DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D. C.
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UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMA-766X, Long Canyon Mining Company

Elko County, Nev.

George H. Holmes, Jr., Mining Engineer
U. S. Bureau of Mines

R. G. Reeves, Geologist
U. S. Geological Survey

October 12, 1951

DOCKET DMA-766X

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

LONG CANYON MINING COMPANY
Elko County, Nev.

lead-zinc

SUMMARY

The Long Canyon lead-zinc mine is in southwest Elko County, Nev., about 41 miles southeast of Elko, Nev. The property was located during 1920 although little work was done until 1948-1949 when two incline shafts were sunk and drifts driven on the 35-foot level. A reported 60.9 tons of sorted ore, averaging 28.7 percent lead and 1.85 ounces silver per ton, and 38.2 tons of concentrates, averaging 52.6 percent lead and 3.12 ounces silver per ton, was shipped. During 1950-1951 a crosscut adit was driven 1,010 feet, 300 feet vertically below surface exposures, to intersect a possible downward extension of the mineralized zone. The crosscut has not reached its objective.

Formations in the mine area comprise a thick series of sedimentary and metamorphic rocks. The mine workings are in a thick sequence of limestones which in many places are recrystallized to marble, metamorphosed to a fine-grained quartz-feldspar rock, and intruded by sills, dikes, and irregular masses of granite and granite-pegmatite. A northwest trending fault, along which there has been considerable mineralization, is the main structural feature. The ore occurs as a

vein along this fault from 4 to 5 feet wide and dipping about 40° to the southwest. The principal ore mineral is galena, associated with some sphalerite, and smaller amounts of silver.

The possibility of a downward extension of the mineralized zone is favorable and exploration has been planned to adequately explore the mineralized area from the lower adit. The plan of exploration is dependent on the location of the ore body and appears feasible. Costs of the project are reasonable and its approval is recommended.

INTRODUCTION

The Long Canyon Mining Company's lead-zinc property was examined at the request of the DMA on August 22, 1951 by an engineer[1] of the Bureau of Mines accompanied by the following company officials: Dale Farr, superintendent; H. J. Eldredge, secretary; E. E. Greenwell, director; and E. Hampton, contractor. The property was also examined and mapped during September 10 to 12 by R. G. Reeves and R. A. Pomeroy, of the U. S. Geological Survey.

The property comprises 16 unpatented lode mining claims in sec. 32, T. 21 N., R. 58 E., M.D.B.&M., Elko County, Nev., about 41 miles by road southeast of Elko, the nearest supply center and shipping point on U.S. Highway 40 and the Southern Pacific and Western Pacific railroads (fig. 1).

To reach the property from Elko, travel State Highway 46 south for 21 miles; turn east and proceed 9 miles over a graded dirt road to Lee. From Lee an ungraded dirt road is travelled southeast 6 miles to Long Canyon, thence over a rough and winding road 5 miles up Long

1/ George H. Holmes, Jr.

Canyon to the American Beauty mine camp. A bulldozer road extends from the camp up the mountainside to the lower adit and upper mine workings (fig. 2). It is advisable to travel the Lee-Long Canyon mine road by jeep or other four-wheel drive vehicle.

HISTORY

Records indicate the claims were first located during 1920 with some exploration work being done on surface exposures.

The property was later acquired by P. G. James of Salt Lake City, Utah, who in turn gave a lease and bond on the claims in 1947 to the Long Canyon Mining Company, a Nevada corporation, incorporated Dec. 2, 1948.

The following officers of the company are all residents of Ogden, Utah:

Archie P. Farr, President
Dale F. Farr, V. P. and Mine Supt.
Harry J. Eldredge, Secretary-Treasurer
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During 1948-1949 work comprised shaft sinking and drifting from the No. 1 and No. 2 incline shafts (fig. 3). Ore produced from this work was hand-sorted to make a high-grade shipping ore with the rejects being beneficiated by jigging and tabling. Records show that 60.9 tons of sorted high-grade ore averaging 28.7 percent lead and 1.85 ounces silver per ton and 38.2 tons of concentrates averaging 52.6 percent lead and 3.12 ounces silver per ton was shipped to the Salt Lake valley smelters. The net smelter returns were $58.49 a ton for shipping-grade ore and $135.88 a ton for the concentrates.

A crosscut-adit designed to intersect the downward extension of the ore zones, 300 feet vertically below the collar of the No. 1 incline shaft, was started late in 1949 and during 1950 was advanced 955 feet. The present face is at 1,010 feet (figs. 3 and 4).

PHYSICAL FEATURES

The claims are on the steep northeast slope of Long Canyon along the west side of the Ruby Range of mountains at an elevation of about 8,500 feet. The climate is temperate with warm, dry summers and usually long, severe winters with heavy snows occurring from early fall to late spring. Operations would undoubtedly be impeded by the rigorous winter conditions.

Water for mine use can be obtained from drainage in the lower adit and from a continuously flowing spring about a hundred feet below the adit portal. The south fork of the Humboldt river flows down Long Canyon providing adequate water for mill and domestic use.

Vegetation comprises aspen with scattered small stands of spruce and fir. No timber, however, is available for mine use.

No transmitted electric power is available; compressors are Diesel- and gasoline-driven. Power for the camp use must be furnished by gasoline or Diesel-generators, although adequate power could undoubtedly be supplied by utilizing the swift-flowing stream.

The road from the lower adit to the camp is steep but adequate for ore-haulage and transportation of equipment and supplies. The canyon road is narrow and rocky and progress is necessarily slow. Ore-trucks can traverse this road although a relocation of part of the road away from the creek bottom would be of great assistance.

The road from the mouth of the canyon to Lee is also narrow and rough.

LABOR AND LIVING CONDITIONS

Mine workers live at the American Beauty mine camp about a mile from the present workings. Construction of new facilities is planned and will include a cook shack and mess hall, bunkhouse, and washroom, however, none of these will be chargeable to the project. No repairs are necessary to existing facilities.

The isolated location of the mine and the high altitude are a deterrent in obtaining good miners at prevailing daily wages. To overcome this handicap the company policy is to contract the work and to furnish the necessary equipment and supplies. The higher wages assured under this plan serves to attract above-average miners.

GEOLOGY AND ORE RESERVES

The Long Canyon mine is on the western flank of the Ruby Mountains, a north-south range composed principally of sediments and meta-sediments of Paleozoic age. Igneous rocks, chiefly granite and granite pegmatite, have intruded the sedimentary rocks.

Long Canyon, in which the mine is located, is cut in a thick series of sedimentary and metamorphic rocks. The oldest rocks exposed in the vicinity of the mine are quartz-biotite schists, which are assigned to the Quartzite formation of Sharp[2/]. These are overlain by a thick sequence of limestones, which Sharp has called the Middle limestone. The Middle limestone in many places is recrystallized to marble, metamorphosed to a fine-grained quartz-feldspar rock, and in-

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truded by sills, dikes, and irregular masses of granite and granite-pegmatite. The mine workings are in the Middle limestone.

The Middle limestone dips gently to the north and east in the surrounding region; because of the considerable metamorphism connected with the intrusion of the granite and pegmatite, little evidence of bedding or other primary structure was found in the vicinity of the mine. A northwest trending fault, along which there has been considerable mineralization, is the main structural feature. This is cut by several cross faults with very little apparent displacement.

The ore occurs as a vein along the prominent northwest trending fault. The vein dips about 40° to the southwest. The principal ore mineral is galena; some sphalerite occurs in association with it. Assays show small amounts of silver. Gangue minerals are primarily quartz and calcite, with a minor amount of ankerite. Where exposed in the upper workings, the ore is from 4 feet to 5 feet in width. Bands of gouge several inches to over a foot in thickness are found on either side of the vein, though there seems to have been a greater development of gouge on the hanging wall than on the footwall. In the upper workings, both walls are recrystallized or silicified limestone.

The vein is not sufficiently exposed, either laterally or down the dip, to determine the primary structural controls. In the vicinity of the No. 1 incline, the eastern-most of the upper workings, the vein is cut by numerous cross faults or fractures, with little apparent displacement, and these may have been an important ore control. From the change in strike of the vein between the two upper incline shafts,

an anticlinal roll on the vein is suggested, with possible stronger ore occurrences on the southeastern flank. However, due to the limited development work, the direction and plunge could not be determined.

Probable post-mineral movement along the fault is indicated by the shattered condition of the ore and gangue minerals.

A lower adit, whose portal is 300 feet vertically below the collar of the No. 1 incline shaft, is mainly in recrystallized and metamorphosed limestone of the Middle limestone. Near the portal, a pegmatite dike about 30 feet in width was cut. The limestone has been metamorphosed to a series of alternating bands of marble and fine-grained quartz-feldspar rock. Approximately 250 feet from the portal, the adit cuts a mineralized zone, containing principally galena and quartz. Several faults are also cut by the adit. At the time of the visit, the face of the adit was in limestone which appeared to have undergone hydrothermal alteration, with the development of abundant pyrite.

There are no measured or indicated ore reserves, and because of the limited development work, it is impossible to infer reserves. Ore developed as a result of the upper work has been removed.

SAMPLING

The upper workings on the 35-foot level, accessible from the No. 1 and No. 2 incline shafts, have badly caved and filled with water making systematic sampling impossible. Character samples were taken from upper workings and from the stringer crossed by the lower adit.

Sample No.	Width Feet	Percent Pb	Percent Zn	Ounces/T Au	Ounces/T Ag	Location
103	0.25	7.9	3.4	Tr	2.20	Lower adit at 250'.
104	2.5	10.8	6.5	Tr	0.50	No. 1 incline-drift.
105	5.0	13.7	0.2	Tr	0.90	No. 1 incline-raise.
106	2.7	7.7	12.5	Tr	0.60	No. 2 incline-drift.
107	Grab	25.4	1.8	Tr	0.70	No. 1 incline-dump. Sorted material.

PROPOSED EXPLORATION

The company plan of exploration included diamond drilling, continuation of the lower adit and drifting. Three holes were proposed by the company to be drilled upward from the 1000-foot mark in the crosscut to explore for the downward continuity of the ore body, and three short holes to be drilled downward at the 200-foot mark in the crosscut to explore for the extension of the flat-dipping narrow stringer intersected at 250 feet. The lower adit would be advanced to the ore body and drifts driven to the northwest and southeast.

The Bureau of Mines and the Geological Survey are not entirely in accord with this plan. Surveys indicate the downward extension of the northwest trending fault should be crossed within 50 feet (fig. 4), and the proposed plan of exploration is based on the assumption that mineralization will continue downward.

Exploration would comprise continuing the lower adit for 50 feet to be followed, if an ore zone is intersected, by drifting 300 feet northwesterly and 300 feet southeasterly along the vein. However, should extension of the lower adit give negative results, then a series of diamond drill holes totaling 1,000 feet would be drilled upward from the lower adit to explore for the downward continuity of the mineralized zone (figs. 3 and 4). Holes are designed to intersect

this zone at 100-foot intervals down dip below the upper workings and to cover a 100-foot strike length. Failure to locate a downward extension of the ore body would terminate the project. No drilling would be done on the stringer cut at 250 feet by the lower adit as mineralization is not impressive.

Indication of a downward continuance of mineralization by diamond drilling would be followed by raising from the lower adit to the point of contact and subsequent sub-level drifting along the vein. The maximum raise would be 200 feet high with 300 feet of sub-level drifting.

Costs have been estimated for the following categories:

1. Crosscutting and drifting, lower adit.
2. Crosscutting and diamond drilling.
3. Crosscutting, diamond drilling, raising, and sub-level drifting.

Work should be under the supervision of a competent mine operator or mining engineer. None of the present officers of the company have had adequate experience to direct this work.

EQUIPMENT

The following equipment, all in good condition, is owned by the company, all or part of which can be devoted to the work. Costs and monthly rental values were designated by the company. No new equipment will be purchased or additional equipment rented for the proposed exploration.

	Cost	Monthly Rental Value
Gardner-Denver, 210 cfm, portable compressor, Diesel-driven	$7,615	$450
LeRoi, 105 cfm, portable compressor, gasoline-driven	3,425	160
Trailer for LeRoi compressor	1,000	100
Gardner-Denver hydraulic boom	1,575	150
Gardner-Denver, 3-inch automatic drifter	800	95
Gardner-Denver, GD-9, mucking machine	3,175	250
International, 45 h.p., gasoline engine	900	90
Mine cars (2)	500	50
Rails and pipe	2,000	300
3-inch hand-crank drifter complete with column, arm, and saddle	850	85
Joy slusher	1,300	100
Joy hoist, 2 drum	900	85
	$24,040	$1,915

Crosscutting and drifting will require the 210 c.f.m. compressor, hydraulic boom and automatic drifter, mucking machine, mine cars, rails and pipe, having a total monthly rental value of $1,295.

Diamond drilling will utilize the 210 c.f.m. compressor and one mine car for the transportation of equipment. Total monthly rental is $475.

Raising will require the 210 c.f.m. compressor, hoist, stoper, mine cars, rails and pipe for a total monthly rental of $980. Sublevel drifting will need the 210 c.f.m. compressor, hoist, drifter, slusher, mine cars, rails and pipe which will total $1,080 monthly.

Other listed equipment will be held on a standby basis and used only if necessary.

REQUIREMENTS AND COSTS

Costs furnished by the company are considered too high especially in regard to labor. The following estimated costs are based on character of the ground, location of the mine, the assumption that efficient miners will be obtained, and that the work will be done under competent supervision.

Crosscutting and drifting will be on a contract basis with labor contracted and the company furnishing equipment and supplies. Based on an estimated 5-foot daily round on a one-shift basis, an estimated five months will be required. The lower adit exploration would comprise:

Contract crosscutting and drifting, labor (2 miners) 650' @ $10 per foot	$6,500.00
Trammer (1) @ $16/da plus overtime	2,240.00
Supervision, $500/mo.	2,500.00
Equipment rental, $1,295/mo.	6,475.00
Powder, fuse, bits, etc. $3.20/ft.	2,080.00
Operating supplies, fuel, oil, etc. $0.96/ft.	624.00
	$20,419.00
Add 5% for contingencies, timber, etc.	1,020.95
	$21,439.95
	$32.98/ft.

The superintendent will also serve as compressor- and utility-man in addition to supervisory duties.

Diamond drilling will be contracted. Estimates given the company by a reliable drilling firm are $5.00 per foot on a guaranteed 1,000-foot minimum basis and with compressed air and water furnished by the company. Drilling will be on a one-shift basis and an estimated three months will be required to complete the work.

Diamond drilling, 1,000 ft. @ $5.00/ft.	$5,000.00
Supervision, $500/mo.	1,500.00
Equipment rental, $475/mo.	1,325.00
Operating supplies, $125/mo.	375.00
	$8,200.00
Add 5% for contingencies	410.00
	$8,610.00
	$8.61/ft.

Should raising and sub-level drifting be required, it is estimated that two months would be required to complete a 200-foot vertical raise and three months to drift 300 feet along the vein.

Contract raising, labor (2 miners) 200' @ $10/ft.	$2,000.00
Timber, (stulls and side lagging) $2.30/ft.	460.00
Contract drifting, labor (2 miners) 300' @ $10/ft.	3,000.00
Supervision, $500/mo.	2,500.00
Trammer (1) @ $16/da. plus overtime	2,240.00
Equipment rental, raise, $980/mo.	1,960.00
Equipment rental, sublevel, $1,080/mo.	3,240.00
Powder, fuse, bits, etc. $3.20/ft.	1,600.00
Operating supplies, $0.96/ft.	480.00
	$17,480.00
Add 5% for contingencies and maintenance	874.00
	$18,354.00
	$36.68/ft.

A summary of costs for the three possible plans of exploration at this property come under one of the following categories:

1. Crosscutting and drifting, lower adit	$21,439.95
2. Crosscutting and diamond drilling	$10,259.00
3. Crosscutting, diamond drilling, raising and sub-level drifting	$28,613.00

ACCESS ROAD

The company has also filed an application for access road improvement. The present road from Lee to the mine is narrow and rough, especially the section through the canyon. Although improvement and possible relocation of part of the road would facilitate transportation, the present condition of the mine and lack of ore reserves do not justify consideration of the application at this time. Action should be dependent upon results of the proposed exploration and it is recommended this application be held in abeyance until completion of the project.

CONCLUSIONS

The Bureau of Mines and the Geological Survey conclude that:

1. Work on the Long Canyon property indicates the existence of a prominent northwest trending fault along which there has been considerable mineralization, with lead-zinc-silver ore occurring as a vein along the fault.

2. Production from comparatively shallow workings excavated along the outcrop has yielded a small tonnage of high-grade shipping ore. The lower-grade ore is readily amenable to concentration.

3. Work has been inadequate to determine the size and extent of the deposit but geologic evidence indicates a downward continuity and the possible existence of a large sulfide ore body.

4. The face of the lower adit should be close to the projected downward extension of the vein. The proposed exploration program from this level is feasible and should adequately explore the mineralized area. Costs are reasonable.

