JUL 8 1960
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DATE	INITIALS	CODE
7-8	gad	VVO
	Georgia	
7/8		800
7/8		500
Little	Bob	

INTERIM REPORT

OME-6077, 14-23-090-211 (Zinc-lead-copper)

Operator: Little Bob Mining Company, 2706 Roswell Road, Marietta, Georgia

Location: Little Bob area, Paulding County, Georgia

The exploration project in the area contiguous to the Little Bob mine was inspected by R. A. Laurence and Helmuth Wedow (USGS) on Tuesday, June 28, 1960. They were accompanied on the inspection trip by Messrs. L. M. Harris and V. S. Griffin, President and Resident Geologist, respectively, of the Little Bob Mining Company. Drilling under this contract had been started on June 10, 1960. At the time of inspection three holes had been completed for a total of 1,004 feet, and a fourth hole was in progress. The available data on the three completed holes are summarized below:

Hole 1 (DH-3 on figure 2 of contract): Located approximately at coordinates 20,000-S; 250-E. Collar elevation not yet available. Bearing: N. 40° W. Inclination: Minus 45° NW. Total depth: 302 feet. Summary log: 0-74 overburden; 74-302(Bottom of hole). Alternating zones of impure quartzite and chlorite-garnet-hornblende-sericite-quartz schist or gneiss with different zones varying considerably in composition. Mineralization: Scattered local traces of sphalerite, chalcopyrite, pyrite, and pyrrhotite throughout except as follows: 2-3 percent disseminated ZnS @ 247-259 and 1-2 percent ZnS @ 289-302.

Hole 2 (DH-2 on figure 2 of contract): Located approximately at coordinates 20,000-S; 50-E. Bearing: N. 40° W. Inclination: Minus 45° NW. Collar elevation not yet available. Total depth: 301½ (302). Summary log: 0-72 overburden (limonite-cemented saprolite @ 22-26); 72-302 (bottom of hole). Chiefly chlorite-quartz-garnet-hornblende-sericite schist with local zones of impure quartzite (that is, generally similar to Hole 1 but probably with somewhat less quartzite).

Mineralization: Scattered local traces of sphalerite, chalcopyrite, bornite, pyrite, and pyrrhotite @ 72-245 except as follows: Strong shines (minor disseminated amounts---plus or minus $\frac{1}{2}$ percent) of ZnS @ 72-110, $113\frac{1}{2}$-124, and $206\frac{1}{2}$-245.

Hole 3 (DH-1 on figure 2 of contract): Located approximately at coordinates 12,000-S; zero-E. Hole vertical. Collar elevation not yet available. Total depth: 400 feet (additional 100 feet over depth indicated in contract authorized by field examiners by phone on verbal report that hole was still in mineralized ground at the 300-foot depth. Summary log: 0-39 overburden; 39-400. Similar to Holes 1 and 2 except for the occurrence of brown biotite in local zones from 242 to 400 (bottom). Mineralization: Scattered local traces of chalcopyrite, bornite, and pyrrhotite @ 39-370; disseminated pyrite throughout; sphalerite as follows: 39-56, scattered shines; 56-64 (8'), 3-5%; 64-66 (2'), 2-3 %; 66-$73\frac{1}{2}$ ($7\frac{1}{2}$), 3-5 %; $84\frac{1}{2}$-121 ($36\frac{1}{2}$), 5-7 % (equivalent to $3\frac{1}{2}$-$4\frac{1}{2}$ % Zn); local zones of shines and traces 121-370.

All foregoing percentages are estimated sphalerite in core. The estimates were made by V. S. Griffin of the Operator's geological staff; several spot-check estimates by the examiners were of the same order of magnitude. The mineralized zones have yet to be split and sent for assay. Data on the breakdown of the drilling footage into drillers "overburden", oversize drilling to collar hole, and standard rock drilling are not yet available but will be submitted with the June voucher. No EX-size drilling was necessary to complete any of the three holes.

Hole 4 was in progress at the time of inspection. This hole is located approximately at coordinates 715-N; 115-E and is vertical and is not a hole authorized by the contract. It is in the main Little Bob orebody as outlined on figure 2 of the Field Examination Report for DMEA-5018. The site of Hole 4 is essentially the same as APH-3 (figure 2 of FE Report---DMEA-5018) and lies on the ore trend suggested by the results of the New Jersey Zinc Company's drilling in the early 1950's. This site lies about midway between two ore holes (J-13 and -18) that are approximately 300 feet apart. At the time of the field inspection Hole 4 had reached a depth of 177 feet with only traces of sulfides scattered through the core. In a phone conversation between Messrs. Laurence and Harris on June 30, 1960, Mr. Harris reported that Hole 4 was then at a depth of 317 feet and that from 217 (approximately)-317 was a run of ore estimated at 15-25 percent sphalerite (10-15 percent zinc) including a 5-foot run estimated at 95 percent sphalerite (60 percent zinc). Although this run is an excellent ore penetration, it does not add materially to the quantity of the ore reserves at the Little Bob. If the estimated values hold true on assaying, it will raise the grade of the reserves and also improve slightly the rank of the reserves. In a sense this hole should be considered more as the first stage of development drilling, and therefore is not warranted under an exploration contract.

On the completion of Hole 4 the drilling contractor (Longyear) has indicated the desire to move the rig off the Little Bob job--- reportedly to Missouri. The Operator has presumably agreed to this move and has indicated his wish for a short recess at this time in order to: (1) review the data gained from the first four holes, complete the needed assays, and plan future drilling sites; and (2) give consideration to a possible financial arrangement with other private interests before continuing with further exploration. It is recommended by the field examiners that a 60- to 90-day recess be granted. Such a recess will allow for the completion of the assays and a more thorough review of the data gained by the holes drilled under the contract, by the Operator's exploration staff as well as by the Government, in order to plan for additional hole sites agreeable to both principals of the contract.

R. A. Laurence and Helmuth Wedow, Jr.
Geologists, U. S. Geological Survey

Inspected: June 28, 1960

DMEA FORM 6 REFERENCE SLIP

REV. 12-56 DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO:	INITIALS	DATE
1. 700		
2. Mr Greenwald		
3.		
4.		
5.		
FROM: 800		

FOR: Check items for action desired

____ Action ____ Reply for signature of ____

____ Approval ____ Investigate ____ Surname

____ Comment ____ Recommendations ____ Signature

____ Conference ____ Rewrite ____ File

____ Instructions ____ Your information

REMARKS: Contract specifies lengths of first three holes shall be approximately 300'.

Log of DH-3 (DH-1 of contract) indicates depth of 400'.

Amendment required for acceptance by Govt

Talbert 7/13/60

INT.-DUP. SEC., WASH., D.C. M25803

Houk 124

JUL 12 1960
O.M.E.

