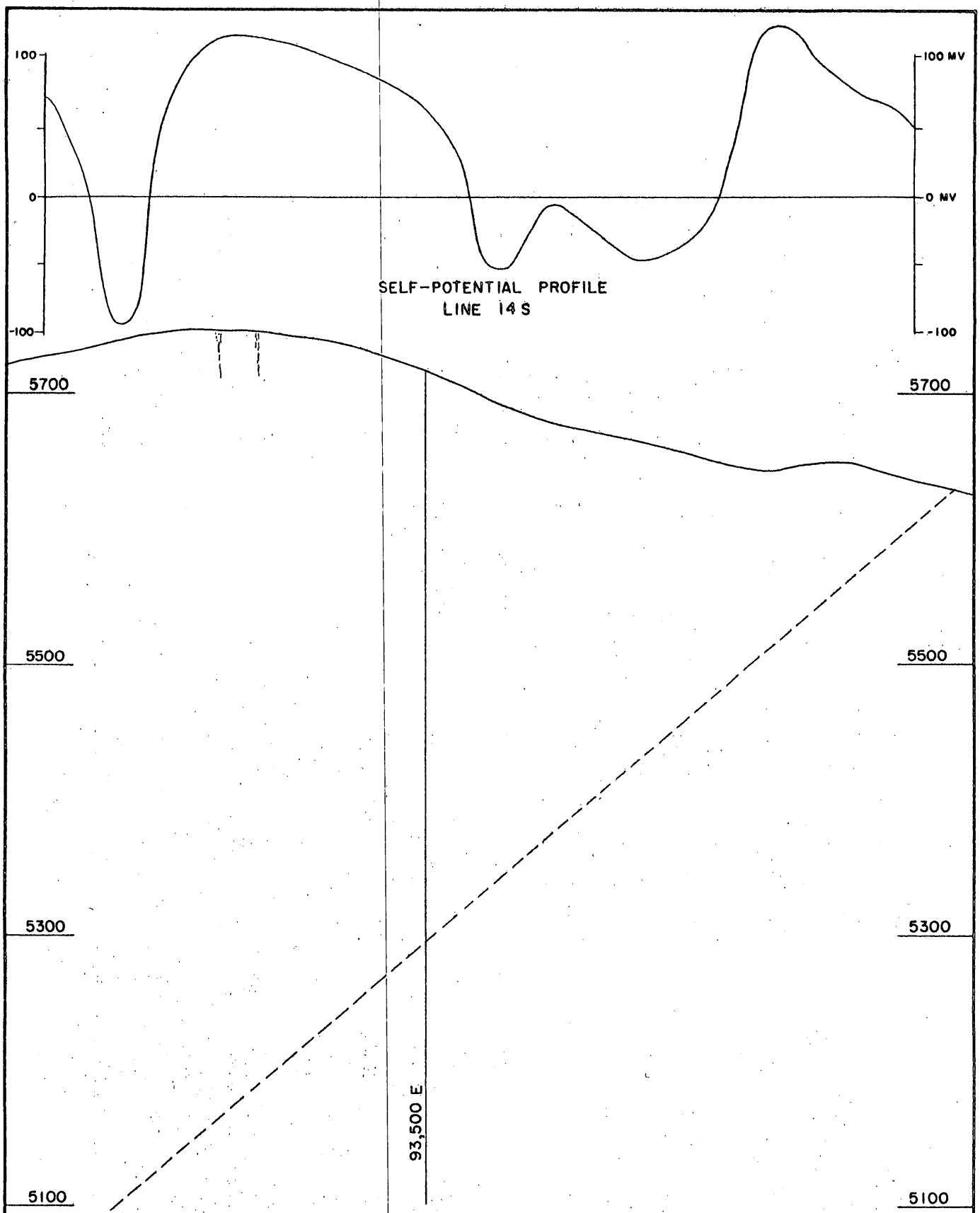

Figure 8

CROSS-SECTION OF DDH NO. TP 6

S 70 W -40° 900'

SCALE 1" = 100' LOOKING N 20W

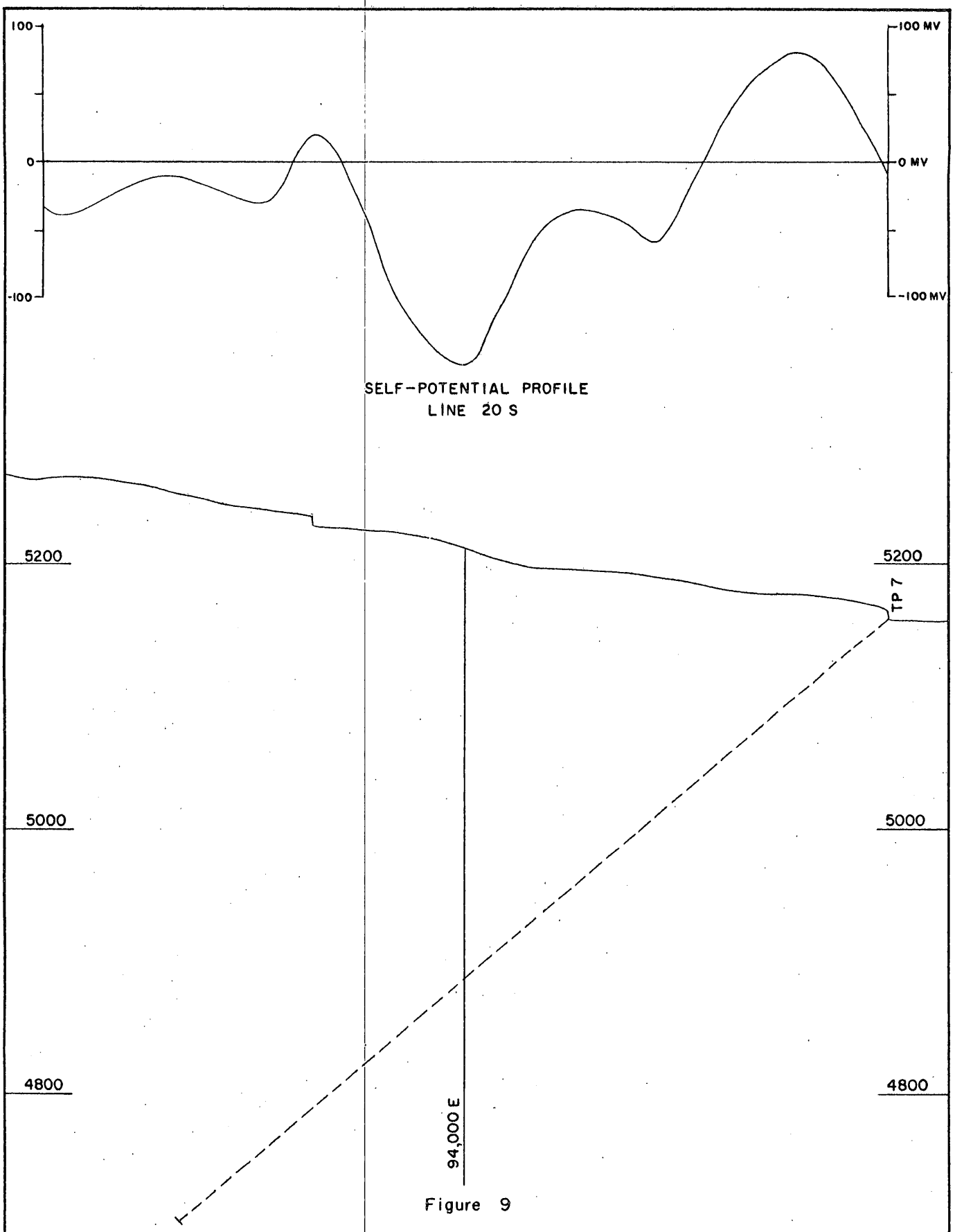

Figure 9

CROSS-SECTION OF DDH NO. TP 7 (CONTINGENT)

S 70 W — 40° 700'

SCALE 1" = 100' LOOKING N 20 W

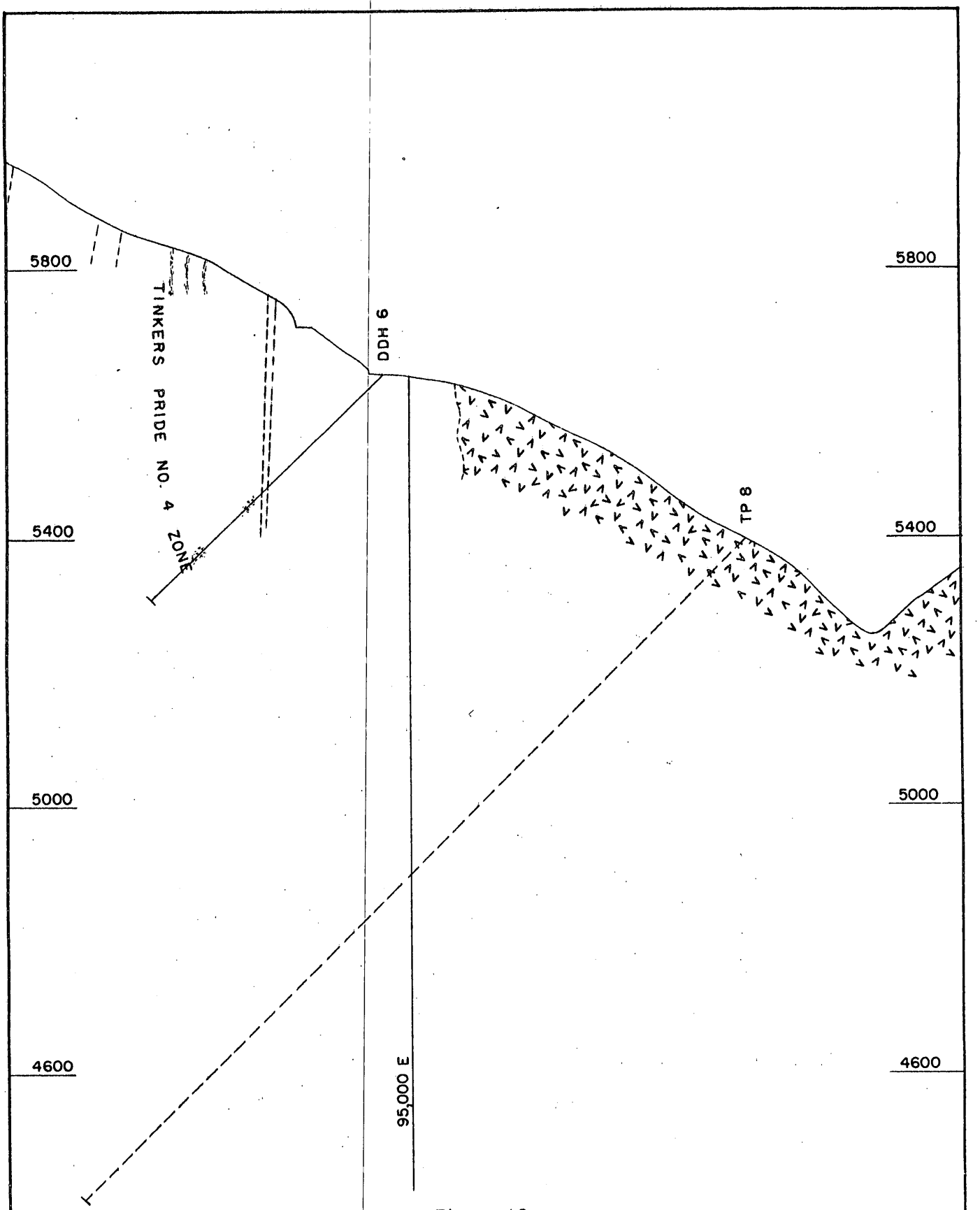

Figure 10

CROSS-SECTION OF DDH NO. TP 8

N 80 W -45° 1400'

