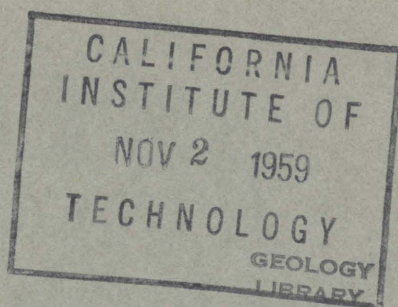


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Bureau of Mines  
Report of Investigations 5518



EXPLORATION OF LEAD-ZINC DEPOSITS  
IN THE ROSS BASIN-LAKE COMO AREA,  
SAN JUAN COUNTY, COLO.

BY JOHN H. HILD AND C. K. ROSE

United States Department of the Interior — 1959

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UNITED STATES DEPARTMENT OF THE INTERIOR  
Fred A. Seaton, Secretary  
BUREAU OF MINES  
Marling J. Ankeny, Director

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# EXPLORATION OF LEAD-ZINC DEPOSITS IN THE ROSS BASIN-LAKE COMO AREA, SAN JUAN COUNTY, COLO.<sup>1/</sup>

by

John H. Hild<sup>2/</sup> and C. K. Rose<sup>3/</sup>

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## SUMMARY

This is a report on work done and results obtained in a minerals exploration program conducted by the Bureau of Mines on the lead-zinc deposits in the Ross Basin-Lake Como district, San Juan County, Colo., in 1948, 1949, and 1950.

Four large veins--the Seven Thirty, Red Rogers, Cashier-Shortstop-Canandaigua, and Queen Anne--and several narrow spur veins were explored at relatively shallow depths with core-drill holes. Thirty-nine holes, totaling 10,491.5 feet, were drilled, and the core samples were assayed at the Bureau of Mines station at Salt Lake City, Utah.

The veins, generally, contain small quantities of gold, silver, copper, lead, and zinc in a gangue consisting principally of quartz. The metal content of the veins cut in 24 holes was uniformly low.

In 15 holes, 18 core sections, 5 feet or more long, had a higher base-metal or silver content than contained in the bulk of the ores produced from San Juan County mines during the decade 1947-56. The gold content in all sections but two was negligible.

## INTRODUCTION

Investigation of the mineral deposits of the central San Juan Mountains in Colorado was a part of the Bureau of Mines program for developing strategic minerals for national defense. A reconnaissance of the Poughkeepsie Gulch district was made in August 1943, July 1944, and September 1945. Following this, a more detailed investigation of the district, including sampling and mapping of a 6-square-mile area, which included the Ross Basin-Lake Como area, was made in 1946.<sup>4/</sup>

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<sup>1/</sup> Work on manuscript completed September 1957.

<sup>2/</sup> Mining engineer, Bureau of Mines, Region III, Salt Lake City, Utah.  
(Deceased.)

<sup>3/</sup> Mining engineer, Bureau of Mines, Region III, Denver, Colo.

<sup>4/</sup> Hazen, Scott W., Jr., Lead-Zinc-Silver in the Poughkeepsie District and Part of the Upper Uncompahgre and Mineral Point Districts, Ouray and San Juan Counties, Colo.: Bureau of Mines Rept. of Investigations 4508, 1949, 110 pp.

The investigation was continued with a program of diamond drilling. The work done and results achieved are described in this report.

#### LOCATION AND ACCESSIBILITY

Ross Basin is in San Juan County, Colo., about 8 miles northeast of Silverton (fig. 1). Two areas, about 1 mile apart, are called Ross Basin in official publications. On the Federal Geological Survey map of the Silverton Quadrangle (surveyed 1895-1905 and reprinted in 1946), Ross Basin is shown about 0.75 mile south of Hurricane Peak, whereas in a report by Kelley<sup>5/</sup> Ross Basin is described as the area just west of Lake Como and about 0.5 mile northeast of Hurricane Peak. The latter area is referred to as Ross Basin in this report.

U.S. Highway No. 550 extends south from Montrose, Colo., to Durango, Colo., and passes through Silverton. It is the principal means of access to this part of the San Juan region. Ross Basin is reached from Silverton on San Juan County Highway No. 353, which follows Cement Creek for 7 miles to Gladstone, and a 3.5-mile extension to that road, built by the Bureau of Mines.

Montrose, 58 miles (by road) north of Silverton, is on the main line of the Denver & Rio Grande Western Railroad Co. Durango is 53 miles (by road) south of Silverton, and a narrow-gage branch of the railroad connects the two towns. The railroad company hauls freight over the narrow gage "as required," but the main business is derived from sightseeing tourists.

The Western Colorado Power Co. supplies electric power to the mines along Cement Creek.

#### PHYSICAL FEATURES AND CLIMATE

Ross Basin is a small, relatively flat area of approximately 1-1/2 square miles in rugged glaciated mountain terrain (fig. 2). Altitudes in the district range from 12,500 to 12,800 feet, and some of the surrounding sharp ridges and peaks are 13,400 feet high. Timberline ranges from 11,500 to 12,000 feet, but some spruce grow on protected slopes at higher elevations. Lake Como, a small, deep lake at the head of Poughkeepsie Gulch, is east of Ross Basin (fig. 3).

In this high mountainous country thunderstorms, with rain and hail, occur almost daily in summer. Water is plentiful, but most of the streams flow intermittently. Nearly all mine workings are wet and may be flooded where there is no drainage.

Heavy snowfalls, beginning in September, tend to block all roads and trails until the next June or July. The summer is short, and most operations are limited to a 3- to 5-month period unless elaborate provisions are made for

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<sup>5/</sup> Kelley, V. C., Geology, Ore Deposits, and Mines of the Mineral Point, Poughkeepsie, and Upper Uncompahgre Districts, Colo.: Proc. Colorado Sci. Soc., vol. 14, No. 7, 1946, pp. 289-466.

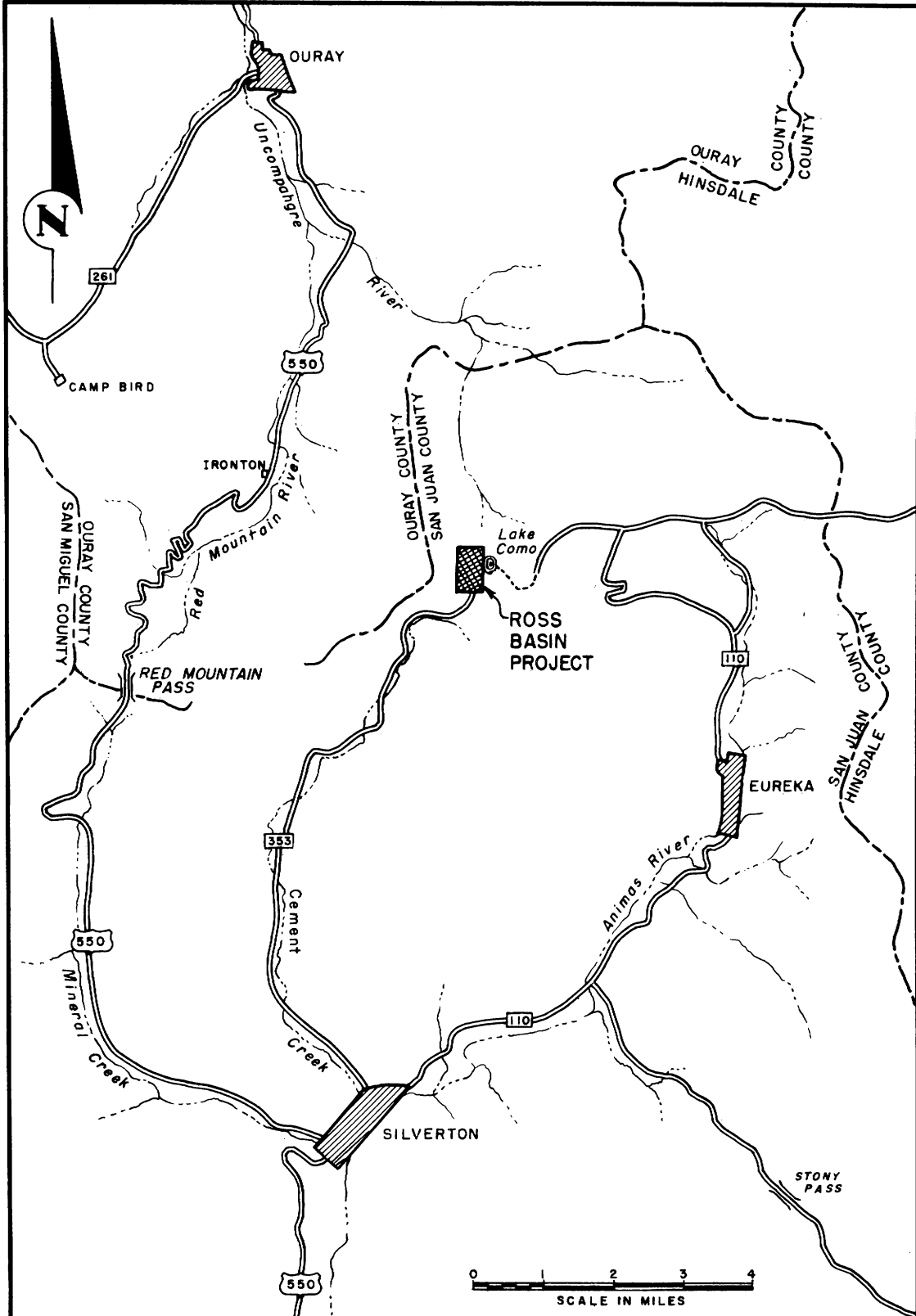


FIGURE 1. - Location Map, Ross Basin-Lake Como Area, San Juan County, Colo.



FIGURE 2. - View Looking Southwest From Ross Basin Showing Access Road (Arrow) and the Peaks of the San Juan Range.