Robert S. Young
Geologist
114 West Park Drive
Charlottesville, Virginia

Dial 3-4416

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DATE	INITIALS	CODE
7-12	gad	110
7/13	[illegible]	800
"	Received	500

July 11, 1960

Mr. Laurence G. Houk, Field Officer
Office of Minerals Exploration
Department of the Interior
Washington 25, D. C.

Re: OME-6077 (Zinc-Copper)
Little Bob Mining Company, Inc.
Little Bob Prospect
Paulding County, Ga.
Contract #2111

Dear Mr. Houk:

Enclosed please find five (5) copies of the narrative report and drill logs which comprise the June 1960 Progress Report for the above cited prospect.

I have not been furnished the information necessary to prepare the required Monthly Vouchers. In the absence of information to the contrary, I must assume that Mr. L. M. Harris will forward these forms to you.

As you know, exploration on the prospect is suspended, and I assume tha tMr. Harris will utilize part of this time to secure other geological advice. As of this time, it appears highly unlikely that either Mr. Griffin or myself will be associated with this project in the future.

If I may supplement or clarify the attached material, please do not hesitate to call on me.

Very truly yours,

Robert S. Young

Robert S. Young

JUL 12 1960
O.M.E.

JUNE 1960 PROGRESS REPORT

LITTLE BOB PROSPECT

PAULDING COUNTY, GA.

OME-6077

Contract #2111

INTRODUCTION

Work leading to the exploratory diamond drilling program authorized under OME Contract #2111 began May 28, 1960. On that date, R. S. Young, V. S. Griffin, Jr., O. S. Ragsdale, Jr., and L. M. Harris laid out the three drill hole locations specified in the contract.

The Longyear drilling crews and a wireline rig arrived on the prospect Friday, June 10th. Overburden drilling began on Hole #1 on that date; bedrock was reached in this hole on Saturday, June 11th. During the month of June, a total of approximately 1004 linear feet were drilled at the three locations approved by the Government. In addition to these drill holes, the Little Bob Mining Co. drilled one hole northeast of the former mine workings.

The drilling accomplished to date is considered successful; zinc sulfide mineralization was encountered in all drill holes, thus extending the zone of significant sulfide mineralization some 1600 feet to the southwest.

Government-participation drilling has been suspended, for a period estimated at thirty days, to allow preparation and evaluation of assay data.

Messrs. Laurence and Wedow, representing the OME Field

Team, visited the property and examined the available core on June 28th.

DRILLING PROGRAM

The exploratory drilling reported on herein was accomplished by an E. J. Longyear wireline rig, operating on two shifts six days per week. AX core was taken. Completed holes were plugged, but no casing was left in the holes.

Geologic supervision of the drilling and all of the core logging was carried out by Villard S. Griffin, Jr. However, it must be emphasized that L. M. Harris, president of the operating company, reserved the right to determine the depth of the individual drill holes. Significant departures from the recommendations contained in both the Application and Contract work schedules are the sole responsibility of Mr. Harris. ?

All drill core is stored on the property of L. M. Harris, 2706 Roswell Road, Marietta, Georgia. The preparation of assay samples has been delayed by the inablity of the operator to obtain a core splitter.

The minor amount of bulldozing required for site preparation was accomplished by L. M. Harris, contracting to the Little Bob Mining Company, Inc.

Following are logs of the four (4) diamond drill holes completed during June, 1960.

* * * * *

DH-3 of contract

Drill Hole #1
Location: 20S + 2.5E
Inclination: -45°

Depth: 302 ft.
Bearing: N. 40° W.
Logged by: V. S. Griffin

Interval	Description
0-74	Overburden
74-88½	Saprolite with iron stains alternating with fresh chlorite-quartz-garnet schist contain-zones of impure quartzite.
88½-109½	Impure quartzite alternating with small sections of chlorite-quartz-hornblende-garnet-sericite schist containing minor pyrite.
109½-116	Impure gneissic quartzite, containing chlorite, garnet, hornblende, and a trace of pyrite.
116-127	Impure quartzite with chlorite, sericite, garnet, and a very small amount of pyrite; having contorted bands of chlorite, hornblende, and sericite near the bottom.
127-131	Very finely banded quartzite with minor amounts of sericite and hornblende and containing isolate d crystals of garnet and pyrite.
131-132½	Chlorite-hornblende-garnet schist with minor pyrite.
132½-135	Impure quartzite with chlorite, hornblende, garnet, and minor pyrite.
135-148	Quartz-chlorite-hornblende-garnet schist with minor pyrite in local concentrations up to ½" thick.
148-149½	Impure quartzite with chlorite, garnet, sericite and vein quartz with a trace of pyrite.

149½-151½	chlorite-quartz-garnet-sericite schist with minor pyrite and traces of sphalerite and chalcopyrite.
151½-154	Impure quartzite with chlorite, hornblende, sericite, garnet and possessing several small zones of chlorite and garnet and other zones of hornblende; a very small amount of pyrite and traces of sphalerite.
154-160	Chlorite-sericite-garnet schist with minor amounts of chalcopyrite and pyrrhotite and several ½" local zones of pyrite.
160-160½	Vein quartz.
160½-163	Impure quartzite with chlorite, sericite, garnet, hornblende and several bands of pure quartz; a small amount of pyrite and a trace of ZnS.
163-170	Chlorite-hornblende-quartz-sericite-garnet schist with traces of ZnS and $CuFeS_2$.
170-172½	Impure quartzite with zones of pure quartz and containing chlorite, garnet, and a very small amount of Fe_7S_8 and a trace of FeS_2 and $CuFeS_2$.
172½-187	Quartz-chlorite-hornblende-garnet schist with quartz zones and contorted bands of hornblende; minor amounts of pyrite, pyrrhotite and $CuFeS_2$.
187-212	Contorted chlorite-quartz-garnet-sericite schist with garnets up to ½" occurring in bands; also quartz bands and several zones of hornblende near the bottom; minor amounts of FeS_2, Fe_7S_8, $CuFeS_2$.
212-214	Impure quartzite with sericite, chlorite, garnet, and a trace of sulfides.
214-240½	Chlorite-hornblende-quartz-garnetschist with local contorted bands and several quartz zones with minor $CuFeS_2$ and FeS_2 and a trace of Fe_7S_8 and ZnS.
240½-247	Gray quartzite with hornblende, garnet, chlorite, and sericite with a trace of sulfides.
247-259	Chlorite-quartz-hornblende-garnet schist with increasing hornblende toward the bottom; a small amount of disseminated FeS_2 and $CuFeS_2$ occurring together, occasionally in concentrations up to ½"; a trace of pyrrhotite and approximately 2-3% disseminated ZnS.
259-260	Quartzite with sericite, chlorite and garnet.

