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August 16, 1960

Memorandum

To: W. R. Griswold, Chief, Division of Minerals, OME

From: T. H. Kiilsgaard, U. S. Geological Survey

Subject: OME 6088 (lead-zinc-copper), Joseph L. Ausich, Champion mine, Custer County, Idaho

I have reviewed the cited application and the accompanying letters from Mr. Ausich, noting his claim of having been forced to drive the No. 3 adit south of the area he had wished to explore. Having made the initial examination of his property for DMEA, I wish to take this opportunity to comment on some of Mr. Ausich's statements and to review the exploration work that was done.

I examined the Champion mine on March 15, 1952, accompanied by Mr. Ausich. The ground was deeply covered with snow and we made no attempt to visit any parts of the property other than the No. 2 level. I mapped the geology of this level, all workings being open. The vein was difficult to define accurately as it was a broad, highly broken and heavily oxidized zone. Most of the ore minerals were carbonates that were difficult to distinguish from the stained wall rock. I therefore leaned heavily on statements from Mr. Ausich as to those parts of the vein that had been most productive and which would be expected to be productive at lower levels.

Mr. Ausich was most interested in the south end of the level, in the mineralized zone that had been explored by the Bell shaft and sub-level therefrom, and by the raise shown on my map as the 1951 Raise. He pointed out that all production of the previous year had come from this southern mineralized area and that it was the downward extension of this ore shoot he wished to explore on the proposed No. 3 level. We were unable to map the sub-level from the 63-foot vertical winze, from the north end of the No. 2 level, but both of us agreed that this area was less promising as no stopes showed on maps of the sub-level, even though the sub-level completely crosscut the vein zone. Furthermore, there were no shipping records of ore from this northern sub-level.

cc: To H. B. Nicholson - [illegible]

The No. 3 adit was open for 154 feet at the time of our examination and was directed so as to pass almost directly below the Bell shaft from the No. 2 level. However, where I plotted the outline of the ore zone on the No. 2 level, with respect to the position of the Bell shaft, the 1951 Raise, and stopes therefrom, it became apparent that the lower limit of the ore shoot raked to the south. I pointed this out to Mr. Ausich, noting that the projected rake would extend the ore shoot south of the area to be intersected by his proposed continuation of the No. 3 adit. I also called his attention to position of the ore shoot as being south of the overlying No. 1 adit, and of the ore shoot reported to have been mined from a winze, from the southern drift of this level. He also told me the vein outcropped north of the No. 1 adit. All of this evidence indicated the ore zone was progressively extending to the south, at greater depths below the outcrop. Mr. Ausich then said that he was no geologist and that he would be glad to listen to any comments I might make on his proposed work. I told him I could not say whether he would receive a DMEA contract as such decisions were made in Washington, D. C., but, that if it was my mine, I would turn the No. 3 adit to the south to intersect the ore zone at the projected rake. Mr. Ausich thought this was an excellent idea and asked me for a bearing on which I thought he should drive the adit. After some calculations, I determined a bearing of S 70°W, a bearing Ausich was in favor of as I noted on page 6 of my original report.

As no time during the active life of the DMEA contract did I ever hear Mr. Ausich complain of the direction in which the exploration adit was driven, nor did I ever hear of any complaints he voiced to other DMEA examiners. He never proposed a change in the bearing along which the adit was being driven. The Field Team Final Report states that the Field Team agreed with the Operator to drift north and south from the exploration crosscut. So far as I know, all drifting and raising in the target area was directed entirely by Ausich, the Field Team merely agreeing with his decisions.

The exploration project was unsuccessful and no ore shoot was found in the area I suggested be explored. This may be because the ore shoot does not extend to depth along the rake I determined, or it may simply be that the ore shoot does not extend to any depth. The map accompanying the final report shows the north end of the drift in the vein zone, on the No. 3 level, to be almost directly below the Bell shaft, yet the face of this drift was barren. This means that even the crosscut originally proposed by Ausich would have intersected a barren vein. These findings also support statements in my original report that ore shoots in the vein zone are spotty and lenticular both in strike and dip. In short, the vein simply did not measure up to what we originally expected of it, a condition Ausich chooses to ignore by using 20-20 hindsight.

As to the ore recently produced from the northern end of the No. 2 level, I note in a memo from H. B. Nickelson, dated Jan. 27, 1955, that of the first 6 of the 12 carloads of ore that have been produced from that area, the average value per ton was $10.10, an unprofitable figure. Nickelson states that mining in the northern drift stopped because returns were too small. The fact that the mine has been idle since 1955 supports this observation.