5. Exploration should be under the direct supervision of an experienced engineer or mine operator.

6. The Access Road application be held in abeyance pending completion of the exploration project.

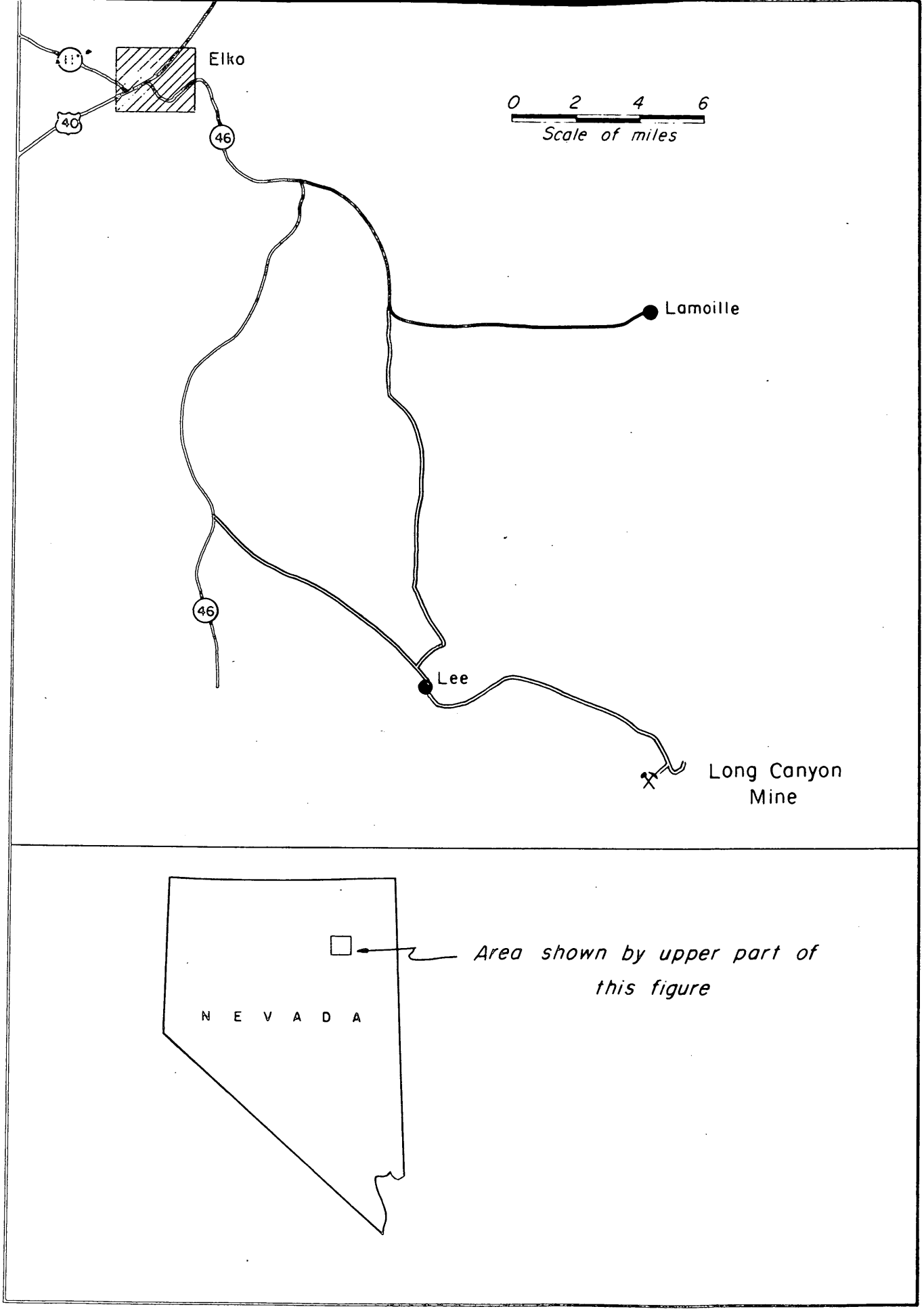
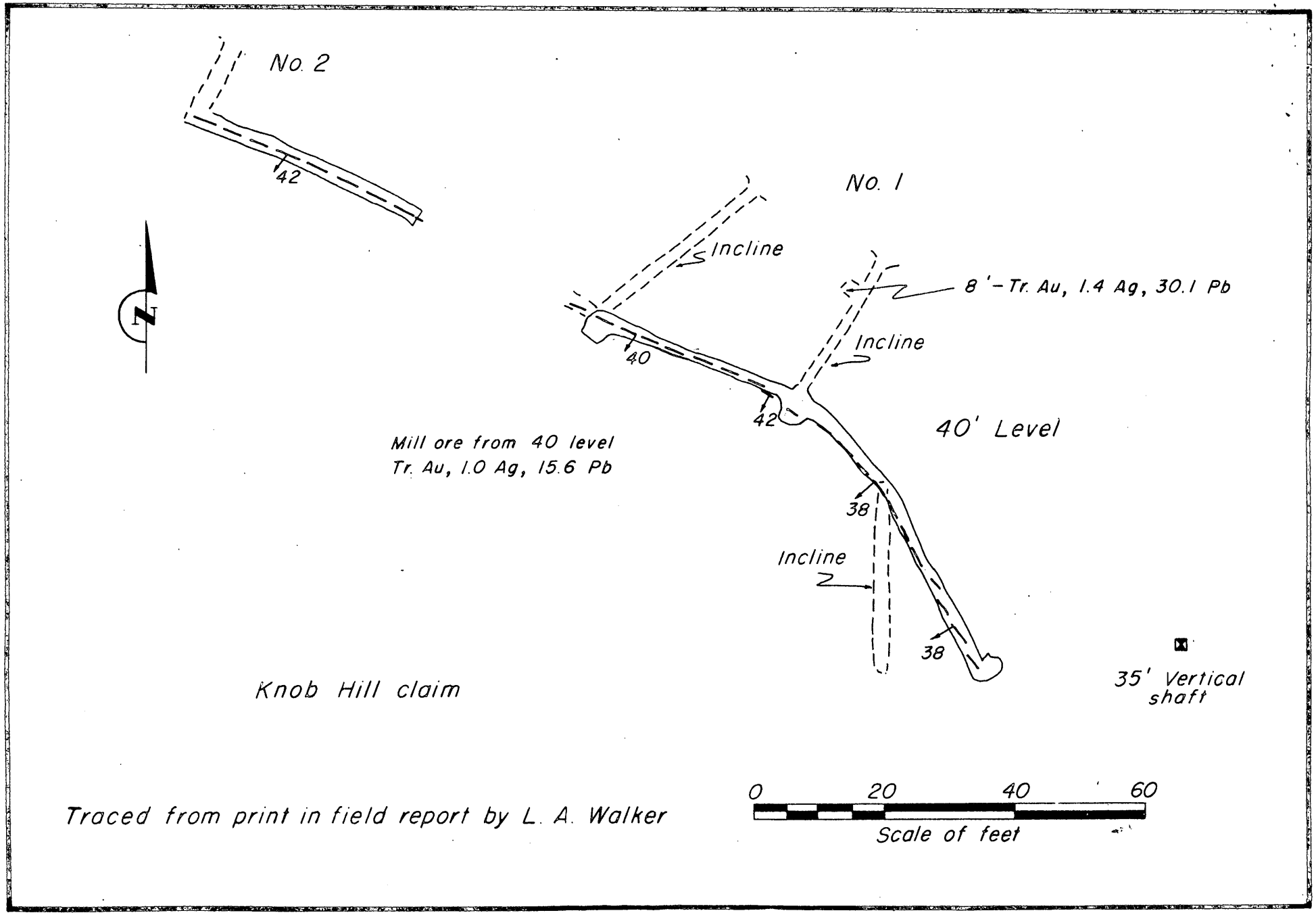
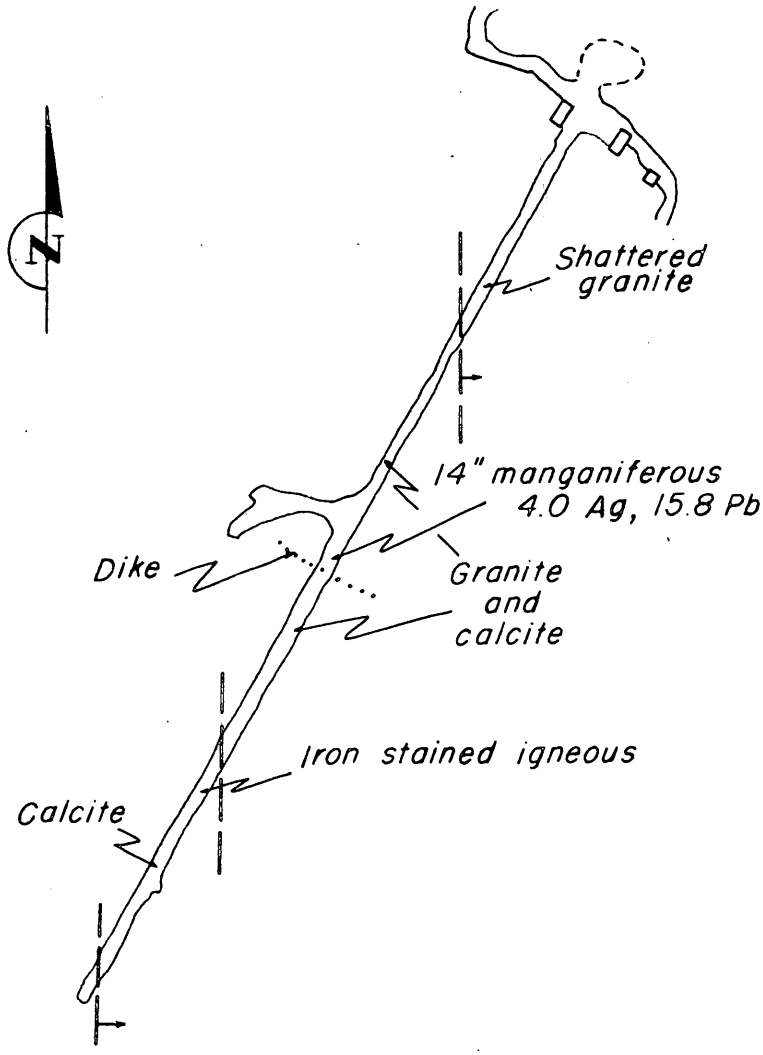


Figure 1 - Location map, Long Canyon mine, Elko County, Nevada

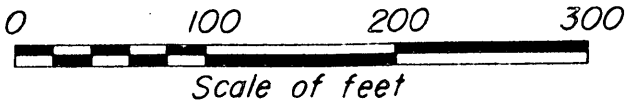


Mine workings, Long Canyon Mining Company, Elko County, Nevada



Tunnel advance as of 7/22/50

Road-portal	17
Portal-face	523
Crosscuts	48
"	26
Double track	12
Total	626



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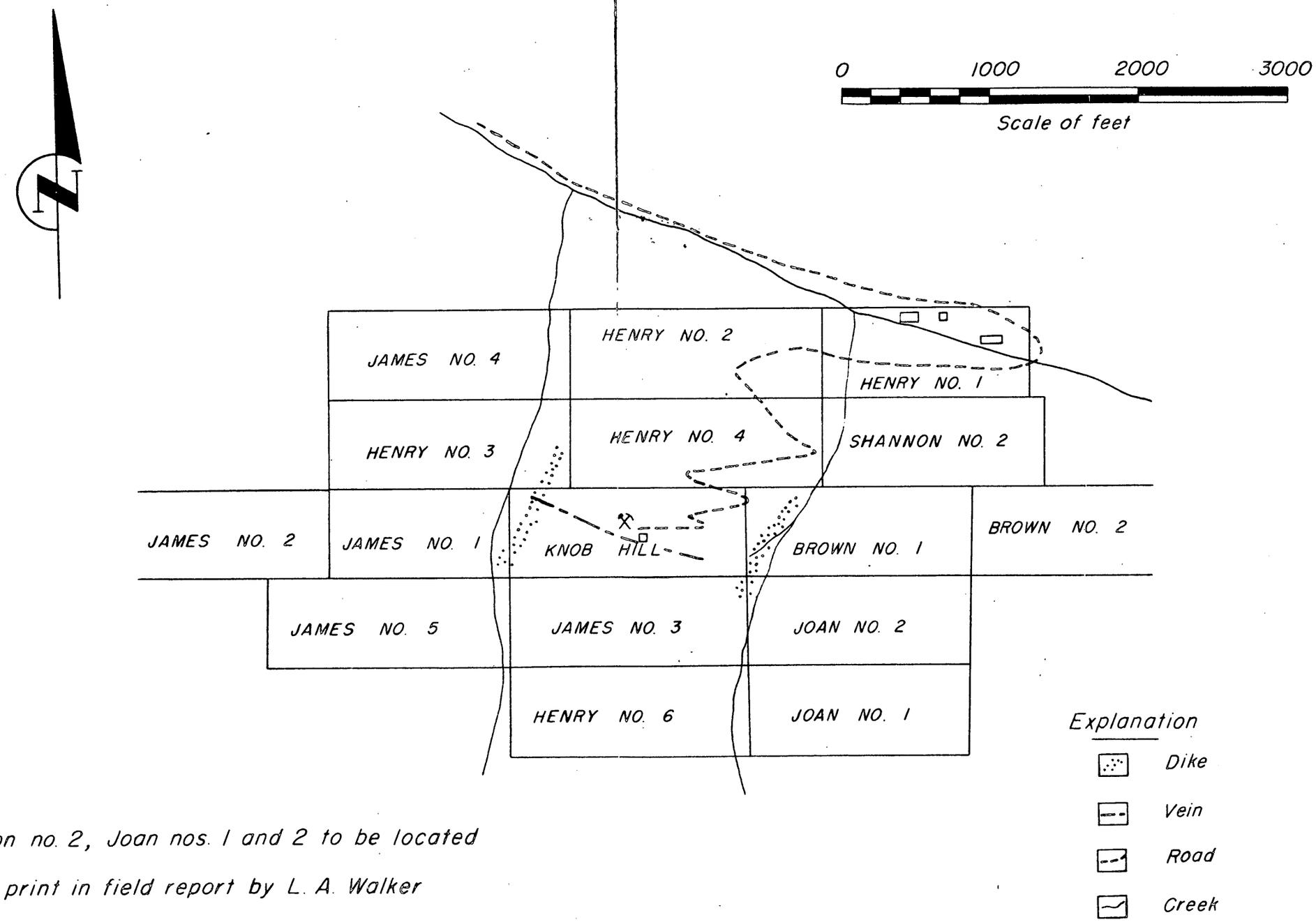

Note: Shannon no. 2, Joan nos. 1 and 2 to be located

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Claim map, Long Canyon Mining Company, Elko County, Nevada

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Elko County, Nev.

lead-zinc

SUMMARY

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Formations in the mine area comprise a thick series of sedimentary and metamorphic rocks. The mine workings are in a thick sequence of limestones which in many places are recrystallized to marble, metamorphosed to a fine-grained quartz-feldspar rock, and intruded by sills, dikes, and irregular masses of granite and granite-pegmatite. A northwest trending fault, along which there has been considerable mineralization, is the main structural feature. The ore occurs as a

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The Middle limestone dips gently to the north and east in the surrounding region; because of the considerable metamorphism connected with the intrusion of the granite and pegmatite, little evidence of bedding or other primary structure was found in the vicinity of the mine. A northwest trending fault, along which there has been considerable mineralization, is the main structural feature. This is cut by several cross faults with very little apparent displacement.

The ore occurs as a vein along the prominent northwest trending fault. The vein dips about 40° to the southwest. The principal ore mineral is galena; some sphalerite occurs in association with it. Assays show small amounts of silver. Gangue minerals are primarily quartz and calcite, with a minor amount of ankerite. Where exposed in the upper workings, the ore is from 4 feet to 5 feet in width. Bands of gouge several inches to over a foot in thickness are found on either side of the vein, though there seems to have been a greater development of gouge on the hanging wall than on the footwall. In the upper workings, both walls are recrystallized or silicified limestone.

The vein is not sufficiently exposed, either laterally or down the dip, to determine the primary structural controls. In the vicinity of the No. 1 incline, the eastern-most of the upper workings, the vein is cut by numerous cross faults or fractures, with little apparent displacement, and these may have been an important ore control. From the change in strike of the vein between the two upper incline shafts,

an anticlinal roll on the vein is suggested, with possible stronger ore occurrences on the southeastern flank. However, due to the limited development work, the direction and plunge could not be determined.

Probable post-mineral movement along the fault is indicated by the shattered condition of the ore and gangue minerals.

A lower adit, whose portal is 300 feet vertically below the collar of the No. 1 incline shaft, is mainly in recrystallized and metamorphosed limestone of the Middle limestone. Near the portal, a pegmatite dike about 30 feet in width was cut. The limestone has been metamorphosed to a series of alternating bands of marble and fine-grained quartz-feldspar rock. Approximately 250 feet from the portal, the adit cuts a mineralized zone, containing principally galena and quartz. Several faults are also cut by the adit. At the time of the visit, the face of the adit was in limestone which appeared to have undergone hydrothermal alteration, with the development of abundant pyrite.

There are no measured or indicated ore reserves, and because of the limited development work, it is impossible to infer reserves. Ore developed as a result of the upper work has been removed.

SAMPLING

The upper workings on the 35-foot level, accessible from the No. 1 and No. 2 incline shafts, have badly caved and filled with water making systematic sampling impossible. Character samples were taken from upper workings and from the stringer crossed by the lower adit.

Sample No.	Width Feet	Percent Pb	Percent Zn	Ounces/T Au	Ounces/T Ag	Location
103	0.25	7.9	3.4	Tr	2.20	Lower adit at 250'.
104	2.5	10.8	6.5	Tr	0.50	No. 1 incline-drift.
105	5.0	13.7	0.2	Tr	0.90	No. 1 incline-raise.
106	2.7	7.7	12.5	Tr	0.60	No. 2 incline-drift.
107	Grab	25.4	1.8	Tr	0.70	No. 1 incline-dump. Sorted material.

PROPOSED EXPLORATION

The company plan of exploration included diamond drilling, continuation of the lower adit and drifting. Three holes were proposed by the company to be drilled upward from the 1000-foot mark in the crosscut to explore for the downward continuity of the ore body, and three short holes to be drilled downward at the 200-foot mark in the crosscut to explore for the extension of the flat-dipping narrow stringer intersected at 250 feet. The lower adit would be advanced to the ore body and drifts driven to the northwest and southeast.

The Bureau of Mines and the Geological Survey are not entirely in accord with this plan. Surveys indicate the downward extension of the northwest trending fault should be crossed within 50 feet (fig. 4), and the proposed plan of exploration is based on the assumption that mineralization will continue downward.

Exploration would comprise continuing the lower adit for 50 feet to be followed, if an ore zone is intersected, by drifting 300 feet northwesterly and 300 feet southeasterly along the vein. However, should extension of the lower adit give negative results, then a series of diamond drill holes totaling 1,000 feet would be drilled upward from the lower adit to explore for the downward continuity of the mineralized zone (figs. 3 and 4). Holes are designed to intersect

this zone at 100-foot intervals down dip below the upper workings and to cover a 100-foot strike length. Failure to locate a downward extension of the ore body would terminate the project. No drilling would be done on the stringer cut at 250 feet by the lower adit as mineralization is not impressive.

Indication of a downward continuance of mineralization by diamond drilling would be followed by raising from the lower adit to the point of contact and subsequent sub-level drifting along the vein. The maximum raise would be 200 feet high with 500 feet of sub-level drifting.

Costs have been estimated for the following categories:

1. Crosscutting and drifting, lower adit.
2. Crosscutting and diamond drilling.
3. Crosscutting, diamond drilling, raising, and sub-level drifting.

Work should be under the supervision of a competent mine operator or mining engineer. Some of the present officers of the company have had adequate experience to direct this work.

EQUIPMENT

The following equipment, all in good condition, is owned by the company, all or part of which can be devoted to the work. Costs and monthly rental values were designated by the company. No new equipment will be purchased or additional equipment rented for the proposed exploration.

	Cost	Monthly Rental Value
Gardner-Denver, 210 cfm, portable compressor, Diesel-driven	$7,615	$450
LeRoi, 105 cfm, portable compressor, gasoline-driven	3,425	160
Trailer for LeRoi compressor	1,000	100
Gardner-Denver hydraulic boom	1,575	150
Gardner-Denver, 3-inch automatic drifter	800	95
Gardner-Denver, GD-9, mucking machine	3,175	250
International, 45 h.p., gasoline engine	900	90
Mine cars (2)	500	50
Rails and pipe	2,000	300
3-inch hand-crank drifter complete with column, arm, and saddle	850	85
Joy slusher	1,300	100
Joy hoist, 2 drum	900	85
	$24,040	$1,915

Crosscutting and drifting will require the 210 c.f.m. compressor, hydraulic boom and automatic drifter, mucking machine, mine cars, rails and pipe, having a total monthly rental value of $1,295.

Diamond drilling will utilize the 210 c.f.m. compressor and one mine car for the transportation of equipment. Total monthly rental is $475.

Raising will require the 210 c.f.m. compressor, hoist, stoper, mine cars, rails and pipe for a total monthly rental of $980. Sub-level drifting will need the 210 c.f.m. compressor, hoist, drifter, slusher, mine cars, rails and pipe which will total $1,080 monthly.

Other listed equipment will be held on a standby basis and used only if necessary.

REQUIREMENTS AND COSTS

Costs furnished by the company are considered too high especially in regard to labor. The following estimated costs are based on character of the ground, location of the mine, the assumption that efficient miners will be obtained, and that the work will be done under competent supervision.

Crosscutting and drifting will be on a contract basis with labor contracted and the company furnishing equipment and supplies. Based on an estimated 5-foot daily round on a one-shift basis, an estimated five months will be required. The lower adit exploration would comprise:

Contract crosscutting and drifting, labor (2 miners) 650' @ $10 per foot	$6,500.00
Trammer (1) @ $16/da plus overtime	2,240.00
Supervision, $500/mo.	2,500.00
Equipment rental, $1,295/mo.	6,475.00
Powder, fuse, bits, etc. $3.20/ft.	2,080.00
Operating supplies, fuel, oil, etc. $0.96/ft.	624.00
	$20,419.00
Add 5% for contingencies, timber, etc.	1,020.95
	$21,439.95
	$32.98/ft.

The superintendent will also serve as compressor- and utility-man in addition to supervisory duties.

Diamond drilling will be contracted. Estimates given the company by a reliable drilling firm are $5.00 per foot on a guaranteed 1,000-foot minimum basis and with compressed air and water furnished by the company. Drilling will be on a one-shift basis and an estimated three months will be required to complete the work.

Diamond drilling, 1,000 ft. @ $5.00/ft.	$5,000.00
Supervision, $500/mo.	1,500.00
Equipment rental, $475/mo.	1,425.00
Operating supplies, $125/mo.	375.00
	$8,200.00
Add 5% for contingencies	410.00
	$8,610.00
	$8.61/ft.

Should raising and sub-level drifting be required, it is estimated that two months would be required to complete a 200-foot vertical raise and three months to drift 300 feet along the vein.

Contract raising, labor (2 miners) 200' @ $10/ft.	$2,000.00
Timber, (stulls and side lagging) $2.30/ft.	460.00
Contract drifting, labor (2 miners) 300' @ $10/ft.	3,000.00
Supervision, $500/mo.	2,500.00
Trammer (1) @ $16/da. plus overtime	2,240.00
Equipment rental, raise, $980/mo..	1,960.00
Equipment rental, sublevel, $1,080/mo.	3,240.00
Powder, fuse, bits, etc. $3.20/ft.	1,600.00
Operating supplies, $0.96/ft.	480.00
	$17,480.00
Add 5% for contingencies and maintenance	874.00
	$18,354.00
	$36.68/ft.

A summary of costs for the three possible plans of exploration at this property come under one of the following categories:

1. Crosscutting and drifting, lower adit	$21,439.95
2. Crosscutting and diamond drilling	$10,259.00
3. Crosscutting, diamond drilling, raising and sub-level drifting	$28,613.00

ACCESS ROAD

The company has also filed an application for access road improvement. The present road from Lee to the mine is narrow and rough, especially the section through the canyon. Although improvement and possible relocation of part of the road would facilitate transportation, the present condition of the mine and lack of ore reserves do not justify consideration of the application at this time. Action should be dependent upon results of the proposed exploration and it is recommended this application be held in abeyance until completion of the project.

CONCLUSIONS

The Bureau of Mines and the Geological Survey conclude that:

1. Work on the Long Canyon property indicates the existence of a prominent northwest trending fault along which there has been considerable mineralization, with lead-zinc-silver ore occurring as a vein along the fault.

2. Production from comparatively shallow workings excavated along the outcrop has yielded a small tonnage of high-grade shipping ore. The lower-grade ore is readily amenable to concentration.

3. Work has been inadequate to determine the size and extent of the deposit but geologic evidence indicates a downward continuity and the possible existence of a large sulfide ore body.

4. The face of the lower adit should be close to the projected downward extension of the vein. The proposed exploration program from this level is feasible and should adequately explore the mineralized area. Costs are reasonable.