260-261½	Chlorite-hornblende-sericite-garnet-quartz schist with a small amount of disseminated FeS_2 and $CuFeS_2$.
261½-262½	Gray quartzite with chlorite and garnet and a trace of pyrite and chalcopyrite.
262½-270	Hornblende-chlorite-quartz-garnet schist with concentrations of FeS_2 and $CuFeS_2$ and a trace of ZnS toward the bottom.
270-271	quartzite with chlorite, garnet, and traces of chalcopyrite and pyrite.
271-272	Chlorite-quartz-hornblende schist.
272-275½	Quartzite with hornblende, chlorite, garnet and minor amounts of disseminated FeS_2 and $CuFeS_2$ and a trace of Fe_7S_8 and ZnS.
275½-287	Chlorite-hornblende-quartz-garnet schist with local chlorite and hornblende concentrations and small amounts of local disseminated ZnS, FeS_2 and $CuFeS_2$.
287-302	Quartz-chlorite-hornblende-garnet-sericite schist which is highly quartzitic and contains local concentrations of chlorite and hornblende; contains 1-2% disseminated ZnS, minor amounts of pyrite and traces of pyrrhotite and chalcopyrite.

* * *TDA-302'* * *

Drill Hole #2
Location: 20S / 0.5E
Inclination: -45°

Depth: 301½ ft.
Bearing: N. 40° W.
Logged by: V. S. Griffin

Interval	Description
0-22	Overburden.
22-26	Weathered chlorite-sericite-quartz-garnet schist with limonite.
26-72	Weathered zone; no core recovered.
72-97	Saprolite and weathered schist alternating with fresh chlorite-sericite-quartz-garnet schist, with hornblende near the bottom; minor amounts of disseminated ZnS and a trace of pyrite in the lower portion.
97-100	quartz-sericite-chlorite-garnte schist with a section of saprolite near the middle o f the interval; minor disseminated sphalerite and trace pyrite and pyrrhotite.
100-110	Sericite-chlorite-quartz-garnet schist; contains two small weathered sections; minor disseminated sphalerite and trace FeS_2, Fe_7S_8, and $CuFeS_2$.
110-113½	Gray quartzite with garnet, chlorite, and abundant bands of sericite.
113½-124	Chlorite-sericite-quartz-garnet-hornblende schist; garnets occur in bands and hornblende dominates in the lower portion; minor disseminated pyrite and ZnS and traces of pyrrhotite and chalcopyrite.
124-127	Impure quartzite with chlorite, sericite and garnet; very small amounts of disseminated pyrite.
127-129	Quartz-garnet-chlorite-sericite schist with garnet bands near the bottom; minor disseminated FeS_2.
129-130	Impure quartzite with chlorite-sericite and garnet; very small amounts of disseminated pyrite.
130-133	Hornblende-chlorite-quartz-garnet schist, with garnet bands and minor disseminated FeS_2 and traces of chalcopyrite, sphalerite and pyrrhotite.

133-157	Chlorite-sericite-quartz-garnet schist containing quartzitic layers up to 1'; hornblende associated with quartzitic zones; disseminated ZnS, minor pyrite, traces of chalcopyrite and pyrrhotite.
157-159	Hornblende-chlorite-quartz-garnet schist with disseminated ZnS and FeS_2, traces of Fe_7S_8 and $CuFeS_2$.
159-169	Chlorite-hornblende-quartz-sericite-garnet schist with disseminated ZnS and FeS_2, minor traces of chalcopyrite and bornite.
169-173	Hornblende-chlorite-quartz-garnet schist with disseminated ZnS and FeS_2, also minor Fe_7S_8, trace of bornite and chalcopyrite.
173-174	Vein quartz.
174-192½	Chlorite-hornblende-quartz-garnet-sericite schist with hornblende and chlorite exchanging importance near the bottom; with disseminated ZnS, FeS_2, Fe_7S_8, minor disseminated chalcopyrite.
192½-198	Impure quartzite with hornblende, chlorite and garnet; chlorite and hornblende occur together in several zones; small amounts of disseminated FeS_2 and traces of ZnS and $CuFeS_2$.
198-206½	Hornblende-chlorite-quartz-sericite-garnet gneiss; very small amount of disseminated pyrite and pyrrhotite and traces of ZnS.
206½-217	Quartz-chlorite-hornblende-garnet-sericite schist with disseminated FeS_2 and small amounts of disseminated ZnS and Fe_7S_8.
217-233	Chlorite-quartz-hornblende-garnet schist; disseminated FeS_2, minor disseminated ZnS and Fe_7S_8, traces of bornite and chalcopyrite.
233-236½	Quartz-chlorite-hornblende-garnet schist; disseminated pyrite and minor disseminated ZnS.
236½-245	Chlorite-hornblende-quartz-garnet Schist, with disseminated pyrite, minor disseminated ZnS and a trace of bornite.
245-246	Hornblende-quartz-chlorite gneiss.
246-255	Quartz-chlorite-hornblende-garnet schist, with minor disseminated pyrite.
255-257	Chlorite-hornblende-quartz schist.

257-262	Chlorite-hornblende-quartz-garnet schist with disseminated pyrite and trace pyrrhotite.
262-264	Chlorite-hornblende-quartz schist with a small amount of pyrite.
264-269	Quartz-chlorite-hornblende-garnet schist with contorted bands of chlorite and hornblende becoming quartzitic toward the bottom; disseminated pyrite.
269-274½	Hornblende-chlorite-quartz-garnet gneiss with disseminated pyrite.
274½-281½	Quartz-chlorite-hornblende-garnet schist with disseminated pyrite and traces of pyrrhotite near the bottom.
281½-286½	Hornblende-chlorite-quartz schist with a small amount of disseminated pyrite.
286½-290	Chlorite-quartz-hornblende-garnet schist with disseminated pyrite and minor disseminated pyrrhotite and traces of chalcopyrite.
290-292½	Chlorite-hornblende-quartz schist with minor disseminated pyrite and pyrrhotite.
292½-297	Quartz-chlorite-hornblende-garnet schist with disseminated pyrite and pyrrhotite.
297-298½	Hornblende-chlorite-quartz schist.
298½-300½	Quartz-chlorite-hornblende-garnet schist with minor disseminated pyrite and pyrrhotite.
300½-301½	Hornblende-chlorite-quartz schist.