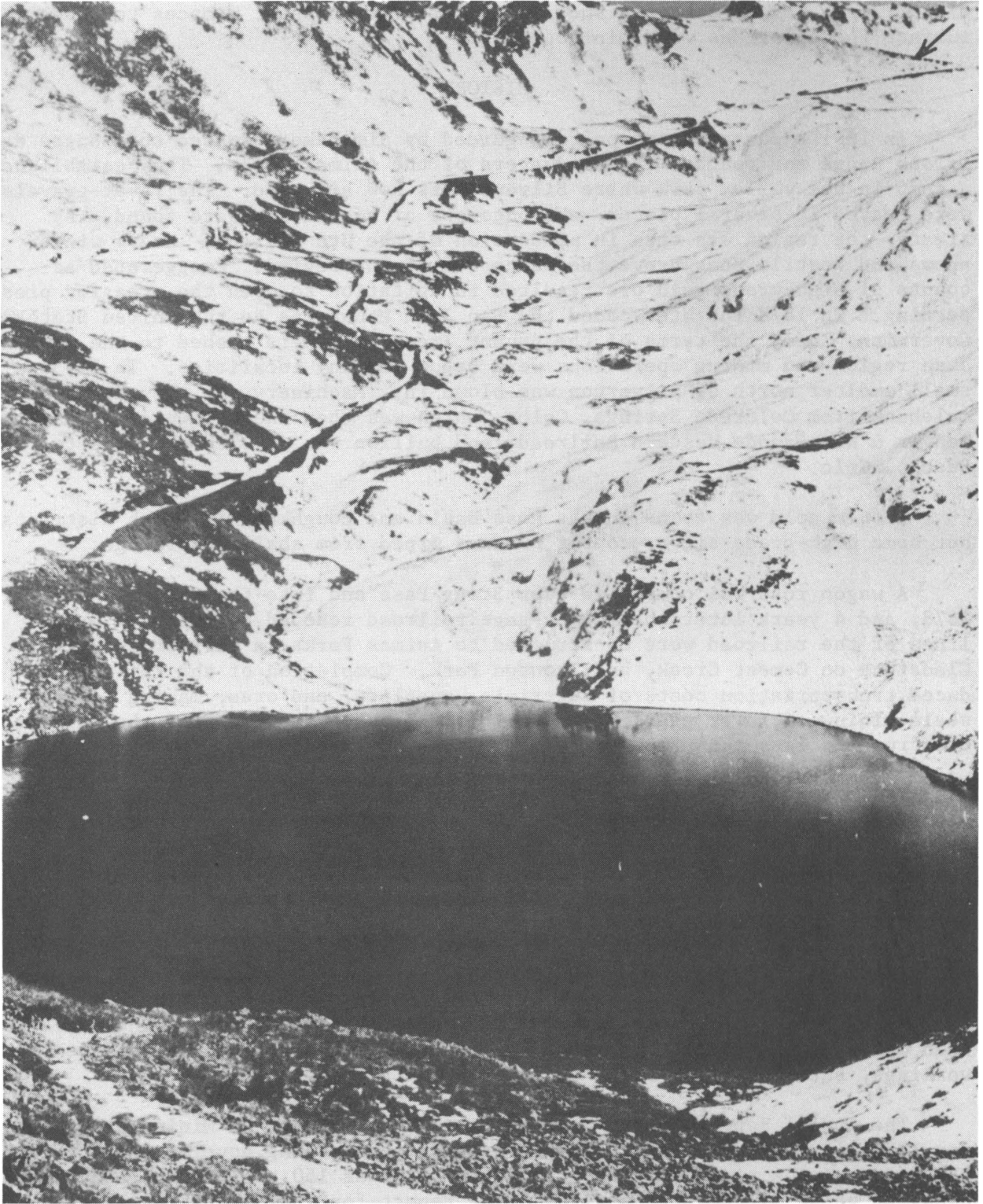


FIGURE 3. - View of Lake Como With the Road (Arrow) to the Mountain Queen Mine in the Background.

winter work. Mud, rock, and snow slides are ever-present menaces to roads, surface installations, and mine openings.

## HISTORY

In 1861 a party of prospectors guided by Jim Baker crossed the Sangre de Cristo Range and reached the headwaters of the Animas River. They established a camp in the valley park where Silverton is now situated. The river gravels were tested in several places, and outcrops of huge veins were found. By treaty, the region was then in possession of the Ute Indians. Heavy winter snows and hostile Utes drove the party out of the region. Exaggerated accounts of high-grade gold ore resulted in agitation to open the area for prospecting. In 1873 the Utes ceded the San Juan Mountains to the United States Government under the terms of the Brunot Treaty. Miners rushed to the San Juan region and mining operations were begun in many localities. In 1875, a small smelter north of Silverton was blown in. Machinery was brought in on muleback from Colorado Springs, Colo., which was then the terminus of the Denver & Rio Grande Western Railroad, and bullion was carried on mules to Pueblo, Colo.

Little gold was found in the Ross Basin and Poughkeepsie Gulch districts, but some high-grade silver-copper ore was mined from shallow workings.

A wagon road was completed over Stony Pass and into the Silverton area in 1878, and 4 years later the narrow-gage railroad reached Silverton. Branch lines of the railroad were constructed to Animas Forks in California Gulch, Gladstone on Cement Creek, and Ironton Park. Completion of the railroad reduced transportation costs of materials, supplies, and ores, making larger scale mining of lower grade ores possible. Before completion of the railroad, ores running less than \$100 per ton could not be mined at a profit.

The mines of the San Juan region were, for the most part, sources of lead and silver--the miners depending mainly on the silver content of the ore for profit. Most of the mines in the region were closed in 1893 because of the sudden drop in the price of silver in that year. Mining in the Ross Basin, Poughkeepsie Gulch, and Mineral Point districts ceased almost entirely, and many mines were never reopened.

## PRODUCTION

Records of production before 1900 are incomplete, and many mines have not been worked since the general shutdown in 1893. Several mines have extensive workings, but records of their production are not available.

The Annual Report of the United States Commissioner of Mining Statistics for 1881 lists the Red Rogers and Bonanza mines as being developed. For 1883, the Bonanza mine production of ore was reported as 150 to 200 tons, but no assay or value of the ore is given. The report for 1887 lists the value of ore produced from the Queen Anne mine at \$333. For 1888, ore production from the Bonanza mine was valued at \$1,985 and from the Seven Thirty mine at \$4,131. The Seven Thirty mine is listed again in the report for 1890, when its

production was valued at \$1,111. In 1891 the value of the Red Rogers mine production was \$1,991. That is the only production data available. Total production from the Queen Anne, Columbia, Seven Thirty, Red Rogers, and Bonanza mines was estimated at \$25,000.00 before 1890. Small tonnages have been produced sporadically from several properties since 1893.

#### PROPERTY AND OWNERSHIP

Appendix I lists the names, patent numbers, and owners of the groups of claims which the Bureau of Mines mapped and explored by diamond drilling during 1948-50. The claims are shown on the geologic and claim map (fig. 4).

#### DESCRIPTION OF DEPOSITS

Detailed descriptions of the geology of the Silverton area can be found in reports by Kelley,<sup>6/</sup> Burbank,<sup>7/</sup> and Larson and Cross.<sup>8/</sup> A synopsis of their descriptions follows:

Three major rock groups are present in the San Juan region: (1) Precambrian quartzites of the Uncompahgre formation; (2) Paleozoic sedimentaries consisting of the Ouray and Leadville limestones and the overlying Hermosa shales and sandstones; and (3) Tertiary volcanic rocks of the San Juan tuff and the Silverton volcanic series.

The Precambrian quartzites are exposed in the Uncompahgre River Canyon south of Ouray.

The Paleozoic strata are wedge shaped, thinning toward the east, and the east side of Iron-ton Park is approximately their eastern limit.

The exposed rocks in the Silverton area are comprised entirely of middle and upper Tertiary volcanic series that are more than a mile thick. The basal series of volcanic rocks is the San Juan tuff, composed of breccias and flows, which rests unconformably on pre-Tertiary sedimentary rocks and Precambrian metamorphic rocks. After deposition of the San Juan tuff, a period of intensive erosion occurred, and a large valley or basin was formed. The Silverton volcanic series, composed of lavas, tuffs, and agglomerates, erupted into this basin.

The Silverton basin developed gradually during the accumulation of the Silverton volcanic series. The caldera-type structure was formed by a system of faults that extend northeasterly 6 or 8 miles from a central downfaulted block. Displacements on the major faults range from about 500 feet to possibly as much as 2,000 feet. As the basin continued to form, numerous smaller

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<sup>6/</sup> Work cited in footnote 5, p. 2.

<sup>7/</sup> Burbank, W. S., The Sunnyside, Ross Basin, and Bonita Fault Systems and Their Associated Ore Deposits, San Juan County, Colo.: Proc. Colorado Sci. Soc. vol. 15, No. 7, 1951, pp. 285-304.

<sup>8/</sup> Larsen, Esper S., Jr., and Cross, Whiteman, Geology and Petrology of the San Juan Region, Southwestern Colorado: Geol. Survey Prof. Paper 258, 1956, 303 pp.

faults and fissures formed in the ground adjacent to the main faults. Ring faults occurred near the boundaries of the basin, and radial fractures developed. During late Tertiary time, intrusive bodies, stocks, and volcanic pipes pushed through the ring faults. In the districts surrounding the caldera the radial fissures contain the valuable vein deposits.

The dominant feature of most of the veins in the Ross Basin-Lake Como area is their northeast trend (fig. 4). Some veins are more than 5 miles long and tend to weave and make sudden swings eastward while maintaining a northeast trend. The dip of the veins varies from southeast to vertical. The southeast hanging walls have moved down and probably southwestward. This movement of the hanging walls may account for the widening in the veins at the points of abrupt eastward swing.

A series of eastward-trending veins, prominent at the head of Poughkeepsie and California Gulches, roughly parallels the northeast margin of the Silverton caldera. Most of these veins dip northward, but a few dip south.

The vein material is mostly quartz and nearly always contains pyrite. The wall rock is often altered, the chief products being pyrite, kaolin, sericite, quartz, or chlorite.

The ore shoots mined in the Ross Basin-Lake Como area were localized near the top of the Burns latite of the Silverton volcanic series. The veins continue into the overlying pyroxene andesite, but there they are less prominent and much more altered. Mineralization was controlled by deep fractures and open fissures related to faulting. No attempt had been made to find ore bodies at depth in the district.

The quartz veins contain varying amounts of ore minerals, the more common being pyrite, sphalinite, galena, chalcophyrite, and rhodonite. The silver content varies considerably, and silver minerals are associated principally with the base-metal sulfides; however, the silver ores may occur alone in the veins.

Early records of high-grade ore shipments indicate that gold, as well as silver, occurred in separate shoots, free of base-metal sulfides, and could be mined selectively. The high-grade silver ores were found usually associated with gray-copper ore.

#### WORK BY THE BUREAU OF MINES

Work done by the Bureau of Mines during the three summer seasons (1948-50) comprised the following:

(1) A 3.5-mile access road was constructed and, at a second location, 1 mile of initial roadgrading was begun.

(2) Detailed topographic mapping of the area to be drilled was completed and contour maps made.



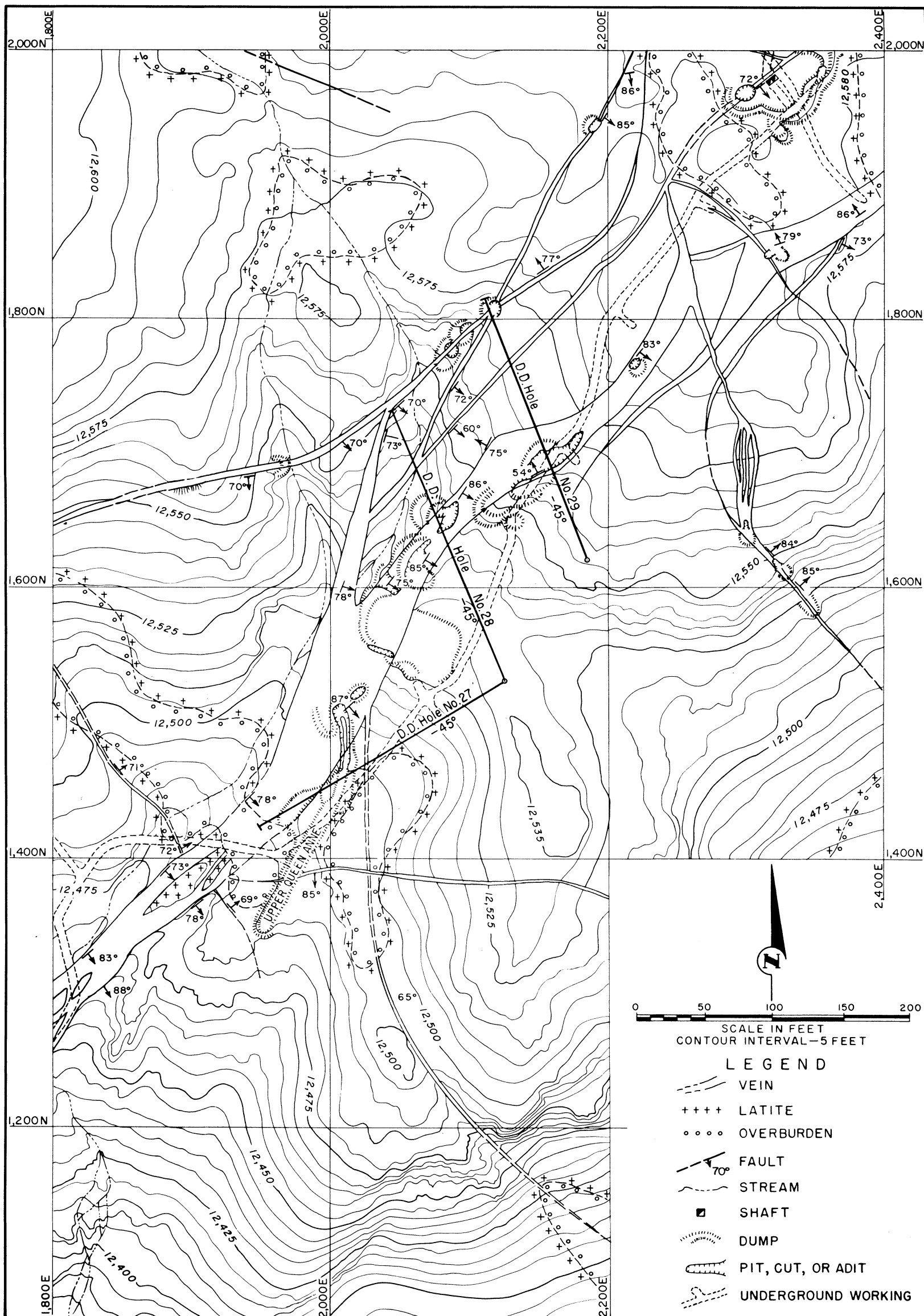


FIGURE 7. - Topographic Map Showing Diamond-Drill-Hole Locations, San Juan County.