I believe OME was correct in denying the recent application from Mr. Ausich. Information on the mine, which is considerable, suggests that further government-supported exploration is unwarranted.

Thor H. Kiilsgaard

cc: OME - 1
D. MacLaren
Docket file
Chron. file
THKiilsgaard/mm
G-EG-8-26-60

Folder 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
So. 157 Howard Street
Spokane 4, Washington
June 17, 1960

Memorandum

To: Chief, Division of Field Operations, OME

From: Acting Field Officer, Region I

Subject: Application examination, Docket No. OME-6088 (Lead-Zinc-Copper), Joseph L. Ausich, Champion Mine, Custer County, Idaho.

INTRODUCTION

The Champion mine is the subject of a prior DMEA contract, No. Idm-E561. The location, accessibility, property, and geology are all covered in an application examination report by Thor H. Kiilsgaard April 23, 1952, and in a Field Team final report by Vordo Z. Johnson, Bureau of Mines, and Howard D. Nickelson, Geological Survey, December 1954; both reports may be found in Docket No. DMEA-2502.

The property, in sec. 12, T. 6 N., R. 23 E. B.M., is about 8 miles southwest of Mackay, Idaho, in the Alder Creek Mining District. It was visited on June 6, 1960, in the company of Joseph L. Ausich, the applicant.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the chance of making a significant discovery is good and a program comprising a total of 1,000 feet of cross-cutting and/or drifting, and 200 feet of long hole drilling is recommended. Four hundred feet of access road will be required.

GEOLOGY

Gray limestone of Mississippian age has been intruded by a granitic stock. The limestone beds strike northerly and dip from 60° to 70° westerly. The contact between the sedimentary beds and the intruding stock also strikes northerly and on the surface and in the upper levels appears to dip almost parallel to the beds. Near the west end of the No. 3 level crosscut the sedimentary-intrusive contact is faulted and appears to dip easterly. The contact zone was traced by float and trenches for about 1,500 feet

See Maps B1 & B2 in envelope

to the north of the Champion workings. The trenches were caved and filled with debris, but most of the dumps contained much altered heavily iron-stained limestone similar to that found between the ore zone and the contact in the Champion workings. Near the north end of the property there is an old tunnel driven westerly for about 35 feet then turned to the south. A winze 20-30 feet deep about 10 feet in from the portal could not be crossed so the tunnel could not be mapped. However, there was considerable cerussite, and iron-stained altered limestone on the dump; some chalcopyrite and copper oxide stains were also noted.

The contact zone has been traced for several miles and along or near it are the Empire, Grand Prize, White Knob, and Horseshoe mines. According to A. K. Guard, all the ore deposits so far explored along this contact zone have been marked by a common feature of unpredictable irregularity with reference to size and shape. Generally, if an ore deposit is lenticular, the thickness of the lens gives a clue as to its length and depth, but according to Guard this is not true of the irregular bodies along this contact zone. Guard states that another common feature is extreme alteration due to ground water activity; there has been some hydrothermal activity and later downward redeposition of what appears to have been at one time massive sulfide ore bodies containing gold, silver, copper, lead, and zinc minerals.

At the Champion mine the ore zone is about 30 feet wide and is marked by faulting and brecciation and a few decomposed granite porphyry dikes. The ore zone also contains solution cavities in the limestone, some of which have been filled or partly filled by stratified material; other apparent cavities are filled by sulfides. There could be replacement deposits although the outline of the sulfide bodies has an abrupt termination against irregular walls such as commonly result from water action in limestone. Although there are occasional remnants of original sulfides, mostly the lead and some zinc occur as carbonates.

Mine Workings

The No. 1 level was caved at the portal. As no further work had been done since it was mapped by Killingsard, it was not entered. The inspection of the No. 2 and 3 levels was disappointing; the former was open almost to the end of the crosscut, but all the drifts were badly caved where they left the crosscut and could not be entered; the No. 3 crosscut was caved at the first dike, about 123 feet in from the portal (pl. 1).

Since the termination of the DMEA contract a drift has been driven about 168 feet north from the No. 2 level crosscut. Near the north end of the workings is a raise from which ore has been stoped. A mining engineering student mapped this drift and from his notes it has been added to plate 1 which was originally prepared by Killsgaard and Nickelson.