* * *TDA-301½'* * *

DH-1 of abstract

Drill Hole #3 Depth: 400ft.
Location: 12S / 0 Bearing:
Inclination: -90° Logged by: V. S. Griffin

Interval	Description
0-39	Overburden.
39-56	Chlorite-quartz-sericite-garnet-hornblende schist; saprolitic to moderately weathered; contains a samll amount of disseminated ZnS and considerable limonite; also contains 1' nearly fresh quartzite with abundant disseminated pyrite and trace ZnS.
56-64	Chlorite-sericite-quartz-garnet schist with considerable hornblende at top; minor disseminated pyrite and 3-5% disseminated ZnS.
64-66	Impure quartzite with chlorite, sericite, garnet with very small amounts of pyrrhotite, minor disseminated pyrite and 2-3% ZnS.
66-73½	Quartz-sericite-chlorite-garnet schist with disseminated pyrite and sphalerite (3-5%).
73½-78	Hornblende-quartz-chlorite-garnet gneiss with a very small amount of pyrite.
78-81	Hornblende-chlorite-quartz-garnet schist with local pyrite concentrations.
81-84½	Hornblende-quartz-chlorite-garnet gneiss with a very small amount of disseminated pyrite.
84½-121	Chlorite-quartz-sericite-garnet-hornblende schist with hornblende in zones near top; quartzitic zones throughout entire section; zones of chlorite concentration and some garnet concentration near the middle of the section; traces of pyrrhotite and chalcopyrite; disseminated pyrite and 5-7% ZnS.
121-137	Impure quartzite with sericite, chlorite and garnet; trace of bornite(?), pyrrhotite, and minor pyrite and ZnS.
137-152	Chlorite-sericite-quartz-garnet schist with disseminated pyrite, pyrrhotite and ZnS, minor disseminated chalcopyrite and bornite(?) being concentrated in the lower 1/3 of the section.
152-162	Hornblende-quartz-chlorite-garnet-sericite gneissic schist with small amounts of disseminated ZnS and $CuFeS_2$ low in the section; minor disseminated pyrite; bornite(?) traces.

162-172½	Chlorite-quartz-sericite-garnet schist with disseminated pyrite, pyrrhotite, and ZnS; minor disseminated chalcopyrite and bornite(?).
172½-174	Hornblende-quartz-chlorite schist with small amounts of pyrrhotite.
174-179	Chlorite-sericite-quartz-garnet-hornblende schist with disseminated pyrite and small amounts of disseminated ZnS.
179-202	Quartz-chlorite-hornblende-sericite-garnet schist with several zones of hornblende concnetration; disseminated pyrite, minor disseminated ZnS and pyrrhotite, very small amount of chalcopyrite.
202-208	Chlorite-quartz-hornblende-sericite-garnet schist with disseminated pyrite, small amounts of disseminated ZnS, very small amounts of disseminated pyrrhotite and traces of chalcopyrite.
208-214	Hornblende-quartz-chlorite-sericite-garnet schist with minor FeS_2, traces of ZnS and pyrrhotite.
214-237	Quartz-chlorite-hornblende-garnetschist with disseminated FeS_2, minor disseminated ZnS concentrated in lower to middle part of the section.
237-242	Chlorite-hornblende-garnet schist with local quartz concentrations and small amounts of disseminated FeS_2.
242-256	Quartz-chlorite-sericite-garnet-brown biotite schist with some hornblende in top of section; disseminated pyrite and a very small amoun of ZnS in the lower part of the section, very small amount of pyrrhotite.
256-259	Hornblende-quartz-chlorite-garnet-sericite schist with a small amount of disseminated pyrite.
259-275	Chlorite-quartz-sericite-garnet schist with some brown biotite; minor disseminated pyrite, small amount of pyrrhotite, very small amount of ZnS, and a trace of chalcopyrite.
275-286	Quartz-hornblende-chlorite-sericite-garnet schist with disseminated pyrite.
286-294	Hornblende-quartz-chlorite gneissic schist with minor disseminated pyrite.
294-301	Quartz-chlorite-sericite-garnet schist becoming very quartzitic toward the base; minor disseminated pyrite and traces of pyrrhotite and chalcopyrite.

301-310	Chlorite-sericite-quartz-garnet schist with brown biotite and small amounts of pyrite.
310-313½	Hornblende-quartz-chlorite-garnet schist with several quartzitic zones; small amounts of pyrite, pyrrhotite and ZnS.
313½-315½	Impure quartzite with chlorite, brown biotite, garnet, and hornblende; small amounts of pyrite, pyrrhotite, and traces of chalcopyrite.
315½-316½	Hornblende-quartz-chlorite schist; small amounts of pyrite.
316½-322	Quartz-chlorite-hornblende-biotite-garnet schist with minor disseminated pyrite.
322-330	Zone of impure quartzitealternating with chlorite-hornblende-quartz-biotite-sericite schist with minor pyrite and traces of ZnS.
330-335	Chlorite-biotite-quartz-garnet schist with disseminated pyrite.
335-354½	Chlorite-quartz-hornblende-biotite-garnet schist; calcite vein at 346'; disseminated pyrite and a very small amount of pyrrhotite.
354½-370	Chlorite-hornblende-quartz-garnet schist.
370-376	Quartz-biotite-chlorite-garnet schist with a small amount of pyrite.
376-378	Chlorite-hornblende-quartz-biotite schist.
378-395½	Quartz-biotite-sericite-chlorite schist with zones of biotite and chlorite concentration; very small amounts of pyrite.
395½-400	Chlorite-biotite-quartz-hornblende-garnet schist with very small amounts of pyrite.

* * *TDA-400'* * *

Not under contract

Drill Hole #4 Depth: 440 ft.
Location: 7.2N / 1.15E Bearing:
Inclination: -90° Logged by: V. S. Griffin

Interval:	Description:
0-45	Overburden.
45-63	Saprolite alternating with weathered chlorite-sericite-quartz-hornblende-garnet schist.
63-70	Chlorite-quartz-hornblende schist with limonite stains and a very small amount of pyrite.
70-80	Impure quartzite with chlorite, garnet and sericite; two badly weathered zones of quartz-chlorite-hornblende-biotite-garnet schist; minor disseminated pyrite.
80-100	Gray quartz-chlorite-hornblende-garnet-biotite schist, highly quartzitic; small amounts of disseminated pyrite.
100-101	Dark green chlorite-hornblende-quartz schist; very small amounts of pyrite.
101-104	Gray quartz-chlorite-biotite-garnetschist with very small amounts of pyrite; zones of chlorite concentration near the base.
104-105	Dark green chlorite-hornblende-quartz-garnet schist; small amounts of pyrite near the base.
105-108	Gray quartz-chlorite-garnet-biotite schist with small amounts of pyrite.
108-135½	Gray quartz-chlorite-biotite-garnet-hornblende schist becoming impure quartzite in places; few zones of chlorite concentration; very small amounts of pyrite.
135½-137	Green chlorite-hornblende-quartz-garnet schist.
137-142	Gray, impure quartzite with chlorite, biotite, garnet, and sericite; small amounts of pyrite.
142-209½	Gray quartz-chlorite-biotite-garnet-hornblende schist with scattered zones of chlorite and hornblende concentration; considerable pyrite; ZnS traces begin at 148'; minor trades of ZnS

159-161; small amounts of ZnS 171-172; disseminated black and red ZnS 173-178½ with minor chalcopyrite; pyrrhotite at 179; 7% red ZnS at 182-184 with traces of chalcopyrite; trace of chalcopyrite at 186; section becomes extremely sericitic from 190-195; 5% red ZnS at 193; very small amounts of Chalcopyrite and ZnS at 195; trace chalcopyrite 208-209; contorted bands of chlorite and hornblende at 209½.