(3) Thirty-nine holes were diamond drilled and the cores logged. All mineralized drill-hole cores were split and assayed.

Report of Investigation 4508, published in 1949, describes the mapping and sampling that was done in the Upper Uncompahgre and Mineral Point districts in 1946. As a result of the preliminary work, exploration by diamond drilling was recommended for several of the major veins in the Ross Basin-Lake Como area.

Before drilling equipment could be hauled to the project area, it was necessary to repair and reconstruct a road. The county-maintained road ended at Gladstone, and an old wagon road, almost obliterated by snowslides, continued toward Ross Basin. Renovation of 3.5 miles of this road began in July 1948, and several thousand feet of the road required drilling and blasting before grading with a bulldozer. In 1950, initial grading was started on a 1-mile access road extending from the end of the truck road at the head of California Gulch to Lake Como.

In doing this 4.5 miles of road work, 1,750 cubic yards of rock was drilled and blasted, and 7,875 cubic yards of loose rock and dirt was excavated.

In 1948, detailed mapping of the area to be core drilled was begun while the Ross Basin road was being built. Control points were established, and a plane-table contour map on a scale of 1 inch to 50 feet was made. An area approximately 2,000 by 4,000 feet was mapped (figs. 5, 6 and 7).

Diamond core-drilling and sampling the veins were begun in the second season. The core-drilling program was planned to explore the selected veins at depths ranging from 100 to 300 feet below their outcrops to determine the extent and grade of ore bodies exposed at the surface.

Opening the road commenced in May 1949. Snowdrifts 10 to 20 feet high were encountered in gulches, 4-wheel-drive vehicles were stopped by the mud, and tractors were used to haul in the drilling equipment.

Drilling was begun on June 25, 1949, and two drill rigs were operated 16 hours a day the rest of the season. A total of 6,098.5 feet was drilled in 22 holes. Work was recessed for the winter in October.

The third season's drilling commenced in July 1950. A total of 4,393.0 feet was drilled in 17 holes. Two drill rigs were operated one shift a day until November, when work on the project was terminated.

Core drilling was done on four major veins: (1) The vein on the Seven Thirty claim; (2) the vein on the Red Rogers claim; (3) the vein cutting the Canandaigua, Short Stop, and Cashier claims; and (4) the vein covered by the Queen Anne group of claims. Complete data on all drill holes are given in appendix II.

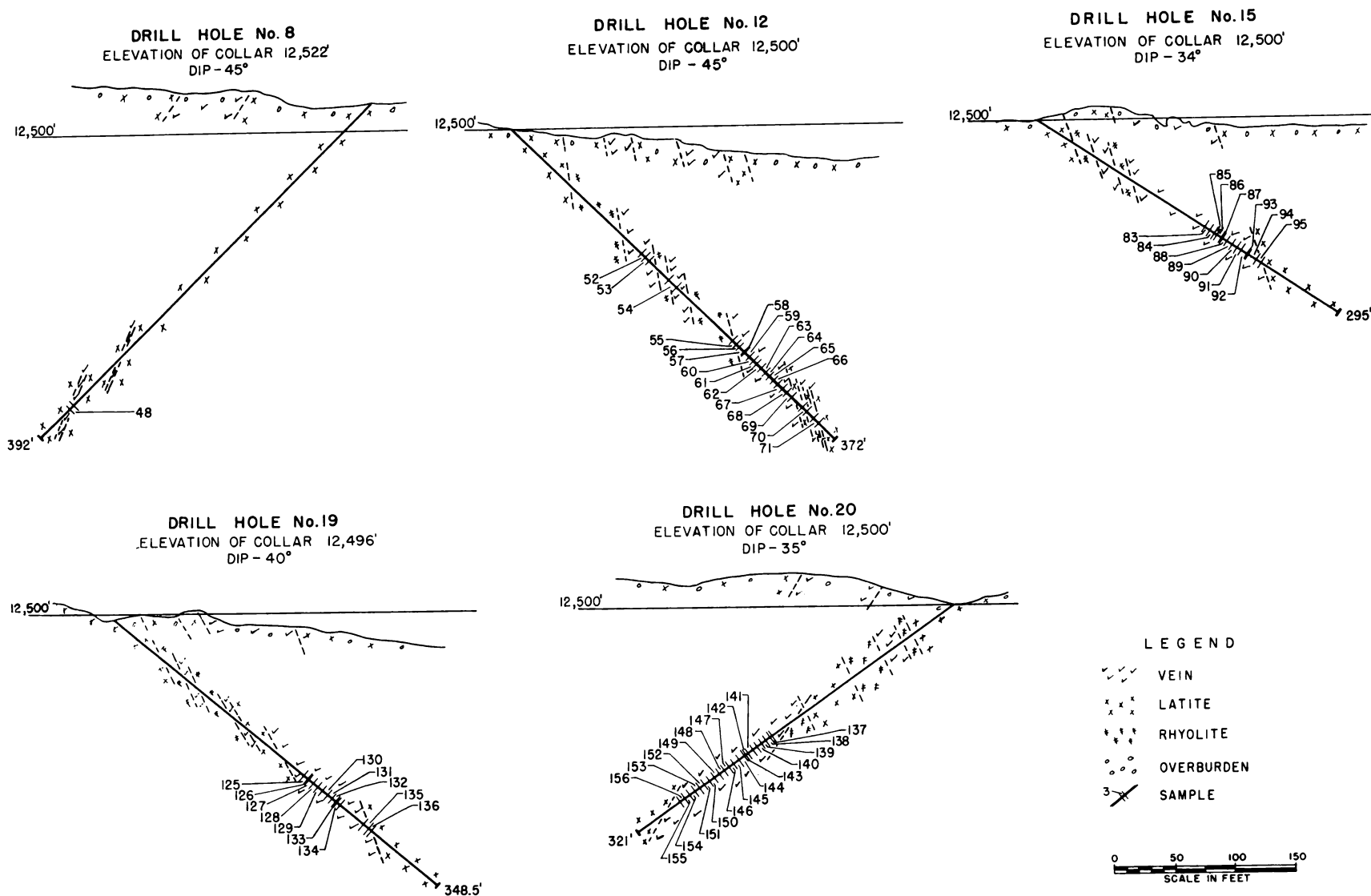


FIGURE 8. - Sections of Diamond-Drill Holes on Seven Thirty Vein.

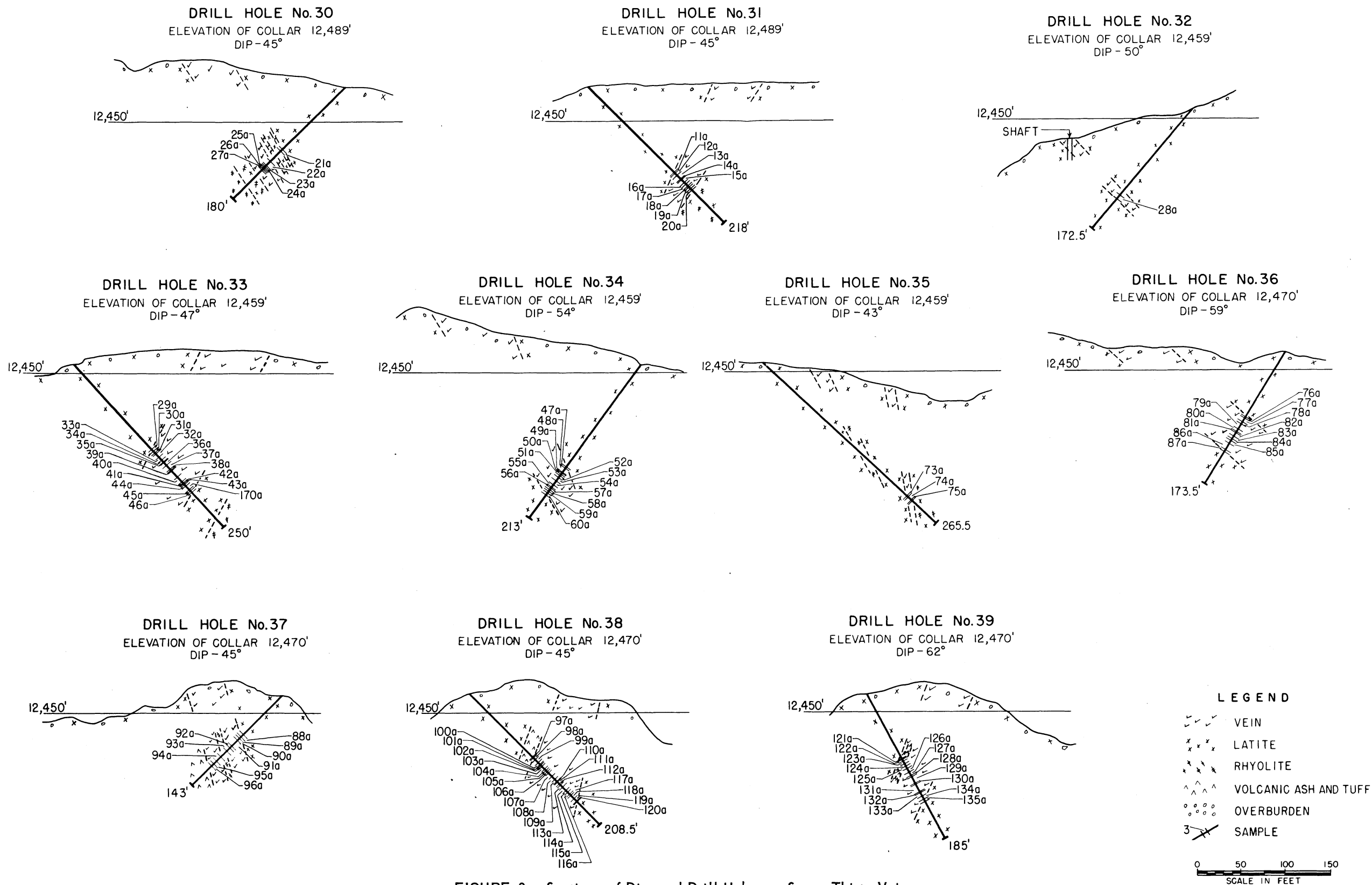


FIGURE 9. - Sections of Diamond-Drill Holes on Seven Thirty Vein.