SCALE 1" = 200' LOOKING N 10 E

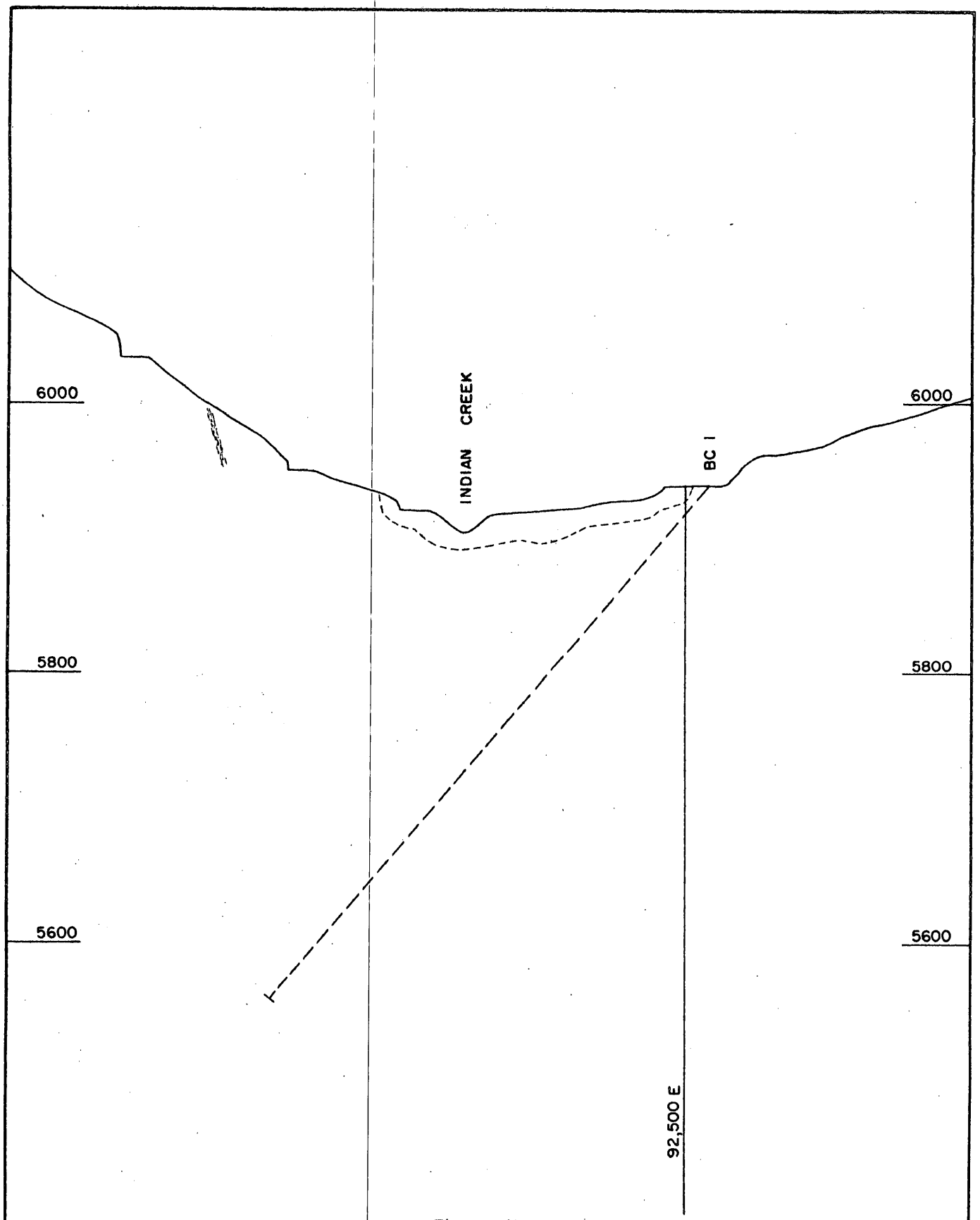

Figure 11

CROSS-SECTION OF DDH NO. BC I

N 90 W — 50° 500'

SCALE 1" = 100' LOOKING NORTH

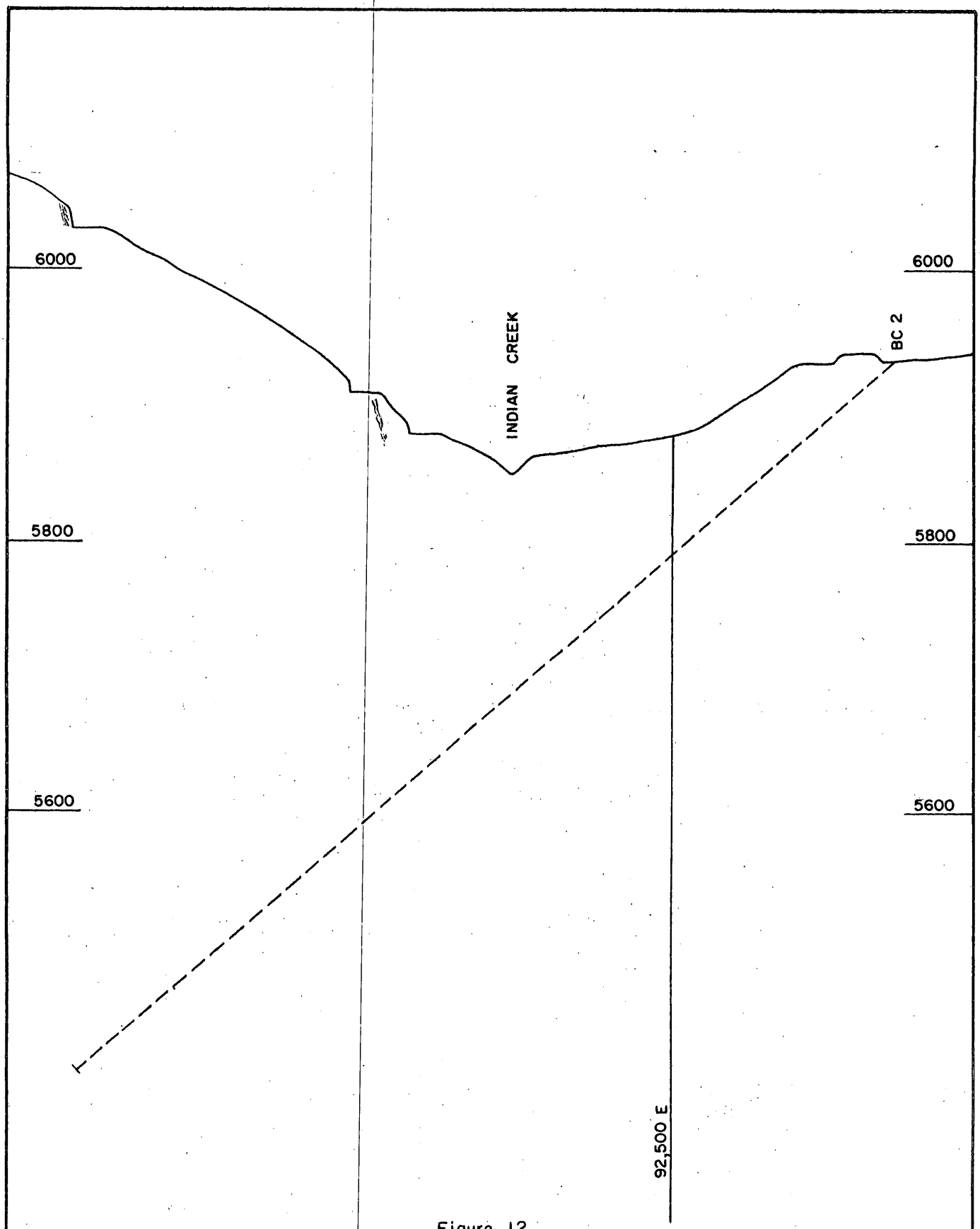

Figure 12

CROSS-SECTION OF DDH NO. BC 2

S 75 W -40° 800'