5. Exploration should be under the direct supervision of an experienced engineer or mine operator.

6. The Access Road application be held in abeyance pending completion of the exploration project.

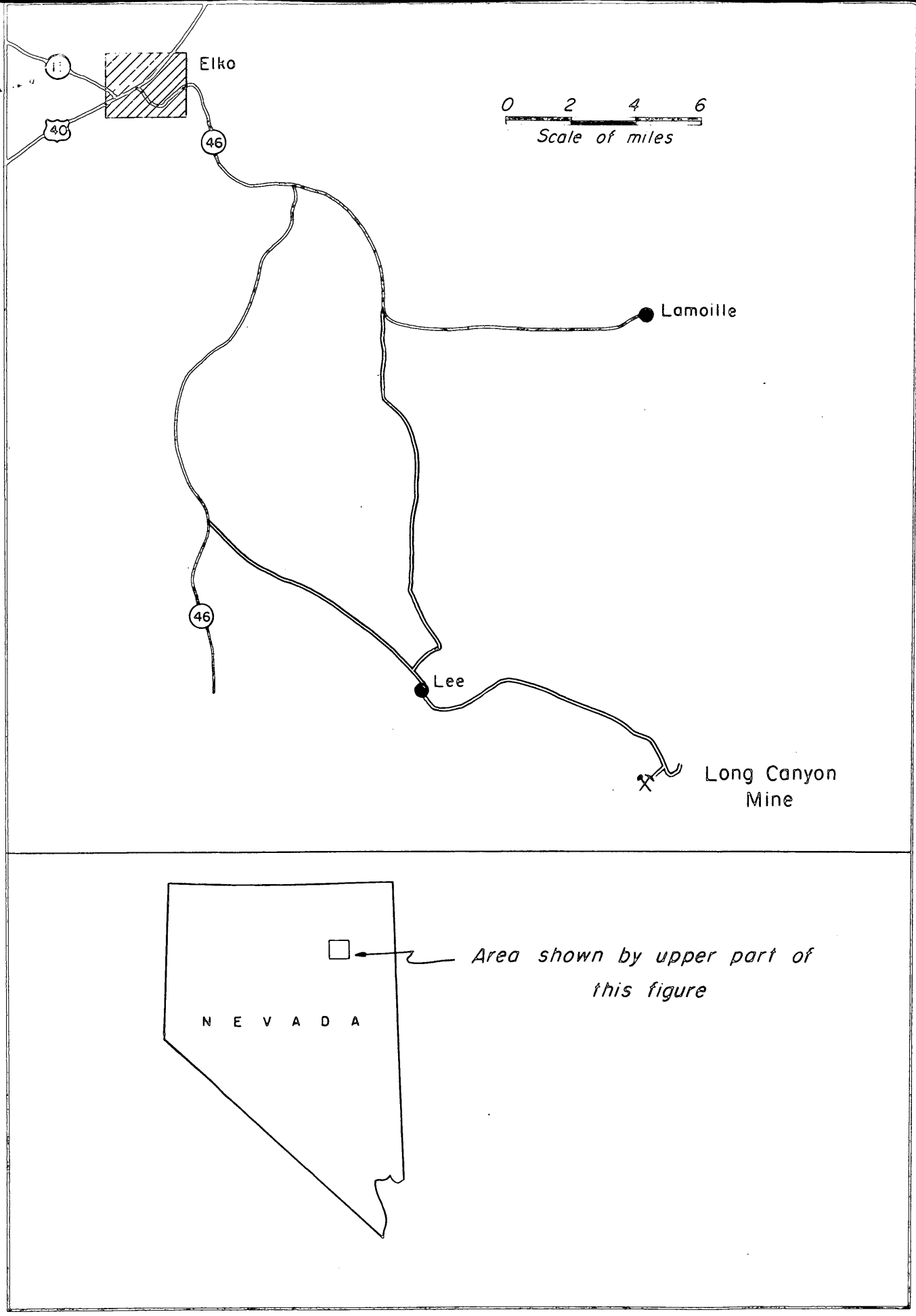

Figure 1 - Location map, Long Canyon mine, Elko County, Nevada

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UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMA-766X, Long Canyon Mining Company

Elko County, Nev.

George H. Holmes, Jr., Mining Engineer
U. S. Bureau of Mines

R. G. Reeves, Geologist
U. S. Geological Survey

October 12, 1951

DOCKET DMA-766X

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

LONG CANYON MINING COMPANY
Elko County, Nev.

lead-zinc

SUMMARY

The Long Canyon lead-zinc mine is in southwest Elko County, Nev., about 41 miles southeast of Elko, Nev. The property was located during 1920 although little work was done until 1948-1949 when two incline shafts were sunk and drifts driven on the 35-foot level. A reported 60.9 tons of sorted ore, averaging 28.7 percent lead and 1.65 ounces silver per ton, and 38.2 tons of concentrates, averaging 52.6 percent lead and 3.12 ounces silver per ton, was shipped. During 1950-1951 a crosscut adit was driven 1,010 feet, 300 feet vertically below surface exposures, to intersect a possible downward extension of the mineralized zone. The crosscut has not reached its objective.

Formations in the mine area comprise a thick series of sedimentary and metamorphic rocks. The mine workings are in a thick sequence of limestones which in many places are recrystallized to marble, metamorphosed to a fine-grained quartz-feldspar rock, and intruded by sills, dikes, and irregular masses of granite and granite-pegmatite. A northwest trending fault, along which there has been considerable mineralization, is the main structural feature. The ore occurs as a

vein along this fault from 4 to 5 feet wide and dipping about 40° to the southwest. The principal ore mineral is galena, associated with some sphalerite, and smaller amounts of silver.

The possibility of a downward extension of the mineralized zone is favorable and exploration has been planned to adequately explore the mineralized area from the lower adit. The plan of exploration is dependent on the location of the ore body and appears feasible. Costs of the project are reasonable and its approval is recommended.

INTRODUCTION

The Long Canyon Mining Company's lead-zinc property was examined at the request of the DMA on August 22, 1951 by an engineer[1] of the Bureau of Mines accompanied by the following company officials: Dale Farr, superintendent; H. J. Eldredge, secretary; E. E. Greenwell, director; and E. Hampton, contractor. The property was also examined and mapped during September 10 to 12 by R. G. Reeves and R. A. Pemerey, of the U. S. Geological Survey.

The property comprises 16 unpatented lode mining claims in sec. 32, T. 21 N., R. 58 E., M.D.B.&M., Elko County, Nev., about 41 miles by road southeast of Elko, the nearest supply center and shipping point on U.S. Highway 40 and the Southern Pacific and Western Pacific railroads (fig. 1).

To reach the property from Elko, travel State Highway 46 south for 21 miles; turn east and proceed 9 miles over a graded dirt road to Lee. From Lee an ungraded dirt road is travelled southeast 6 miles to Long Canyon, thence over a rough and winding road 5 miles up Long

1/ George H. Holmes, Jr.

Canyon to the American Beauty mine camp. A bulldozer road extends from the camp up the mountainside to the lower adit and upper mine workings (fig. 2). It is advisable to travel the Lee-Long Canyon mine road by jeep or other four-wheel drive vehicle.

HISTORY

Records indicate the claims were first located during 1920 with some exploration work being done on surface exposures.

The property was later acquired by P. G. James of Salt Lake City, Utah, who in turn gave a lease and bond on the claims in 1947 to the Long Canyon Mining Company, a Nevada corporation, incorporated Dec. 2, 1948.

The following officers of the company are all residents of Ogden, Utah:

Archie P. Farr, President
Dale F. Farr, V. P. and Mine Supt.
Harry J. Eldredge, Secretary-Treasurer
Lewis Farr, Director
E. E. Greenwell, Director
Norman Bingham, Director

During 1948-1949 work comprised shaft sinking and drifting from the No. 1 and No. 2 incline shafts (fig. 3). Ore produced from this work was hand-sorted to make a high-grade shipping ore with the rejects being beneficiated by jigging and tabling. Records show that 60.9 tons of sorted high-grade ore averaging 28.7 percent lead and 1.85 ounces silver per ton and 38.2 tons of concentrates averaging 52.6 percent lead and 3.12 ounces silver per ton was shipped to the Salt Lake valley smelters. The net smelter returns were $58.49 a ton for shipping-grade ore and $135.88 a ton for the concentrates.

A crosscut-adit designed to intersect the downward extension of the ore zones, 300 feet vertically below the collar of the No. 1 incline shaft, was started late in 1949 and during 1950 was advanced 955 feet. The present face is at 1,010 feet (figs. 3 and 4).

PHYSICAL FEATURES

The claims are on the steep northeast slope of Long Canyon along the west side of the Ruby Range of mountains at an elevation of about 8,500 feet. The climate is temperate with warm, dry summers and usually long, severe winters with heavy snows occurring from early fall to late spring. Operations would undoubtedly be impeded by the rigorous winter conditions.

Water for mine use can be obtained from drainage in the lower adit and from a continuously flowing spring about a hundred feet below the adit portal. The south fork of the Humboldt river flows down Long Canyon providing adequate water for mill and domestic use.

Vegetation comprises aspen with scattered small stands of spruce and fir. No timber, however, is available for mine use.

No transmitted electric power is available; compressors are Diesel- and gasoline-driven. Power for the camp use must be furnished by gasoline or Diesel-generators, although adequate power could undoubtedly be supplied by utilizing the swift-flowing stream.

The road from the lower adit to the camp is steep but adequate for ore-haulage and transportation of equipment and supplies. The canyon road is narrow and rocky and progress is necessarily slow. Ore-trucks can traverse this road although a relocation of part of the road away from the creek bottom would be of great assistance.

The road from the mouth of the canyon to Lee is also narrow and rough.

LABOR AND LIVING CONDITIONS

Mine workers live at the American Beauty mine camp about a mile from the present workings. Construction of new facilities is planned and will include a cook shack and mess hall, bunkhouse, and washroom, however, none of these will be chargeable to the project. No repairs are necessary to existing facilities.

The isolated location of the mine and the high altitude are a deterrent in obtaining good miners at prevailing daily wages. To overcome this handicap the company policy is to contract the work and to furnish the necessary equipment and supplies. The higher wages assured under this plan serves to attract above-average miners.

GEOLOGY AND ORE RESERVES

The Long Canyon mine is on the western flank of the Ruby Mountains, a north-south range composed principally of sediments and meta-sediments of Paleozoic age. Igneous rocks, chiefly granite and granite pegmatite, have intruded the sedimentary rocks.

Long Canyon, in which the mine is located, is cut in a thick series of sedimentary and metamorphic rocks. The oldest rocks exposed in the vicinity of the mine are quartz-biotite schists, which are assigned to the Quartzite formation of Sharp[2/]. These are overlain by a thick sequence of limestones, which Sharp has called the Middle limestone. The Middle limestone in many places is recrystallized to marble, metamorphosed to a fine-grained quartz-feldspar rock, and in-

2/ Sharp, R. P., Basin-Range Structure of the Ruby-East Humboldt Range, Northeastern Nevada, Bull. G. S. A., Vol. 50, p. 881-920, 1939.

truded by sills, dikes, and irregular masses of granite and granite-pegmatite. The mine workings are in the Middle limestone.

The Middle limestone dips gently to the north and east in the surrounding region; because of the considerable metamorphism connected with the intrusion of the granite and pegmatite, little evidence of bedding or other primary structure was found in the vicinity of the mine. A northwest trending fault, along which there has been considerable mineralization, is the main structural feature. This is cut by several cross faults with very little apparent displacement.

The ore occurs as a vein along the prominent northwest trending fault. The vein dips about 40° to the southwest. The principal ore mineral is galena; some sphalerite occurs in association with it. Assays show small amounts of silver. Gangue minerals are primarily quartz and calcite, with a minor amount of ankerite. Where exposed in the upper workings, the ore is from 4 feet to 5 feet in width. Bands of gouge several inches to over a foot in thickness are found on either side of the vein, though there seems to have been a greater development of gouge on the hanging wall than on the footwall. In the upper workings, both walls are recrystallized or silicified limestone.

The vein is not sufficiently exposed, either laterally or down the dip, to determine the primary structural controls. In the vicinity of the No. 1 incline, the eastern-most of the upper workings, the vein is cut by numerous cross faults or fractures, with little apparent displacement, and these may have been an important ore control. From the change in strike of the vein between the two upper incline shafts,

an anticlinal roll on the vein is suggested, with possible stronger ore occurrences on the southeastern flank. However, due to the limited development work, the direction and plunge could not be determined.

Probable post-mineral movement along the fault is indicated by the shattered condition of the ore and gangue minerals.

A lower adit, whose portal is 300 feet vertically below the collar of the No. 1 incline shaft, is mainly in recrystallized and metamorphosed limestone of the Middle limestone. Near the portal, a pegmatite dike about 30 feet in width was cut. The limestone has been metamorphosed to a series of alternating bands of marble and fine-grained quartz-feldspar rock. Approximately 250 feet from the portal, the adit cuts a mineralized zone, containing principally galena and quartz. Several faults are also cut by the adit. At the time of the visit, the face of the adit was in limestone which appeared to have undergone hydrothermal alteration, with the development of abundant pyrite.

There are no measured or indicated ore reserves, and because of the limited development work, it is impossible to infer reserves. Ore developed as a result of the upper work has been removed.

SAMPLING

The upper workings on the 35-foot level, accessible from the No. 1 and No. 2 incline shafts, have badly caved and filled with water making systematic sampling impossible. Character samples were taken from upper workings and from the stringer crossed by the lower adit.

Sample No.	Width Feet	Percent Pb	Percent Zn	Ounces/T Au	Ounces/T Ag	Location
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105	5.0	13.7	0.2	Tr	0.90	No. 1 incline-raise.
106	2.7	7.7	12.5	Tr	0.60	No. 2 incline-drift.
107	Grab	25.4	1.8	Tr	0.70	No. 1 incline-dump. Sorted material.

PROPOSED EXPLORATION

The company plan of exploration included diamond drilling, continuation of the lower adit and drifting. Three holes were proposed by the company to be drilled upward from the 1000-foot mark in the crosscut to explore for the downward continuity of the ore body, and three short holes to be drilled downward at the 200-foot mark in the crosscut to explore for the extension of the flat-dipping narrow stringer intersected at 250 feet. The lower adit would be advanced to the ore body and drifts driven to the northwest and southeast.

The Bureau of Mines and the Geological Survey are not entirely in accord with this plan. Surveys indicate the downward extension of the northwest trending fault should be crossed within 50 feet (fig. 4), and the proposed plan of exploration is based on the assumption that mineralization will continue downward.

Exploration would comprise continuing the lower adit for 50 feet to be followed, if an ore zone is intersected, by drifting 300 feet northwesterly and 300 feet southeasterly along the vein. However, should extension of the lower adit give negative results, then a series of diamond drill holes totaling 1,000 feet would be drilled upward from the lower adit to explore for the downward continuity of the mineralized zone (figs. 3 and 4). Holes are designed to intersect

this zone at 100-foot intervals down dip below the upper workings and to cover a 100-foot strike length. Failure to locate a downward extension of the ore body would terminate the project. No drilling would be done on the stringer cut at 250 feet by the lower adit as mineralization is not impressive.

Indication of a downward continuance of mineralization by diamond drilling would be followed by raising from the lower adit to the point of contact and subsequent sub-level drifting along the vein. The maximum raise would be 200 feet high with 300 feet of sub-level drifting.

Costs have been estimated for the following categories:

1. Crosscutting and drifting, lower adit.
2. Crosscutting and diamond drilling.
3. Crosscutting, diamond drilling, raising, and sub-level drifting.

Work should be under the supervision of a competent mine operator or mining engineer. None of the present officers of the company have had adequate experience to direct this work.

EQUIPMENT

The following equipment, all in good condition, is owned by the company, all or part of which can be devoted to the work. Costs and monthly rental values were designated by the company. No new equipment will be purchased or additional equipment rented for the proposed exploration.

	Cost	Monthly Rental Value
Gardner-Denver, 210 cfm, portable compressor, Diesel-driven	$7,515	$450
LeRoi, 105 cfm, portable compressor, gasoline-driven	3,425	160
Trailer for LeRoi compressor	1,000	100
Gardner-Denver hydraulic boom	1,575	150
Gardner-Denver, 3-inch automatic drifter	800	95
Gardner-Denver, GD-9, mucking machine	3,175	250
International, 45 h.p., gasoline engine	900	90
Mine cars (2)	500	50
Rails and pipe	2,000	300
3-inch hand-crank drifter complete with column, arm, and saddle	850	85
Joy slusher	1,300	100
Joy hoist, 2 drum	900	85
	$24,040	$1,915

Crosscutting and drifting will require the 210 c.f.m. compressor, hydraulic boom and automatic drifter, mucking machine, mine cars, rails and pipe, having a total monthly rental value of $1,295.

Diamond drilling will utilize the 210 c.f.m. compressor and one mine car for the transportation of equipment. Total monthly rental is $475.

Raising will require the 210 c.f.m. compressor, hoist, stoper, mine cars, rails and pipe for a total monthly rental of $980. Sub-level drifting will need the 210 c.f.m. compressor, hoist, drifter, slusher, mine cars, rails and pipe which will total $1,080 monthly.

Other listed equipment will be held on a standby basis and used only if necessary.

REQUIREMENTS AND COSTS

Costs furnished by the company are considered too high especially in regard to labor. The following estimated costs are based on character of the ground, location of the mine, the assumption that efficient miners will be obtained, and that the work will be done under competent supervision.

Crosscutting and drifting will be on a contract basis with labor contracted and the company furnishing equipment and supplies. Based on an estimated 5-foot daily round on a one-shift basis, an estimated five months will be required. The lower adit exploration would comprise:

Contract crosscutting and drifting, labor (2 miners) 650' @ $10 per foot	$6,500.00
Trammer (1) @ $16/da plus overtime	2,240.00
Supervision, $500/mo.	2,500.00
Equipment rental, $1,295/mo.	6,475.00
Powder, fuse, bits, etc. $3.20/ft.	2,080.00
Operating supplies, fuel, oil, etc. $0.96/ft.	624.00
	$20,419.00
Add 5% for contingencies, timber, etc.	1,020.95
	$21,439.95
	$32.96/ft.

The superintendent will also serve as compressor- and utility-man in addition to supervisory duties.

Diamond drilling will be contracted. Estimates given the company by a reliable drilling firm are $5.00 per foot on a guaranteed 1,000-foot minimum basis and with compressed air and water furnished by the company. Drilling will be on a one-shift basis and an estimated three months will be required to complete the work.

Diamond drilling, 1,000 ft. @ $5.00/ft.	$5,000.00
Supervision, $500/mo.	1,500.00
Equipment rental, $475/mo.	1,425.00
Operating supplies, $125/mo.	375.00
	$8,200.00
Add 5% for contingencies	410.00
	$8,610.00
	$8.61/ft.

Should raising and sub-level drifting be required, it is estimated that two months would be required to complete a 200-foot vertical raise and three months to drift 300 feet along the vein.

Contract raising, labor (2 miners) 200' @ $10/ft.	$2,000.00
Timber, (stulls and side lagging) $2.30/ft.	460.00
Contract drifting, labor (2 miners) 300' @ $10/ft.	3,000.00
Supervision, $500/mo.	3,500.00
Trammer (1) @ $16/da. plus overtime	2,240.00
Equipment rental, raise, $980/mo..	1,960.00
Equipment rental, sublevel, $1,080/mo.	3,240.00
Powder, fuse, bits, etc. $3.20/ft.	1,600.00
Operating supplies, $0.96/ft.	480.00
	$17,480.00
Add 5% for contingencies and maintenance	874.00
	$18,354.00
	$36.68/ft.

A summary of costs for the three possible plans of exploration at this property come under one of the following categories:

1. Crosscutting and drifting, lower adit	$21,439.95
2. Crosscutting and diamond drilling	$10,259.00
3. Crosscutting, diamond drilling, raising and sub-level drifting	$26,613.00

ACCESS ROAD

The company has also filed an application for access road improvement. The present road from Lee to the mine is narrow and rough, especially the section through the canyon. Although improvement and possible relocation of part of the road would facilitate transportation, the present condition of the mine and lack of ore reserves do not justify consideration of the application at this time. Action should be dependent upon results of the proposed exploration and it is recommended this application be held in abeyance until completion of the project.

CONCLUSIONS

The Bureau of Mines and the Geological Survey conclude that:

1. Work on the Long Canyon property indicates the existence of a prominent northwest trending fault along which there has been considerable mineralization, with lead-zinc-silver ore occurring as a vein along the fault.

2. Production from comparatively shallow workings excavated along the outcrop has yielded a small tonnage of high-grade shipping ore. The lower-grade ore is readily amenable to concentration.

3. Work has been inadequate to determine the size and extent of the deposit but geologic evidence indicates a downward continuity and the possible existence of a large sulfide ore body.

4. The face of the lower adit should be close to the projected downward extension of the vein. The proposed exploration program from this level is feasible and should adequately explore the mineralized area. Costs are reasonable.