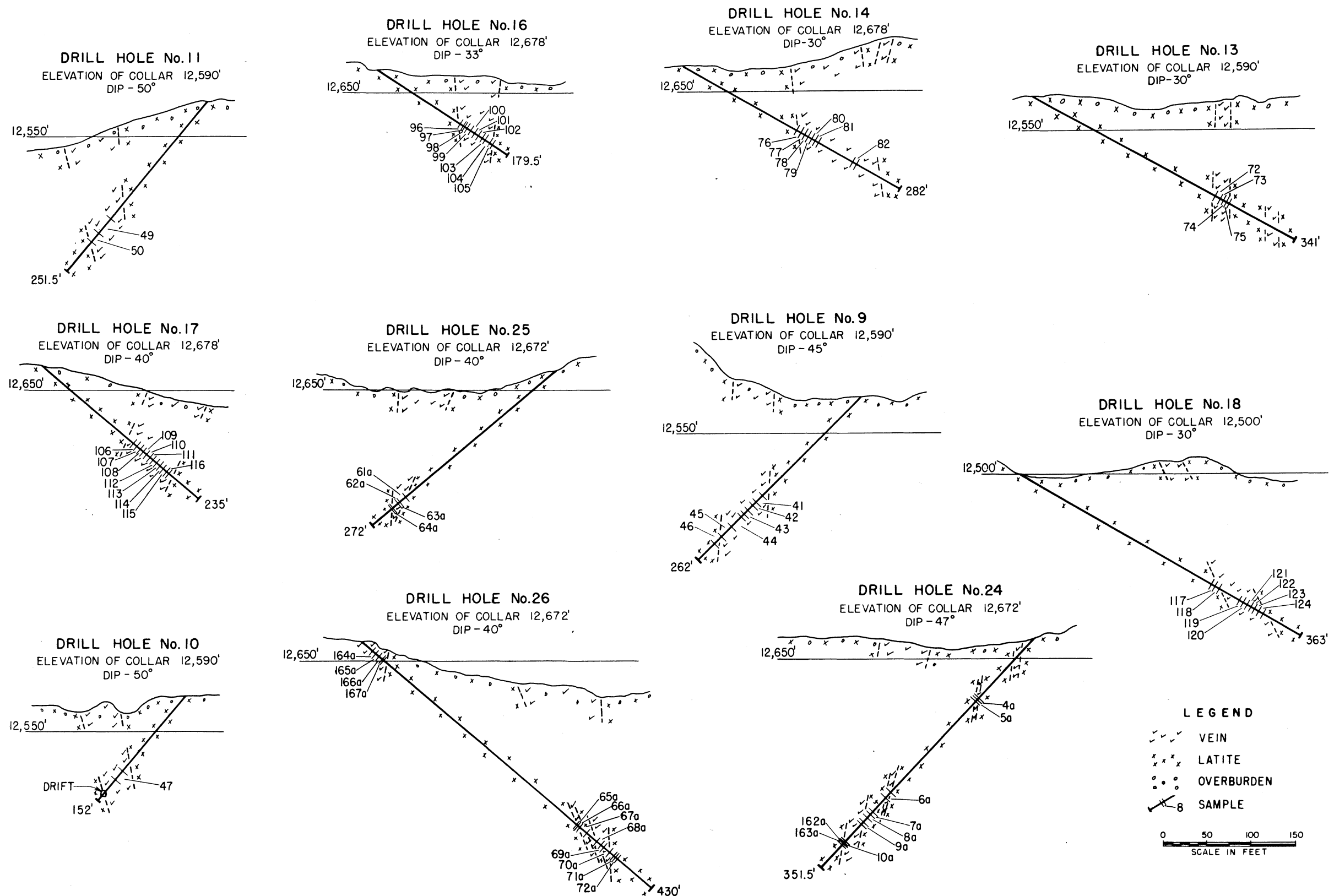


FIGURE 10. - Sections of Diamond-Drill Holes on Red Rogers Vein.

The vein on the Seven Thirty claim and one of its spurs were explored by drill holes 8, 12, 15, 19, 20, 30, 31, and 33 to 39 (fig. 5). The principal vein strikes N.  $75^{\circ}$  W. and its outcrop ranges from 10 to 75 feet wide. The dip of the vein varies from  $80^{\circ}$  N., near the west end of the claim, to  $55^{\circ}$  N., above the north shoreline of Lake Como. The 14 core holes drilled on this vein and hole 32 drilled to explore a narrow vein found northwest of the spur are shown in sections in figures 8 and 9. The sections also show the sampled zones and sample numbers.

The Red Rogers claim (figs. 4 and 5), south of the Seven Thirty claim, is located on a vein that strikes N.  $45^{\circ}$  E., dips  $85^{\circ}$  NW., and trends toward the Seven Thirty vein. Core holes 9 to 11, 14, 16 to 18, and 24 to 26 were drilled to explore this vein. Hole 13 was drilled to explore two spurs of the main vein. Figure 10 shows the 11 holes in section, the zones sampled, and sample numbers.

Ten core holes were drilled along the vein which cuts the Cashier, Short Stop, and Canandaigua claims (figs. 6 and 11). This vein is beyond Lake Como, along the west slope of Ross Basin (fig. 4). The vein outcrop ranges from 5 to 50 feet wide. To the east, on the Canandaigua claim, near Lake Como, the vein splits into several widely diverging branches. Core holes 1 to 7 and 21



FIGURE 11. - View of Diamond-Drill Setup on the Canandaigua Group.  
(Elevation, 12,600 feet, Ross Basin.)

to 23 were drilled into this vein. Figure 12 shows the holes in section, the sampled zones, and sample numbers.

Three core holes (27 to 29) were drilled on a vein covered by the Queen Anne group of claims. This vein is on the south edge of Ross Basin, and has a general strike N. 45° E. (figs. 4 and 7). Figure 13 shows the holes in section, where samples were taken, and the sample numbers.

#### SAMPLING AND ANALYSIS

Most of the core obtained for sampling was 1-1/8 inches in diameter. The first few feet of hole were drilled with a 3-1/2-inch-diameter bit. After collar casing was set, drilling was continued with a smaller diameter bit.

Drilling was stopped when the sludge indicated that a change of formation or mineralization had been encountered. The hole was washed and a new drill run was started. Core recovery was high for all holes, and it was unnecessary to sample the sludge. Sludges were caught and examined but not assayed.

All mineralized core was split and assayed. Sample intervals were selected according to mineral content and apparent grade.

Analyses of the samples were made by the Bureau of Mines at its Salt Lake City station.

#### RESULTS OF BUREAU OF MINES WORK

Data on drill holes that penetrated the higher grade sections of the veins are given in appendix III. The results of all core-sample assays are given in appendix IV.

##### Seven Thirty Vein

Fourteen holes were drilled through the Seven Thirty vein; seven of these holes also penetrated two spurs of the vein. The vein, where cut by seven of the holes, was mineralized weakly. Eight better grade streaks cut in the remaining seven holes raised the weighted average metal content of eight 5-foot sections of core.

##### Red Rogers Vein

Ten holes were drilled through the Red Rogers vein. Five of these holes also penetrated spurs of the Red Rogers vein. A sixth hole (No. 13) was drilled through two spur veins and several of their branches. Only weak mineralization was encountered, except in two of the holes where 5- and 19.5-foot sections indicated higher concentrations of metals.

##### Cashier-Short Stop-Canandaigua Vein

Ten holes were drilled through this well-defined vein. Six holes penetrated ground that was mineralized weakly. Two 5-foot sections in two holes,

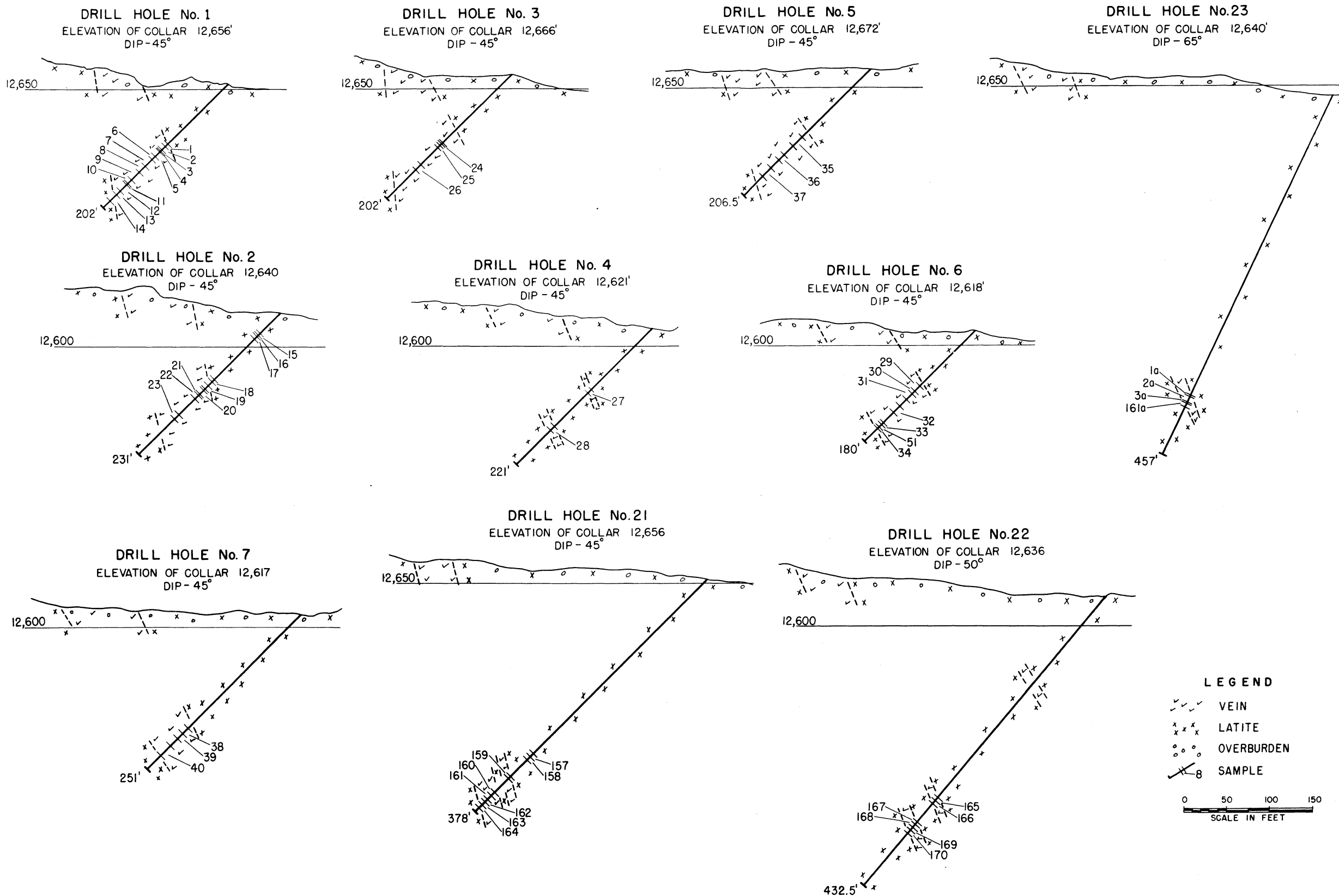


FIGURE 12. - Sections of Diamond-Drill Holes on Canandaigua Vein.