About 30 feet south of the No. 2 level crosscut a raise has been driven on the vein. The Operator states that 12 cars of mine run ore have been shipped from the post-DMEA workings and settlement sheets indicate that these shipments totaled 659.26 tons having an average grade of 2.68 ounces silver per ton, 13.68 percent lead, and 2.69 percent zinc. The grade of these shipments compares favorably with that of 992.36 tons shipped between 1937 and 1930 which was 2.92 ounces silver per ton, 11.8 percent lead, and 2.82 percent zinc.

Since the termination of the DMEA contract, no further work has been done on the No. 3 level. The crosscut is caved tight about where it enters the altered dike just beyond the Y where the crosscut turns southwesterly. There are a few fairly large blocks in the caved material, but most of the material ranges in size from small fragments to sandy grains. Although there is no way to determine for sure, it is reasonable to expect the cave to continue at least for the full width of the dike, about 65 feet. Near the west end of the crosscut Mr. Aurich reports that the ground was very heavy and gave considerable trouble when the drifts were being driven. It is reasonable to suppose that much of that area is now badly caved. Caves could be expected at at least two other sections in the crosscut, one in the fine-grained dike near the middle of the crosscut and the other in the area mapped as a water course filled with granular sand.

CONCLUSIONS

There is a potential ore zone at least 1,400 feet long ranging in width up to 30 feet in which there are lenticular bodies of lead and zinc carbonate and sulfide ore, irregular in shape and size. The zone has been developed over a length of nearly 400 feet and a depth of about 230 feet from the No. 1 and 2 levels of the Champion mine. Production from this area has totaled about 2,460 tons having an average grade of 2.86 ounces silver per ton, 12.36 percent lead, and 2.80 percent zinc.

From the evidence of the ore-bearing zone on the surface and study of the underground map and section, it is concluded that the crosscut on the No. 3 level cut the zone too far to the south, and possibly at too low an altitude and that, in any case, its rehabilitation could be nearly as costly as a new crosscut. It is also

concluded that there is a good chance of making a significant discovery below and to the north of the present workings. Because of the breccia associated with the ore zone and the vugs and other cavities in the limestone, it is concluded that diamond drilling will may very well be inconclusive as well as difficult and costly.

RECOMMENDATIONS

The applicant states in the application that he proposes to drive a new crosscut 260 feet north of and 120 feet below the No. 2 level. At the property he indicated his proposed portal site which was then tied in to the No. 2 level portal by a compass and cloth tape survey. Actually the proposed crosscut would be about 270 feet north of and about 87 feet below the No. 2 level portal and will be about 600 feet long to cross the ore zone. Referring to the accompanying section, this would cut the ore zone near the projected upper limit of the granite and would develop about 300 feet of back. It is not feasible to estimate the reserve that might result from this work as the new drift north from the No. 2 level is not accessible, but it is reasonable to hope that a tonnage at least equal to that mined could result from drifting a combined total of 400 feet north and south of the crosscut.

It is recommended that a program be adopted that will provide for 400 feet of access road, 1,000 feet of crosscut and/or drift, and 400 feet of long hole drilling from the walls of the drift. The crosscut should cross the ore zone and the drifting should be done both north and south from the crosscut. Long holes should be spaced at 40- to 50-foot intervals, each hole to be not more than 50 feet deep.

5. EXPLORATION WORK:

(a) Location of the proposed work is herein accompanied and shown and located on U.S.G.S. map by T.K.K. - 3/15-52 DMEA - 2502 and all geological data are shown thereon an addition has been added thereto showing proposed exploration etc. This only map, would appreciate in returning back to Mine files after information is gotten.

(b) The proposed access road to level 2-A is approx. 400 ft. in length and would be located between Tunell No. 2 & Tunnel No. 3., this short spur of road would take off from present road., be advised that 2 separate roads service the No. 2 & No. 3 levels and inasmuch as Tunnel No. 2-A would be located North and between 2 & 3 would require the estimated distance to proposed site. Construction of this road would be with a bulldozer and approx. width 20 ft., utilizing native surface at the mine., any rock encountered would be drilled & blasted., the percentage of grade would be less than -6 % grade to proposed addit site. Bulldozer would be utilized to excavate as much as possible for addit entry point, to save as much as possible for cross-cut footage advance.