209½-213 Gray impure quartzite with chlorite, sericite and garnet; disseminated pyrite.

213-242½ Streaked quartz-chlorite-hornblende-garnet-biotite-sericite schist with scattered green bands of chlorite and hornblende concentration; considerable pyrite 216-220 with considerable (7-10%) disseminated red and black ZnS and small amounts of chalcopyrite; very small amount of chalcopyrite at 214½; pyrite in lower part of section occurring in 1/8" veinlets.

242½-245 Gray impure quartzite with chlorite, hornblende and garnet; minor disseminated pyrite; trace of red ZnS at 244½.

245-253 Chlorite-quartz-hornblende-garnet schist with bands of quartz; massive pyrite 246-247 with streaks of balck and red ZnS and minor disseminated chalcopyrite; veins of pyrite with streaks of ZnS and tace chalcopyrite 247-248.

253-269½ Heavily disseminated to massive pyrite with minor bands of chlorite and quartz; thoroughly banded with red and black ZnS; 20-25% chalcopyroite at 253½, minor disseminated chalcopyrite 253½-266; 3" zone with 25% chalcopyrite at 266 with minor chalcopyrite from this point to base of section.

269½-274 Green chlorite-hornblende-quartz-garnet schist with a 1' section of quartz-chlorite-biotite-garnet schist; disseminated chalcopyrite 269½-270½; considerable disseminated pyrite; 2" massive ZnS at 270½.

274-278½ 80-90% ZnS; mostly rubyjack; some disseminated pyrite, black ZnS, quartz, and some chalcopyrite near base.

278½-284 Green chlorite-hornblende-feldspar-quartz-garnet schist with small amounts of disseminated ZnS near the base.

284-298	Heavily disseminated sulfides, locally massive; pyrite cut by streaks and zones of ZnS with three zones, up to 1', of green chlorite-hornblende-quartz schist; 15-20% chalcopyrite at 287; considerable biotite in lower 1/3 section.
298-312½	Streaked quartz-feldspar-chlorite-biotite-sericite-hornblende-garnet schist with disseminated pyrite 306 to base.
312½-314	Gray chlorite-biotite-quartz-hornblende schist with some feldspar.
314-327	Banded quartz-feldspar-chlorite-biotite-sericite-hornblende-garnet schist with disseminated pyrite to 323 and minor disseminated pyrite to 327.
327-337	Green-gray chlorite-hornblende-quartz-feldspar schist with scattered quartzitic zones up to 6" thick; small amounts of pyrite.
337-354	Gray-green, banded chlorite-biotite-quartz-sericite-garnet schist with minor disseminated pyrite.
354-362	Light brown-grayquartz-biotite-sericite-chlorite schist; with disseminated pyrite and trace chalcopyrite.
362-372	Streaked quartz-biotite-sericite-chlorite-garnet schist with a zone of hornblende concentrations 362-363; extremely sericitic below 366; disseminated pyrite.
372-375	Dark green chlorite-hornblende-quartz schist with small amounts of pyrite.
375-377½	Quartz-biotite-chlorite-sericite-garnet schist with disseminated pyrite and minor disseminated honey-colored ZnS and a trace of chalcopyrite.
377½-379½	Green-chlorite-quartz schist with very small amounts of pyrite.
379½-440	A sequence of gray, impure quartzite alternating with zones of schist containing quartz, chlorite, hornblende, biotite, and sericite in varying amounts; garnet is common to all zones; quartzitic zones are dominant; the major non-quartzitic schist zones are: 385-387: chlorite-biotite-quartz-sericite-garnet schist. 403-405: chlorite-quartz-biotite schist.

1" zone of disseminated brown ZnS at 381; disseminated pyrite 380-382; traces of chalcopyrite at 384; bands of pyrite and minor pyrrhotite 387-391; in the quartzitic series from 405-438 there are small amounts of disseminated ZnS.

* * *TDA-440'* * *

JUL 12 1960
O.M.E.

JUNE 1960 PROGRESS REPORT

LITTLE BOB PROSPECT

PAULDING COUNTY, GA.

OME-6077

Contract #2111

INTRODUCTION

Work leading to the exploratory diamond drilling program authorized under OME Contract #2111 began May 28, 1960. On that date, R. S. Young, V. S. Griffin, Jr., O. S. Ragsdale, Jr., and L. M. Harris laid out the three drill hole locations specified in the contract.

The Longyear drilling crews and a wireline rig arrived on the prospect Friday, June 10th. Overburden drilling began on Hole #1 on that date; bedrock was reached in this hole on Saturday, June 11th. During the month of June, a total of approximately 1004 linear feet were drilled at the three locations approved by the Government. In addition to these drill holes, the Little Bob Mining Co. drilled one hole northeast of the former mine workings.

The drilling accomplished to date is considered successful; zinc sulfide mineralization was encountered in all drill holes, thus extending the zone of significant sulfide mineralization some 1600 feet to the southwest.

Government-participation drilling has been suspended, for a period estimated at thirty days, to allow preparation and evaluation of assay data.

Messrs. Laurence and Wedow, representing the OME Field

Team, visited the property and examined the available core on June 28th.

DRILLING PROGRAM

The exploratory drilling reported on herein was accomplished by an E. J. Longyear wireline rig, operating on two shifts six days per week. AX core was taken. Completed holes were plugged, but no casing was left in the holes.

Geologic supervision of the drilling and all of the core logging was carried out by Villard S. Griffin, Jr. However, it must be emphasized that L. M. Harris, president of the operating company, reserved the right to determine the depth of the individual drill holes. Significant departures from the recommendations contained in both the Application and Contract work schedules are the sole responsibility of Mr. Harris.

All drill core is stored on the property of L. M. Harris, 2706 Roswell Road, Marietta, Georgia. The preparation of assay samples has been delayed by the inablity of the operator to obtain a core splitter.

The minor amount of bulldozing required for site preparation was accomplished by L. M. Harris, contracting to the Little Bob Mining Company, Inc.

Following are logs of the four (4) diamond drill holes completed during June, 1960.

* * * * *

Drill Hole #1
Location: 20S + 2.5E
Inclination: -45°

Depth: 302 ft.
Bearing: N. 40° W.
Logged by: V. S. Griffin

Interval	Description
0-74	Overburden
74-88½	Saprolite with iron stains alternating with fresh chlorite-quartz-garnet schist contain-zones of impure quartzite.
88½-109½	Impure quartzite alternating with small sections of chlorite-quartz-hornblende-garnet-sericite schist containing minor pyrite.
109½-116	Impure gneissic quartzite, containing chlorite, garnet, hornblende, and a trace of pyrite.
116-127	Impure quartzite with chlorite, sericite, garnet, and a very small amount of pyrite; having contorted bands of chlorite, hornblende, and sericite near the bottom.
127-131	Very finely banded quartzite with minor amounts of sericite and hornblende and containing isolate d crystals of garnet and pyrite.
131-132½	Chlorite-hornblende-garnet schist with minor pyrite.
132½-135	Impure quartzite with chlorite, hornblende, garnet, and minor pyrite.
135-148	Quartz-chlorite-hornblende-garnet schist with minor pyrite in local concentrations up to ½" thick.
148-149½	Impure quartzite with chlorite, garnet, sericite and vein quartz with a trace of pyrite.