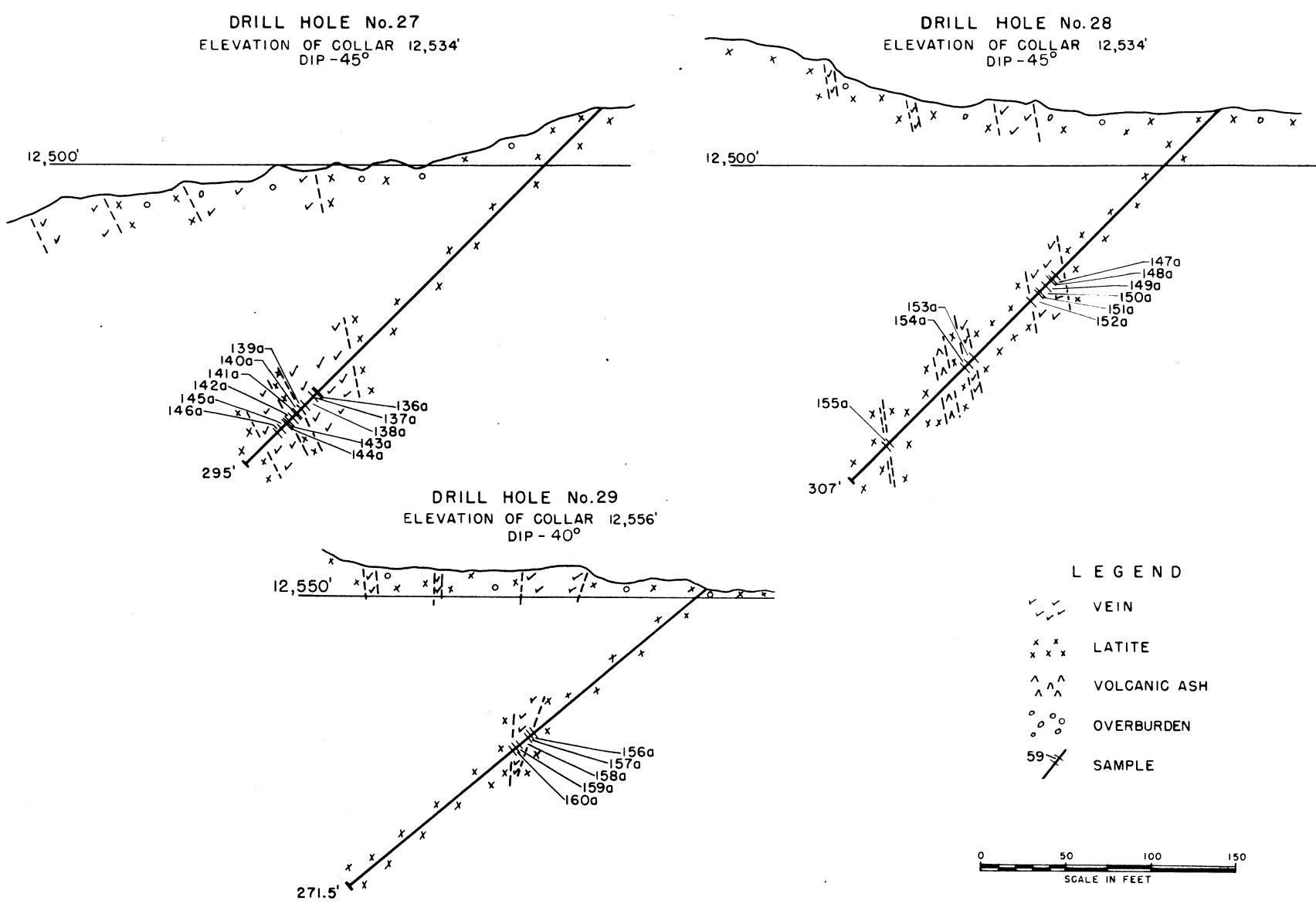


FIGURE 13. - Sections of Diamond-Drill Holes on Queen Anne Vein.

one 5-foot section in one hole, and a 10.5-foot section in a fourth hole penetrated better concentrations of metals.

#### Queen Anne Vein

Three holes were drilled through the Queen Anne vein. The vein rock was mineralized weakly, but in one hole a 6.5-foot core section contained a concentration of metals.

#### Vein Northwest of Seven Thirty Vein

One hole (No. 32) was drilled through this vein. Only lean mineralization was encountered.

## APPENDIX I

Patented claims held by Great Divide Mining & Milling Corp., owner

<u>Claim</u>	<u>Patent No.</u>	<u>Claim</u>	<u>Patent No.</u>
Belcher.....	2,121	Indian Chief.....	675
Bountiful.....	2,583	Indian Chief Extension....	676
Bullion.....	352	Mobile.....	398
Esquimaux.....	5,126	Rollo.....	350
Gipsey Maid.....	1,895	Seven Thirty.....	225
Hesperian.....	1,258	Silver Hill.....	351
Hurricane Peak.....	478		

Patented claims held by Como Consolidated Mines, owner

<u>Claim</u>	<u>Patent No.</u>	<u>Claim</u>	<u>Patent No.</u>
Arcade.....	440	Discount.....	226
Bonanza.....	195	Lake Como.....	444
Canandaigua.....	227	Picket.....	15,280
Cashier.....	442	Red Rogers.....	123
Champaign.....	443	Short Stop.....	441

Patented claims held by Queen Anne lease and Lorette Geroux Brosseau, owner

<u>Claim</u>	<u>Patent No.</u>	<u>Claim</u>	<u>Patent No.</u>
Adelpheh.....	171	Rose No. 1.....	18,143
Columbia.....	334	Rose No. 2.....	18,143
Queen Anne.....	5,452	So So.....	1,432
Rose.....	17,263		

## APPENDIX II

Diamond-Drill-Hole Data

## Hole 1

Location: N. 2,776 ft., E. 1,866 ft.

Depth: 202.0 ft.

Elevation of collar: 12,656 ft.

Dip: Minus 45°

Date begun: June 24, 1949

Date finished: July 11, 1949

Core size: NX, 0.0 to 8.0 ft.

Bearing: N. 24° W.

BX, 8.0 to 124.0 ft.

AX, 124.0 to 148.0 ft.

BX, 148.0 to 202.0 ft.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	98.0	98.0	85.0	86.7	Overburden to 10 ft., then latite.
98.0	104.0	6.0	6.0	100.0	Latite.
104.0	108.0	4.0	4.0	100.0	Quartz.
108.0	114.0	6.0	5.5	91.7	Do.
114.0	118.0	4.0	4.0	100.0	Do.
118.0	123.0	5.0	5.0	100.0	Do.
123.0	129.0	6.0	6.0	100.0	Do.
129.0	134.0	5.0	5.0	100.0	Do.
134.0	140.5	6.5	6.5	100.0	Do.
140.5	144.0	3.5	3.5	100.0	Do.
144.0	147.0	3.0	3.0	100.0	Do.
147.0	149.0	2.0	1.5	75.0	Do.
149.0	157.0	8.0	8.0	100.0	Do.
157.0	167.0	10.0	10.0	100.0	Do.
167.0	168.0	1.0	1.0	100.0	Do.
168.0	175.0	7.0	7.0	100.0	Do.
175.0	181.0	6.0	6.0	100.0	Do.
181.0	185.5	4.5	4.5	100.0	Do.
185.5	191.0	5.5	4.5	81.8	Latite.
191.0	202.0	11.0	11.0	100.0	Do.

## Hole 2

Location: N. 2,736 ft., E. 1,771 ft.  
 Elevation of collar: 12,640 ft.  
 Date begun: June 28, 1949  
 Core size: NX, 0.0 to 8.0 ft.  
           BX, 8.0 to 81.0 ft.  
           AX, 81.0 to 123.1 ft.  
           BX, 123.1 to 231.0 ft.

Depth: 231.0 ft.  
 Dip: Minus 45°  
 Date finished: July 11, 1949  
 Bearing: N. 24° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	32.0	32.0	26.9	84.1	Overburden to 10 ft., then latite.
32.0	36.0	4.0	4.0	100.0	Latite.
36.0	46.0	10.0	10.0	100.0	Do.
46.0	109.5	63.5	56.0	88.2	Do.
109.5	115.0	5.5	5.5	100.0	Do.
115.0	127.0	12.0	12.0	100.0	Latite to 119.0 ft., then quartz.
127.0	131.0	4.0	2.9	72.5	Quartz.
131.0	141.0	10.0	9.0	90.0	Do.
141.0	173.5	32.5	27.5	84.6	Do.
173.5	196.6	23.1	22.8	98.7	Do.
196.6	231.0	34.4	33.9	98.5	Latite.

## Hole 3

Location: N. 2,818 ft., E. 1,958 ft.  
 Elevation of collar: 12,666 ft.  
 Date begun: July 13, 1949  
 Core size: BX, 0.0 to 202.0 ft.

Depth: 202.0 ft.  
 Dip: Minus 45°  
 Date finished: July 20, 1949  
 Bearing: N. 24° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	90.7	90.7	67.5	74.4	Overburden to 11 ft.; latite to 25.0 ft.; latite with pyrite to 34.0 ft.; latite to 75.0 ft.; latite with pyrite to 90.7 ft.
90.7	112.5	21.8	19.7	90.4	Quartz.
112.5	118.0	5.5	4.2	76.4	Do.
118.0	123.0	5.0	5.0	100.0	Do.
123.0	146.0	23.0	23.0	100.0	Do.
146.0	147.0	1.0	1.0	100.0	Do.
147.0	148.5	1.5	1.5	100.0	Do.
148.5	155.0	6.5	6.5	100.0	Do.
155.0	192.0	37.0	36.0	97.3	Do.
192.0	202.0	10.0	9.5	95.0	Latite.

## Hole 4

Location: N. 2,696 ft., E. 1,683 ft.  
 Elevation of collar: 12,621 ft.  
 Date begun: July 13, 1949  
 Core size: BX, 0.0 to 221.0 ft.

Depth: 221.0 ft.  
 Dip: Minus 45°  
 Date finished: July 18, 1949  
 Bearing: N. 24° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	69.5	69.5	57.3	82.4	Latite.
69.5	99.0	29.5	28.5	96.6	Do.
99.0	101.0	2.0	2.0	100.0	Quartz.
101.0	104.5	3.5	3.0	85.7	Do.
104.5	159.0	54.5	49.6	91.0	Latite and quartz stringers.
159.0	161.5	2.5	2.5	100.0	Quartz and pyrite.
161.5	165.0	3.5	3.5	100.0	Do.
165.0	171.0	6.0	5.7	95.0	Quartz.
171.0	221.0	50.0	47.3	94.6	Latite.

## Hole 5

Location: N, 2,857 ft., E. 2,050 ft.  
 Elevation of collar: 12,672 ft.  
 Date begun: July 20, 1949  
 Core size: NX, 0.0 to 4.0 ft.  
           BX, 4.0 to 7.5 ft.  
           AX, 7.5 to 206.5 ft.

Depth: 206.5 ft.  
 Dip: Minus 45°  
 Date finished: July 26, 1949  
 Bearing: N. 24° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	104.0	104.0	86.9	83.6	Overburden to 4.0 ft., then latite.
104.0	119.5	15.5	14.0	90.3	Quartz.
119.5	125.5	6.0	6.0	100.0	Do.
125.5	133.0	7.5	4.9	65.3	Do.
133.0	143.0	10.0	10.0	100.0	Do.
143.0	149.0	6.0	6.0	100.0	Do.
149.0	159.0	10.0	10.0	100.0	Do.
159.0	169.0	10.0	10.0	100.0	Do.
169.0	176.0	7.0	4.1	58.6	Do.
176.0	188.0	12.0	11.7	97.5	Do.
188.0	206.5	18.5	17.1	92.4	Latite.

## Hole 6

Location: N. 2,657 ft., E. 1,588 ft.  
 Elevation of collar: 12,618 ft.  
 Date begun: July 19, 1949  
 Core size: NX, 0.0 to 10.0 ft.  
           BX, 10.0 to 104.5 ft.  
           AX, 104.5 to 180.0 ft.