5. Exploration should be under the direct supervision of an experienced engineer or mine operator.

6. The Access Road application be held in abeyance pending completion of the exploration project.

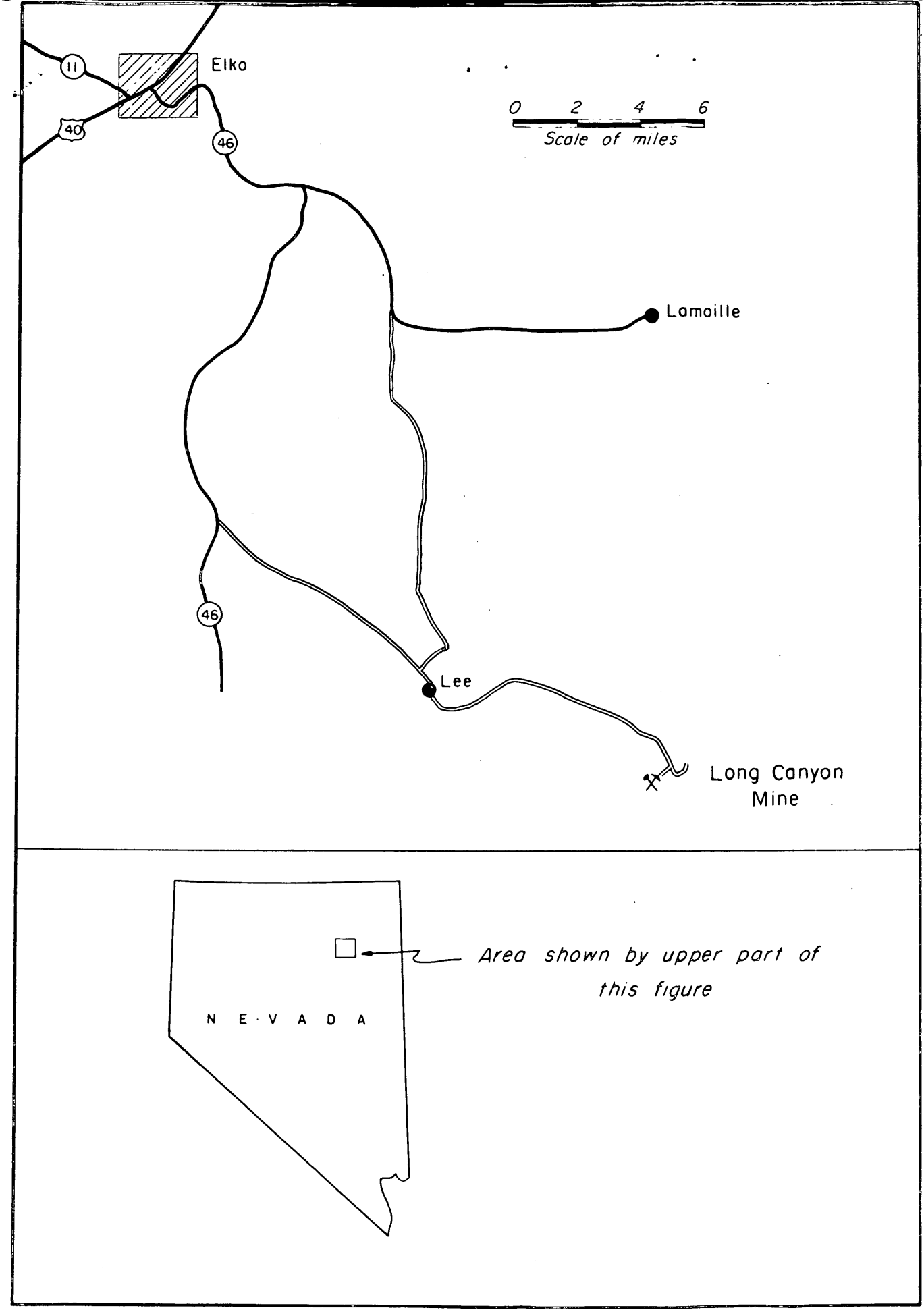
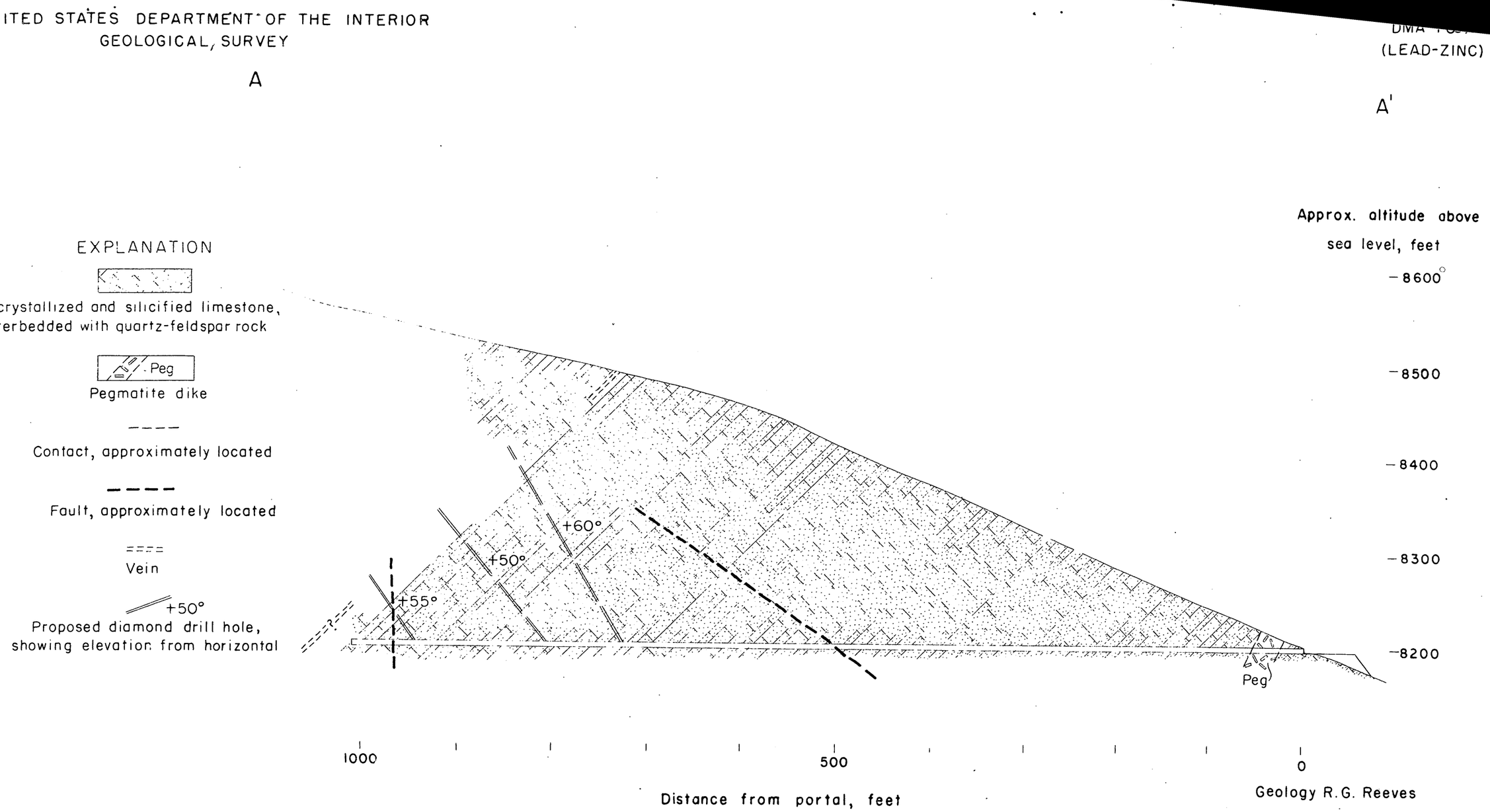


Figure 1 - Location map, Long Canyon mine, Elko County, Nevada

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



Geology R.G. Reeves

GEOLOGIC SECTION THROUGH THE LONG CANYON MINE

ELKO COUNTY, NEVADA

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Nov 13

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMA-766X, Long Canyon Mining Company

Elko County, Nev.

George H. Holmes, Jr., Mining Engineer
U. S. Bureau of Mines

R. G. Reeves, Geologist
U. S. Geological Survey

October 12, 1951

DOCKET DMA-766X

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

LONG CANYON MINING COMPANY
Elko County, Nev.

lead-zinc

SUMMARY

The Long Canyon lead-zinc mine is in southwest Elko County, Nev., about 41 miles southeast of Elko, Nev. The property was located during 1920 although little work was done until 1948-1949 when two incline shafts were sunk and drifts driven on the 35-foot level. A reported 60.9 tons of sorted ore, averaging 28.7 percent lead and 1.85 ounces silver per ton, and 38.2 tons of concentrates, averaging 52.6 percent lead and 3.12 ounces silver per ton, was shipped. During 1950-1951 a crosscut adit was driven 1,010 feet, 300 feet vertically below surface exposures, to intersect a possible downward extension of the mineralized zone. The crosscut has not reached its objective.

Formations in the mine area comprise a thick series of sedimentary and metamorphic rocks. The mine workings are in a thick sequence of limestones which in many places are recrystallized to marble, metamorphosed to a fine-grained quartz-feldspar rock, and intruded by sills, dikes, and irregular masses of granite and granite-pegmatite. A northwest trending fault, along which there has been considerable mineralization, is the main structural feature. The ore occurs as a

vein along this fault from 4 to 5 feet wide and dipping ca to the southwest. The principal ore mineral is galena, assoc. with some sphalerite, and smaller amounts of silver.

The possibility of a downward extension of the mineralized zone is favorable and exploration has been planned to adequately explore the mineralized area from the lower adit. The plan of exploration is dependent on the location of the ore body and appears feasible. Costs of the project are reasonable and its approval is recommended.

INTRODUCTION

The Long Canyon Mining Company's lead-zinc property was examined at the request of the DMA on August 22, 1951 by an engineer[1] of the Bureau of Mines accompanied by the following company officials: Dale Farr, superintendent; H. J. Eldredge, secretary; E. E. Greenwell, director; and E. Hampton, contractor. The property was also examined and mapped during September 10 to 12 by R. G. Reeves and R. A. Pomeroy, of the U. S. Geological Survey.

The property comprises 16 unpatented lode mining claims in sec. 32, T. 21 N., R. 58 E., M.D.B.&M., Elko County, Nev., about 41 miles by road southeast of Elko, the nearest supply center and shipping point on U.S. Highway 40 and the Southern Pacific and Western Pacific railroads (fig. 1).

To reach the property from Elko, travel State Highway 46 south for 21 miles; turn east and proceed 9 miles over a graded dirt road to Lee. From Lee an ungraded dirt road is travelled southeast 6 miles to Long Canyon, thence over a rough and winding road 5 miles up Long

1/ George H. Holmes, Jr.

Canyon to the American Beauty mine camp. A bulldozer road extends from the camp up the mountainside to the lower adit and upper mine workings (fig. 2). It is advisable to travel the Lee-Long Canyon mine road by jeep or other four-wheel drive vehicle.

HISTORY

Records indicate the claims were first located during 1920 with some exploration work being done on surface exposures.

The property was later acquired by P. G. James of Salt Lake City, Utah, who in turn gave a lease and bond on the claims in 1947 to the Long Canyon Mining Company, a Nevada corporation, incorporated Dec. 2, 1948.

The following officers of the company are all residents of Ogden, Utah:

Archie P. Farr, President
Dale F. Farr, V. P. and Mine Supt.
Harry J. Eldredge, Secretary-Treasurer
Lewis Farr, Director
E. E. Greenwell, Director
Norman Bingham, Director

During 1948-1949 work comprised shaft sinking and drifting from the No. 1 and No. 2 incline shafts (fig. 3). Ore produced from this work was hand-sorted to make a high-grade shipping ore with the rejects being beneficiated by jigging and tabling. Records show that 60.9 tons of sorted high-grade ore averaging 28.7 percent lead and 1.85 ounces silver per ton and 38.2 tons of concentrates averaging 52.6 percent lead and 3.12 ounces silver per ton was shipped to the Salt Lake valley smelters. The net smelter returns were $58.49 a ton for shipping-grade ore and $135.86 a ton for the concentrates.

A crosscut-adit designed to intersect the downward extension of the ore zones, 300 feet vertically below the collar of the No. 1 incline shaft, was started late in 1949 and during 1950 was advanced 355 feet. The present face is at 1,010 feet (figs. 3 and 4).

PHYSICAL FEATURES

The claims are on the steep northeast slope of Long Canyon along the west side of the Ruby Range of mountains at an elevation of about 8,500 feet. The climate is temperate with warm, dry summers and usually long, severe winters with heavy snows occurring from early fall to late spring. Operations would undoubtedly be impeded by the rigorous winter conditions.

Water for mine use can be obtained from drainage in the lower adit and from a continuously flowing spring about a hundred feet below the adit portal. The south fork of the Humboldt river flows down Long Canyon providing adequate water for mill and domestic use.

Vegetation comprises aspen with scattered small stands of spruce and fir. No timber, however, is available for mine use.

No transmitted electric power is available; compressors are Diesel- and gasoline-driven. Power for the camp use must be furnished by gasoline or Diesel-generators, although adequate power could undoubtedly be supplied by utilizing the swift-flowing stream.

The road from the lower adit to the camp is steep but adequate for ore-haulage and transportation of equipment and supplies. The canyon road is narrow and rocky and progress is necessarily slow. Ore-trucks can traverse this road although a relocation of part of the road away from the creek bottom would be of great assistance.

The road from the mouth of the canyon to Lee is also narrow and rough.

LABOR AND LIVING CONDITIONS

Mine workers live at the American Beauty mine camp about a mile from the present workings. Construction of new facilities is planned and will include a cook shack and mess hall, bunkhouse, and washroom, however, none of these will be chargeable to the project. No repairs are necessary to existing facilities.

The isolated location of the mine and the high altitude are a deterrent in obtaining good miners at prevailing daily wages. To overcome this handicap the company policy is to contract the work and to furnish the necessary equipment and supplies. The higher wages assured under this plan serves to attract above-average miners.

GEOLOGY AND ORE RESERVES

The Long Canyon mine is on the western flank of the Ruby Mountains, a north-south range composed principally of sediments and meta-sediments of Paleozoic age. Igneous rocks, chiefly granite and granite pegmatite, have intruded the sedimentary rocks.

Long Canyon, in which the mine is located, is cut in a thick series of sedimentary and metamorphic rocks. The oldest rocks exposed in the vicinity of the mine are quartz-biotite schists, which are assigned to the Quartzite formation of Sharp[2/]. These are overlain by a thick sequence of limestones, which Sharp has called the Middle limestone. The Middle limestone in many places is recrystallized to marble, metamorphosed to a fine-grained quartz-feldspar rock, and in-

2/ Sharp, R. P., Basin-Range Structure of the Ruby-East Humboldt Range, Northeastern Nevada, Bull. G. S. A., Vol. 50, p. 881-920, 1939.

truded by sills, dikes, and irregular masses of granite and granite-pegmatite. The mine workings are in the Middle limestone.

The Middle limestone dips gently to the north and east in the surrounding region; because of the considerable metamorphism connected with the intrusion of the granite and pegmatite, little evidence of bedding or other primary structure was found in the vicinity of the mine. A northwest trending fault, along which there has been considerable mineralization, is the main structural feature. This is cut by several cross faults with very little apparent displacement.

The ore occurs as a vein along the prominent northwest trending fault. The vein dips about 40° to the southwest. The principal ore mineral is galena; some sphalerite occurs in association with it. Assays show small amounts of silver. Gangue minerals are primarily quartz and calcite, with a minor amount of siderite. Where exposed in the upper workings, the ore is from 4 feet to 5 feet in width. Bands of gouge several inches to over a foot in thickness are found on either side of the vein, though there seems to have been a greater development of gouge on the hanging wall than on the footwall. In the upper workings, both walls are recrystallized or silicified limestone.

The vein is not sufficiently exposed, either laterally or down the dip, to determine the primary structural controls. In the vicinity of the No. 1 incline, the eastern-most of the upper workings, the vein is cut by numerous cross faults or fractures, with little apparent displacement, and these may have been an important ore control. From the change in strike of the vein between the two upper incline shafts,

an anticlinal roll on the vein is suggested, with possible stronger ore occurrences on the southeastern flank. However, due to the limited development work, the direction and plunge could not be determined.

Probable post-mineral movement along the fault is indicated by the shattered condition of the ore and gangue minerals.

A lower adit, whose portal is 300 feet vertically below the collar of the No. 1 incline shaft, is mainly in recrystallized and metamorphosed limestone of the Middle limestone. Near the portal, a pegmatite dike about 30 feet in width was cut. The limestone has been metamorphosed to a series of alternating bands of marble and fine-grained quartz-feldspar rock. Approximately 250 feet from the portal, the adit cuts a mineralized zone, containing principally galena and quartz. Several faults are also cut by the adit. At the time of the visit, the face of the adit was in limestone which appeared to have undergone hydrothermal alteration, with the development of abundant pyrite.

There are no measured or indicated ore reserves, and because of the limited development work, it is impossible to infer reserves. Ore developed as a result of the upper work has been removed.

SAMPLING

The upper workings on the 35-foot level, accessible from the No. 1 and No. 2 incline shafts, have badly caved and filled with water making systematic sampling impossible. Character samples were taken from upper workings and from the stringer crossed by the lower adit.

Sample No.	Width Feet	Percent Pb	Percent Zn	Ounces/T Au	Ounces/T Ag	Location
103	0.25	7.9	3.4	Tr	2.20	Lower adit at 250'.
104	2.5	10.8	6.5	Tr	0.50	No. 1 incline-drift.
105	5.0	13.7	0.2	Tr	0.90	No. 1 incline-raise.
106	2.7	7.7	12.5	Tr	0.60	No. 2 incline-drift.
107	Grab	25.4	1.8	Tr	0.70	No. 1 incline-dump. Sorted material.

PROPOSED EXPLORATION

The company plan of exploration included diamond drilling, continuation of the lower adit and drifting. Three holes were proposed by the company to be drilled upward from the 1000-foot mark in the crosscut to explore for the downward continuity of the ore body, and three short holes to be drilled downward at the 200-foot mark in the crosscut to explore for the extension of the flat-dipping narrow stringer intersected at 250 feet. The lower adit would be advanced to the ore body and drifts driven to the northwest and southeast.

The Bureau of Mines and the Geological Survey are not entirely in accord with this plan. Surveys indicate the downward extension of the northwest trending fault should be crossed within 50 feet (fig. 4), and the proposed plan of exploration is based on the assumption that mineralization will continue downward.

Exploration would comprise continuing the lower adit for 50 feet to be followed, if an ore zone is intersected, by drifting 300 feet northwesterly and 300 feet southeasterly along the vein. However, should extension of the lower adit give negative results, then a series of diamond drill holes totaling 1,000 feet would be drilled upward from the lower adit to explore for the downward continuity of the mineralized zone (figs. 3 and 4). Holes are designed to intersect

this zone at 100-foot intervals down dip below the upper workings and to cover a 100-foot strike length. Failure to locate a downward extension of the ore body would terminate the project. No drilling would be done on the stringer cut at 250 feet by the lower adit as mineralization is not impressive.

Indication of a downward continuance of mineralization by diamond drilling would be followed by raising from the lower adit to the point of contact and subsequent sub-level drifting along the vein. The maximum raise would be 200 feet high with 300 feet of sub-level drifting.

Costs have been estimated for the following categories:

1. Crosscutting and drifting, lower adit.
2. Crosscutting and diamond drilling.
3. Crosscutting, diamond drilling, raising, and sub-level drifting.

Work should be under the supervision of a competent mine operator or mining engineer. None of the present officers of the company have had adequate experience to direct this work.

EQUIPMENT

The following equipment, all in good condition, is owned by the company, all or part of which can be devoted to the work. Costs and monthly rental values were designated by the company. No new equipment will be purchased or additional equipment rented for the proposed exploration.

	Cost	Monthly Rental Value
Gardner-Denver, 210 cfm, portable compressor, Diesel-driven	$7,615	$450
LeRoi, 105 cfm, portable compressor, gasoline-driven	3,425	160
Trailer for LeRoi compressor	1,000	100
Gardner-Denver hydraulic boom	1,575	150
Gardner-Denver, 3-inch automatic drifter	800	95
Gardner-Denver, GD-9, mucking machine	3,175	250
International, 45 h.p., gasoline engine	900	90
Mine cars (2)	500	50
Rails and pipe	2,000	300
3-inch hand-crank drifter complete with column, arm, and saddle	850	85
Joy slusher	1,300	100
Joy hoist, 2 drum	900	85
	$24,040	$1,915

Crosscutting and drifting will require the 210 c.f.m. compressor, hydraulic boom and automatic drifter, mucking machine, mine cars, rails and pipe, having a total monthly rental value of $1,295.

Diamond drilling will utilize the 210 c.f.m. compressor and one mine car for the transportation of equipment. Total monthly rental is $475.

Raising will require the 210 c.f.m. compressor, hoist, stoper, mine cars, rails and pipe for a total monthly rental of $980. Sub-level drifting will need the 210 c.f.m. compressor, hoist, drifter, slusher, mine cars, rails and pipe which will total $1,080 monthly.

Other listed equipment will be held on a standby basis and used only if necessary.

REQUIREMENTS AND COSTS

Costs furnished by the company are considered too high especially in regard to labor. The following estimated costs are based on character of the ground, location of the mine, the assumption that efficient miners will be obtained, and that the work will be done under competent supervision.

Crosscutting and drifting will be on a contract basis with labor contracted and the company furnishing equipment and supplies. Based on an estimated 5-foot daily round on a one-shift basis, an estimated five months will be required. The lower adit exploration would comprise:

Contract crosscutting and drifting, labor (2 miners) 650' @ $10 per foot	$6,500.00
Trammer (1) @ $16/da plus overtime	2,240.00
Supervision, $500/mo.	2,500.00
Equipment rental, $1,295/mo.	6,475.00
Powder, fuse, bits, etc. $3.20/ft.	2,080.00
Operating supplies, fuel, oil, etc. $0.96/ft.	624.00
	$20,419.00
Add 5% for contingencies, timber, etc.	1,020.95
	$21,439.95
	$32.98/ft.

The superintendent will also serve as compressor- and utility-man in addition to supervisory duties.

Diamond drilling will be contracted. Estimates given the company by a reliable drilling firm are $5.00 per foot on a guaranteed 1,000-foot minimum basis and with compressed air and water furnished by the company. Drilling will be on a one-shift basis and an estimated three months will be required to complete the work.

Diamond drilling, 1,000 ft. @ $5.00/ft.	$5,000.00
Supervision, $500/mo.	1,500.00
Equipment rental, $475/mo.	1,425.00
Operating supplies, $125/mo.	375.00
	$8,200.00
Add 5% for contingencies	410.00
	$8,610.00
	$8.61/ft.

Should raising and sub-level drifting be required, it is estimated that two months would be required to complete a 200-foot vertical raise and three months to drift 300 feet along the vein.

Contract raising, labor (2 miners) 200' @ $10/ft.	$2,000.00
Timber, (stulls and side lagging) $2.30/ft.	460.00
Contract drifting, labor (2 miners) 300' @ $10/ft.	3,000.00
Supervision, $500/mo.	2,500.00
Trammer (1) @ $16/da. plus overtime	2,240.00
Equipment rental, raise, $980/mo..	1,960.00
Equipment rental, sublevel, $1,080/mo.	3,240.00
Powder, fuse, bits, etc. $3.20/ft.	1,600.00
Operating supplies, $0.96/ft.	480.00
	$17,480.00
Add 5% for contingencies and maintenance	874.00
	$18,354.00
	$36.68/ft.

A summary of costs for the three possible plans of exploration at this property come under one of the following categories:

1. Crosscutting and drifting, lower adit	$21,439.95
2. Crosscutting and diamond drilling	$10,259.00
3. Crosscutting, diamond drilling, raising and sub-level drifting	$28,613.00

ACCESS ROAD

The company has also filed an application for access road improvement. The present road from Lee to the mine is narrow and rough, especially the section through the canyon. Although improvement and possible relocation of part of the road would facilitate transportation, the present condition of the mine and lack of ore reserves do not justify consideration of the application at this time. Action should be dependent upon results of the proposed exploration and it is recommended this application be held in abeyance until completion of the project.