149½-151½	chlorite-quartz-garnet-sericite schist with minor pyrite and traces of sphalerite and chalcopyrite.
151½-154	Impure quartzite with chlorite, hornblende, sericite, garnet and possessing several small zones of chlorite and garnet and other zones of hornblende; a very small amount of pyrite and traces of sphalerite.
154-160	Chlorite-sericite-garnet schist with minor amounts of chalcopyrite and pyrrhotite and several ½" local zones of pyrite.
160-160½	Vein quartz.
160½-163	Impure quartzite with chlorite, sericite, garnet, hornblende and several bands of pure quartz; a small amount of pyrite and a trace of ZnS.
163-170	Chlorite-hornblende-quartz-sericite-garnet schist with traces of ZnS and $CuFeS_2$.
170-172½	Impure quartzite with zones of pure quartz and containing chlorite, garnet, and a very small amount of Fe_7S_8 and a trace of FeS_2 and $CuFeS_2$.
172½-187	Quartz-chlorite-hornblende-garnet schist with quartz zones and contorted bands of hornblende; minor amounts of pyrite, pyrrhotite and $CuFeS_2$.
187-212	Contorted chlorite-quartz-garnet-sericite schist with garnets up to ½" occurring in bands; also quartz bands and several zones of hornblende near the bottom; minor amounts of FeS_2, Fe_7S_8, $CuFeS_2$.
212-214	Impure quartzite with sericite, chlorite, garnet, and a trace of sulfides.
214-240½	Chlorite-hornblende-quartz-garnetschist with local contorted bands and several quartz zones with minor $CuFeS_2$ and FeS_2 and a trace of Fe_7S_8 and ZnS.
240½-247	Gray quartzite with hornblende, garnet, chlorite, and sericite with a trace of sulfides.
247-259	Chlorite-quartz-hornblende-garnet schist with increasing hornblende toward the bottom; a small amount of disseminated FeS_2 and $CuFeS_2$ occurring together, occasionally in concentrations up to ½"; a trace of pyrrhotite and approximately 2-3% disseminated ZnS.
259-260	Quartzite with sericite, chlorite and garnet.

260-261½	Chlorite-hornblende-sericite-garnet-quartz schist with a small amount of disseminated FeS_2 and $CuFeS_2$.
261½-262½	Gray quartzite with chlorite and garnet and a trace of pyrite and chalcopyrite.
262½-270	Hornblende-chlorite-quartz-garnet schist with concentrations of FeS_2 and $CuFeS_2$ and a trace of ZnS toward the bottom.
270-271	quartzite with chlorite, garnet, and traces of chalcopyrite and pyrite.
271-272	Chlorite-quartz-hornblende schist.
272-275½	Quartzite with hornblende, chlorite, garnet and minor amounts of disseminated FeS_2 and $CuFeS_2$ and a trace of Fe_7S_8 and ZnS.
275½-287	Chlorite-hornblende-quartz-garnet schist with local chlorite and hornblende concentrations and small amounts of local disseminated ZnS, FeS_2 and $CuFeS_2$.
287-302	Quartz-chlorite-hornblende-garnet-sericite sbhist which is highly quartzitic and contains local concentrations of chlorite and hornblende; contains 1-2% disseminated ZnS, minor amounts of pyrite and traces of pyrrhotite and chalcopyrite.

* * *TDA-302'* * *

Drill Hole #2
Location: 20S / 0.5E
Inclination: -45°

Depth: 301½ ft.
Bearing: N. 40° W.
Logged by: V. S. Griffin

Interval	Description
0-22	Overburden.
22-26	Weathered chlorite-sericite-quartz-garnet schist with limonite.
26-72	Weathered zone; no core recovered.
72-97	Saprolite and weathered schist alternating with fresh chlorite-sericite-quartz-garnet schist, with hornblende near the bottom; minor amounts of disseminated ZnS and a trace of pyrite in the lower portion.
97-100	quartz-sericite-chlorite-garnte schist with a section of saprolite near the middle o f the interval; minor disseminated sphalerite and trace pyrite and pyrrhotite.
100-110	Sericite-chlorite-quartz-garnet schist; contains two small weathered sections; minor disseminated sphalerite and trace FeS_2, Fe_7S_8, and $CuFeS_2$.
110-113½	Gray quartzite with garnet, chlorite, and abundant bands of sericite.
113½-124	Chlorite-sericite-quartz-garnet-hornblende schist; garnets occur in bands and hornblende dominates in the lower portion; minor disseminated pyrite and ZnS and traces of pyrrhotite and chalcopyrite.
124-127	Impure quartzite with chlorite, sericite and garnet; very small amounts of disseminated pyrite.
127-129	Quartz-garnet-chlorite-sericite schist with garnet bands near the bottom; minor disseminated FeS_2.
129-130	Impure quartzite with chlorite-sericite and garnet; very small amounts of disseminated pyrite.
130-133	Hornblende-chlorite-quartz-garnet schist, with garnet bands and minor disseminated FeS_2 and traces of chalcopyrite, sphalerite and pyrrhotite.

133-157	Chlorite-sericite-quartz-garnet schist containing quartzitic layers up to 1'; hornblende associated with quartzitic zones; disseminated ZnS, minor pyrite, traces of chalcopyrite and pyrrhotite.
157-159	Hornblende-chlorite-quartz-garnet schist with disseminated ZnS and FeS_2, traces of Fe_7S_8 and $CuFeS_2$.
159-169	Chlorite-hornblende-quartz-sericite-garnet schist with disseminated ZnS and FeS_2, minor traces of chalcopyrite and bornite.
169-173	Hornblende-chlorite-quartz-garnet schist with disseminated ZnS and FeS_2, also minor Fe_7S_8, trace of bornite and chalcopyrite.
173-174	Vein quartz.
174-192½	Chlorite-hornblende-quartz-garnet-sericite schist with hornblende and chlorite exchanging importance near the bottom; with disseminated ZnS, FeS_2, Fe_7S_8, minor disseminated chalcopyrite.
192½-198	Impure quartzite with hornblende, chlorite and garnet; chlorite and hornblende occur together in several zones; small amounts of disseminated FeS_2 and traces of ZnS and $CuFeS_2$.
198-206½	Hornblende-chlorite-quartz-sericite-garnet gneiss; very small amount of disseminated pyrite and pyrrhotite and traces of ZnS.
206½-217	Quartz-chlorite-hornblende-garnet-sericite schist with disseminated FeS_2 and small amounts of disseminated ZnS and Fe_7S_8.
217-233	Chlorite-quartz-hornblende-garnet schist; disseminated FeS_2, minor disseminated ZnS and Fe_7S_8, traces of bornite and chalcopyrite.
233-236½	Quartz-chlorite-hornblende-garnet schist; disseminated pyrite and minor disseminated ZnS.
236½-245	Chlorite-hornblende-quartz-garnet Schist, with disseminated pyrite, minor disseminated ZnS and a trace of bornite.
245-246	Hornblende-quartz-chlorite gneiss.
246-255	Quartz-chlorite-hornblende-garnet schist, with minor disseminated pyrite.
255-257	Chlorite-hornblende-quartz schist.