Depth: 180.0 ft.  
 Dip: Minus 45°  
 Date finished: July 22, 1949  
 Bearing: N. 24° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	87.0	87.0	73.0	83.9	Overburden to 10 ft., then latite.
87.0	96.5	9.5	9.5	100.0	Quartz.
96.5	103.5	7.0	7.0	100.0	Do.
103.5	104.5	1.0	1.0	100.0	Do.
104.5	112.5	8.0	8.0	100.0	Do.
112.5	123.5	11.0	11.0	100.0	Do.
123.5	133.5	10.0	10.0	100.0	Do.
133.5	150.0	16.5	16.5	100.0	Do.
150.0	153.0	3.0	3.0	100.0	Do.
153.0	157.0	4.0	4.0	100.0	Do.
157.0	157.5	.5	.5	100.0	Do.
157.5	162.3	4.8	4.3	89.6	Do.
162.3	180.0	17.7	16.0	90.4	Latite.

## Hole 7

Location: N. 2,545 ft., E. 1,587 ft.  
 Elevation of collar: 12,617 ft.  
 Date begun: July 22, 1949  
 Core size: BX, 0.0 to 10.0 ft.  
           AX, 10.0 to 251.0 ft.

Depth: 251.0 ft.  
 Dip: Minus 45°  
 Date finished: July 29, 1949  
 Bearing: N. 24° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	175.0	175.0	171.7	98.1	Overburden to 11.0 ft., then latite.
175.0	185.0	10.0	4.8	48.0	Latite to 179.0 ft., then quartz.
185.0	193.0	8.0	8.0	100.0	Quartz.
193.0	197.5	4.5	4.5	100.0	Do.
197.5	202.0	4.5	1.7	37.8	Do.
202.0	212.0	10.0	10.0	100.0	Do.
212.0	214.0	2.0	1.5	75.0	Do.
214.0	218.0	4.0	3.8	95.0	Do.
218.0	219.0	1.0	.9	90.0	Do.
219.0	223.0	4.0	4.0	100.0	Do.
223.0	228.5	5.5	5.5	100.0	Do.
228.5	229.0	.5	.4	80.0	Do.
229.0	230.0	1.0	1.0	100.0	Do.
230.0	233.5	3.5	3.5	100.0	Latite.
233.5	251.0	17.5	17.0	97.1	Do.

## Hole 8

Location: N. 4,341 ft., E. 2,178 ft.  
 Elevation of collar: 12,522 ft.  
 Date begun: July 29, 1949  
 Core size: BX, 0.0 to 9.0 ft.  
 AX, 9.0 to 392.0 ft.

Depth: 392.0 ft.  
 Dip: Minus 45°  
 Date finished: Aug. 11, 1949  
 Bearing: N. 22° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	117.0	117.0	91.2	77.9	Overburden to 10.0 ft., then latite.
117.0	167.0	50.0	38.4	76.8	Latite and quartz stringers.
167.0	244.0	77.0	74.5	96.8	Latite.
244.0	249.0	5.0	5.0	100.0	Latite and rhodonite.
249.0	273.5	24.5	24.5	100.0	Latite.
273.5	295.4	21.9	21.9	100.0	Latite and rhodonite.
295.4	301.0	5.6	5.6	100.0	Latite and quartz stringers.
301.0	324.0	23.0	23.0	100.0	Latite.
324.0	348.0	24.0	20.5	85.4	Broken altered latite.
348.0	354.0	6.0	1.3	21.7	Do.
354.0	358.0	4.0	4.0	100.0	Quartz.
358.0	362.0	4.0	2.0	50.0	Do.
362.0	370.5	8.5	8.0	94.1	Latite.
370.5	392.0	21.5	16.0	74.4	Do.

## Hole 9

Location: N. 3,987 ft., E. 2,234 ft.  
 Elevation of collar: 12,590 ft.  
 Date begun: Aug. 2, 1949  
 Core size: BX, 0.0 to 32.0 ft.  
 AX, 32.0 to 262.0 ft.

Depth: 262.0 ft.  
 Dip: Minus 45°  
 Date finished: Aug. 5, 1949  
 Bearing: S. 89° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	150.0	150.0	117.7	78.5	Overburden to 15.0 ft., then latite.
150.0	159.0	9.0	9.0	100.0	Quartz.
159.0	164.0	5.0	3.2	64.0	Do.
164.0	169.0	5.0	4.6	92.0	Do.
169.0	171.5	2.5	2.3	92.0	Do.
171.5	174.5	3.0	3.0	100.0	Do.
174.5	178.0	3.5	1.9	54.3	Do.
178.0	183.0	5.0	4.6	92.0	Do.
183.0	188.0	5.0	4.7	94.0	Do.
188.0	192.5	4.5	4.5	100.0	Do.
192.5	199.0	6.5	4.5	69.2	Do.
199.0	209.0	10.0	9.7	97.0	Do.
209.0	214.0	5.0	2.7	54.0	Do.
214.0	220.0	6.0	4.2	70.0	Do.
220.0	225.0	5.0	.8	16.0	Do.
225.0	230.0	5.0	3.7	74.0	Do.
230.0	234.0	4.0	4.0	100.0	Latite and quartz stringers.
234.0	236.0	2.0	2.0	100.0	Do.
236.0	251.6	15.6	15.6	100.0	Do.
251.6	262.0	10.4	8.0	76.9	Latite.

## Hole 10

Location: N. 3,987 ft., E. 2,234 ft.  
 Elevation of collar: 12,590 ft.  
 Date begun: Aug. 5, 1949  
 Core size: BX, 0.0 to 10.0 ft.  
 AX, 10.0 to 152.0 ft.

Depth: 152.0 ft.  
 Dip: Minus 50°  
 Date finished: Aug. 8, 1949  
 Bearing: N. 48° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	88.0	88.0	75.9	86.2	Overburden to 14.0 ft., then latite.
88.0	98.0	10.0	10.0	100.0	Latite and quartz stringers.
98.0	100.0	2.0	2.0	100.0	Quartz.
100.0	104.0	4.0	4.0	100.0	Do.
104.0	113.0	9.0	9.0	100.0	Do.
113.0	123.0	10.0	7.5	75.0	Do.
123.0	138.0	15.0	10.6	70.7	Do.
138.0	145.0	7.0	.0	.0	Old drift, no core.
145.0	152.0	7.0	2.0	28.6	Latite.

## Hole 11

Location: N. 3,987 ft., E. 2,234 ft.  
 Elevation of collar: 12,590 ft.  
 Date begun: Aug. 9, 1949  
 Core size: BX, 0.0 to 10.0 ft.  
 AX, 10.0 to 251.5 ft.

Depth: 251.5 ft.  
 Dip: Minus 50°  
 Date finished: Aug. 12, 1949  
 Bearing: N. 8° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	146.5	146.5	120.9	82.5	Overburden to 20.0 ft., then latite.
146.5	152.0	5.5	3.0	54.5	Latite.
152.0	161.0	9.0	4.0	44.4	Quartz.
161.0	176.0	15.0	7.5	50.0	Do.
176.0	186.0	10.0	6.0	60.0	Do.
186.0	196.5	10.5	8.6	81.9	Do.
196.5	211.0	14.5	10.7	73.8	Do.
211.0	227.5	16.5	14.4	87.3	Latite and quartz stringers.
227.5	251.5	24.0	21.8	90.8	Latite.

## Hole 12

Location: N. 4,382 ft., E. 2,215 ft.  
 Elevation of collar: 12,500 ft.  
 Date begun: Aug. 15, 1949  
 Core size: BX, 0.0 to 49.0 ft.  
 AX, 49.0 to 372.0 ft.

Depth: 372.0 ft.  
 Dip: Minus 45°  
 Date finished: Aug. 24, 1949  
 Bearing: N. 50° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	67.5	67.5	38.0	56.3	Overburden to 11.0 ft., then latite.
67.5	127.0	59.5	50.5	84.9	Rhyolite.
127.0	150.0	23.0	9.8	42.6	Quartz.
150.0	155.0	5.0	3.8	76.0	Do.
155.0	162.0	7.0	4.1	58.6	Do.
162.0	166.0	4.0	2.1	52.5	Do.
166.0	173.0	7.0	4.0	57.1	Rhyolite.
173.0	179.0	6.0	.0	.0	Mud, fault zone.
179.0	181.0	2.0	1.6	80.0	Rhyolite.
181.0	198.0	17.0	6.5	38.2	Quartz.
198.0	204.0	6.0	1.3	21.7	Do.
204.0	225.0	21.0	16.1	76.7	Rhyolite.
225.0	226.0	1.0	.0	.0	Mud.
226.0	228.0	2.0	.9	45.0	Rhyolite.
228.0	229.0	1.0	.0	.0	Mud.
229.0	233.0	4.0	2.6	65.0	Rhyolite.
233.0	238.0	5.0	.0	.0	Mud.
238.0	254.0	16.0	5.8	36.2	Rhyolite.
254.0	259.5	5.5	4.6	83.6	Quartz.
259.5	263.5	4.0	4.0	100.0	Do.
263.5	265.0	1.5	1.2	80.0	Do.
265.0	268.5	3.5	3.5	100.0	Do.
268.5	271.0	2.5	2.5	100.0	Do.
271.0	272.0	1.0	1.0	100.0	Do.
272.0	285.0	13.0	6.0	46.2	Do.
285.0	294.0	9.0	2.6	28.9	Do.
294.0	298.0	4.0	2.6	65.0	Do.
298.0	308.0	10.0	7.4	74.0	Do.
308.0	312.0	4.0	3.8	95.0	Do.
312.0	316.0	4.0	4.0	100.0	Do.
316.0	318.5	2.5	2.5	100.0	Do.
318.5	323.0	4.5	2.4	55.6	Do.
323.0	337.0	14.0	12.9	92.1	Latite and quartz stringers.
337.0	340.5	3.5	3.5	100.0	Quartz.
340.5	344.0	3.5	3.5	100.0	Latite.
344.0	348.5	4.5	4.5	100.0	Latite and quartz stringers.
348.5	354.0	5.5	5.5	100.0	Quartz.
354.0	361.0	7.0	7.0	100.0	Latite and quartz stringers.
361.0	372.0	11.0	9.5	86.4	Latite.

## Hole 13

Location: N. 3,987 ft., E. 2,234 ft.

Depth: 341.0 ft.

Elevation of collar: 12,590 ft.

Dip: Minus 30°

Date begun: Aug. 15, 1949

Date finished: Aug. 20, 1949

Core size: BX, 0.0 to 17.0 ft.

Bearing: S. 38° E.

AX, 17.0 to 341.0 ft.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	47.0	47.0	31.3	66.6	Overburden to 11.5 ft., then latite.
47.0	52.0	5.0	5.0	100.0	Latite and quartz stringers.
52.0	114.0	62.0	54.0	87.1	Latite.
114.0	123.5	9.5	9.5	100.0	Latite and quartz stringers.
123.5	164.0	40.5	39.8	98.3	Latite.
164.0	174.0	10.0	10.0	100.0	Latite and quartz stringers.
174.0	204.0	30.0	30.0	100.0	Latite.
204.0	214.0	10.0	10.0	100.0	Do.
214.0	224.0	10.0	10.0	100.0	Do.
224.0	234.0	10.0	10.0	100.0	Do.
234.0	235.0	1.0	1.0	100.0	Quartz.
235.0	238.0	3.0	3.0	100.0	Do.
238.0	248.0	10.0	9.3	93.0	Do.
248.0	253.0	5.0	5.0	100.0	Do.
253.0	255.0	2.0	2.0	100.0	Do.
255.0	276.0	21.0	20.5	97.6	Do.
276.0	285.0	9.0	7.5	83.3	Latite and quartz stringers.
285.0	302.5	17.5	12.2	69.7	Do.
302.5	319.0	16.5	7.9	47.9	Do.
319.0	331.0	12.0	8.3	69.2	Do.
331.0	341.0	10.0	10.0	100.0	Latite.