(c) If an OME contract is executed, would just as soon as notified commence to secure rental equipment., hire good experienced miners, commence construction of access road etc., I would estimate conditions permitting within a very reasonable short period of time., perhaps 30 days more or less.

6. EXPERIENCE:

1. I have been engaged in the mining business for the past 31 yrs. Mostly for myself, which would include Supervision, exploration, development and production.

2. I also have successfully executed and completed DMEA-2502., contract No. Idm-E-361., both the Bureau of Mines & U.S.G.S. offices in Spokane being the Mine Zone offices can verify this information.

3. The applicant plans to supervise the work.

7. ESTIMATE OF COSTS:

(a) NONE

(b) See Page C., supplementing this application

(c) See Page B and C., supplementing this application

(d) All Operating Equipment to be rented., see page A., supplementing this application.

(e) It has been estimated that sum of $415.00 would be required to repair and re-hab present cabin for living quarters, for winter operation.

(f) A new building 12' x 24' x 8'., constructed of frame with galvanized iron side and roof and insulated inside to house compressor at level 2-A

A new building 14' x 16' x 8'., not insulated., used for blacksmith shop and storage and small dry room for employees.

The estimated cost including labor for the compressor house is $1,003.00 and cost for the shop is $700.00 or a combined total cost for both buildings sum of $2,123.00.

also cost of re-hab living quarters - sum of $415.00

(g) Miscellaneous - a 10% contingency cost has been added to advance per foot cost, for reason that in all probability in cross-cut advance on Level 2-A, we expect to encounter a 100 ft. or more width of extreme hard, fine-grained, silicified black limestone formation as experienced in Tunnel No. 3 of DMEA-2502 that more than tripled our costs.
For blance of information requested here, detailed breakdown can be gotten from Pages A,B,C.

3. PHYSICAL DESCRIPTION:

(a) Maps or sketches of all mining or exploration operations that have been conducted on this property are on file in your office. For particular reference refer to: "Docket No. DMLA-2502 (Lead-Zinc) Joseph L.Ausich, Michael E. Ausich and Ann Ausich Champion Mine, Custer County, Idaho, Contract No. Idm-E-361., the only exception being that applicant has extended the ore zone one hundred sixty eight feet North on the No. 2 level in which a total of twelve (12) Railroad Cars of ore have been shipped since the completion of DMLA-2502. Be advised that the interest or owner-ship of Michael E. Ausich and Ann Ausich has been acquired by the applicant hereto and is on record at the County Seat in Challis, Idaho.

(b) Since previous DMLA-2502 was directed several hundred feet south and applicant has subsequently extended the ore zone North or the opposite direction and at the point of or face of this new development the horizontal distance in relation to the surface out-crop on the extreme north end of property would be approx. 2,000 ft. In view of this fact, this new development places an entirely different picture than previously known.

(c) The applicant has on file some 57 rail-road cars of smelter return sheets that were produced from the No. 2 level., the earlier day shipments, there are no record of. Reference is further made to previous DMLA-2502.

(d) In light of the development north as stated above would place a horizontal distance of approx. 2,000 ft. plus or minus and an approx. vertical of 208 ft. plus or minus. To get an average of the ore developed, the following Railroad cars of ore should give an average; viz: (All the following are mine-run)

Weight lbs.	% Lead	oz. Silver	% Zinc	% Copper	% Iron	Date of Shipment	RR Car No.
121680	12.4	3.2	2.8	1.0	32.3	10-9-54	UP 64536
117100	15.3	2.05	3.1	.55	30.3	11-29-54	UP 66172
96960	11.45	2.55	2.5	.45	29.2	12-6-54	UP 64895
97380	12.35	3.05	3.0	.92	31.3	12-6-54	UP 66336
90360	13.2	1.85	2.6	.85	29.1	12-11-54	UCR 21502
113860	13.25	2.9	3.0	.35	33.7	12-13-54	UP 65783
114440	12.6	2.70	3.0	.1	22.1	3-1-55	UP 66706
113340	16.7	3.675	2.7	--	21.0	3-16-55	UP 65322
114240	17.50	3.60	2.6	.1	21.6	3-28-55	UP 66752
110640	15.1	3.30	2.3	.1	23.4	5-21-55	UP 62010
109200	11.9	2.125	2.2	--	27.9	6-9-55	UP 66382
119320	12.0	1.15	2.5	.5	28.2	8-12-55	UP 63423

(e) Various maps sketches etc., plus geological data are on file with U.S.G.S. in Spokane office., refer to DMLA-2502 ., the only additional information that I can supply is the fact, that the ore zone is raking North instead of South as it was formerly supposed. (The ore appears to be a vein)

3. PHYSICAL DESCRIPTION:

(f) My reasons for expecting to find ore, viz:

1. On No. 2 Level ore was extended North approx. 160 ft. north., from present face of ore zone, approx. 2,000 ft. north on horizontal distance to outcrop on surface and an approx. vertical of 200'.