CONCLUSIONS

The Bureau of Mines and the Geological Survey conclude that:

1. Work on the Long Canyon property indicates the existence of a prominent northwest trending fault along which there has been considerable mineralization, with lead-zinc-silver ore occurring as a vein along the fault.

2. Production from comparatively shallow workings excavated along the outcrop has yielded a small tonnage of high-grade shipping ore. The lower-grade ore is readily amenable to concentration.

3. Work has been inadequate to determine the size and extent of the deposit but geologic evidence indicates a downward continuity and the possible existence of a large sulfide ore body.

4. The face of the lower adit should be close to the projected downward extension of the vein. The proposed exploration program from this level is feasible and should adequately explore the mineralized area. Costs are reasonable.

5. Exploration should be under the direct supervision of an experienced engineer or mine operator.

6. The Access Road application be held in abeyance pending completion of the exploration project.

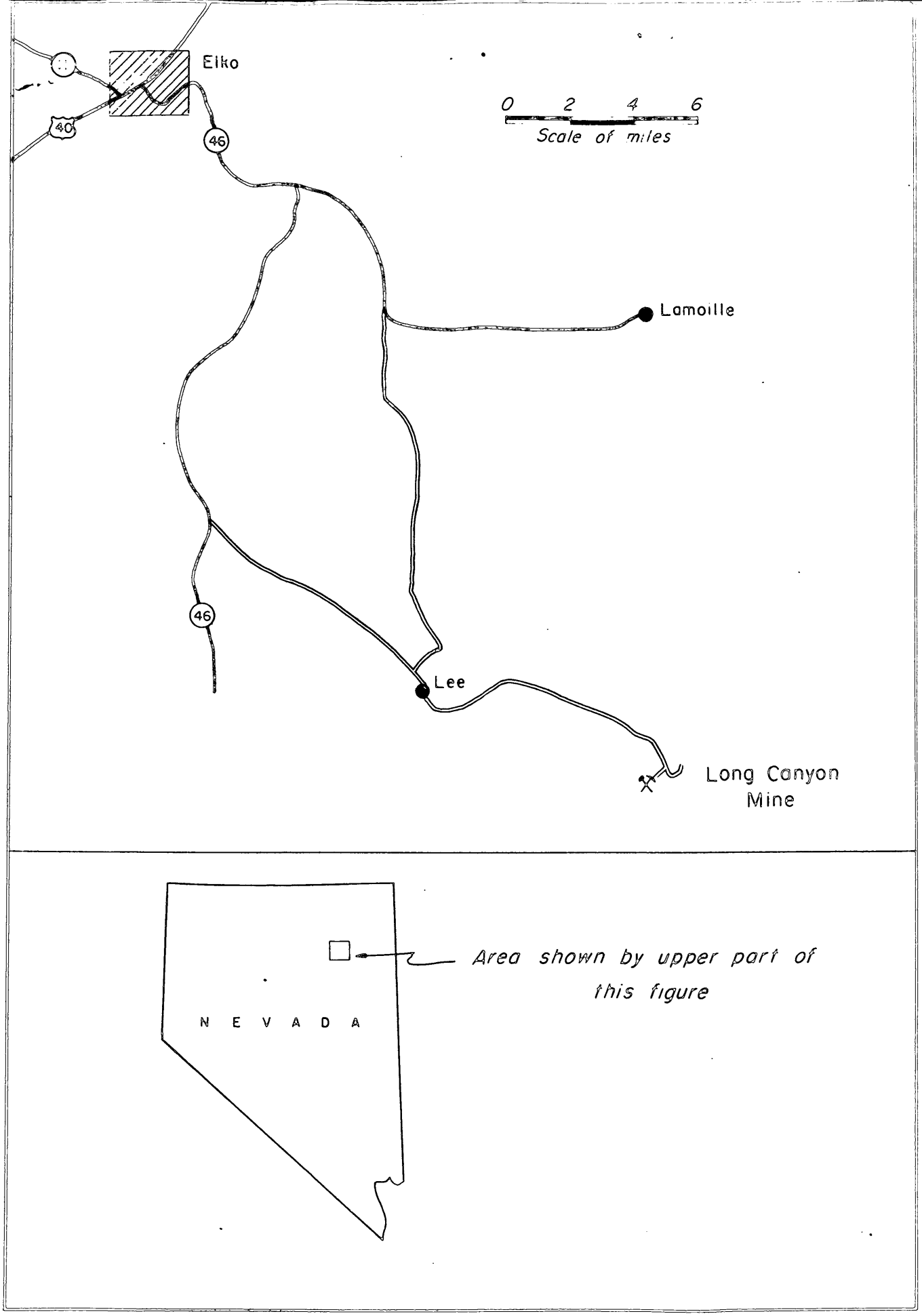
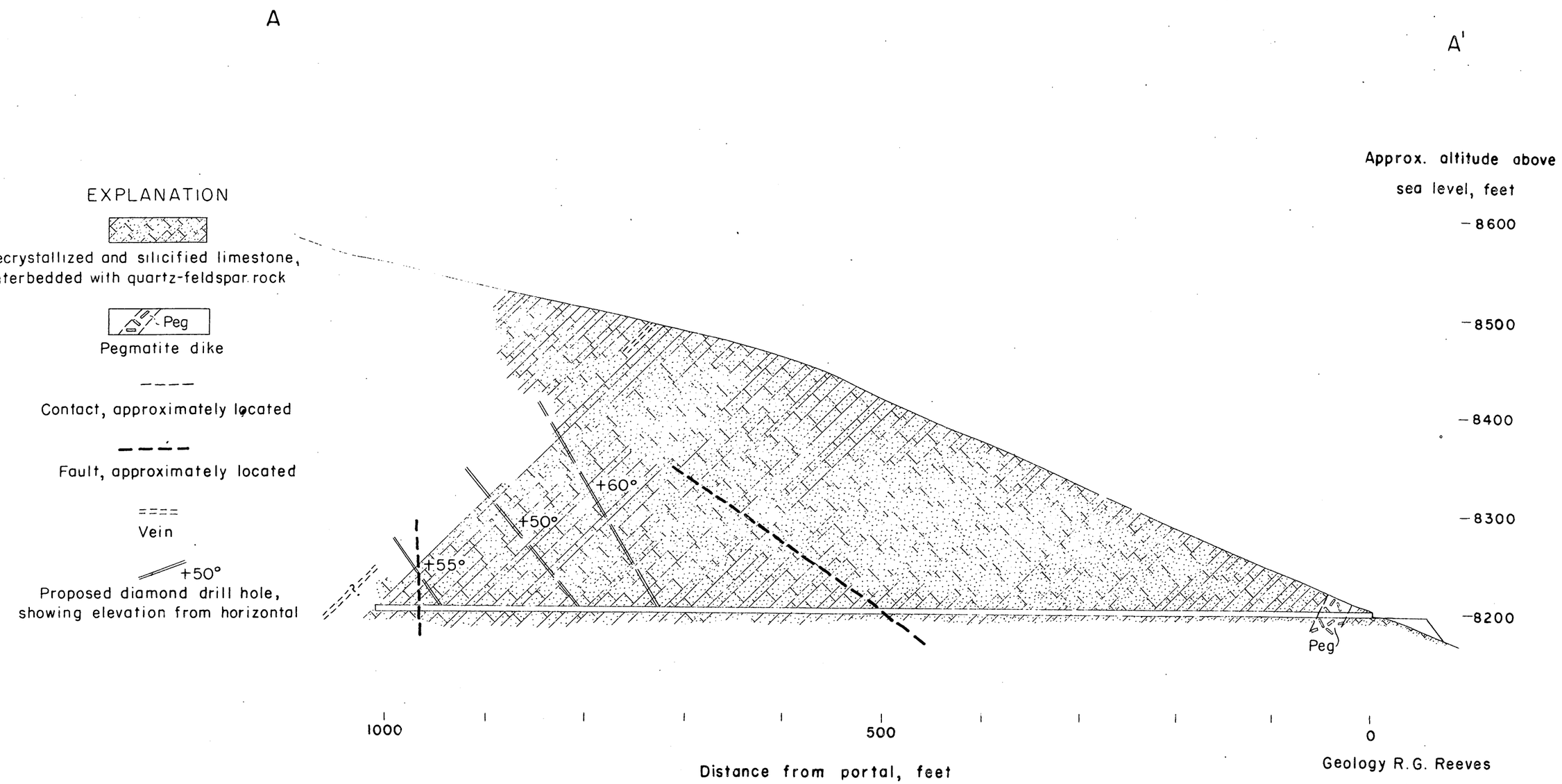


Figure 1- Location map, Long Canyon mine, Elko County, Nevada

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMA 766X
(LEAD-ZINC)



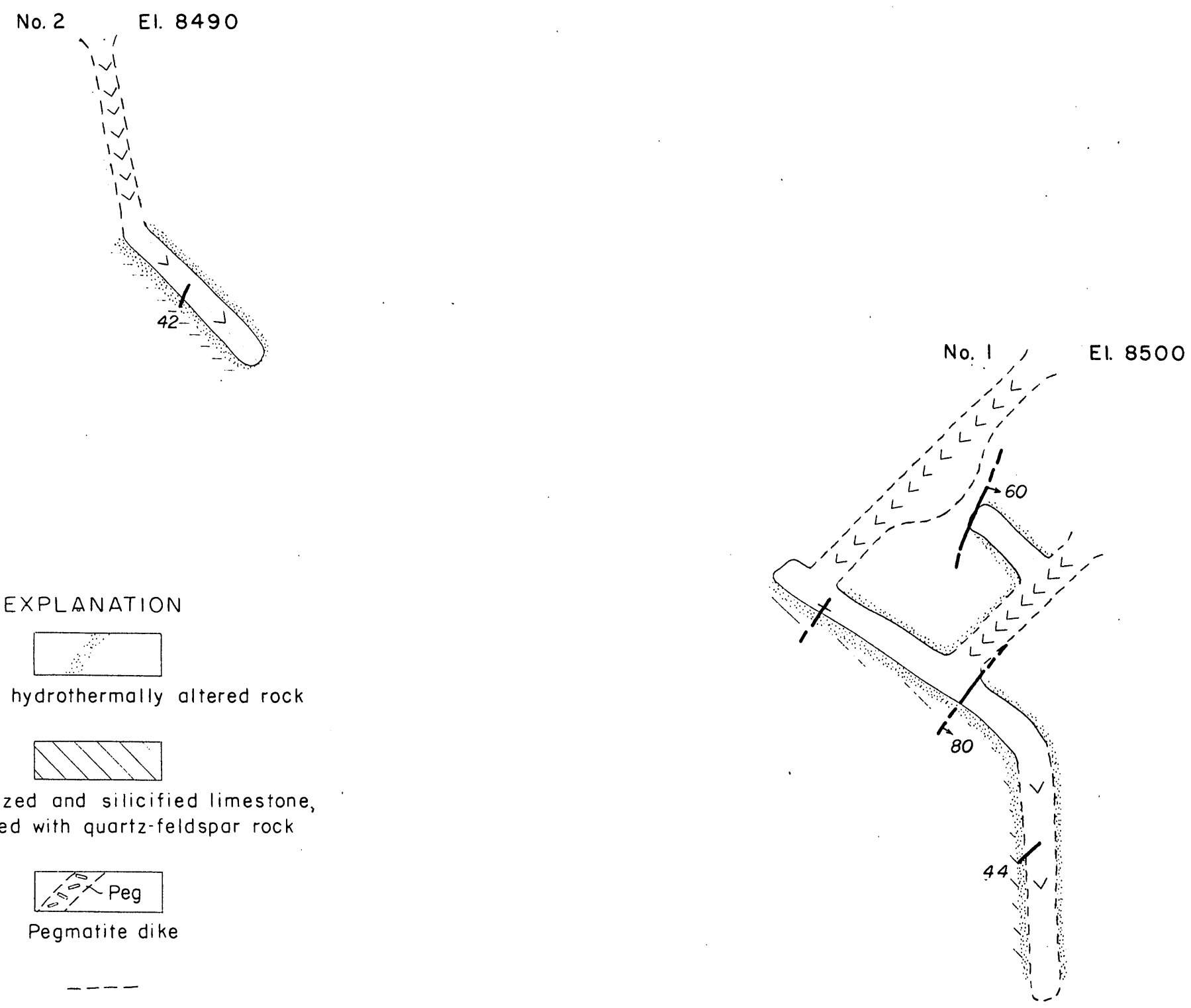
Geology R.G. Reeves

GEOLOGIC SECTION THROUGH THE LONG CANYON MINE

ELKO COUNTY, NEVADA

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMA 766 X
(LEAD-ZINC)



UPPER WORKINGS

EXPLANATION

Gouge and hydrothermally altered rock

Recrystallized and silicified limestone, interbedded with quartz-feldspar rock

Peg

Pegmatite dike

Contact, approximately located

60

Fault, showing dip
(Dashed where approximately located)

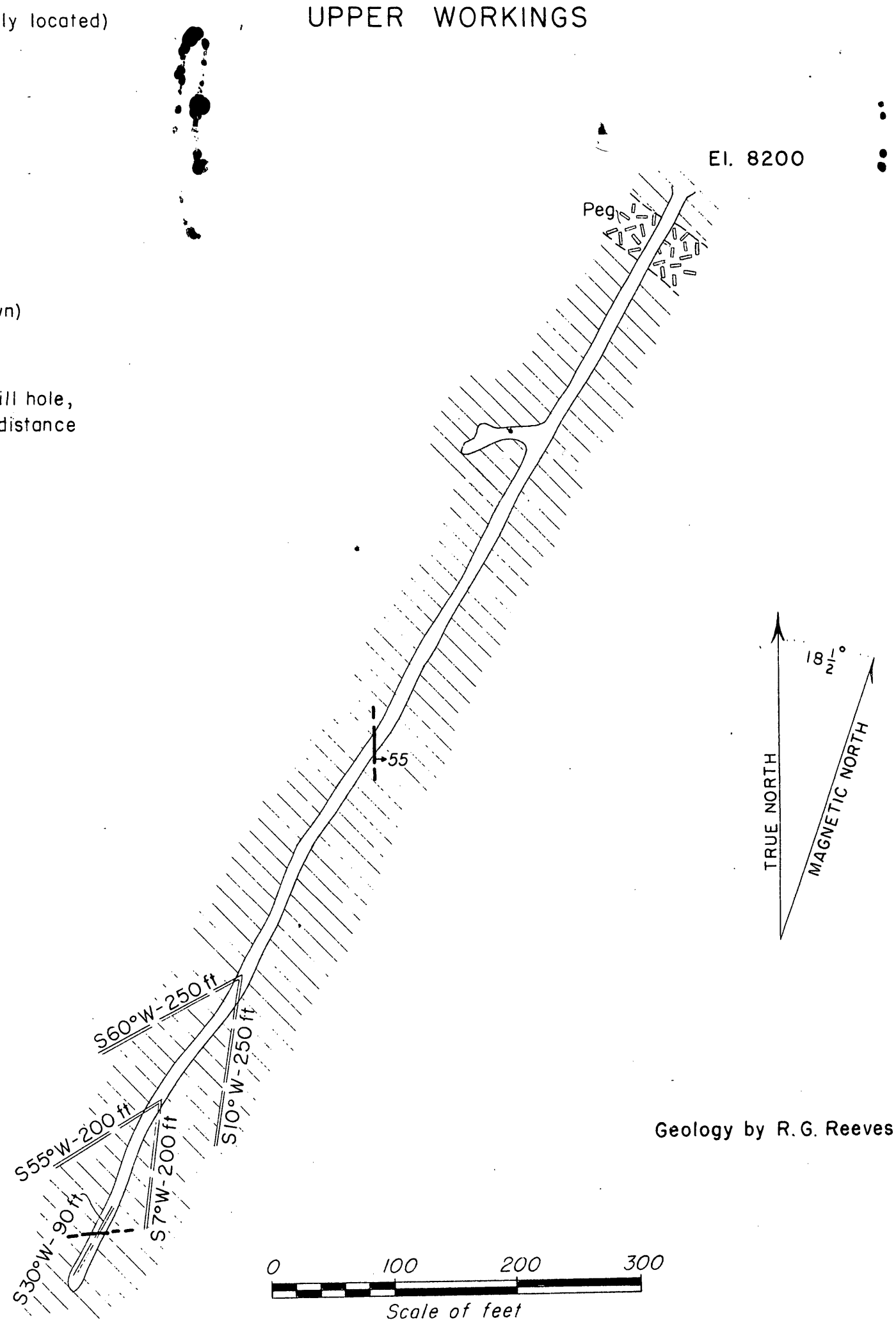
Vertical fault

Vein

Inclined workings
(Chevrons point down)

S30°W-90 ft

Proposed diamond drill hole, giving direction and distance



Geology by R.G. Reeves

LOWER ADIT

GEOLOGIC LEVEL MAP OF THE LONG CANYON MINE, ELKO COUNTY, NEVADA

FIELD REPORT

OF THE

LONG CANYON MINING COMPANY, INC.

RUBY RANGE - ELKO COUNTY

LEE, NEVADA

BY

L. A. WALKER

FOR

MR. HARRY J. ELDREDGE

1549 MAUL DRIVE - OGDEN, UTAH.

EXAMINATION AUGUST 22, 23, 24, 1949.

C
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LELAND A. WALKER
Mining Engineer
SALT LAKE CITY, UTAH

NAME: Long Canyon Mining Company, Lode.
A Nevada corporation.

LOCATION: Ruby Range, Elko County, Nevada. Situated eleven miles easterly of Lee post office, up Long Canyon, a tributary of the South Fork of the Humboldt. Is distant 41 miles south-easterly from Elko, Nevada, the nearest railroad point.

CLAIMS: Twelve possessory claims or an area of approximately 225 acres.

OWNERSHIP & TITLE: Property is under Bond and lease from P. G. James and associates for $50,000 at rate of $10,000 per year, such payments to start in 1950. Royalty on ores shipped to apply on such purphase price.

Long Canyon Mining Company, Incorporated, a Nevada Corporation, was incorporated December 2, 1948, by Archie P. Farr of Ogden, Utah, as president and director, and associates, authorized capitolization 2,000,000 shares at 20 cents par value. 500,000 shares issued to incorporators for mining claims, certain equipment and development since 1947 amounting to $27,980.72. Since incorporation about 15,000 shares have been disposed of. At this time State of Utah was certified sale to public of 325,000 shares, at 20 cents per share. All stock is assessable.

HISTORY: Property has had small intermittent production since 1920. Such production was from shallow surface work by hand methods.

ADJOINING & NEARBY: American Beauty property to the North, now idle, had an estimated production of about a $1,000,000.00 in silver-lead ores. To the south-west the Galena King - a P. G. James property, has had a small production in silver-lead-zinc ore, from development near surface. It is reliably reported that Galena King since acquisition by C. D. Carter is to resume operation.

FACILITIES:

Transportation by truck to Elko, 41 miles distant to railroad. Canyon road of eleven miles to Lee rough, rocky and steep, but remaining distance via oiled road.

Power must be generated by Diesel or Gasoline.

Water ample one mile from present workings.

Timber would have to be purchased in valley, Only growth available Quaking Asp.

Labor easily recruited near by.

Climate - Winter severe.

TOPOGRAPHY:

Rugged with weathered cliffs of granitic rocks and lime silicates. Mountains reach an altitude of 10,000 feet, but rounded and covered by ten to twenty feet of soil except for rock exposures. Altitude at present workings about 9000' and at camp site in canyon about 8000'.

GEOLOGY:

Country rock granitic classified as Cambrian by U.S.G.S.

Locally trend of formations is S.El-N.W. with country rock generally biotite granites north and south of mine workings, as

shown by out-crops. In these granitic croppings are lenticular stratum of silicious limestone of varying width and length.

On the Knob Hill claim, which is about centrally located on property, a silicious limestone strata can be followed for approximately 1500' in length and shows about 300' width. Both walls granitic. On east and west ends of property, intrusive dykes of rhyolite and andesite cut older formations at right angles with course noth-east, south-west. Saattered mineralization of iron manganese and lead is common on edges of dykes and especially strong near sedimentary limestone and quartz blow-outs.

Near the middle width of silicious-limestone of Knob Hill claim (present workings), a strong vein of six to twelve foot width is being developed. N.W. and S.E. Dip is southerly on 35° to 45°. Mineralization mainly sulfide lead with iron. This vein has been exposed over a length of about 400' and to a depth of 40'. Strength and continuity good.

EQUIPMENT:

Two 105 cubic foot compressors, pipe, track, cars, drills, hoists, steel, and miscellaneous tools and sheds together with two army White half-track trucks and two small trucks ample for present needs.

Mill equipment consists of a small crusher, hammer mill, Bendalari Jig and Wilfley table with gasoline motors.

Living quarters now in use belong to American Beauty Co.

DEVELOPMENT:

During the period from August 1947 at which time Archie P. Farr and associates acquired property from P. G. James - this group has of necessity had to work as finances permitted. A road had to be built from canyon floor to workings of over a mile length. Camp facilities had to be renovated, equipment purchased, and mine development carried on on which future mining possiblilities were to be based. All of above with only minor outside assistance has been paid for from production taken out near surface by made shift methods.
From No. 1 incline, vein was followed down a distance of better than 40' with drifting on vein south-east and north-west for over 200'. An incline raise was driven to surface from north-west heading. This development has shown vein strength continuous over a length of approximately 200' with minable ore widths varying from two to ten feet. Ore is still unmined in floor of drift and in places in backs. Development also has shown strong mineralization from No. 2 incline and drifting.

Also numerous cuts and shallow excavations elsewhere on property have been given attention.