## Hole 14

Location: N. 3,884 ft., E. 1,884 ft.

Depth: 282.0 ft.

Elevation of collar: 12,678 ft.

Dip: Minus 30°

Date begun: Aug. 24, 1949

Date finished: Aug. 29, 1949

Core size: BX, 0.0 to 10.0 ft.

Bearing: S. 9° E.

AX, 10.0 to 282.0 ft.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	113.0	113.0	90.5	80.1	Overburden to 10.0 ft., then latite.
113.0	132.5	19.5	18.2	93.3	Latite and quartz stringers.
132.5	148.0	15.5	13.5	87.1	Latite.
148.0	152.5	4.5	4.5	100.0	Quartz.
152.5	156.5	4.0	2.5	62.5	Do.
156.5	164.0	7.5	6.0	80.0	Do.
164.0	168.5	4.5	4.0	88.9	Do.
168.5	175.0	6.5	6.0	92.3	Do.
175.0	219.5	44.5	28.3	63.6	Do.
219.5	225.0	5.5	3.0	54.5	Do.
225.0	255.0	30.0	20.1	67.0	Do.
255.0	265.0	10.0	3.4	34.0	Latite.
265.0	267.0	2.0	2.0	100.0	Do.
267.0	282.0	15.0	8.7	58.0	Do.

## Hole 15

Location: N. 4,382 ft., E. 2,215 ft.

Depth: 295.0 ft.

Elevation of collar: 12,500 ft.

Dip: Minus 34°

Date begun: Aug. 25, 1949

Date finished: Sept. 1, 1949

Core size: BX, 0.0 to 35.0 ft.

Bearing: N. 9° E.

AX, 35.0 to 295.0 ft.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	35.5	35.5	7.5	21.1	Overburden to 19.0 ft., then latite.
35.5	57.0	21.5	15.7	73.0	Rhyolite.
57.0	77.0	20.0	4.5	225.	Vein quartz and mud.
77.0	93.1	16.1	14.0	87.0	Rhyolite.
93.1	96.0	2.9	2.5	86.2	Quartz.
96.0	103.0	7.0	.0	.0	Mud.
103.0	162.5	59.5	39.9	67.1	Quartz.
162.5	170.0	7.5	5.6	74.7	Do.
170.0	174.0	4.0	4.0	100.0	Do.
174.0	176.5	2.5	1.4	56.0	Do.
176.5	186.0	9.5	4.5	47.4	Do.
186.0	192.0	6.0	4.4	73.3	Do.
192.0	197.0	5.0	5.0	100.0	Do.
197.0	201.0	4.0	4.0	100.0	Do.
201.0	204.0	3.0	2.8	93.3	Do.
204.0	205.0	1.0	.6	60.0	Do.
205.0	206.5	1.5	1.2	80.0	Do.
206.5	207.5	1.0	1.0	100.0	Do.
207.5	211.0	3.5	3.5	100.0	Do.
211.0	220.0	9.0	7.5	83.3	Do.
220.0	234.0	14.0	10.9	77.9	Latite, quartz stringers, and mud.
234.0	238.0	4.0	1.1	27.5	Latite.
238.0	247.0	9.0	7.4	82.2	Latite and quartz stringers.
247.0	295.0	48.0	42.8	89.2	Latite.

## Hole 16

Location: N. 3,884 ft., E. 1,884 ft.

Depth: 179.5 ft.

Elevation of collar: 12,678 ft.

Dip: Minus 33°

Date begun: Aug. 30, 1949

Date finished: Aug. 31, 1949

Core size: AX, 0.0 to 179.5

Bearing: S. 43° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	112.0	112.0	75.0	67.0	Overburden to 15.0 ft., then latite.
112.0	122.0	10.0	8.1	81.0	Quartz.
122.0	132.0	10.0	10.0	100.0	Do.
132.0	135.0	3.0	3.0	100.0	Do.
135.0	145.0	10.0	10.0	100.0	Do.
145.0	152.5	7.5	7.5	100.0	Do.
152.5	158.0	5.5	5.5	100.0	Do.
158.0	179.5	21.5	21.5	100.0	Latite.

## Hole 17

Location: N. 3,884 ft., E. 1,884 ft.

Depth: 235.0 ft.

Elevation of collar: 12,678 ft.

Dip: Minus 40°

Date begun: Sept. 1, 1949

Date finished: Sept. 7, 1949

Core size: AX, 0.0 to 235.0 ft.

Bearing: S. 85° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	109.5	109.5	85.4	78.0	Overburden to 15.0 ft., then latite.
109.5	113.0	3.5	3.5	100.0	Latite and quartz stringers.
113.0	125.0	12.0	9.0	75.0	Do.
125.0	128.5	3.5	1.6	45.7	Do.
128.5	138.0	9.5	3.5	36.8	Quartz.
138.0	145.5	7.5	7.5	100.0	Do.
145.5	148.5	3.0	3.0	100.0	Do.
148.5	153.0	4.5	3.7	82.2	Do.
153.0	158.5	5.5	3.4	61.8	Do.
158.5	161.0	2.5	2.1	84.0	Do.
161.0	165.5	4.5	4.5	100.0	Do.
165.5	173.0	7.5	5.2	69.3	Do.
173.0	178.5	5.5	3.0	54.5	Do.
178.5	186.0	7.5	6.0	80.0	Do.
186.0	186.5	.5	.5	100.0	Do.
186.5	191.0	4.5	4.5	100.0	Do.
191.0	196.0	5.0	5.0	100.0	Do.
196.0	218.0	22.0	21.6	98.2	Latite and quartz stringers.
218.0	235.0	17.0	16.6	97.6	Latite.

## Hole 18

Location: N. 4,382 ft., E. 2,215 ft.

Depth: 363.0 ft.

Elevation of collar: 12,500 ft.

Dip: Minus 30°

Date begun: Sept. 2, 1949

Date finished: Sept. 14, 1949

Core size: BX, 0.0 to 33.0 ft.

Bearing: S. 57° E.

AX, 33.0 to 363.0 ft.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	145.0	145.0	106.6	73.5	Overburden to 7.0 ft., then latite.
145.0	166.0	21.0	5.0	23.8	Latite, quartz, and mud.
166.0	247.0	81.0	52.1	64.3	Latite.
247.0	258.5	11.5	11.0	95.7	Latite and quartz stringers.
258.5	285.0	26.5	21.2	80.0	Quartz.
285.0	291.0	6.0	4.4	73.3	Do.
291.0	297.0	6.0	4.6	76.7	Do.
297.0	307.0	10.0	10.0	100.0	Do.
307.0	316.0	9.0	7.7	85.6	Do.
316.0	325.5	9.5	8.9	93.7	Latite and quartz stringers.
325.5	363.0	37.5	32.0	85.3	Latite.

## Hole 19

Location: N. 4,369 ft., E. 2,244 ft.  
 Elevation of collar: 12,496 ft.  
 Date begun: Sept. 8, 1949  
 Core size: BX, 0.0 to 10.0 ft.  
 AX, 10.0 to 348.5 ft.

Depth: 348.5 ft.  
 Dip: Minus 40°  
 Date finished: Sept. 27, 1949  
 Bearing: N. 12° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	49.0	49.0	19.8	40.4	Overburden to 15.0 ft., then latite.
49.0	77.0	28.0	23.3	83.2	Rhyolite.
77.0	90.0	13.0	8.1	62.3	Quartz.
90.0	128.0	38.0	15.2	40.0	Rhyolite.
128.0	140.0	12.0	7.2	60.0	Quartz.
140.0	152.0	12.0	11.5	95.8	Latite and quartz stringers.
152.0	166.0	14.0	13.2	94.3	Latite.
166.0	181.0	15.0	11.5	76.7	Latite and quartz stringers.
181.0	206.0	25.0	20.9	83.6	Quartz.
206.0	207.0	1.0	.6	60.0	Do.
207.0	213.0	6.0	3.2	53.3	Do.
213.0	216.0	3.0	2.3	76.7	Do.
216.0	217.5	1.5	1.1	73.3	Do.
217.5	221.0	3.5	2.2	62.9	Do.
221.0	225.0	4.0	3.7	92.5	Do.
225.0	231.5	6.5	5.4	83.1	Do.
231.5	233.5	2.0	1.6	80.0	Do.
233.5	239.5	6.0	4.4	73.3	Do.
239.5	243.0	3.5	2.8	80.0	Do.
243.0	261.5	18.5	8.6	46.5	Do.
261.5	268.0	6.5	6.5	100.0	Quartz and latite.
268.0	271.5	3.5	2.7	77.1	Do.
271.5	277.0	5.5	5.1	92.7	Do.
277.0	348.0	71.0	64.5	90.8	Latite and quartz stringers.

## Hole 20

Location: N. 4,382 ft., E. 2,215 ft.  
 Elevation of collar: 12,500 ft.  
 Date begun: Sept. 16, 1949  
 Core size: AX, 0.0 to 321.0 ft.

Depth: 321.0 ft.  
 Dip: Minus 35°  
 Date finished: Sept. 23, 1949  
 Bearing: N. 21° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	42.0	42.0	18.1	43.1	Overburden to 13.0 ft., then latite.
42.0	52.0	10.0	5.1	51.0	Rhyolite.
52.0	72.0	20.0	13.4	67.0	Quartz.
72.0	103.0	31.0	18.5	59.7	Rhyolite.
103.0	133.0	30.0	9.4	31.3	Latite and quartz stringers.
133.0	143.0	10.0	10.0	100.0	Latite.
143.0	151.0	8.0	7.4	92.5	Latite and quartz stringers.
151.0	161.0	10.0	9.6	96.0	Rhyolite.
161.0	179.0	18.0	12.0	66.7	Quartz.
179.0	189.0	10.0	10.0	100.0	Do.
189.0	198.0	9.0	9.0	100.0	Do.
198.0	202.0	4.0	3.4	85.0	Do.
202.0	208.0	6.0	5.5	91.7	Do.
208.0	212.0	4.0	3.6	90.0	Do.
212.0	213.6	1.6	1.6	100.0	Do.
213.6	215.0	1.4	1.4	100.0	Do.
215.0	217.5	2.5	1.4	56.0	Do.
217.5	220.0	2.5	2.5	100.0	Do.
220.0	227.0	7.0	7.0	100.0	Do.
227.0	234.0	7.0	7.0	100.0	Do.
234.0	239.0	5.0	5.0	100.0	Do.
239.0	240.5	1.5	1.3	86.7	Do.
240.5	246.5	6.0	2.5	41.7	Do.
246.5	249.0	2.5	2.1	84.0	Do.
249.0	254.0	5.0	3.1	62.0	Do.
254.0	257.0	3.0	2.6	86.7	Do.
257.0	259.0	2.0	1.8	90.0	Do.
259.0	260.0	1.0	.7	70.0	Do.
260.0	268.0	8.0	1.6	20.0	Quartz and mud.
268.0	273.0	5.0	.8	16.0	Do.
273.0	276.0	3.0	1.6	53.3	Quartz.
276.0	279.0	3.0	2.0	66.7	Do.
279.0	293.0	14.0	11.5	82.1	Quartz and mud.
293.0	298.5	5.5	3.7	67.3	Latite and quartz.
298.5	321.0	22.5	16.6	73.8	Altered latite.

## Hole 21

Location: N. 2,652 ft., E. 2,090 ft.  
 Elevation of collar: 12,656 ft.  
 Date begun: Oct. 3, 1949  
 Core size AX, 0.0 to 378.0 ft.