2. On # 2 level a cross-cut was driven through the ore zone to a point approx. 45 ft. beyond or west of the ore zone., an early day shaft was rehabilitated, which was sunk 63 ft. vertically., then at this level a cross-cut was driven to the east for an approx. distance of 45 to 50 ft. and the ore zone was encountered at that level., thereby definately proving the ore zone at that horizon. (the shaft mentioned herein was re-timbered in 1944)

3. As mentioned previously in this application., DMEA-2502 did not certify a discovery due to the obvious fact that the ore zone was assumed to rake south, wherein the applicant in light of later development has reason to believe that same rakes North or the opposite direction, substantiated of course, by ~~extension~~ extending the ore zone North and production of commercial ore thereby., plus the fact of shaft mentioned in item 2 of item (f) immediately hereinabove., plus the fact of the surface outcrop North of the No. 2 level.

4. Applicant desires to explore this known ore zone at a new horizon of 120 vertical feet from the No. 2 level. A new addit driven at this horizon approx. 200 ft. north of ~~my~~ No. 2 tunnel and approx. 400 ft. north of the No. 3 level. Target area of the new addit would place same at approx. area of present face of new development, but a lower elevation. Ore zone if encountered at this elevation, would give the mine many years of new life, plus the fact of exploring new horizons.

(g) I am submitting copies of Smelter return sheets of new development, so that your office can verify them with results as shown on Page No. 2., item (d) herein. And I want them returned, inasmuch as they are part of the Champion Mine files and are needed as a permanent record. Also in this submittal are copies of Mine Maps, along with sketch of proposed work., these maps are part of the permanent copies of the Mine and would appreciate their being returned. Inasmuch as Geologic and engineering reports, assay maps and other technologic information is already on file with the USGS plus information on former DMEA-2502.

4. ACCESSIBILITY OF PROPERTY:

(a) To aid the OME representative to examine the property he may contact the applicant Joseph L. Ausich at Mackay, Idaho. (would suggest that previous notification be given, so that applicant could be present)

(b) The shipping & supply point would be Mackay, Idaho and located approx. 8 mi. from the Champion Mine.