METHODS & COSTS:

It would be unfair to compare methods and costs at this property with others. With limited development and with production the important item, it is a certainty that at best time and effort alone showed a profit for future operation.

Milling of lower grade ores at a ratio of about 4-1 by Jig and Table showed rapid and cheap concentration in shipped concen-

trates. Economic recovery estimate 75%.

PRODUCTION:

	Lot	Tons Dry Wt.	Pb.	Au.	Ag.
Crude	1	2.763	41.5	.011	2.945
Conc.	2	3.2245	60.4	.0085	4.025
"	3	3.7635	76.1	.705	3.86
"	4	3.8545	61.1	.0425	3.075
"	5	6.855	32.7	.035	2.225
"	6	4.0625	69.6	.006	4.3
"	7	1.426	55.6	.0025	3.075
"	8	3.4735	62.3	.0085	3.55
"	9	4.6465	53.1	.0085	3.35
Crude	10	5.757	29.0	.0075	2.34
"	11	52.401	28.0	.009	1.74
Concts.	12	2.7665	15.15	.025	0.935
"	13	4.160	49.2	.005	3.0

		Ton Value	Net
Crude	1	$ 92.831	$182.24
Conc.	2	142.452	385.04
"	3	236.457	872.41
"	4	169.727	640.11
"	5	84.675	568.95
"	6	195.083	779.02
"	7	151.471	199.50
"	8	194.723	662.87
"	9	163.955	641.07
Crude	10	82.562	345.73
"	11	82.927	3035.16
Concts.	12	41.864	88.76
"	13	101.149	357.16
Total Dry Tons		99.1435	$8,758.02

Sampling:

Only two representative samples taken:

No. 1 - Mill heads grab from Stock pile (.75 ton)

No. 2 - 8' face grab near surface No. 1 incline.

1 -	Tr. Au	1.00 Ag	15.60 Pb
2 -	Tr.	1.40	30.10

ORE RESERVES:

Two to three 50 ton shipments of crude ore possible in incline near surface. (Sample No. 2)

RECOMMENDATIONS:

Take out crude ore in sight. After survey for elevations and tie-in with vein, either sink shaft or project and drive tunnel lower down, at least 100' lower elevation than 40' level. This tunnel on north slope of mountain toward camp driven on a course of about S 40° W should intersect vein at about 500'. Grade not to exceed (0.5%) one half of one percent.

Cost of above should not exceed $7500 - but for contingincies such as new steel, bits, camp supplies etc. and current accounts property should be financed at this time for at least $15,000. This should leave available capital sufficient for some development on vein.

Contract to cover labor and supplies will be most economical from a company standpoint.

Effort should be made to modify Bond and Lease for lower royalty rates and decrease in payment guarantee per year.

This property has far more prospective value than usual. Values are good and vein structure strong. Faulting minor, A lower tunnel will decrease truck haul on a severe grade and improve operation probably to full year. Property value can be proven only by deeper development. A new mill should not be considered until sufficient ore reserves developed.

CONCLUSIONS:

Property has merit which justifies deeper development at this time. As future program is entirely dependent on such work, operations at inclines should be continued only as long as profit can be made from shipping grade ore now being mined.

/s/ L. A. Walker
L. A. WALKER

CONSULTING MINING ENGINEER

August 26, 1949

At property August 22, 23, 24, 1949

Certificate of Assay

DEASON & NICHOLS
Assayers & Chemists

C. Ivan Nichols Wm J. Deason
160 So. West Temple Street
Salt Lake City 1, Utah

August 25, 1949

Mr. L. Walker

Long Canyon Mining Co.
146 South West Temple St.
City 1

Assay per ton of 2000 pounds

Gold Ounces	Silver Ounces	Wet Lead %
Trace	1.00	15.60
Trace	1.40	30.10

Charges $ 3.00

/s/ C. Ivan Nichols

EXHIBIT D

AGREEMENT AS TO COMPENSATION FOR SERVICES RENDERED OR TO BE RENDERED TO APPLICANT IN CONNECTION WITH APPLICATION AND/OR LOAN

To induce the United States Government and its agencies to make a loan under Sec. 302 of the Defense Production Act of 1950 to _____ (hereinafter called "Applicant") and in consideration of the making of a loan to Applicant, the undersigned, having been retained by Applicant for the purpose of rendering professional or other services in connection with its application for a loan or loans, hereby represents, warrants, and agrees that the undersigned has not been paid, has not made any agreement with the Applicant to be paid, and has not procured any person to pay or agree to pay, and will not, directly or indirectly, charge or receive any bonus, fee, or commission in any form in connection with the said application for, or the obtaining of, the loan applied for by the Applicant, or any compensation in any form for services rendered or to be rendered in connection therewith except for the services and in the amounts stated below:

Name	Description of services	Amount paid	Amount to be paid
None		$	$

To induce the making of the loan and the employment of the undersigned by Applicant, the undersigned hereby further warrants, covenants and agrees, upon the consideration herein specified, and in consideration of the employment of the undersigned by Applicant, as above recited, that if the amount of compensation stated above for any such services shall not be deemed reasonable by any agency of the United States Government, the undersigned will reduce the charge for such services to such amount as shall be deemed reasonable by such agency, and will not, directly or indirectly, charge or collect from the Applicant or any other person, any sum in excess of the amount so deemed reasonable; and that if the undersigned has heretofore collected, from the Applicant or any other person, as compensation for any such services, any amount deemed by such agency to be unreasonable, the undersigned will refund to Applicant or such other person such sums as are in excess of the amount deemed reasonable. The undersigned further warrants, covenants and agrees that if the amount of the compensation for any such services is not determinable at the date of application, or is not stated above, it will not collect or charge any sum as compensation for such services without the prior written approval of the Government agency with which this application is officially filed as to the nature of the services for which such compensation is to be paid and the amount of such compensation.

Archie P. Farr

Witness: Dean J. Christiansen

Address of witness: Ogden, Utah

Dated May 14, 1951, 19____

NOTE—Corporations must execute foregoing certificate in corporate name, by duly authorized officer, and seal must be affixed and duly attested; partnerships must execute in firm name, together with signature of a general partner. If no compensation is paid or to be paid for services rendered in connection with application or loan, this should be so stated and the Applicant should sign this Exhibit.

CERTIFICATION

The Applicant hereby certifies that the statements made in the foregoing application, and all exhibits and documents submitted in connection therewith, are true and correct statements to the best of Applicant's information and belief and are submitted as a basis for credit. The Applicant agrees to reimburse any agency of the United States Government upon demand for any expenses incurred in connection with or arising out of this application or any loan made pursuant hereto.

Dated May 14, 1951, 19____

Witness: _____ (For individual applicants) _____ (Signature)

Witness: _____ (For partnership applicants) _____ (Full name of firm)

By _____ (Signature), a general partner.

(For corporate applicants)

(CORPORATE SEAL)

Long Canyon Mining Company, Inc. (Full corporate name of Applicant)

Attest: _____ (Signature), _____ (Title)

By Archie P. Farr (Signature) President (Title)

The United States Criminal Code, 18 U.S.C., Sec. 1001, makes it a criminal offense to make a willfully false statement or representation to any Department or Agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE: 1950 O - 916171

Dma - 766

Form NSRB-146
(Nov. 1950)

UNITED STATES GOVERNMENT

APPLICATION FOR GOVERNMENT LOAN
UNDER SEC. 302 OF
DEFENSE PRODUCTION ACT OF 1950

FORM APPROVED
BUDGET BUREAU NO. 25-R002

AMOUNT OF LOAN REQUESTED
$30,000.00

TERMS OF LOAN REQUESTED

DATE OF APPLICATION

NAME AND ADDRESS OF APPLICANT (*Street, City, Zone, State*)

Long Canyon Mining Company, Inc.
2784 Jefferson Ave.
Ogden, Utah

TO BE FILLED IN BY DELEGATE AGENCY

(DATE RECEIVED)

COMM.

AGRIC.

INT.

D.T.A.

FILE NO.

INSTRUCTIONS

Application should be filed with the Department of Commerce, Department of Agriculture, Department of Interior, or the Defense Transport Administration, whichever has the primary interest in the facilities, products, or processes involved. However, for convenience of the applicant, he may file with any government agency with which he has contract or other pertinent relationships and such agency will arrange for the transmittal of the application to the appropriate office.

Submit four (4) signed copies of the application. Name and address of applicant should be stamped or typed for identification of each sheet of the application and all accompanying papers. When a question is inapplicable, this should be so stated on the form. Additional sheets may be attached in answering any questions or in providing other supporting information.

1. PURPOSE OF LOAN

Give a brief general statement of the purpose of the loan requested, including in the table below estimated amounts for such major purposes as land acquisition, building construction, purchase of plant, purchase of equipment, working capital, repayment of debt, etc. Statement should make clear whether funds will be used for expansion of capacity, development of technological processes, or production of essential materials.

General Statement

Loan requested for continuation of exploration program as follows: Underground drifting, cross-cuts, raising and diamond drilling. Surface building repairs and replacement. Equipment Purchase. Road Repairs. Engineering Etc.

NATURE OF EXPENDITURE	AMOUNT
Development drifting, X cuts, raising	15,500
Diamond Drilling	5,000
Buildings	1,000
Road Repairs	3,500
Equipment	3,000
Engineering	2,000
Total amount applied for	30,000

MAY 23 1951 S

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

REFERRED TO: DATE 5/23/51

1. Mr. Wesser
2.
3.
4.

FOR:

- ✓ Action
- Approval
- Comment
- Conference
- Consideration
- Filing
- Instructions
- Investigation
- Initials
- Mailing
- Previous correspondence
- Recommendation
- Record of
- Referring to
- Reply for signature of
- Rewriting
- Signature
- Suggestions
- Your information

REMARKS:

Check (X) before the items needing attention.

Stirling GDA
Initials of sender.

GPO 16—63815-1

2. PROPOSED METHOD FOR REPAYMENT OF LOAN

State sources of funds, and proposed schedule of repayment

By Percentage royalty on net smelter returns on production.

3. NATURE OF BUSINESS AND DESCRIPTION OF PROJECT

Describe fully the business activity for which the funds are intended. In so doing, identify the materials and services to be produced, describe the facilities and processes involved, and explain in detail any research activity and the nature of the results expected. Attach blueprints and specifications, if available, and furnish other technical details to the extent that they are not covered elsewhere in the application.

Mining company organized in December 1948. On and near surface Strong Pb-Zn mineralization developed to incline depth of 80' over a length of 300'. As deep development only will determine mineralization continuation-tunnel (X cut) to cut projection of rein at 300 ' depth started in fall of 1949 and as of Dec. 31, 1950 was in a distance of 955' with siding's and laterals bringing total to 1048'.

Objective close to vein projection.

4. Relationship to National Defense. Explain carefully how the expenditure of the funds will contribute to national defense. As a part of such explanation, the following questions should be answered to the extent possible:

(a) What evidence exists as to current shortages of the materials or services to be produced?

Demand and known reported shortages of lead and zinc.

(b) What evidence exists as to future shortages of the materials or services to be produced?

World conditions

(c) Are such shortages, if any, regional or national in scope?

National.

(d) In what respects will the use of the funds aid directly in expediting the carrying out of government defense contracts? (A listing of defense contracts, if any, held by applicant is required in item 8 below.)

Metals Produced.

4. Relationship to National Defense - Continued

(e) In what respects will the use of the funds aid indirectly in expediting the carrying out of government defense contracts or related operations?

Funds will immediately be used in exploration campaign

(f) Are there available alternative methods or facilities to accomplish the same purpose as that for which these funds are intended? (For instance, unused capacity, possibility of multiple shift operations, idle facilities, readily convertible equipment, sub-contracting?) If answer is yes, explain why alternatives are not used.

No

5. Maximum Designed Production

List separately materials or services identified in item 3 (a)	Unit of measure (b)	Maximum designed production with existing facilities (c)	Average percentage of maximum designed production used in quarter preceding filing of application (d)	Maximum designed production including use of funds applied for (e)
Lead	15-20%	500 ton/Mo	none	500 ton/Mo.
Zinc	10%			

6. Employment

(a) Number currently employed at location(s) where funds are to be used. (Use pay period ending nearest 15th of month preceding filing of application.)

4

(b) Maximum feasible employment with existing facilities.

(1) Single shift operation.

4 Men

(2) Multiple shift operation (specify how many shifts).

2 shift 9 men

(c) Estimated additional employees required by the use of the funds applied for.

5

7. Timing

(a) On what date(s) are the requested funds needed?

Monthly order six months period

(b) On what expected date(s) will applicant begin to use such funds and obtain output from the use of such funds? Wherever possible, give planned schedule of output.

Should be in production within six months.

8. Output from the use of funds applied for will be for the following purposes:
a. For the following principal prime defense contracts (if any) with the United States Government:

Date of contract (a)	Contracting Government Agency (b)	Program symbol (2 digits) or other contract identification (c)	Materials or services (d)	Delivery date(s) (e)	Amount *(Dollars)* (f)

b. For the following subcontracts (if any) with U.S. Government prime defense contractors:

Date of contract (a)	Materials or services (b)	Supplied to *(Give name and address of firm)* (c)	Delivery date(s) (d)	(e) Government agency receiving end product or services (f) Program symbol (2 digits) or other contract identification	Amount *(Dollars)* (g)
				(e) (f)	
				(e) (f)	
				(e) (f)	

c. For the following classes or types of customers not covered by contracts listed above (list materials or services to be provided and, wherever possible, also indicate final product use):

Ores produced will be consigned to Smelter in Salt Lake Valley, Utah

9. **Feasibility**

(a) Estimate anticipated requirements for manpower, equipment, raw materials, energy, fuel, transportation facilities, water supply, housing, community facilities, and other factors of production, for (1) preparation of the facilities and (2) actual operation thereof. (The estimates may be limited to those factors of substantial significance to the preparation and operation of the facilities for which the funds are intended.)

1- 4 to 9 men in completing exploration.

2- 15 Men.

(b) Discuss and evaluate the availability of each of the above factors in the area(s) where the funds will be used.

Labor Ample--Elko, Nevada

10. The following applications for necessity certificates for tax amortization (Under Section 124A of the Internal Revenue Code) for facilities at the location(s) covered by this application have been filed since January 1, 1950.

Date of application (a)	Government file number (b)	(Estimated) Total of facilities in dollars on each application (c)	(d) If final action has been taken, give date of	
			Issuance	Denial
Refer to Application giving date of enclosed letter application to				
A. C. Johnson. Reno, Nev. Bureau of Mines.				
	(Report was submitted)			

11. **Recent Efforts to Obtain Credit**

(a) Banks— List names and addresses of all Banks of Deposit of Applicant within the last 5 years: *(Mark with an asterisk (*) bank or banks in which deposits are now kept)*

Commercial Security Bank, Ogden, Utah
Funds so far expended from sale of stock

11. **Recent Efforts to Obtain Credit** - Continued

(b) State efforts to obtain credit, within 60 days preceding date of application, from banks, the Reconstruction Finance Corporation, or other sources, results, and reasons if refused. (NOTE.— Section 302 of the Defense Production Act of 1950 states that a loan may be extended "only to the extent that it is not otherwise available on reasonable terms." Accordingly, Applicant should show that it has applied to each bank named in (a) above, or explain the reason for not doing so. The fact that a loan of the particular maturity and terms applied for is refused by a bank or banks is not sufficient to comply with the statute, if credit on reasonable terms is available. State whether a bank will participate in the loan, and if so, state name of bank and amount of participation. Full particulars must be given.) List the names and addresses of banks and other lending institutions to which applications for credit have been made, and in each case state date of application, amount of credit available, if any, maximum term for which credit is available, what consideration, if any, was given to possible guarantee of loan under Federal Reserve Regulation V, and reason for refusal or reason loan was not obtained. Indicate whether or not application was definitely refused for further credit on any basis.

12. What other forms of government financial assistance, if any, have been received or requested by the applicant in connection with the purposes of the loan herein applied for? If applicant plans to request such assistance in the future, give details.

None

13. **HISTORY, MANAGEMENT, LEASED AGREEMENTS, INSURANCE, ETC.**

These subjects should be fully covered in statements attached hereto. Outline past management experience or other basis for showing competence of the Applicant to perform in accordance with expressed purpose of the application. If plant was purchased, state price, form and terms of payment, date of purchase, from whom and under what circumstances purchase was made. If it is proposed to construct or acquire new facilities (including equipment), state estimated cost and basis of such estimate, form and terms of payment, and from whom purchases of facilities will be made. State whether Applicant, or the business or plant, has been in receivership, bankruptcy, Chapter X, XI or XII, in hands of creditors, committee, or whether Applicant has effected a compromise with creditors, and if so, discuss fully. Indicate whether business is conducted in leased premises and whether any facilities are leased from others and describe terms of any lease agreements. List type and amount of insurance carried on plant property. Describe briefly any pending or threatened litigation affecting Applicant.

14. NAMES AND ADDRESSES OF OFFICERS, DIRECTORS, OR PARTNERS, AND IN ADDITION THERETO, THE FIVE LARGEST STOCKHOLDERS IF A CORPORATION.

NAME AND ADDRESS (a)	Official title (If officer is also director indicate by "D") (b)	Total of annual salary, commissions, bonuses, etc., received from Applicant and affiliates during last fiscal year (c)	Estimated net worth outside of Applicant (d)	Number of shares held in applicant		Life insurance carried for benefit of Applicant	
				Common (e)	Preferred (f)	Amount (g)	Net cash surrender value after loans (h)
Archie P. Farr	President D	None					
Dale F. Farr	Vice-President D	None					
Harry J. Eldredge	Secy. Treas. D	None					
Lewis Farr	Resident Agent D	None					
E. E. Greenwell	Director	None					
Norman Bingham	Director	None					
Mrs. P. G. Boam	None	None					
Mrs. Geddes D. Brown	None	None					
	Total		x x x x x			x x x	x x x

15. CAPITAL STOCK ISSUES

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par value (c)	Number of shares outstanding (d)	Dividend rate last paid (e)
Common stock	$	$	$		
Preferred stock	$	$	$		

16. PURCHASE AND SALES RELATIONS WITH OTHERS

Does Applicant buy from, sell to, or use the services of, any concern or partnership in which an officer, director, large stockholder, or partner of the Applicant has a substantial interest? If not, so state. If so, give names of such officers, directors, stockholders, and partners, and names of such concerns or partnerships.

No

Does any officer, director, large stockholder, or partner of Applicant receive any commission, bonus, or other payment in cash or services from any concern or partnership with which Applicant has business dealings? If not, so state. If so, give names of such officers, directors, stockholders, or partners and amounts of such commissions, bonuses, or payments.

No

17. COMPENSATION SCHEDULE

INSTRUCTIONS: The schedule shall show the amount of compensation being paid to all employees of Applicant receiving compensation at a rate in excess of $10,000 per annum, including employees paid on a part-time basis where the rate of compensation exceeds $10,000 per annum computed on a full-time basis. If Applicant is a corporation, the schedule should show the compensation, regardless of amount, being paid to all officers, directors, and such stockholders as have an interest in Applicant's business of 10 percent or more. If Applicant is a partnership, the schedule should show the compensation being paid to, or being withdrawn by, all partners for their personal use. If Applicant is an individual, the schedule should show the amount being withdrawn by Applicant for his personal use. In each case the listed person's connection with the business should be indicated (i.e., whether an officer, director, stockholder, partner, owner, etc.). The calendar basis for the compensation should likewise be shown. Attorneys or firms of attorneys on a regular retainer or salary basis should be included. The schedule should include a separate notation indicating the source and amount of any compensation being paid by a company or firm directly or indirectly controlling, affiliated with, or controlled by, Applicant. If the space provided herein is insufficient, the schedule should be continued on the reverse side or appropriate continuation sheets should be attached.

17. **COMPENSATION SCHEDULE** - Continued

The term "compensation", as used herein and such schedule, shall include all salaries, fees, bonuses, commissions, retainers, regular drawing accounts, and other payments, direct or indirect, in money or otherwise, for personal services.

Name (a)	Position (b)	Compensation paid during previous fiscal year (c)	Present compensation (d)
None			

18. **COLLATERAL**

(a) The applicant offers the following described collateral as security for repayment of the loan applied for.

Description (a)	Date acquired (b)	Cost (c)	Book Value (Net) (d)	Appraised* value (e)
Property now held:				
To be acquired:				

* This column need be filled in only if a recent appraisal has been made. If so, identify appraiser below.

Name (a)	Title (b)	Date (c)

(b) Describe existing liens, if any, on property listed above.

EXHIBIT A - CURRENT FINANCIAL STATEMENT

As of March 31, 1951

(Date not more than 30 days prior to date of application)

ASSETS

CURRENT ASSETS			
1. Cash			$ 1,507.23
2. Notes receivable		$	
Less reserve for doubtful notes			
3. Accounts receivable:			
Current	$ 100.00		
Past due not over 4 months			
Past due over 4 months		$ 100.00	
Less reserve for doubtful accounts			100.00
4. Inventories:			
Raw materials	$		
Work in process			
Finished goods		$	
Less reserve for inventory losses			
5. Other current assets (describe)			
TOTAL CURRENT ASSETS			$
FIXED AND OTHER ASSETS			
6. Plant used in business:			
Land	$ 51,218.16		
Buildings... Tunnel	26,173.30		
7. Machinery	19,716.03		
8. Equipment, furniture, and fixtures		$ 97,107.49	
Less reserve for depreciation		5,699.64	91,407.85
9. ~~Investments—stocks and bonds~~ Organization Expense			9,718.85
10. Investments in affiliated companies			
11. Receivables due from affiliated companies			
12. Real estate not used in business			
13. Due from officers, directors, employees, stockholders			
14. Deferred charges			
15. Other assets... Mine Lease & Development			86,147.46
TOTAL ASSETS			$188,081.39

LIABILITIES

CURRENT LIABILITIES			
16. Notes payable (see schedule 1, page 10):			
Banks		$	
Trade creditors			
Officers, stockholders, relatives			
Insurance companies			$
17. Accounts payable			None
18. Other current liabilities:			
Delinquent taxes — Real estate		$	
Delinquent taxes — Federal			
Wages and salaries			
Due officers			
Accrued interest, rent, taxes, wages, etc.			
TOTAL CURRENT LIABILITIES			$ None
FIXED AND OTHER LIABILITIES			
19. Machinery liens			2,200.00
20. Mortgage debts (see schedule 2, page 10)			48,299.43
21. Bonds or debentures (see schedule 2, page 10)			
22. Other liabilities			
NET WORTH			
23. Common stock (if Applicant is incorporated)		$ 162,162.80	
24. Preferred stock (if Applicant is incorporated)	(Deficit	(23,780.84)	
25. Surplus (if Applicant is incorporated)			138,381.96
26. Capital and Surplus Account (if Applicant is partnership or individual)			
TOTAL LIABILITIES			$188,881.39
27. Contingent liabilities (explain)			$

NOTE.— Submit copy of last available audit or of financial statement at close of last fiscal period (if such date differs from date of above statement).