257-262	Chlorite-hornblende-quartz-garnet schist with disseminated pyrite and trace pyrrhotite.
262-264	Chlorite-hornblende-quartz schist with a small amount of pyrite.
264-269	Quartz-chlorite-hornblende-garnet schist with contorted bands of chlorite and hornblende becoming quartzitic toward the bottom; disseminated pyrite.
269-274½	Hornblende-chlorite-quartz-garnet gneiss with disseminated pyrite.
274½-281½	Quartz-chlorite-hornblende-garnet schist with disseminated pyrite and traces of pyrrhotite near the bottom.
281½-286½	Hornblende-chlorite-quartz schist with a small amount of disseminated pyrite.
286½-290	Chlorite-quartz-hornblende-garnet schist with disseminated pyrite and minor disseminated pyrrhotite and traces of chalcopyrite.
290-292½	Chlorite-hornblende-quartz schist with minor disseminated pyrite and pyrrhotite.
292½-297	Quartz-chlorite-hornblende-garnet schist with disseminated pyrite and pyrrhotite.
297-298½	Hornblende-chlorite-quartz schist.
298½-300½	Quartz-chlorite-hornblende-garnet schist with minor disseminated pyrite and pyrrhotite.
300½-301½	Hornblende-chlorite-quartz schist.

* * *TDA-301½'* * *

Drill Hole #3
Location: 12S / 0
Inclination: -90°

Depth: 400ft.
Bearing:
Logged by: V. S. Griffin

Interval	Description
0-39	Overburden.
39-56	Chlorite-quartz-sericite-garnet-hornblende schist; saprolitic to moderately weathered; contains a samll amount of disseminated ZnS and considerable limonite; also contains 1' nearly fresh quartzite with abundant disseminated pyrite and trace ZnS.
56-64	Chlorite-sericite-quartz-garnet schist with considerable hornblende at top; minor disseminated pyrite and 3-5% disseminated ZnS.
64-66	Impure quartzite with chlorite, sericite, garnet with very small amounts of pyrrhotite, minor disseminated pyrite and 2-3% ZnS.
66-73½	Quartz-sericite-chlorite-garnet schist with disseminated pyrite and sphalerite (3-5%).
73½-78	Hornblende-quartz-chlorite-garnet gneiss with a very small amount of pyrite.
78-81	Hornblende-chlorite-quartz-garnet schist with local pyrite concentrations.
81-84½	Hornblende-quartz-chlorite-garnet gneiss with a very small amount of disseminated pyrite.
84½-121	Chlorite-quartz-sericite-garnet-hornblende schist with hornblende in zones near top; quartzitic zones throughout entire section; zones of chlorite concentration and some garnet concentration near the middle of the section; traces of pyrrhotite and chalcopyrite; disseminated pyrite and 5-7% ZnS.
121-137	Impure quartzite with sericite, chlorite and garnet; trace of bornite(?), pyrrhotite, and minor pyrite and ZnS.
137-152	Chlorite-sericite-quartz-garnet schist with disseminated pyrite, pyrrhotite and ZnS, minor disseminated chalcopyrite and bornite(?) being concentrated in the lower 1/3 of the section.
152-162	Hornblende-quartz-chlorite-garnet-sericite gneissic schist with small amounts of disseminated ZnS and $CuFeS_2$ low in the section; minor disseminated pyrite; bornite(?) traces.

162-172½	Chlorite-quartz-sericite-garnet schist with disseminated pyrite, pyrrhotite, and ZnS; minor disseminated chalcopyrite and bornite(?).
172½-174	Hornblende-quartz-chlorite schist with small amounts of pyrrhotite.
174-179	Chlorite-sericite-quartz-garnet-hornblende schist with disseminated pyrite and small amounts of disseminated ZnS.
179-202	Quartz-chlorite-hornblende-sericite-garnet schist with several zones of hornblende concnetration; disseminated pyrite, minor disseminated ZnS and pyrrhotite, very small amount of chalcopyrite.
202-208	Chlorite-quartz-hornblende-sericite-garnet schist with disseminated pyrite, small amounts of disseminated ZnS, very small amounts of disseminated pyrrhotite and traces of chalcopyrite.
208-214	Hornblende-quartz-chlorite-sericite-garnet schist with minor FeS_2, traces of ZnS and pyrrhotite.
214-237	Quartz-chlorite-hornblende-garnetschist with disseminated FeS_2, minor disseminated ZnS concentrated in lower to middle part of the section.
237-242	Chlorite-hornblende-garnet schist with local quartz concentrations and small amounts of disseminated FeS_2.
242-256	Quartz-chlorite-sericite-garnet-brown biotite schist with some hornblende in top of section; disseminated pyrite and a very small amoun of ZnS in the lower part of the section, very small amount of pyrrhotite.
256-259	Hornblende-quartz-chlorite-garnet-sericite schist with a small amount of disseminated pyrite.
259-275	Chlorite-quartz-sericite-garnet schist with some brown biotite; minor disseminated pyrite, small amount of pyrrhotite, very small amount of ZnS, and a trace of chalcopyrite.
275-286	Quartz-hornblende-chlorite-sericite-garnet schist with disseminated pyrite.
286-294	Hornblende-quartz-chlorite gneissic schist with minor disseminated pyrite.
294-301	Quartz-chlorite-sericite-garnet schist becoming very quartzitic toward the base; minor disseminated pyrite and traces of pyrrhotite and chalcopyrite.