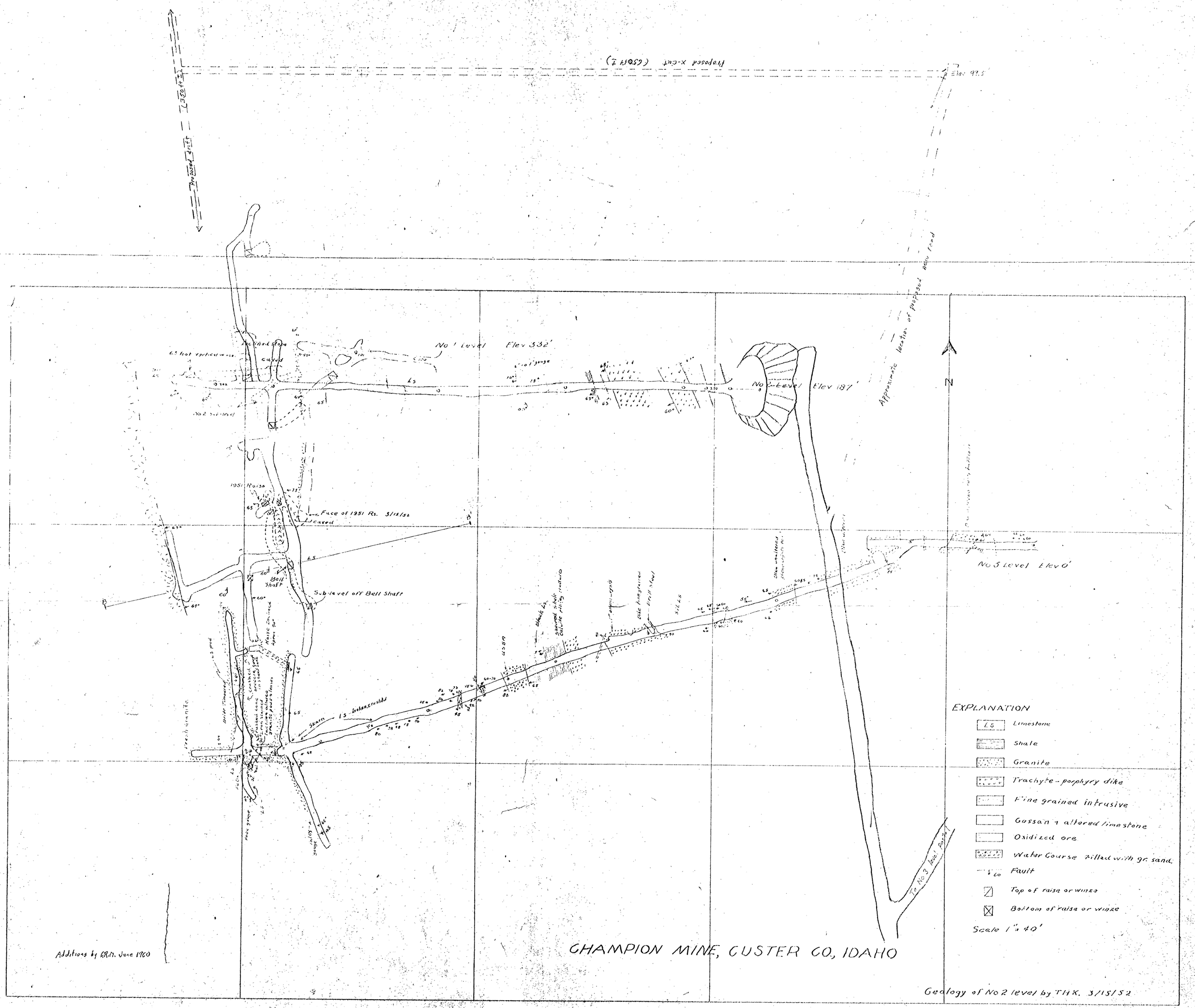
5. EXPLORATION WORK:

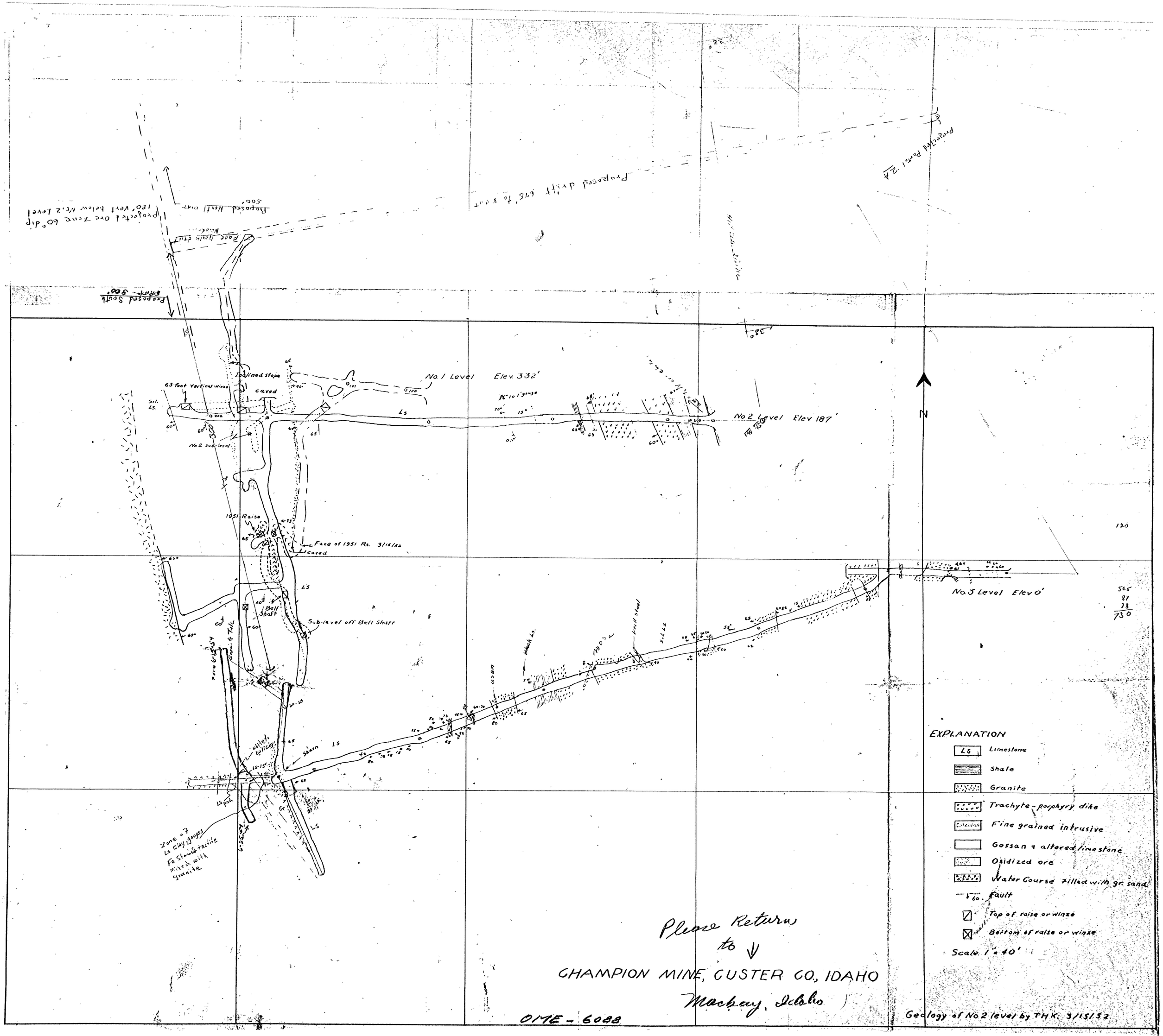
(a) An estimated construction of an approx. 300 ft. road from present road to ~~addit~~ new addit site, plus excavation to portal entry would save considerable money over possibilities of driving north from Tunnel No. 3 versus new level. Cost-wise, it would be more economical, plus the fact of haulage distance involved.