SCHEDULE I - Notes Payable (in detail)

Name and address	Maturity	Amount	State amount and character of collateral	Name of guarantor(s) and/or endorser(s)

SCHEDULE 2 - Mortgage Debt (real estate and/or chattels) or Bond Issue

Names and addresses of holders	Date of maturity	Interest rate	Unpaid principal amount	Date to which interest is paid
P. G. James			$ 48,299.43	
Gardner Denver Co. Salt Lake City, Utah			2,200.00	
TOTAL	X X X X X X X	X X X X X X	$ 50,499.43	X X X X X X X X X X X X X X X X

If mortgage secures a bond issue, state whether bonds are principally held by management and/or stockholders or by others, and attach copy of mortgage indenture.

EXHIBIT B - CONDENSED COMPARATIVE STATEMENT OF INCOME AND EXPENSES

For years ended _____
(Insert date of end of fiscal year)
(000.00 omitted)

	(Figures for 3 preceding years)			Current year as of date of Exhibit A
	19	19 49	19 50	
1. Net sales		1,615.77	none	None
2. Cost of goods sold				None
3. Gross profit on sales (line 1 minus line 2)		1,615.77	None	None
4. Other income (itemize)				
5. Total (line 3 plus line 4)		1,615.77	None	None
6. Salaries (officers or partners)*				
7. Selling and all other expenses		13,343.52	4,381.65	1,971.80
8. Total of lines 6 and 7		13,343.52	4,381.65	1,971.80
9. Profit or (loss) before depreciation and Federal taxes (line 5 minus line 8)		(11,727.75)	(4,381.65)	(1,971.80)
10. Depreciation		2,849.82	2,849.82	
11. Federal Income and Excess Profits Taxes				
12. Net profit or (loss) (line 9 minus lines 10 and 11)		(14,577.57)	(7,231.47)	(1,971.80)
ANALYSIS OF SURPLUS				
13. Total surplus at beginning of period (deficit)		None	(14,577.57)	(21,809.04)
14. Net profit or (loss) for period		(14,577.57)	(7,231.47)	(1,971.80)
15. Line 13 plus line 14 if profit; line 13 minus line 14 if loss		(14,577.57)	(21,809.04)	(23,780.84)
Add:				
16. Surplus paid in during period				
17. Surplus resulting from revaluation of assets				
18. Other additions to surplus (itemize)				
19. Total of lines 15 to 18, inclusive		(14,577.57)	(21,809.04)	(23,780.84)
Deduct:				
20. Dividends				
21. Other charges to surplus (itemize)				
22. Total of lines 20 and 21				
23. Surplus at end of period (line 19 less line 22), MUST AGREE WITH SURPLUS AS SHOWN IN BALANCE SHEETS		(14,577.57)	(21,809.04)	(23,780.84)

* To include all payments of any kind (commissions, bonuses, withdrawals) to officers or partners.

NOTE—If years included in the above tables are not adequately representative of applicant's financial experience, information may be submitted for additional years.

EXHIBIT C - CONDENSED COMPARATIVE STATEMENT OF CONDITION

For years ended December 31
(Insert date of end of fiscal year)

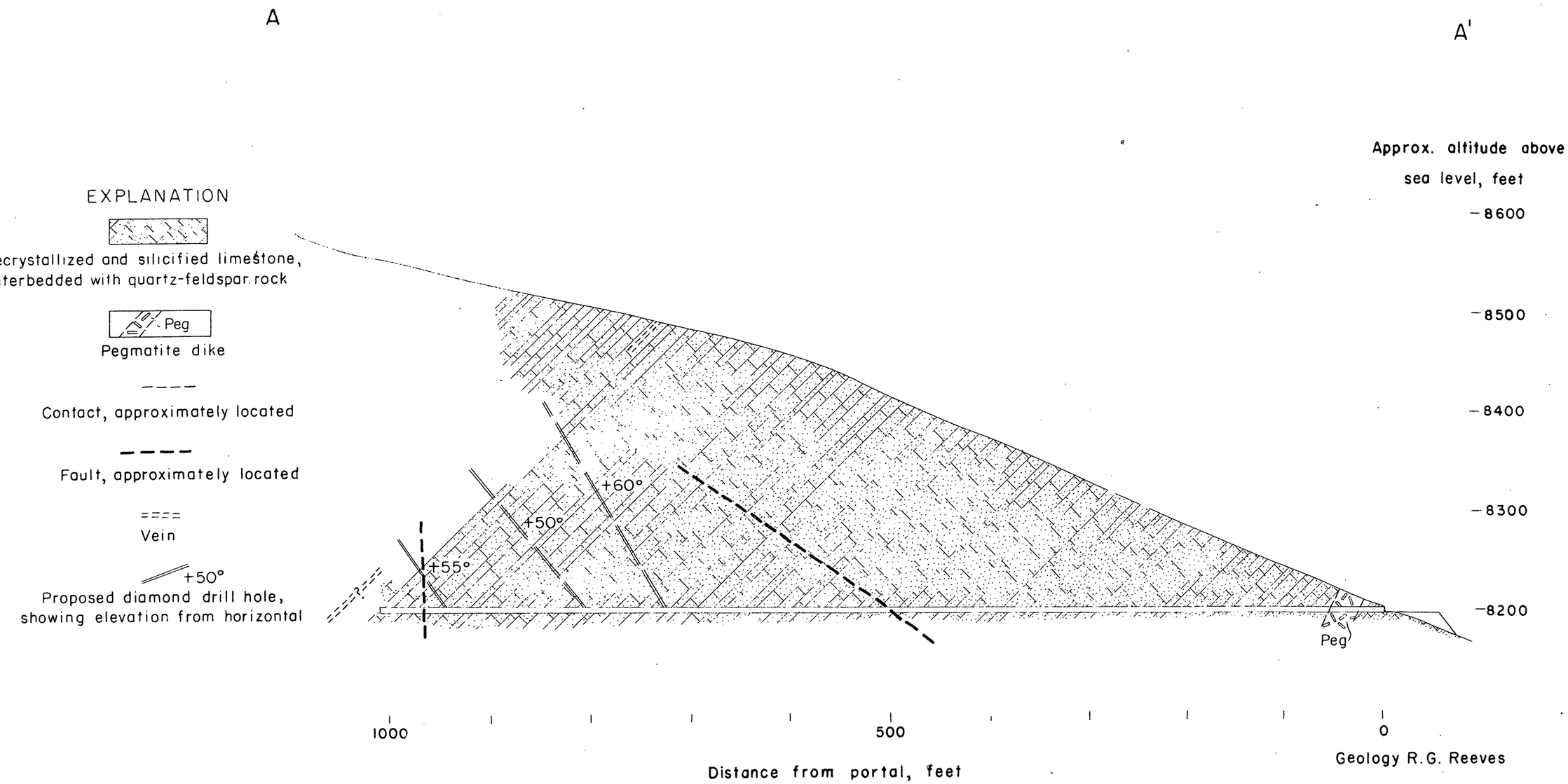
(000.00 omitted. Use figures to nearest thousand. For instance, the figure $3,489.36 should be written as 3; the figure $3,689.36 should be written as 4)

ASSETS	(Figures for 3 preceding years) 19	1949	1950	Current year as of date of Exhibit A
CURRENT ASSETS:				
1. Cash		13	1	2
2. Receivables (after deducting reserves)				
3. Inventories				
4. Other current assets:				
TOTAL CURRENT ASSETS				
FIXED AND OTHER ASSETS:				
5. Plant accounts (before depreciation):				
Machinery, equipment, etc.		14	14	20
Delivery equipment				
Real estate and buildings used in business		60	80	77
6. Other assets (as investments, real estate not used in business, etc.):				
Organization Expense		10	10	10
Mine Lease & Develppment		86	86	86
TOTAL ASSETS		183	191	195
LIABILITIES				
CURRENT LIABILITIES:				
8. Notes payable		5	8	
9. Accounts payable				
10. Accrued liabilities				
11. Other current liabilities:				
TOTAL CURRENT LIABILITIES				
FIXED AND OTHER LIABILITIES:				
12. Mortgage debts		45	40	50
13. Debentures				
14. Other fixed liabilities:				
RESERVES:				
15. Reserve for depreciation		3	6	6
16. Other reserves:				
NET WORTH:				
17. Common stock (issued) (if Applicant is incorporated)		144	158	162
18. Preferred stock (issued) (if Applicant is incorporated)		(15)	(22)	(24)
19. Surplus (if Applicant is incorporated)				
20. Capital and surplus account (if Applicant is partnership or individual)				
TOTAL LIABILITIES		182	190	194

NOTE— If years included in the above table are not adequately representative of applicant's financial experience, condition statements may be submitted for additional years.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMA 766X
(LEAD-ZINC)



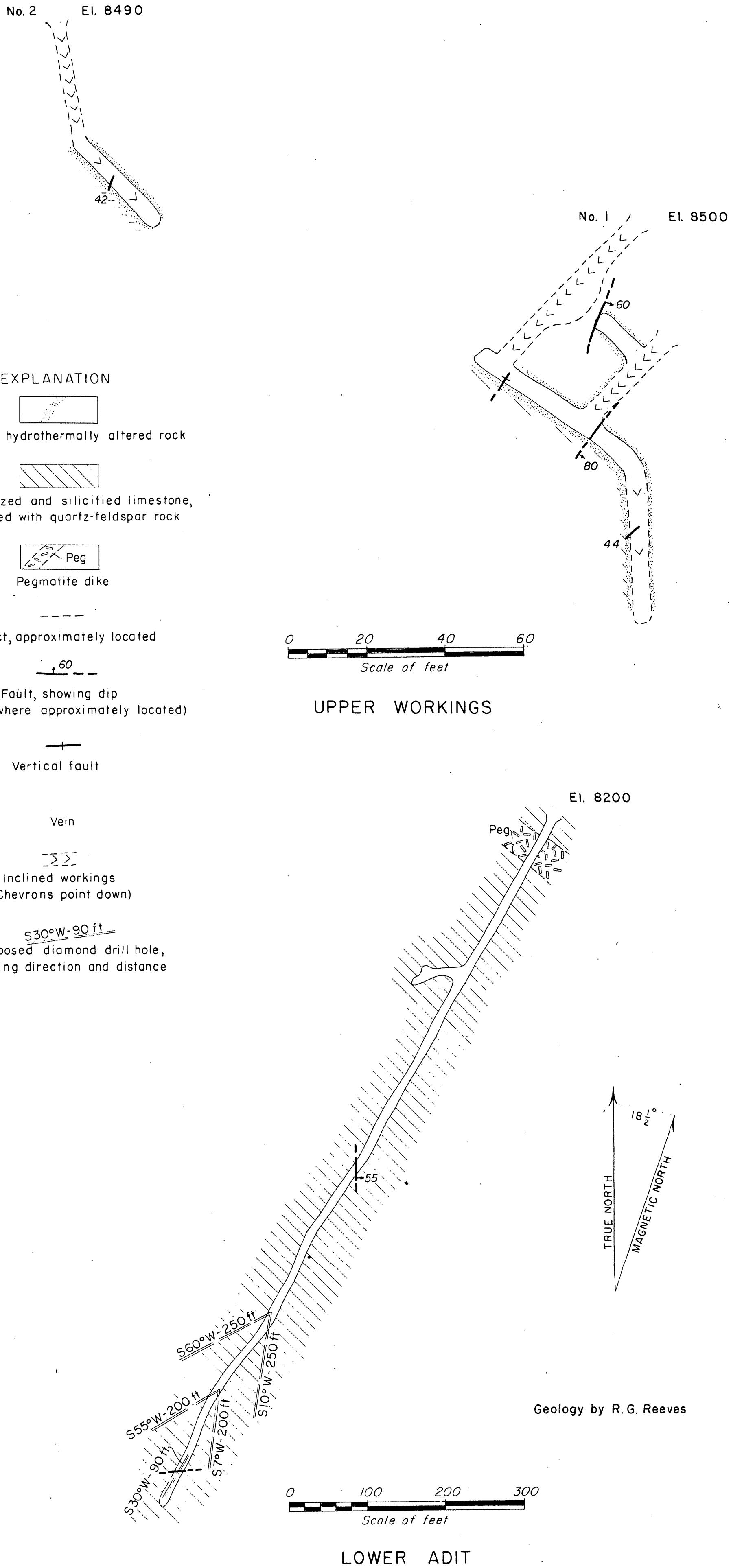
Geology R.G. Reeves

GEOLOGIC SECTION THROUGH THE LONG CANYON MINE

ELKO COUNTY, NEVADA

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMA 766 X
(LEAD-ZINC)



EXPLANATION

Gouge and hydrothermally altered rock

Recrystallized and silicified limestone, interbedded with quartz-feldspar rock

Peg

Pegmatite dike

Contact, approximately located

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Fault, showing dip
(Dashed where approximately located)

Vertical fault

Vein

Inclined workings
(Chevrons point down)

S30°W-90 ft

Proposed diamond drill hole, giving direction and distance

Geology by R. G. Reeves

GEOLOGIC LEVEL MAP OF THE LONG CANYON MINE, ELKO COUNTY, NEVADA

A. C. Johnson, Chief
Mining Division,
U. S. Bureau of Mines
Region III
P. O. Box 1551,
Reno, Nevada

Long Canyon Mining Co. 2784 Jefferson Ave, Ogden, Utah,
per Harry J. Eldredge, Secretary.

Long Canyon Mining Company- Lee, Nevada.
Situate- Ruby Range, South Fork Humboldt River
Elko County, Nevada-- 11 Miles Southeast of Lee, Nevada
a total distance of 41 miles from Elko.
A Nevada Corporation.
Company incorporated late in 1948 by A. P. Farr and Associates of Ogden, Utah. 2,000,000 Shares capitalization- 500,000 shares to Farr & associates for their interest, efforts, and assets.

Shares have been sold at 20¢ per share to carry on development.
Metal- Pb-3n-Av, Aq-

1- Mineral showing makes as a fissure vein in silicious limestone and calcitic gangue. Strike of sedimentary and vein N W -2E- with vein dip fairly steep to S.W. Sedimentary beds can be followed on surface approximately 1500' and up to 300 ' in width. Country rock is granitic.

2- By open out and shallow workings, vein has been exposed over about 300' length and 80' incline depth.

3- Property located first in 1920. No record of production prior to 1948. Shipments of Farr which amounted to 99.14 dry ton net value $8,758.02.

4- Mine workings on or near surface consist of about 130 ' inclines, 200' Laterals and 35' vertical shaft. Together with open trenching and cuts.

5-6- Sampling assays and engineers report data as of Aug. 1949 on file your office is representative of present conditions as subsequent work has all been in driving lower tunnel (330' below out crop) toward vein projection. As of Nov. 2, 1950 last inspection trip and only a few days before heavy snows drove contractors out of canyon.—

Main heading advances	955'
Siding credit	19'
X Cut Westerly	74'
	1048'

Breast of heading in calcite and quartz gangue. Considerable yellow oxidation.
By projection and indications, breast is close to vein structure.

Since Aug. of 1949 when company directors placed property on a development basis, approximately $58,000 cash has been spent on this work. Money was raised by stock sale at 20¢ per share. No salaries paid to officers.

7- Equipment consisting of two compressors 105 and 216 Cu. Ft,: receivers, pipe, Vent tubing, rail, cars, drills, steel, and minor tools; also cook equipment etc. sufficient for crews of ten is on property.

8- Long Canyon Mining Company since incorporated in Nevada, Dec. 2, 1948 has spent approximately $58,000.00 on development, equipment and supplies. Development work has been carried on by contract, with monthly check on progress and geology by engineer.

In September 1949, Deputy U. S. Mineral Surveyor, Roger W. Sheridan made a survey of upper workings and spotted locations down the mountain for distance and course of proposed lower tunnels to intersect vein projection. It is from the 300' plus point that tunnel heading on course of So. 30° W is being advanced.

Assistance at this time is asked up to $30,000.00 for following work.

350 ' Drifts and X cuts	@ $30.00 per foot	$10,500.00
100 ' Raises	@ 40.00	4,000.00
400 ' Diamond Drilling		2,000.00
Equipment, Drills, Etc.		10,000.00
Road		3,500.00
Total		$ 30,000.00

Itmay not be necessary to expand total amount during the next six months, but with such backing it is felt property can be put into production on a fifty ton per day or 1250 ton per month basis. From sampling and previous crude shipments, ore grade should go 25% plus in lead.

Man power ample, but road work needs attention, it might be possible to get this work done by Forest Service.

I am enclosing two additional copies of this application in the event you find it necessary to send a copy to any other agency.

Yours truly,

LONG CANYON MINING CO.

Harry J. Eldredge

Harry J. Eldredge, Secretary.

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. Dma-766X

Date received 5/21/51

Long Canyon Mining Company, Inc.
2784 Jeff. Ave.
Ogden, Utah

Name and address of applicant

Date

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124-A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products? Lead-Zinc
   (*b*) What are the byproducts, if any? Silver
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*b*) State briefly the known history and production of adjoining and neighboring properties.
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
Archie P. Farr	President D	None					
Dale F. Farr	Vice-Pres. D	None					
Harry J. Eldredge	Secty.Treas.D	None					
Lewis Farr	Resident Agent D	None					
E. E. Greenwell	Director	None					
Norman Bingham	Director	None					
	Total		x x x x x			x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$	$	$		
Preferred stock	$	$	$		

*Indicate period covered.

10. Production:

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)	Lead		99.14	dry tons	
2. Quantity of product processed (specify unit of measure and type of process)					
3. Quantity and grade of product sold or shipped (specify units of measure)					

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change. 500 Ton per Month

12. Ore or Mineral Reserves: Report Previously Submitted.

(a) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves.

LONG CANYON MINING COMPANY INC.

2784 Jefferson Ave.

Ogden, Utah

A Nevada Corporation

1- Materials Produced:
(a) Lead-zinc ores.
(b) Silver

2- Mine-underground-vein. Air power from Deisel and gasoline compressors. Drilling by leyner drills 3" and jackhamer-stoper.
Previous Name Neb Hill
On or near surface upper workings early mining was done on surface from out crops-winzes- and lateral headings over a 300' length. (Refer to Report by L. A. Walker Submitted)
(a)---------
(b) As of December when work was shut-down due to contractors leaving and not returning-a total of 1048' of drifting and cross-cutting had been completed on new project toward projection of vein at 300' depth below upper or old workings.
By projection we are very close to objective.
Natural drainage-only small amount of water making just sufficient for drilling purposes.

3- Long Canyon Mining Company property is situated in Ruby Range, on south fork of Humboldt River, Elko County Nevada. Lee is postoffice- distant eleven miles. to south-east property lies on North flank of mountain in what is called Long Canyon.
Water and timber abundant.
Unorganized District.
Property forty one miles from Elko Nevada.

4- Property is now in operation by company.
(b) Owner-but work to date since deep development started has been by contract with supervision by company.

5- Property was first located in 1920. No record of production prior to company organization in late 1948. At time Archie Farr now president of Long Canyon Co. took this property over shipment of 99.14 tons of ore was made-net value $8,758.02. This production from upper workings.
Since fall of 1949 all work has been in advancing lower tunnel for deeper development.
It is estimated that property will be in production within six months. Such production should be at rate of three to five hundred ton per month.

6- The company president and secretary are both business men of Ogden Utah as are the directors. Mr. Farr and two sons have been actively interested in and operating mining properties for use. Mr. Eldredge, company secretary is handling the finances with direct auditing by a C.P.A. at above adress.
In addition to an experienced mine-foreman-all work has been and will be checked and work outlined by a consulting mining engineer. Such check will be made at least once a month.

#2- L.C.M.C. Inc.

7- History-
Located in 1920. Some production prior to 1948 when property purchase was made from James of Salt Lake City Utah.
Production since 1948 (upper workings) 99.14 ton-net value $8,758.02

(a) Upper development consisted of about 130 ' inclines; 200' laterals; and 35' vertical shaft. Also open trenches and cuts. This work open with exception of 35' shaft.

(b) American Beauty property adjoining to north is credited with production of at least a million dollars prior to 1900. Galena King to west has produced some hi-grade lead ores. To the south and adjoining a property is now being developed on lead-zinc ore.

(c) Report previously submitted in 1950 to A. C. Johnson, Chief of Mining Division-U. S. Bureau of Mines-Division or Region 111-Reno, Nevada. Copy of this report was made and is now on file.
Metallurgically this ore is easily amenable to ordinary concentration and flotation. But ore grade is expected that will allow direct shipment.