SCALE 1" = 100' LOOKING N 15 W

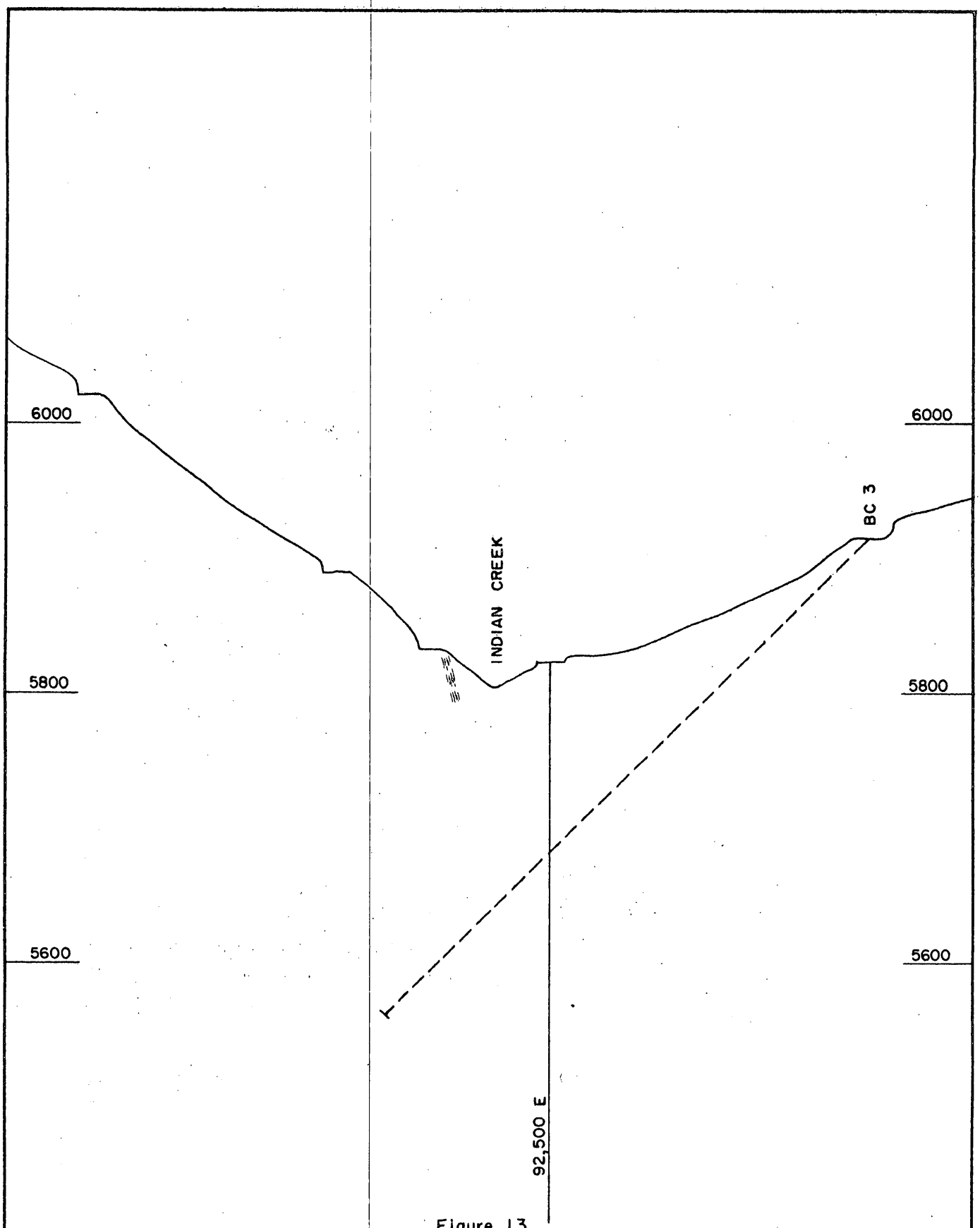

Figure 13

CROSS-SECTION OF DDH NO. BC 3

S 85 W - 45° 500'

SCALE 1" = 100' LOOKING N 5 W

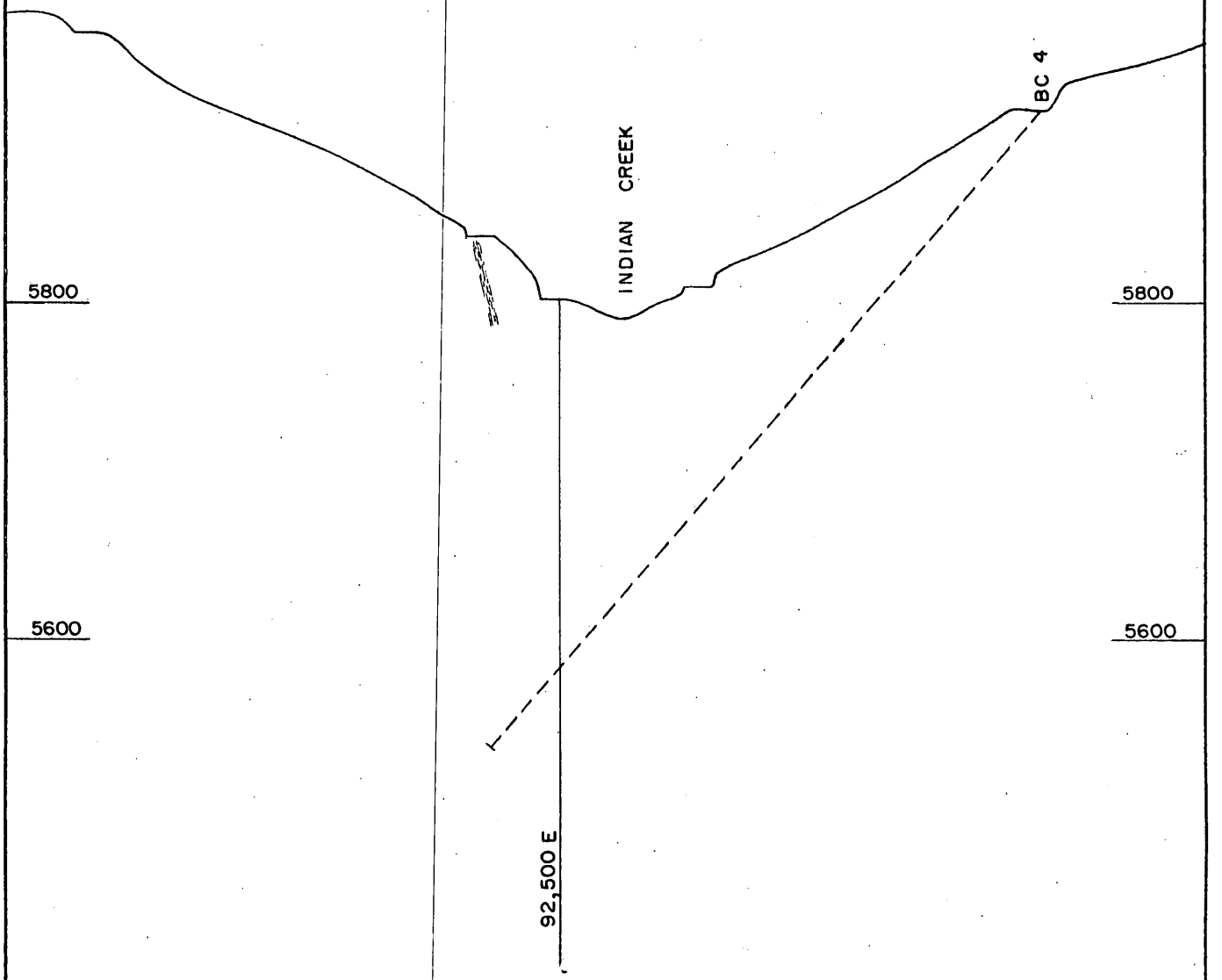

Figure 14

CROSS-SECTION OF DDH NO. BC 4

S 55 W -50° 500'

SCALE 1" = 100' LOOKING N 35 W

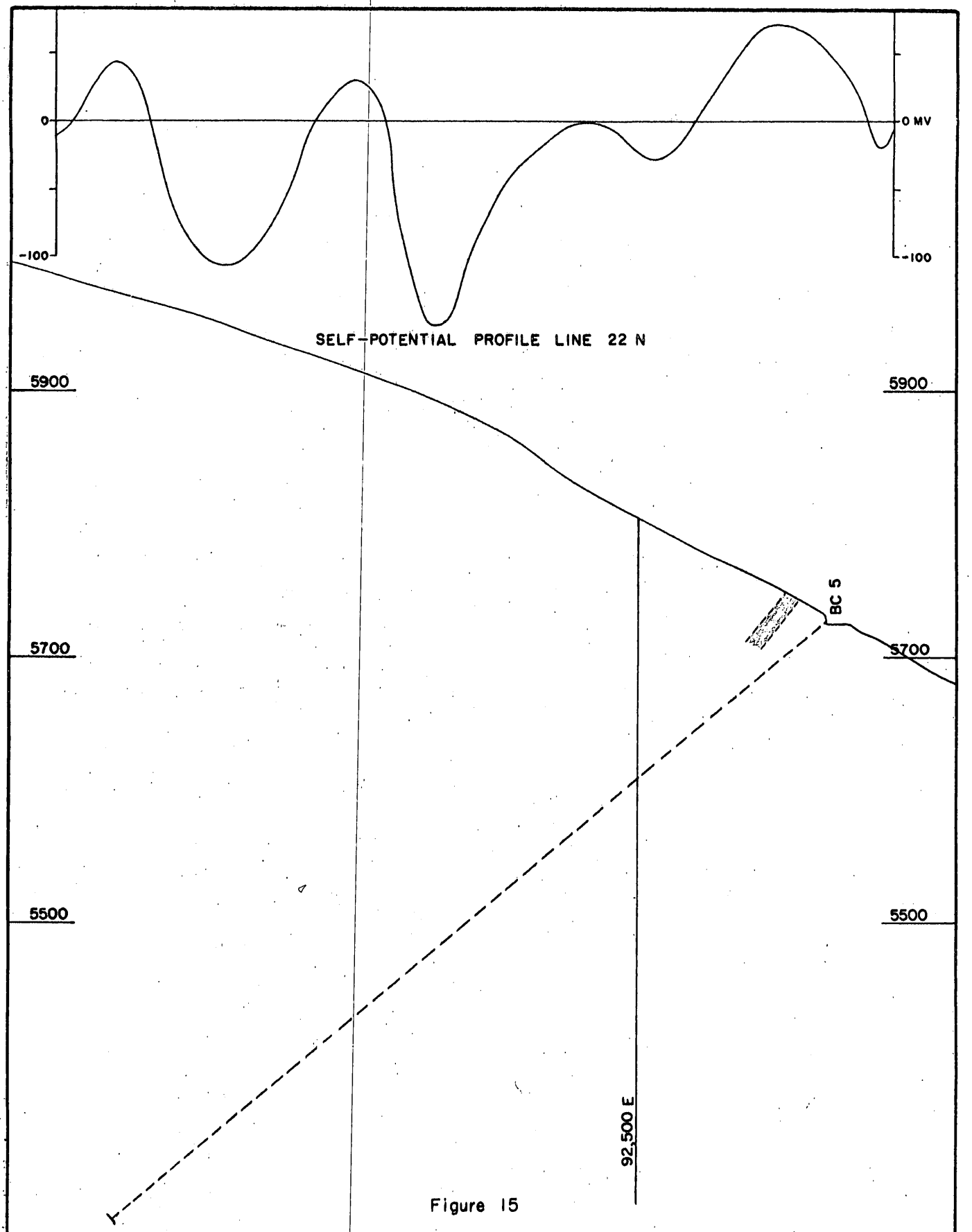

Figure 15

CROSS-SECTION OF DDH NO. BC 5

S 70 W -40° 700'