301-310	Chlorite-sericite-quartz-garnet schist with brown biotite and small amounts of pyrite.
310-313½	Hornblende-quartz-chlorite-garnet schist with several quartzitic zones; small amounts of pyrite, pyrrhotite and ZnS.
313½-315½	Impure quartzite with chlorite, brown biotite, garnet, and hornblende; small amounts of pyrite, pyrrhotite, and traces of chalcopyrite.
315½-316½	Hornblende-quartz-chlorite schist; small amounts of pyrite.
316½-322	Quartz-chlorite-hornblende-biotite-garnet schist with minor disseminated pyrite.
322-330	Zone of impure quartzitealternating with chlorite-hornblende-quartz-biotite-sericite schist with minor pyrite and traces of ZnS.
330-335	Chlorite-biotite-quartz-garnet schist with disseminated pyrite.
335-354½	Chlorite-quartz-hornblende-biotite-garnet schist; calcite vein at 346'; disseminated pyrite and a very small amount of pyrrhotite.
354½-370	Chlorite-hornblende-quartz-garnet schist.
370-376	Quartz-biotite-chlorite-garnet schist with a small amount of pyrite.
376-378	Chlorite-hornblende-quartz-biotite schist.
378-395½	Quartz-biotite-sericite-chlorite schist with zones of biotite and chlorite concentration; very small amounts of pyrite.
395½-400	Chlorite-biotite-quartz-hornblende-garnet schist with very small amounts of pyrite.

* * *TDA-400'* * *

Drill Hole #4
Location: 7.2N / 1.15E
Inclination: -90°

Depth: 440 ft.
Bearing:
Logged by: V. S. Griffin

Interval:	Description:
0-45	Overburden.
45-63	Saprolite alternating with weathered chlorite-sericite-quartz-hornblende-garnet schist.
63-70	Chlorite-quartz-hornblende schist with limonite stains and a very small amount of pyrite.
70-80	Impure quartzite with chlorite, garnet and sericite; two badly weathered zones of quartz-chlorite-hornblende-biotite-garnet schist; minor disseminated pyrite.
80-100	Gray quartz-chlorite-hornblende-garnet-biotite schist, highly quartzitic; small amounts of disseminated pyrite.
100-101	Dark green chlorite-hornblende-quartz schist; very small amounts of pyrite.
101-104	Gray quartz-chlorite-biotite-garnetschist with very small amounts of pyrite; zones of chlorite concentration near the base.
104-105	Dark green chlorite-hornblende-quartz-garnet schist; small amounts of pyrite near the base.
105-108	Gray quartz-chlorite-garnet-biotite schist with small amounts of pyrite.
108-135½	Gray quartz-chlorite-biotite-garnet-hornblende schist becoming impure quartzite in places; few zones of chlorite concentration; very small amounts of pyrite.
135½-137	Green chlorite-hornblende-quartz-garnet schist.
137-142	Gray, impure quartzite with chlorite, biotite, garnet, and sericite; small amounts of pyrite.
142-209½	Gray quartz-chlorite-biotite-garnet-hornblende schist with scattered zones of chlorite and hornblende concentration; considerable pyrite; ZnS traces begin at 148'; minor trades of ZnS

159-161; small amounts of ZnS 171-172; disseminated black and red ZnS 173-178½ with minor chalcopyrite; pyrrhotite at 179; 7% red ZnS at 182-184 with traces of chalcopyrite; trace of chalcopyrite at 186; section becomes extremely sericitic from 190-195; 5% red ZnS at 193; very small amounts of Chalcopyrite and ZnS at 195; trace chalcopyrite 208-209; contorted bands of chlorite and hornblende at 209½.

209½-213 Gray impure quartzite with chlorite, sericite and garnet; disseminated pyrite.

213-242½ Streaked quartz-chlorite-hornblende-garnet-biotite-sericite schist with scattered green bands of chlorite and hornblende concentration; considerable pyrite 216-220 with considerable (7-10%) disseminated red and black ZnS and small amounts of chalcopyrite; very small amount of chalcopyrite at 214½; pyrite in lower part of section occurring in 1/8" veinlets.

242½-245 Gray impure quartzite with chlorite, hornblende and garnet; minor disseminated pyrite; trace of red ZnS at 244½.

245-253 Chlorite-quartz-hornblende-garnet schist with bands of quartz; massive pyrite 246-247 with streaks of balck and red ZnS and minor disseminated chalcopyrite; veins of pyrite with streaks of ZnS and tace chalcopyrite 247-248.

253-269½ Heavily disseminated to massive pyrite with minor bands of chlorite and quartz; thoroughly banded with red and black ZnS; 20-25% chalcopyroite at 253½, minor disseminated chalcopyrite 253½-266; 3" zone with 25% chalcopyrite at 266 with minor chalcopyrite from this point to base of section.

269½-274 Green chlorite-hornblende-quartz-garnet schist with a 1' section of quartz-chlorite-biotite-garnet schist; disseminated chalcopyrite 269½-270½; considerable disseminated pyrite; 2" massive ZnS at 270½.

274-278½ 80-90% ZnS; mostly rubyjack; some disseminated pyrite, black ZnS, quartz, and some chalcopyrite near base.

278½-284 Green chlorite-hornblende-feldspar-quartz-garnet schist with small amounts of disseminated ZnS near the base.

284-298	Heavily disseminated sulfides, locally massive; pyrite cut by streaks and zones of ZnS with three zones, up to 1', of green chlorite-hornblende-quartz schist; 15-20% chalcopyrite at 287; considerable biotite in lower 1/3 section.
298-312½	Streaked quartz-feldspar-chlorite-biotite-sericite-hornblende-garnet schist with disseminated pyrite 306 to base.
312½-314	Gray chlorite-biotite-quartz-hornblende schist with some feldspar.
314-327	Banded quartz-feldspar-chlorite-biotite-sericite-hornblende-garnet schist with disseminated pyrite to 323 and minor disseminated pyrite to 327.
327-337	Green-gray chlorite-hornblende-quartz-feldspar schist with scattered quartzitic zones up to 6" thick; small amounts of pyrite.
337-354	Gray-green, banded chlorite-biotite-quartz-sericite-garnet schist with minor disseminated pyrite.
354-362	Light brown-grayquartz-biotite-sericite-chlorite schist; with disseminated pyrite and trace chalcopyrite.
362-372	Streaked quartz-biotite-sericite-chlorite-garnet schist with a zone of hornblende concentrations 362-363; extremely sericitic below 366; disseminated pyrite.
372-375	Dark green chlorite-hornblende-quartz schist with small amounts of pyrite.
375-377½	Quartz-biotite-chlorite-sericite-garnet schist with disseminated pyrite and minor disseminated honey-colored ZnS and a trace of chalcopyrite.
377½-379½	Green-chlorite-quartz schist with very small amounts of pyrite.
379½-440	A sequence of gray, impure quartzite alternating with zones of schist containing quartz, chlorite, hornblende, biotite, and sericite in varying amounts; garnet is common to all zones; quartzitic zones are dominant; the major non-quartzitic schist zones are: 385-387: chlorite-biotite-quartz-sericite-garnet schist. 403-405: chlorite-quartz-biotite schist.

1" zone of disseminated brown ZnS at 381; disseminated pyrite 380-382; traces of chalcopyrite at 384; bands of pyrite and minor pyrrhotite 387-391; in the quartzitic series from 405-438 there are small amounts of disseminated ZnS.

* * *TDA-440'* * *