12- Mineral Showing-sulfide-makes as a fissure vein in silicious limestone with a calcitic gangue. Strike is NW-SE with dip fairly steep to SW. Sedimentary beds can be followed on surface for about 1500' and up to 300' in width. Country rock is granitic.
(Report previously submitted.)
No ore estimated-but dumps at upper workings show about 300 ton mineralization carrying from 10-15% lead and up to seven % zinc. This was sorted out and stock-piled for future milling as at that time such ores would not pay cost and treatment of haulage, freight and smelter.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved) None					
Indicated (probable) None					

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.
41 miles to Elko, Nevada

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.
South Fork of Humboldt River

15. Power:

State amount of power used, rate per hour, and source thereof.
Compressor 220 Cu.Ft. Diesel- 105 cu.ft. Compressor Gasoline.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.
2-Miners- 2 Muckers

17. Equipment and Facilities: 220 & 105 cubic foot compressors- Leyners 2, Jackhammers 1; Drill Steel, Tanks, Pipe, Rail, Mine Cars, Jumbo, Etc.

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.
Compboarding house- 2 cabins equipment as above.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

Long Canyon Mining Co. (Name of company)

By Archie P. Farr (Signature of authorized official)

May 14, 1951 (Date)

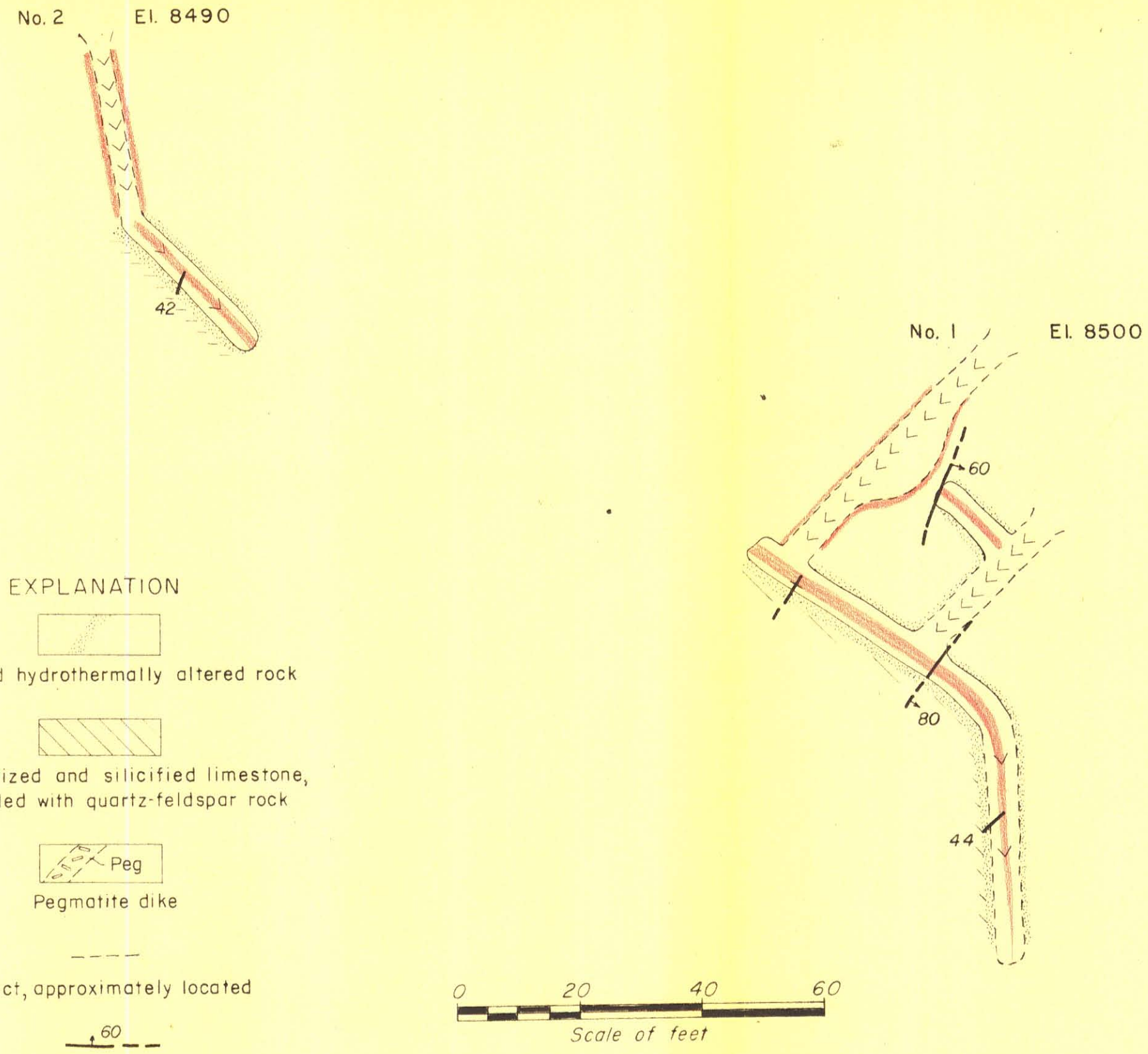
President (Title)

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—63792-1

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMA 766 X
(LEAD-ZINC)



UPPER WORKINGS

EXPLANATION

Gouge and hydrothermally altered rock

Recrystallized and silicified limestone, interbedded with quartz-feldspar rock

Peg

Pegmatite dike

Contact, approximately located

60

Fault, showing dip
(Dashed where approximately located)

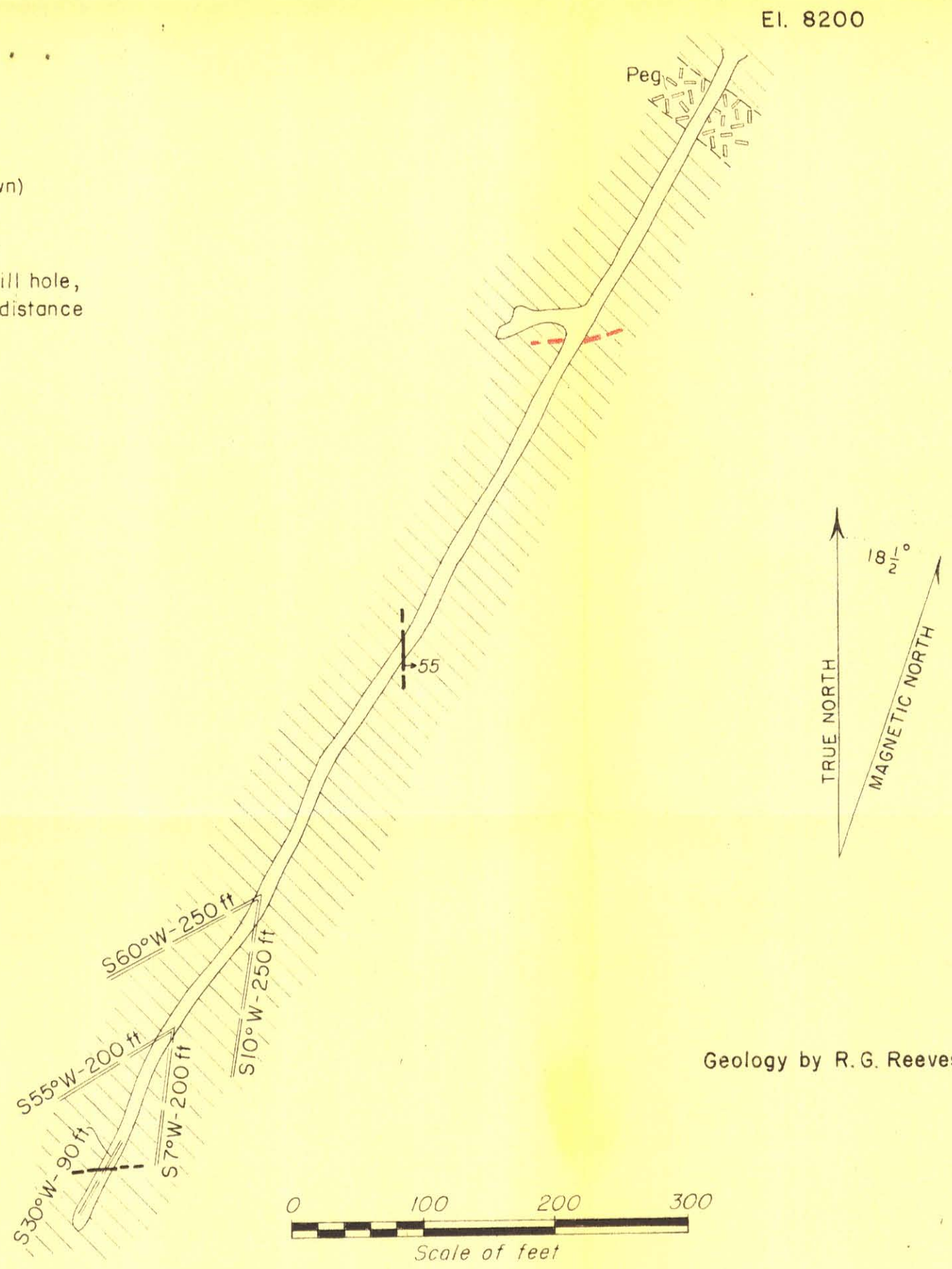
Vertical fault

Vein

Inclined workings
(Chevrons point down)

S30°W-90 ft

Proposed diamond drill hole, giving direction and distance



Geology by R. G. Reeves

LOWER ADIT

GEOLOGIC LEVEL MAP OF THE LONG CANYON MINE, ELKO COUNTY, NEVADA

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMA 766 X
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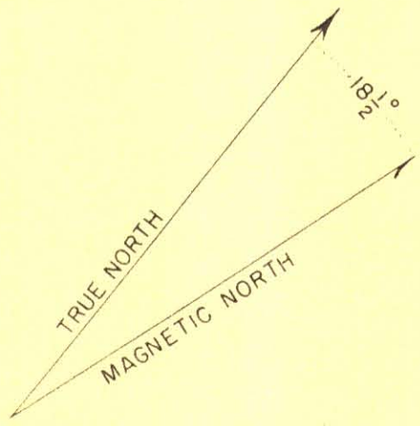

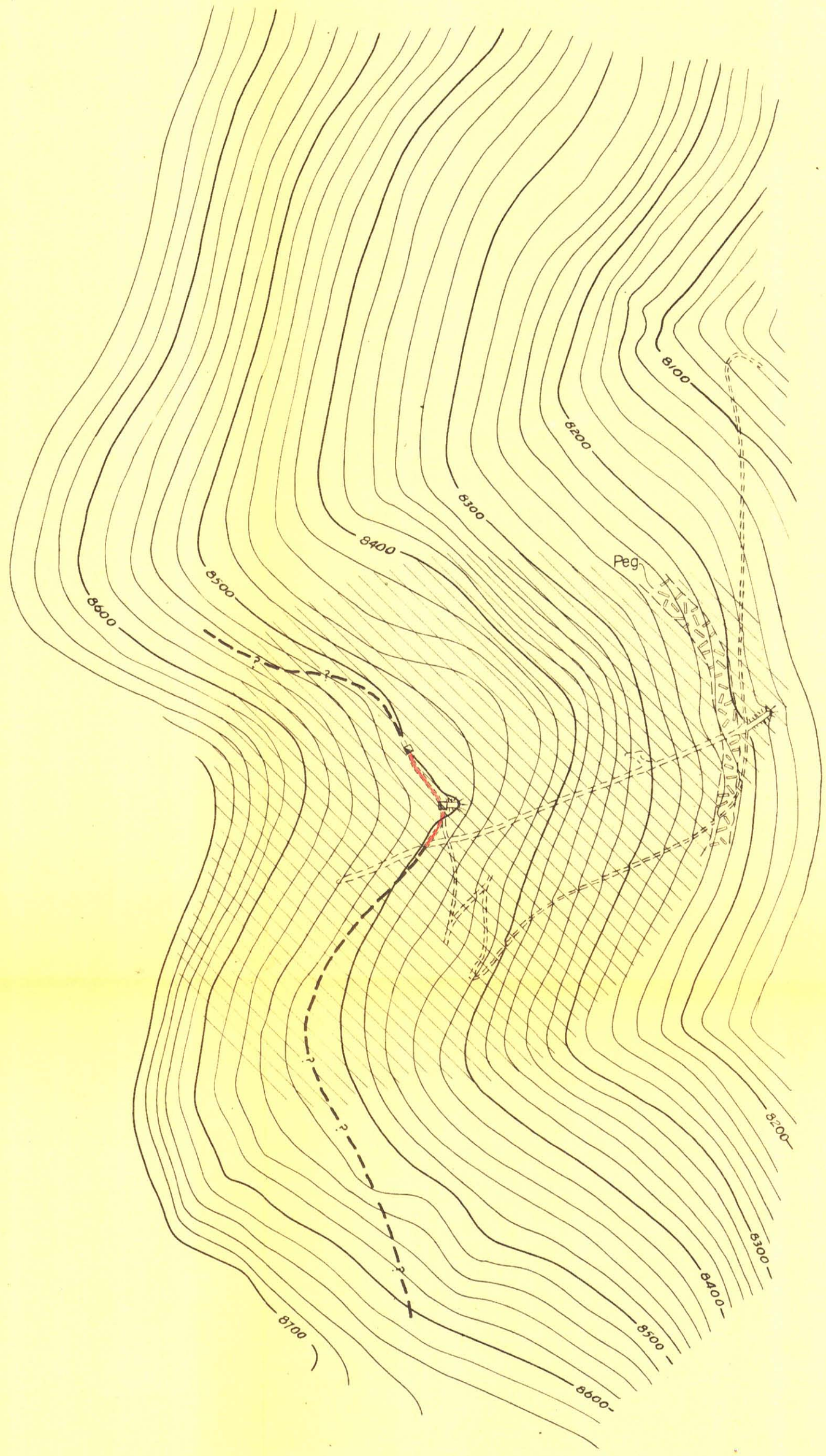

EXPLANATION

Recrystallized and silicified limestone, interbedded with quartz-feldspar rock

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Contact, approximately located

Probable fault

Vein

Portal of adit and underground workings

Shaft at surface

Dump

Topography by R. A. Pomeroy & R. G. Reeves

Geology by R. G. Reeves

GEOLOGIC MAP OF THE LONG CANYON MINE

ELKO COUNTY, NEVADA

250 0 250 500 750 1000 feet

Contour interval 20 feet

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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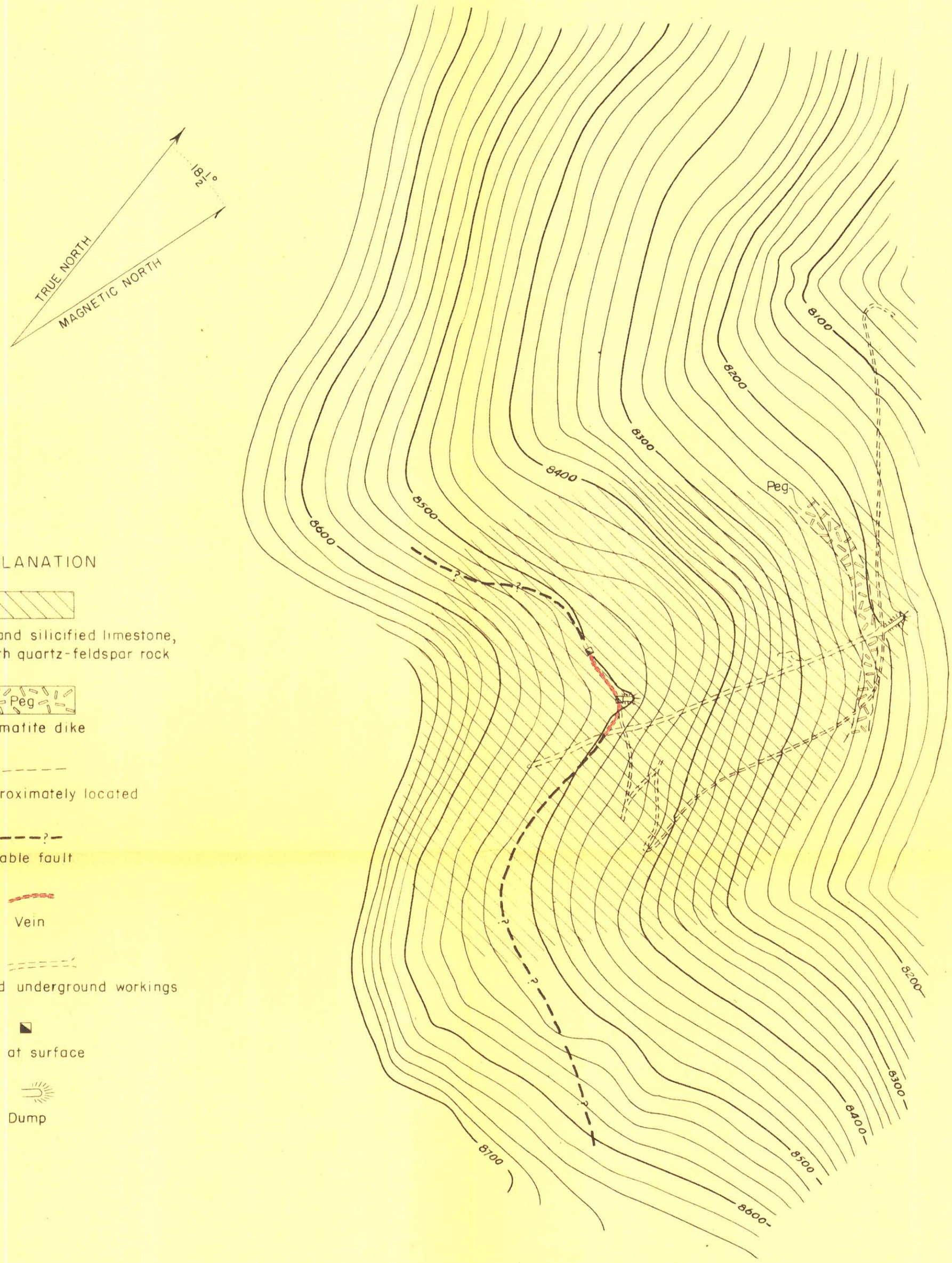

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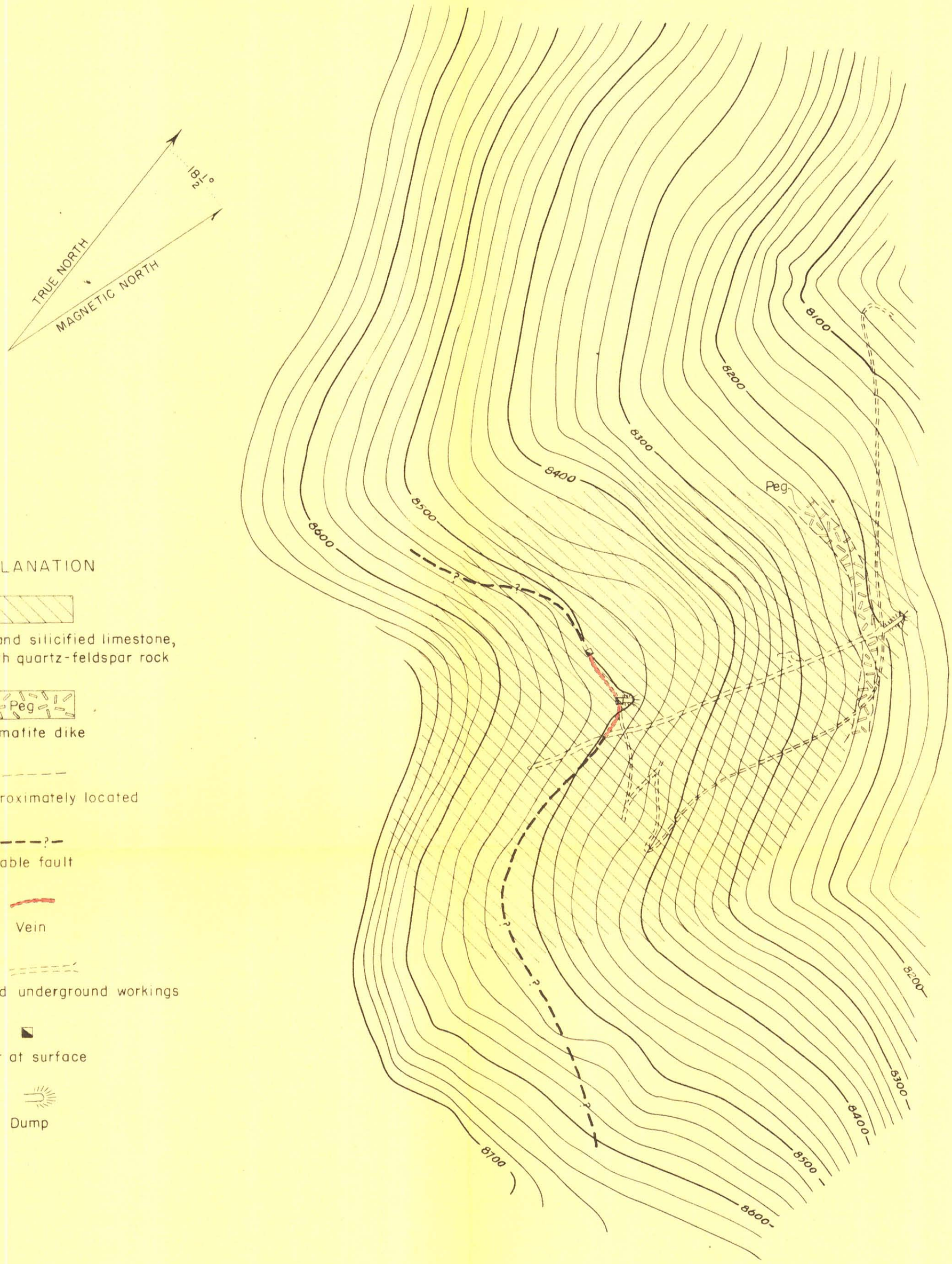

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