SCALE 1" = 100' LOOKING N 20 W

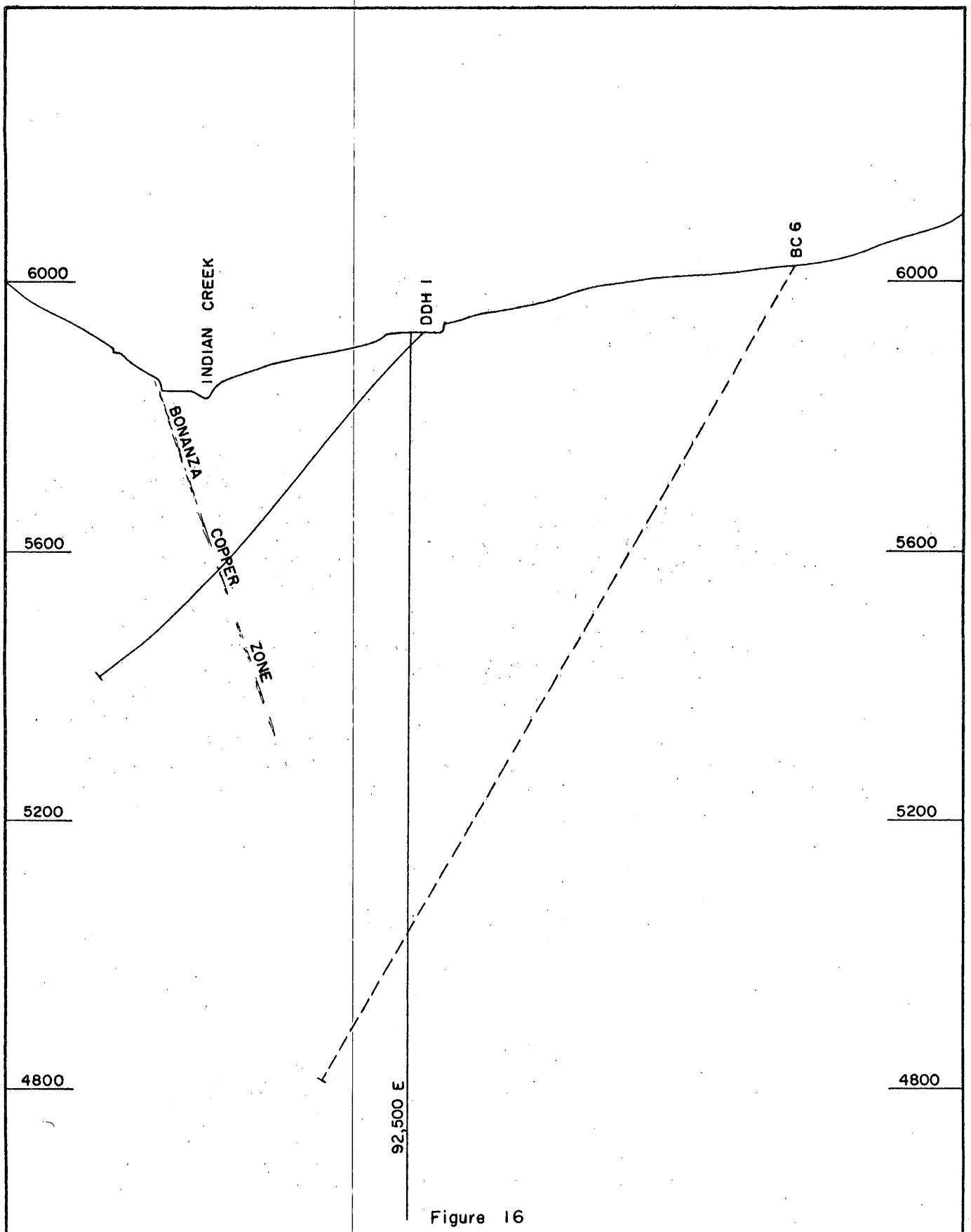

Figure 16

CROSS-SECTION OF DDH NO. BC 6

S 50 W — 60° 1400'

SCALE 1" = 200' LOOKING N 40 W

UNITED STATES
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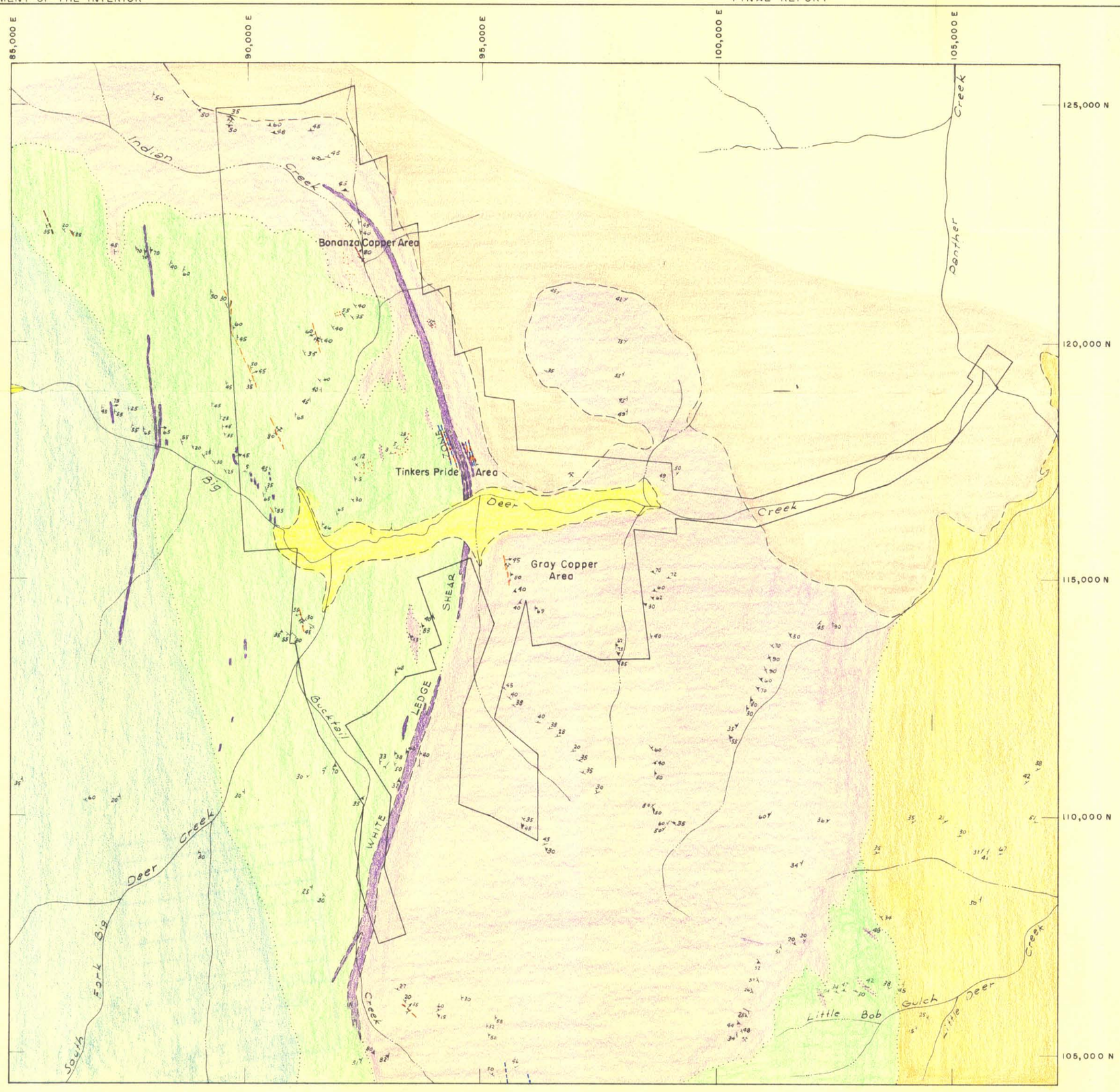
FINAL REPORT

Docket No. D M E A 3739



EXPLANATION

- Alluvium
- Argillaceous quartzite
- (Haynes-Stellite quartzite)
- Garnet schist
- Quartz-biotite, (schist, phyllite and quartzite)
- Granite
- Acidic dike
- Sulphide-bearing vein
- Quartz and tourmaline
- Fault or shear zone
- Approximate contact
- Gradational contact
- Beds
- Schistosity
- Cleavage
- Joints
- Prospect pit
- Adit

MAP SHOWING GEOLOGY AND PROPERTY BOUNDARY
IDAHO METALLURGICAL INDUSTRIES, INC.
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

2,000 0 2,000 4,000 FT.