Proposed exploration work at site of Level No. 2-A., 120 ft. vertical from No. 2 level., an estimated cross-cut distance of approx. 700 ft. to ore zone., size of addit would be approx. 5' wide by 7' high in the clear with timbered ground where required., this footage would consist of the first phase.

The second phase of exploration would consist of an approx. 300 ft. south and approx. 500 ft. north, which would comprise exploration drifting on the ore zone.

The target area on Level 2-A would place the intersection of the ore zone immediately below the present face of Level # 2 of the proven & known ore zone.


Proposed x-cut (650ft ±)
Elev 99.5
Proposed drift
330 ft ±
No 1 Level Elev 332'
No 2 Level Elev 187'
No 3 Level Elev 0'
Approximate location of proposed new road
N
Face of 1951 Rs. 3/15/52
Caved
Bell Shaft
Sub-level off Bell Shaft
Seam
LS broken & crushed
Fresh granite
EXPLANATION
Limestone
Shale
Granite
Trachyte-porphyry dike
Fine grained intrusive
Gossan & altered limestone
Oxidized ore
Water Course filled with gr. sand.
Fault
Top of raise or winze
Bottom of raise or winze
Scale 1" = 40'
To No 3 level portal
Additions by E.R.M. June 1960
CHAMPION MINE, CUSTER CO., IDAHO
Geology of No 2 level by THK. 3/15/52
OME 6088
~~DMEA-2502~~
Map B.


Projected Fore 2A
Proposed drift 675' to vert
Proposed North Drift 500'
Proposed one Tenne 60° dip 120' vert below No.2 level
Proposed South Drift 300'
No 1 Level Elev 332'
No 2 Level Elev 187'
No 3 Level Elev 0'
63 foot vertical winze
Inclined slope
Caved
No 2 sub-level
1951 Raise
Face of 1951 Rs. 3/15/52
Caved
Bell Shaft
Sub-level off Bell Shaft
Granite Talc
Skarn
Zone of Ls clay gouges Fe Stains & talcite mixed with granite
EXPLANATION
Limestone
Shale
Granite
Trachyte-porphyry dike
Fine grained intrusive
Gossan & altered limestone
Oxidized ore
Water Course filled with gr. sand
Fault
Top of raise or winze
Bottom of raise or winze
Scale 1" = 40'
Please Return to
CHAMPION MINE, CUSTER CO, IDAHO
Mackay, Idaho
OME-6088
Geology of No.2 level by THK. 3/15/52