D. R. MacLaren

After P. J. Shenon, R. P. Full, H. L. Bauer Jr. and D. M. Snyder, May 1956

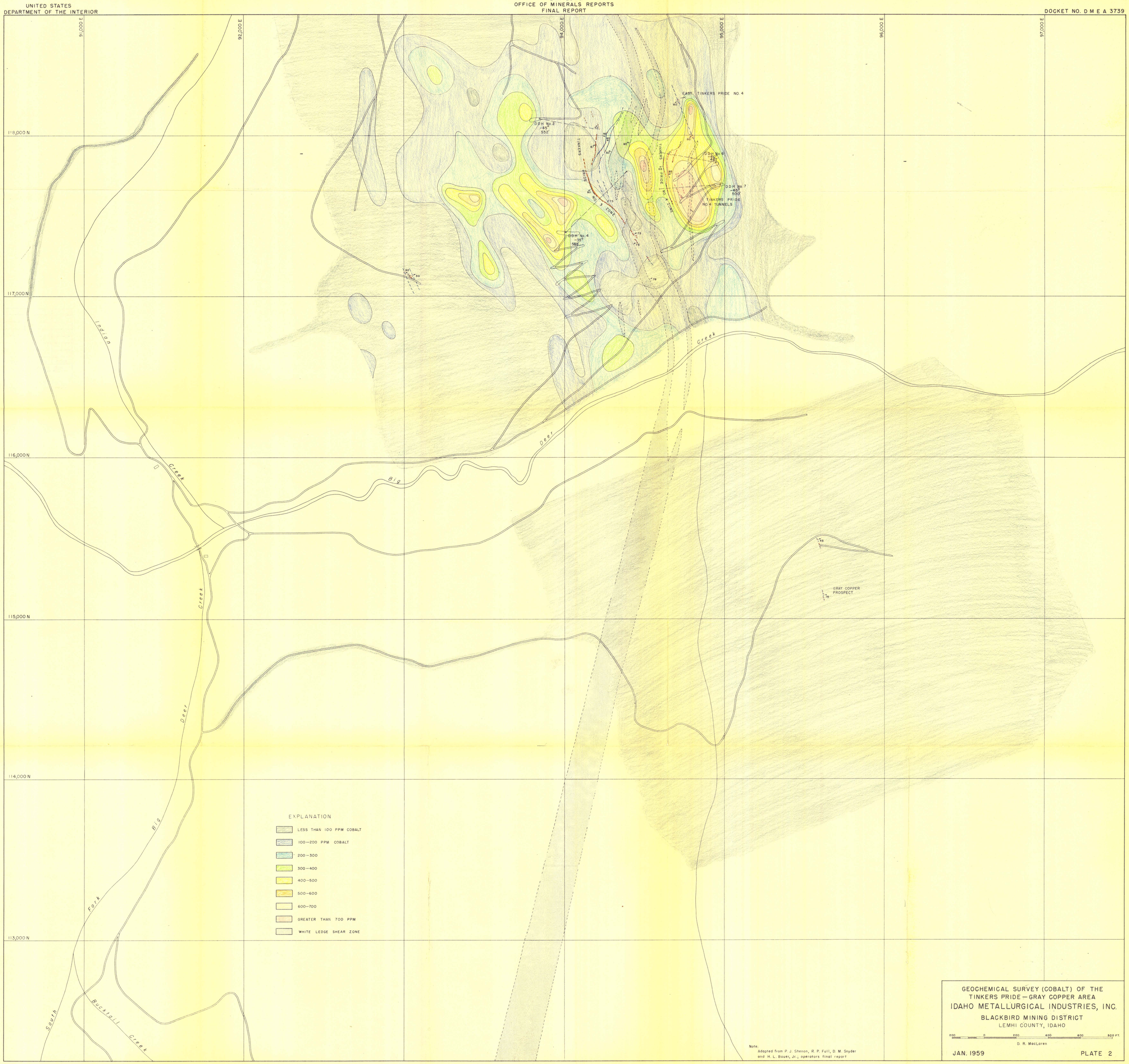
DEC. 1958

PLATE I

UNITED STATES
DEPARTMENT OF THE INTERIOR

PREPARED FOR
OFFICE OF MINERALS REPORTS
FINAL REPORT

DOCKET NO. D M E A 3739



UNITED STATES
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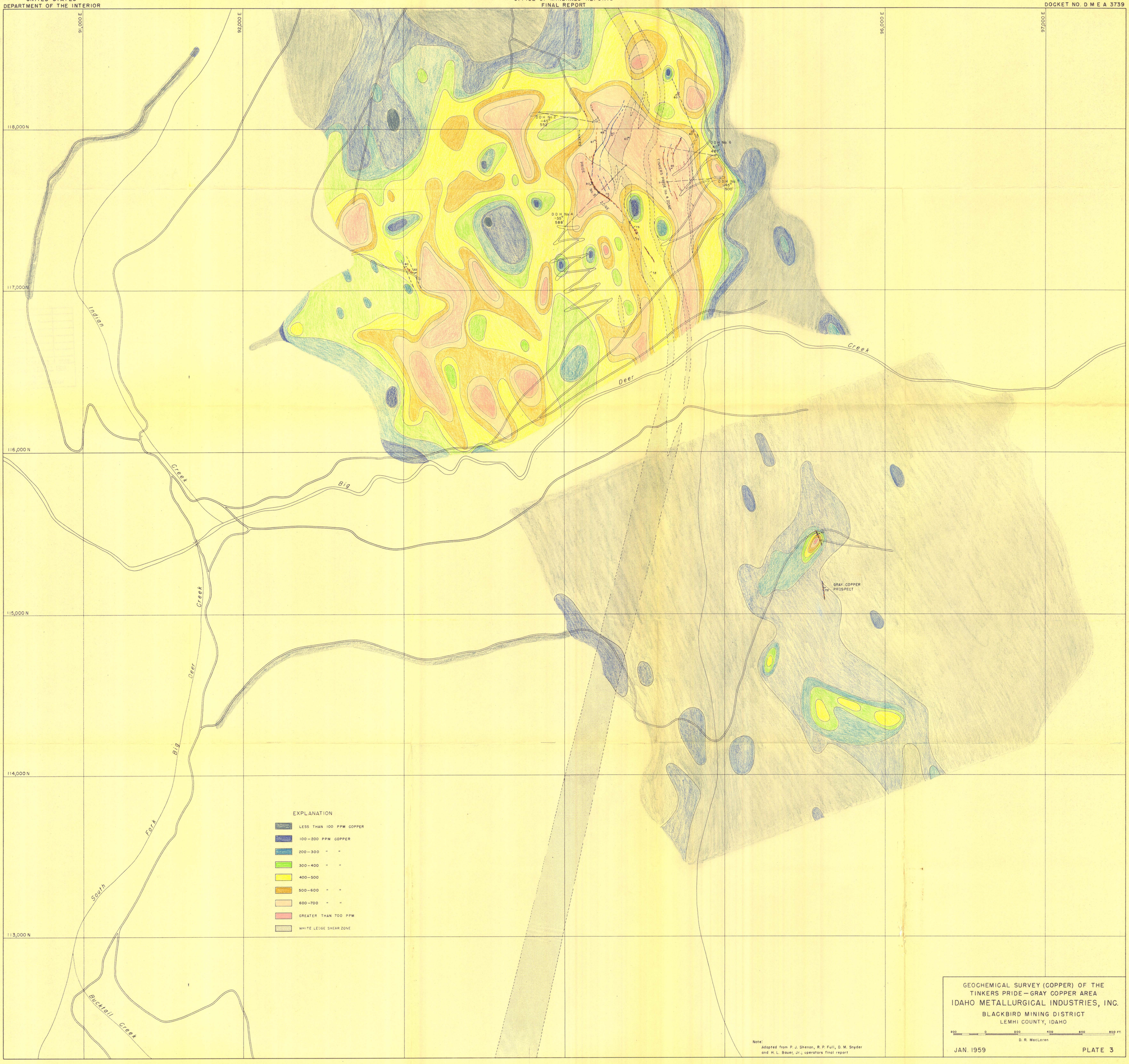

Note:
Adapted from P. J. Shenon, R. P. Full, D. M. Snyder and H. L. Bauer, Jr.; operators final report

GEOCHEMICAL SURVEY (COPPER) OF THE
TINKERS PRIDE—GRAY COPPER AREA
IDAHO METALLURGICAL INDUSTRIES, INC.
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

200 0 200 400 600 800 FT.

D. R. MacLaren

JAN. 1959

PLATE 3

UNITED STATES
DEPARTMENT OF THE INTERIOR

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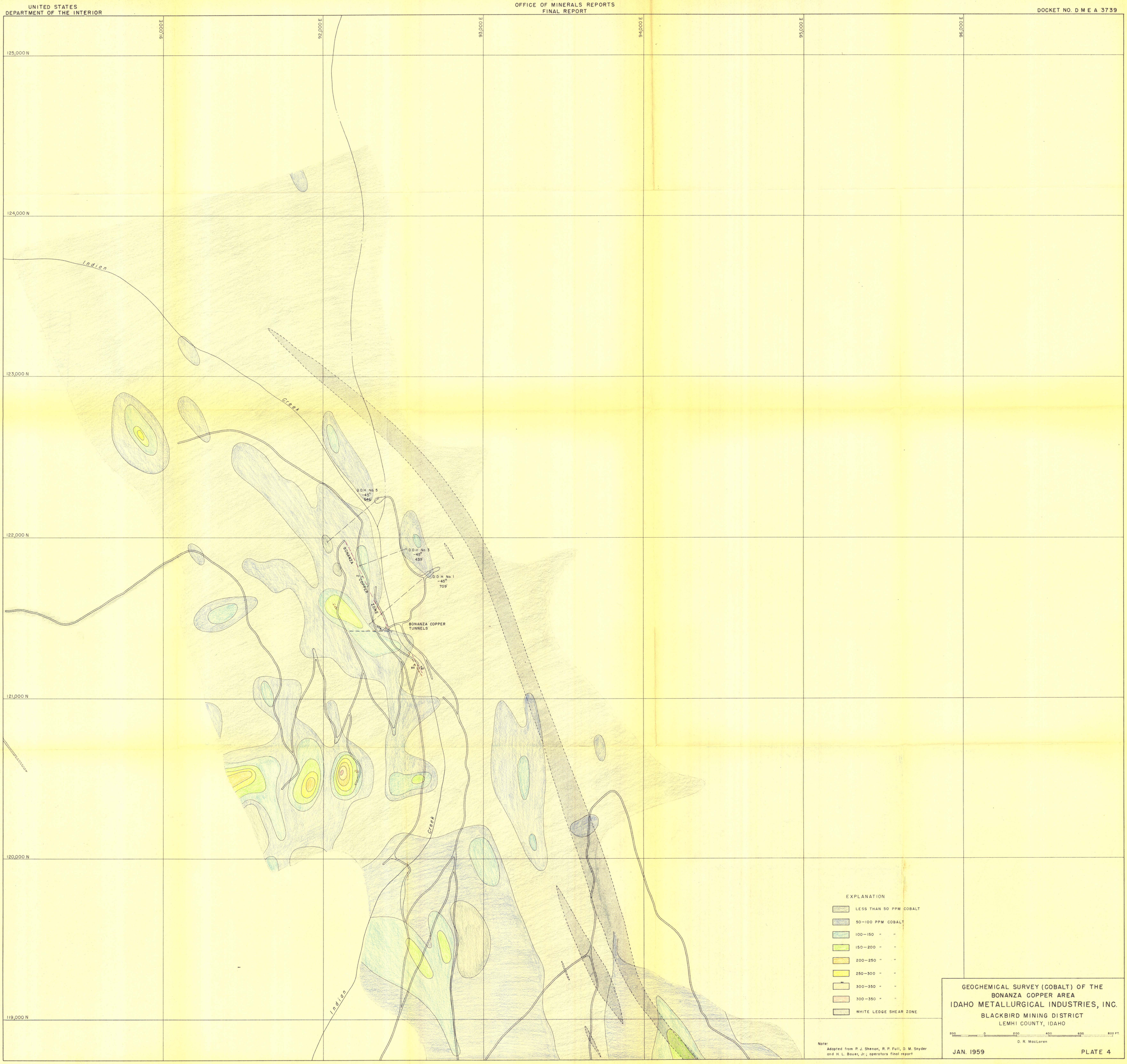
FINAL REPORT

DOCKET NO. D M E A 3739



UNITED STATES
DEPARTMENT OF THE INTERIOR

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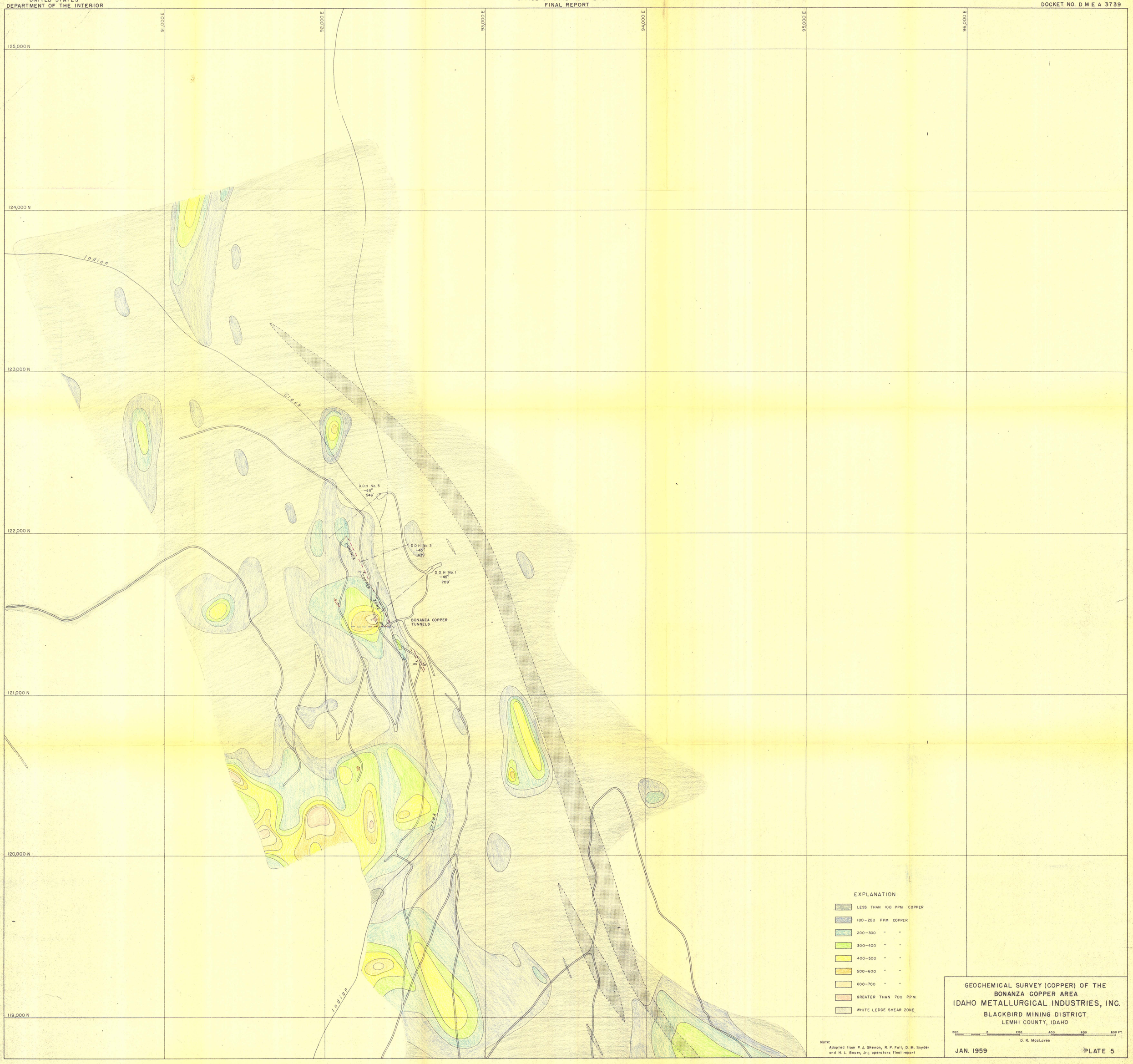
FINAL REPORT

DOCKET NO. D M E A 3739



UNITED STATES
DEPARTMENT OF THE INTERIOR

PREPARED FOR
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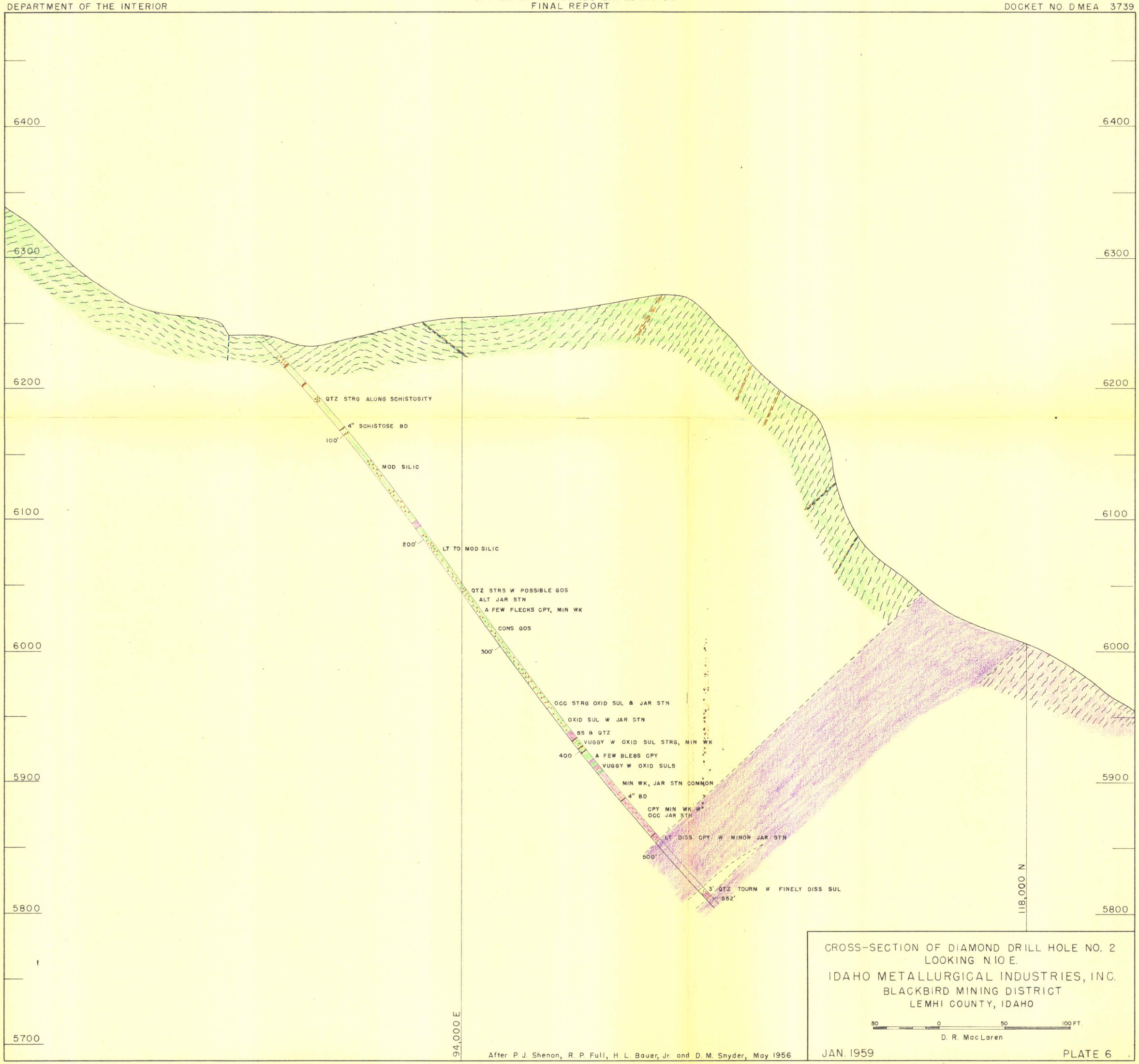
FINAL REPORT

DOCKET NO. DMEA 3739



CROSS-SECTION OF DIAMOND DRILL HOLE NO. 2
LOOKING N.10 E.

IDAHO METALLURGICAL INDUSTRIES, INC.
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

50 0 50 100 FT.

D. R. MacLaren

After P. J. Shenon, R. P. Full, H. L. Bauer, Jr. and D. M. Snyder, May 1956

JAN. 1959

PLATE 6

UNITED STATES
DEPARTMENT OF THE INTERIOR

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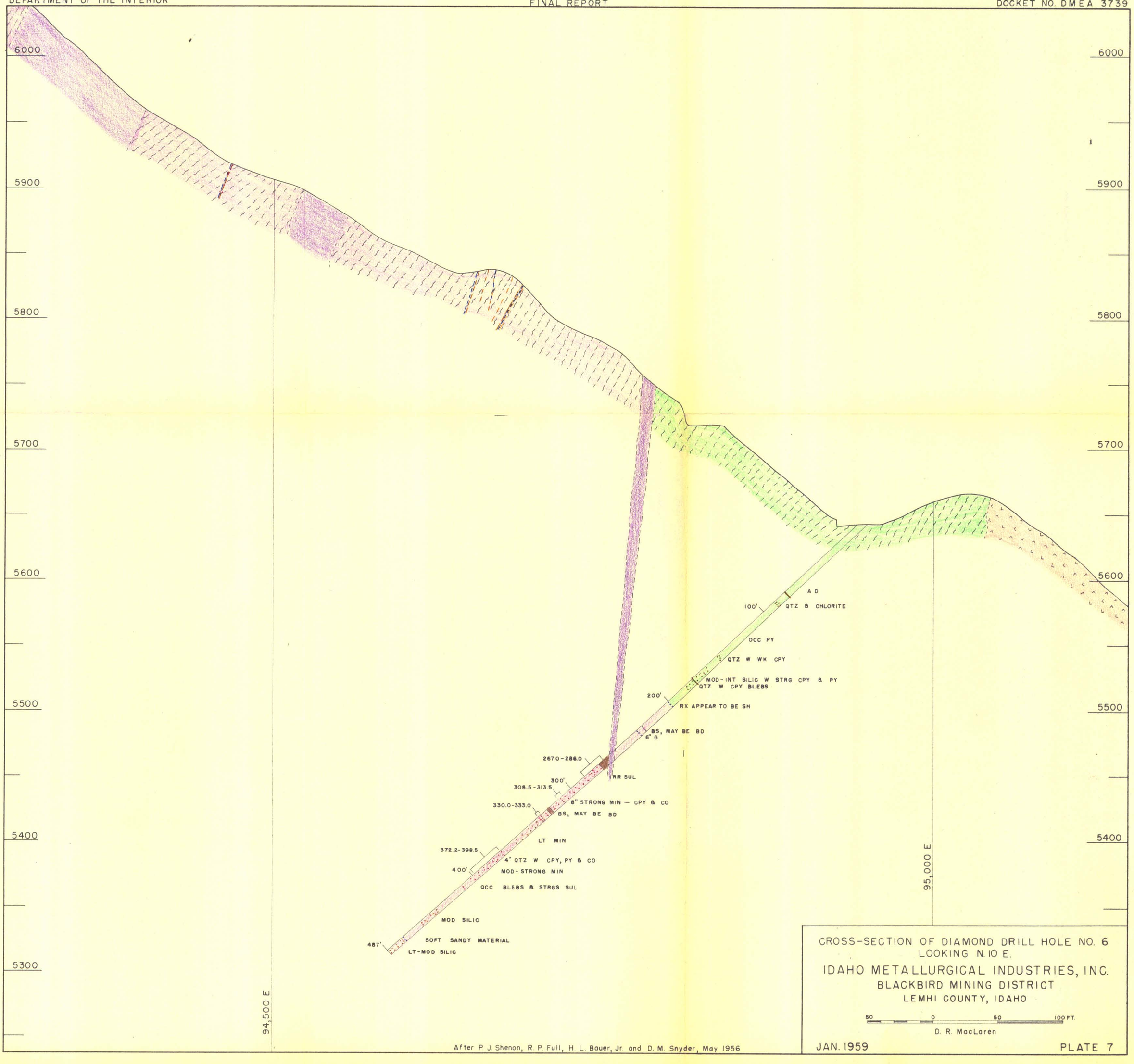
OFFICE OF MINERALS EXPLORATION
FINAL REPORT

DOCKET NO. DMEA 3739



After P. J. Shenon, R. P. Full, H. L. Bauer, Jr. and D. M. Snyder, May 1956

CROSS-SECTION OF DIAMOND DRILL HOLE NO. 6
LOOKING N. 10 E.

IDAHO METALLURGICAL INDUSTRIES, INC.
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

50 0 50 100 FT.

D. R. MacLaren

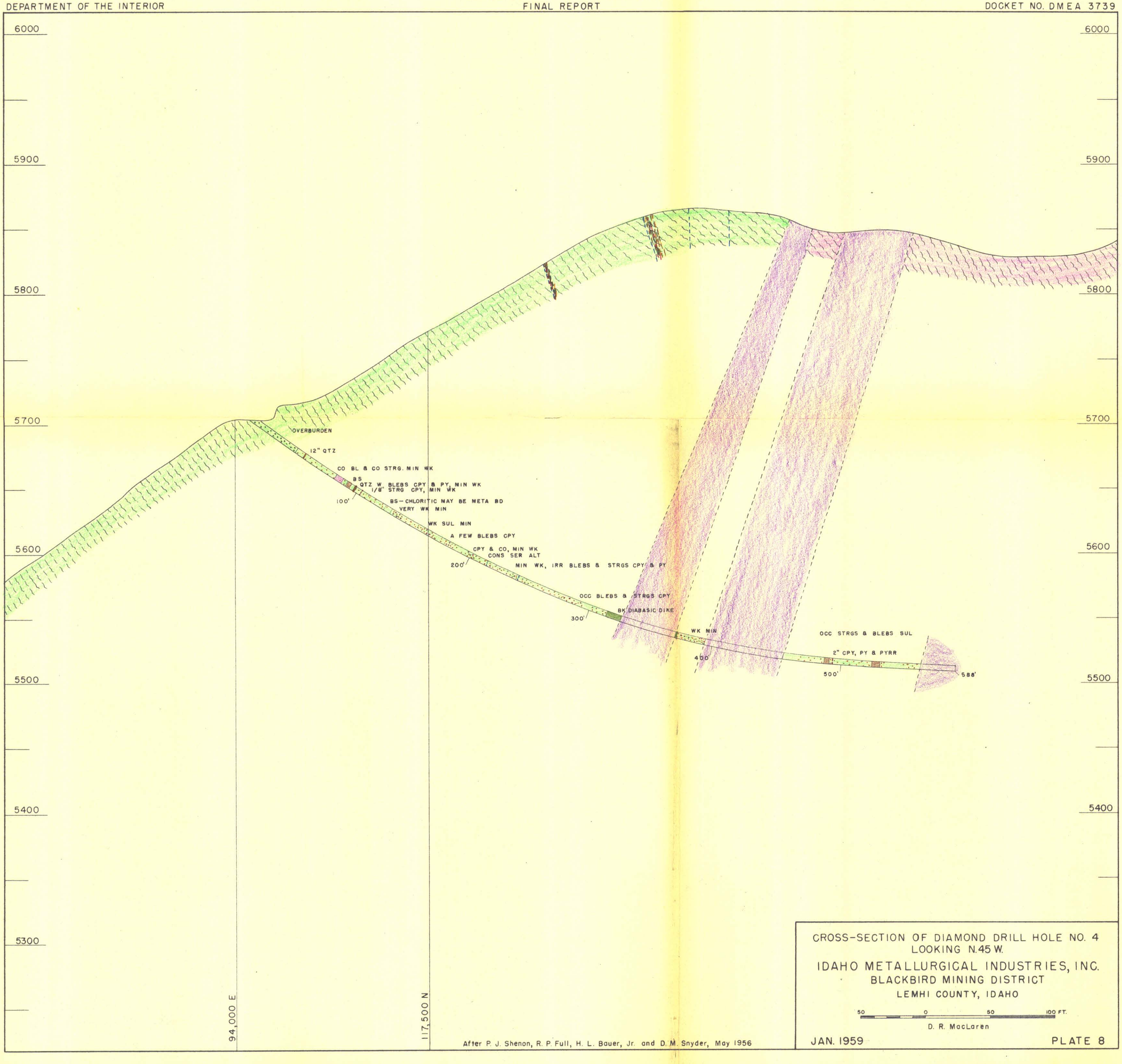
JAN. 1959

PLATE 7

UNITED STATES
DEPARTMENT OF THE INTERIOR

PREPARED FOR
OFFICE OF MINERALS EXPLORATION
FINAL REPORT

DOCKET NO. DMEA 3739



After P. J. Shenon, R. P. Full, H. L. Bauer, Jr. and D. M. Snyder, May 1956

CROSS-SECTION OF DIAMOND DRILL HOLE NO. 4
LOOKING N.45 W.

IDAHO METALLURGICAL INDUSTRIES, INC.
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

50 0 50 100 FT.

D. R. MacLaren

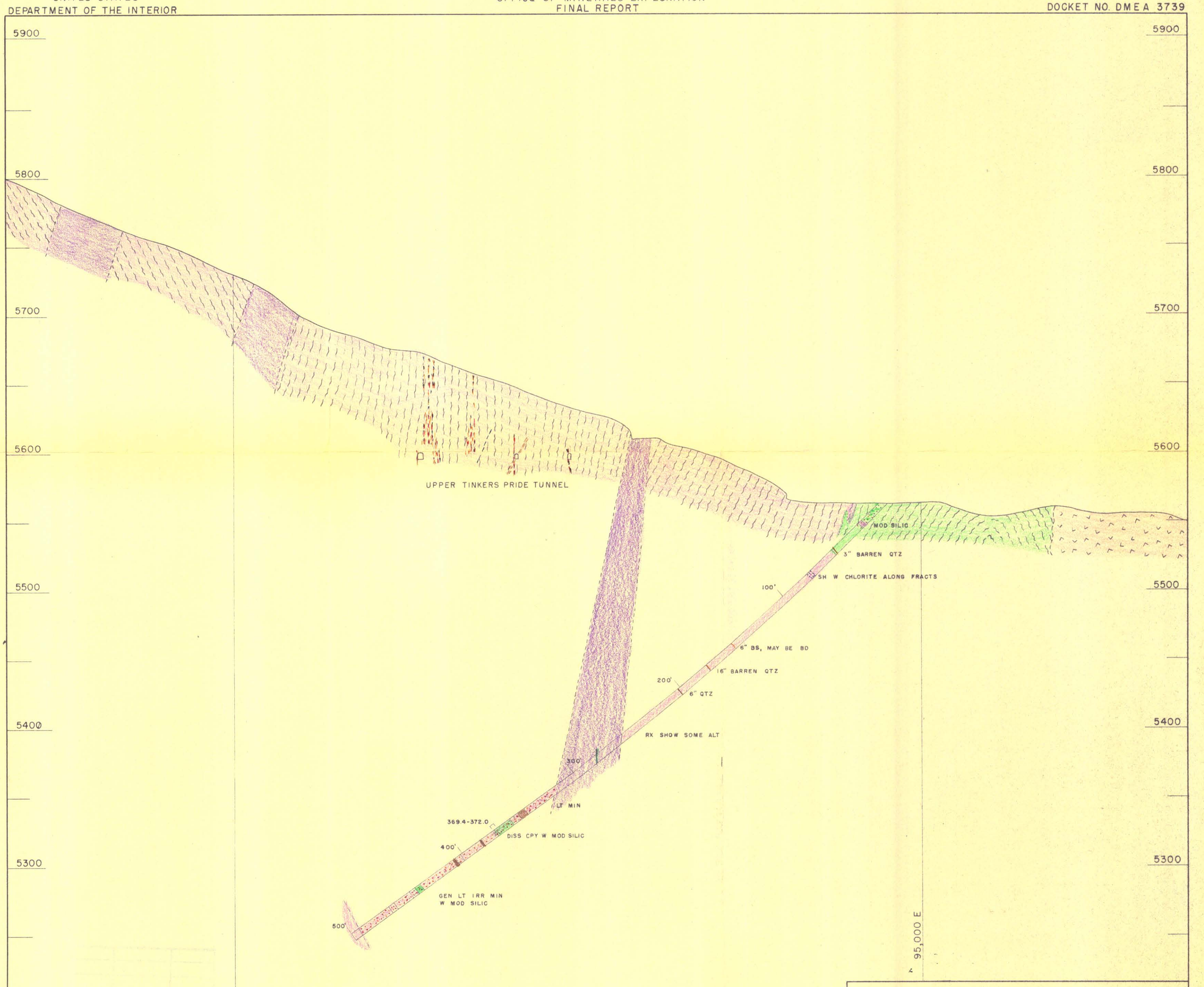
JAN. 1959

PLATE 8

UNITED STATES
DEPARTMENT OF THE INTERIOR

PREPARED FOR
OFFICE OF MINERALS EXPLORATION
FINAL REPORT

DOCKET NO. DMEA 3739



CROSS-SECTION OF DIAMOND DRILL HOLE NO. 7
LOOKING N. 5 W.

IDAHO METALLURGICAL INDUSTRIES, INC.
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

50 0 50 100 FT.

D. R. MacLaren

JAN. 1959

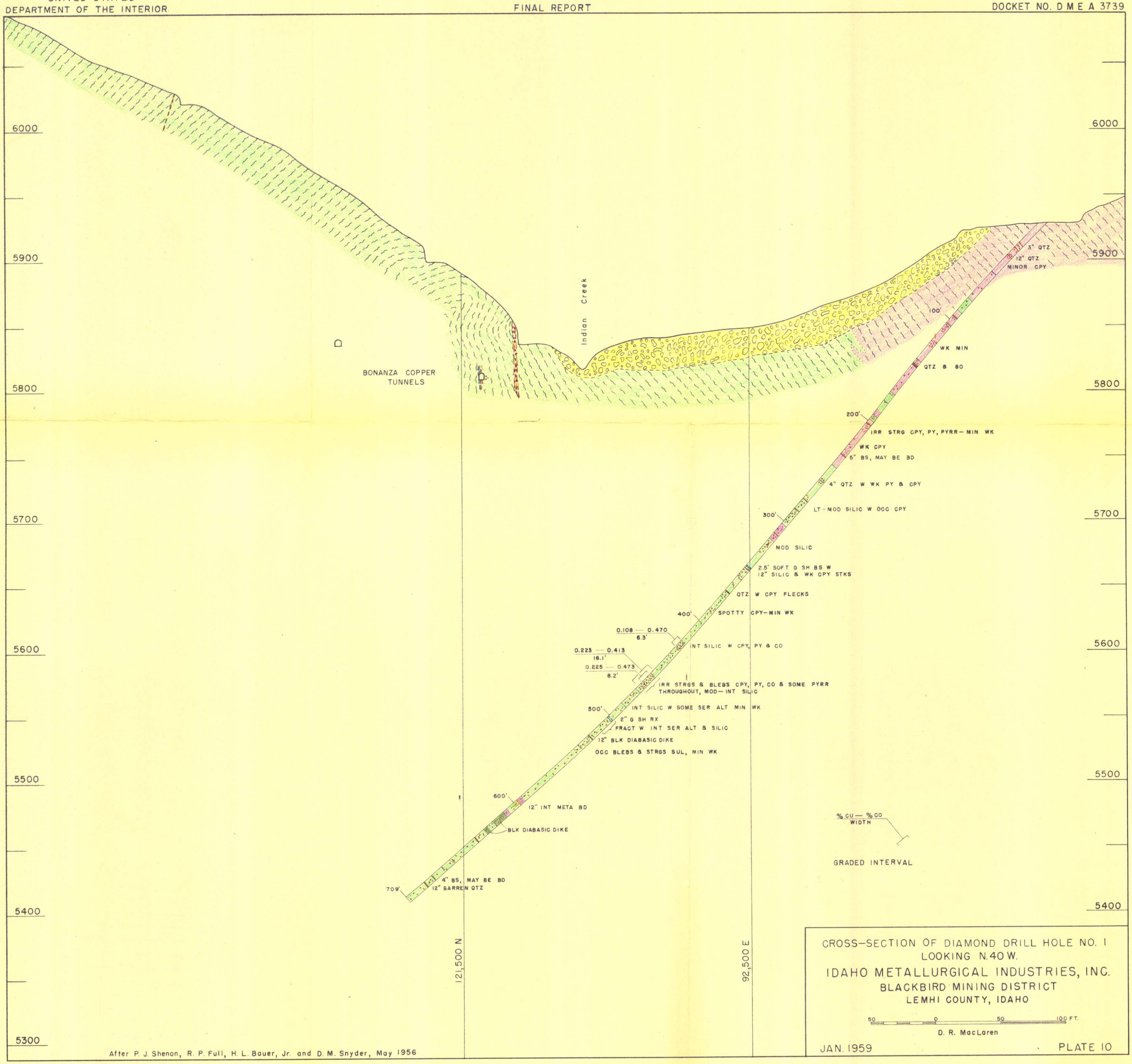
PLATE 9

After P. J. Shenon, R. P. Full, H. L. Bauer, Jr. and D. M. Snyder, May 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR

PREPARED FOR
OFFICE OF MINERALS EXPLORATION
FINAL REPORT

DOCKET NO. D M E A 3739



After P. J. Shenon, R. P. Full, H. L. Bauer, Jr. and D. M. Snyder, May 1956

CROSS-SECTION OF DIAMOND DRILL HOLE NO. 1
LOOKING N.40 W.

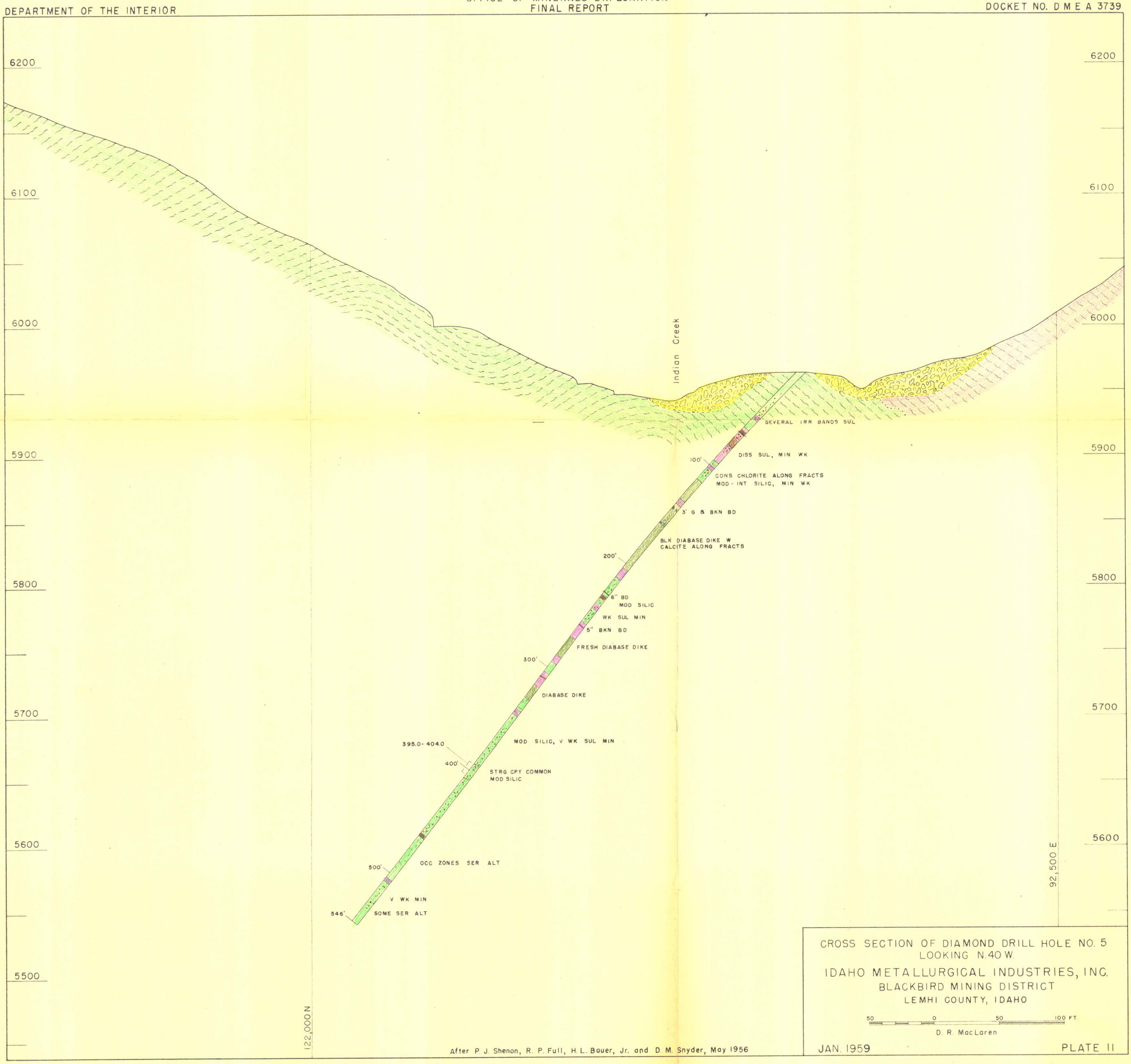
IDAHO METALLURGICAL INDUSTRIES, INC.
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

50 0 50 100 FT.

D. R. MacLaren

JAN. 1959

PLATE 10



After P. J. Shenon, R. P. Full, H. L. Bauer, Jr. and D. M. Snyder, May 1956

CROSS SECTION OF DIAMOND DRILL HOLE NO. 5
LOOKING N.40 W.

IDAHO METALLURGICAL INDUSTRIES, INC.
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

50 0 50 100 FT.

D. R. MacLaren

JAN. 1959

PLATE II

UNITED STATES
DEPARTMENT OF THE INTERIOR

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FINAL REPORT

DOCKET NO. D M E A 3739

CROSS SECTION OF DIAMOND DRILL HOLE NO. 3
LOOKING N.20 W.

IDAHO METALLURGICAL INDUSTRIES, INC.
BLACKBIRD MINING DISTRICT
LEMHI COUNTY, IDAHO

50 0 50 100 FT.

D. R. MacLaren

JAN. 1959

PLATE 12

After P. J. Shenon, R. P. Full, H. L. Bauer, Jr. and D. M. Snyder, May 1956