Depth: 378.0 ft.  
 Dip: Minus 45°  
 Date finished: Oct. 19, 1949  
 Bearing: N. 24° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	284.0	284.0	262.6	92.5	Overburden to 4.0 ft., then latite.
284.0	290.0	6.0	6.0	100.0	Latite to 289.0 ft., then latite and quartz stringers.
290.0	294.0	4.0	3.9	97.5	Latite and quartz stringers.
294.0	321.0	27.0	25.3	93.7	Latite.
321.0	322.0	1.0	1.0	100.0	Latite to 321.5 ft., then latite and quartz stringers.
322.0	332.0	10.0	10.0	100.0	Latite and quartz stringers.
332.0	341.0	9.0	9.0	100.0	Latite and quartz stringers to 333.5 ft., then latite.
341.0	342.0	1.0	1.0	100.0	Latite.
342.0	351.0	9.0	8.6	95.6	Latite and quartz stringers.
351.0	352.0	1.0	1.0	100.0	Quartz.
352.0	361.5	9.5	8.5	89.5	Do.
361.5	366.0	4.5	4.5	100.0	Do.
366.0	378.0	12.0	11.8	98.3	Quartz to 371.0 ft., then latite.

## Hole 22

Location: N. 2,570 ft., E. 1,902 ft.  
 Elevation of collar: 12,636 ft.  
 Date begun: Oct. 3, 1949  
 Core size: NX, 0.0 to 8.0 ft.  
           BX, 8.0 to 19.0 ft.  
           AX, 19.0 to 432.5 ft.

Depth: 432.5 ft.  
 Dip: Minus 50°  
 Date finished: Oct. 20, 1949  
 Bearing: N. 24° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	124.0	124.0	73.1	59.0	Overburden to 21.0 ft., then latite.
124.0	135.0	11.0	7.0	63.6	Quartz.
135.0	296.5	161.5	158.1	97.9	Latite.
296.5	301.0	4.5	4.2	93.3	Latite to 299.5 ft., then quartz.
301.0	304.0	3.0	3.0	100.0	Quartz.
304.0	309.0	5.0	4.5	90.0	Do.
309.0	335.0	26.0	25.5	98.1	Latite.
335.0	345.0	10.0	10.0	100.0	Do.
345.0	347.0	2.0	2.0	100.0	Quartz.
347.0	349.0	2.0	2.0	100.0	Do.
349.0	355.0	6.0	3.3	55.0	Quartz to 352.0 ft., then latite.
355.0	432.5	77.5	75.1	96.9	Latite.

## Hole 23

Location: N. 2,610 ft., E. 1,996 ft.  
 Elevation of collar: 12,640 ft.  
 Date begun: July 28, 1950  
 Core size: NX, 0.0 to 10.0 ft.  
           BX, 10.0 to 28.0 ft.  
           AX, 28.0 to 457.0 ft.

Depth: 457.0 ft.  
 Dip: Minus 65°  
 Date finished: Aug. 8, 1950  
 Bearing: N. 24° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	382.0	382.0	341.7	89.5	Overburden to 5.0 ft., then latite, pyrite, and quartz.
382.0	384.0	2.0	.3	15.0	Quartz and latite.
384.0	391.0	7.0	3.0	42.9	Do.
391.0	393.0	2.0	1.6	80.0	Do.
393.0	398.0	5.0	5.0	100.0	Do.
398.0	457.0	59.0	54.1	91.7	Latite with scattered pyrite crystals.

## Hole 24

Location: N. 3,707 ft., E. 2,802 ft.  
 Elevation of collar: 12,672 ft.  
 Date begun: Aug. 10, 1950  
 Core size: NX, 0.0 to 10.0 ft.  
           BX, 10.0 to 20.0 ft.  
           AX, 20.0 to 351.5 ft.

Depth: 351.5 ft.  
 Dip: Minus 47°  
 Date finished: Aug. 21, 1950  
 Bearing: N. 44° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	20.0	20.0	14.2	71.0	Overburden to 6.0 ft., then latite.
20.0	36.5	16.5	9.0	54.5	Quartz.
36.5	90.0	53.5	40.9	76.4	Latite to 43.5 ft., then latite and quartz stringers.
90.0	96.0	6.0	5.6	93.3	Latite and quartz stringers.
96.0	101.0	5.0	5.0	100.0	Latite.
101.0	237.0	136.0	129.3	95.1	Latite and quartz stringers.
237.0	245.0	8.0	8.0	100.0	Quartz and pyrite.
245.0	267.5	22.5	22.5	100.0	Latite, quartz stringers, and pyrite.
267.5	271.0	3.5	3.5	100.0	Latite and quartz stringers.
271.0	277.0	6.0	6.0	100.0	Do.
277.0	281.0	4.0	4.0	100.0	Do.
281.0	286.0	5.0	5.0	100.0	Latite and quartz stringers to 283.0 ft., then latite, quartz stringers, and pyrite.
286.0	311.5	25.5	25.5	100.0	Latite, quartz stringers, and pyrite.
311.5	312.0	.5	.5	100.0	Do.
312.0	315.0	3.0	2.6	86.7	Do.
315.0	316.0	1.0	.8	80.0	Latite with pyrite.
316.0	351.5	35.5	34.2	96.3	Latite.

## Hole 25

Location: N. 3,707 ft., E. 2,082 ft.  
 Elevation of collar: 12,672 ft.  
 Date begun: Aug. 22, 1950  
 Core size: NX, 0.0 to 9.0 ft.  
           BX, 9.0 to 22.5 ft.  
           AX, 22.5 to 272.0 ft.

Depth: 272.0 ft.  
 Dip: Minus 40°  
 Date finished: Aug. 29, 1950  
 Bearing: N. 22° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	222.0	222.0	196.4	88.5	Overburden to 6.0 ft., latite and quartz stringers to 37.0 ft., then latite and quartz stringers with pyrite.
222.0	232.0	10.0	9.2	92.0	Latite and quartz stringers with pyrite.
232.0	242.0	10.0	9.0	90.0	Latite, quartz, and barite.
242.0	244.0	2.0	1.5	75.0	Do.
244.0	260.0	16.0	16.0	100.0	Latite and quartz.
260.0	272.0	12.0	11.3	94.2	Latite with pyrite crystals to 270.0 ft.

## Hole 26

Location: N. 3,707 ft., E. 2,082 ft.  
 Elevation of collar: 12,672 ft.  
 Date begun: Aug. 30, 1950  
 Core size: BX, 0.0 to 23.0 ft.  
           AX, 23.0 to 430.0 ft.

Depth: 430.0 ft.  
 Dip: Minus 40°  
 Date finished: Sept. 11, 1950  
 Bearing: N. 2° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	15.0	15.0	8.0	53.3	Overburden to 6.0 ft., then quartz.
15.0	22.0	7.0	5.0	71.4	Latite, quartz, and rhodonite.
22.0	23.0	1.0	1.0	100.0	Do.
23.0	31.5	8.5	5.0	58.8	Do.
31.5	299.0	267.5	234.0	87.5	Latite with pyrite crystals.
299.0	320.0	21.0	19.3	91.9	Latite and quartz stringers.
320.0	322.0	2.0	2.0	100.0	Do.
322.0	325.0	3.0	3.0	100.0	Do.
325.0	335.0	10.0	9.0	90.0	Do.
335.0	350.0	15.0	11.5	76.7	Latite.
350.0	356.0	6.0	4.2	70.0	Latite and quartz.
356.0	360.0	4.0	.8	20.0	Vuggy quartz.
360.0	369.0	9.0	2.0	22.2	Do.
369.0	375.5	6.5	6.5	100.0	Latite with quartz stringers.
375.5	377.5	2.0	2.0	100.0	Do.
377.5	380.5	3.0	3.0	100.0	Do.
380.5	430.0	49.5	46.0	92.9	Do.

## Hole 27

Location: N. 1,532 ft., E. 2,126 ft.  
 Elevation of collar: 12,534 ft.  
 Date begun: Sept. 14, 1950  
 Core size: BX, 0.0 to 10.0 ft.  
 AX, 10.0 to 295.0 ft.

Depth: 295.0 ft.  
 Dip: Minus 45°  
 Date finished: Sept. 22, 1950  
 Bearing: S. 58° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	208.5	208.5	190.2	91.2	Overburden to 4.5 ft., then latite.
208.5	210.0	1.5	1.5	100.0	Latite and quartz stringers.
210.0	217.0	7.0	4.0	57.1	Latite and mud.
217.0	230.0	13.0	13.0	100.0	Latite and quartz stringers.
230.0	237.0	7.0	7.0	100.0	Do.
237.0	240.0	3.0	3.0	100.0	Do.
240.0	247.0	7.0	7.0	100.0	Do.
247.0	250.0	3.0	3.0	100.0	Do.
250.0	253.0	3.0	3.0	100.0	Latite.
253.0	254.0	1.0	1.0	100.0	Do.
254.0	257.0	3.0	3.0	100.0	Do.
257.0	260.0	3.0	3.0	100.0	Do.
260.0	261.0	1.0	1.0	100.0	Latite and quartz stringers.
261.0	266.5	5.5	5.5	100.0	Do.
266.5	270.0	3.5	3.5	100.0	Do.
270.0	280.0	10.0	9.2	92.0	Do.
280.0	286.0	6.0	4.5	75.0	Latite and mud.
286.0	295.0	9.0	9.0	100.0	Latite with scattered pyrite.

## Hole 28

Location: N. 1,532 ft., E. 2,126 ft.  
 Elevation of collar: 12,534 ft.  
 Date begun: Sept. 22, 1950  
 Core size: NX, 0.0 to 3.0 ft.  
 BX, 3.0 to 9.5 ft.  
 AX, 9.5 to 307.0 ft.

Depth: 307.0 ft.  
 Dip: Minus 45°  
 Date finished: Oct. 4, 1950  
 Bearing: N. 22° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	133.0	133.0	124.5	93.6	Overburden to 3.0 ft., then latite.
133.0	141.0	8.0	8.0	100.0	Latite and quartz stringers.
141.0	142.0	1.0	1.0	100.0	Quartz.
142.0	151.0	9.0	9.0	100.0	Do.
151.0	152.0	1.0	.7	70.0	Do.
152.0	159.0	7.0	6.5	92.9	Do.
159.0	205.0	46.0	42.0	91.3	Latite with pyrite.
205.0	210.0	5.0	4.7	94.0	Latite and quartz stringers.
210.0	213.0	3.0	3.0	100.0	Do.
213.0	223.5	10.5	7.0	66.7	Latite.
223.5	233.5	10.0	10.0	100.0	Volcanic tuff.
233.5	276.0	42.5	41.7	98.1	Latite with pyrite crystals.
276.0	283.0	7.0	7.0	100.0	Latite and quartz stringers.
283.0	307.0	24.0	23.5	97.9	Latite with pyrite crystals.

## Hole 29

Location: N. 1,622 ft., E. 2,186 ft.  
 Elevation of collar: 12,556 ft.  
 Date begun: Oct. 6, 1950  
 Core size: NX, 0.0 to 3.0 ft.  
           BX, 3.0 to 10.0 ft.  
           AX, 10.0 to 271.5 ft.

Depth: 271.5 ft.  
 Dip: Minus 40°  
 Date finished: Oct. 19, 1950  
 Bearing: N. 21° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	131.0	131.0	115.2	87.9	Overburden to 6.0 ft., then latite.
131.0	134.5	3.5	3.2	91.4	Latite to 132.5 ft., then quartz.
134.5	136.0	1.5	1.3	86.7	Quartz.
136.0	142.5	6.5	4.1	63.1	Do.
142.5	145.5	3.0	3.0	100.0	Do.
145.5	147.5	2.0	1.4	70.0	Do.
147.5	271.5	124.0	122.8	99.0	Latite to 236.0 ft.; latite and quartz stringers to 248.5 ft.; latite with pyrite crystals to 271.5 ft.

## Hole 30

Location: N. 4,625 ft., E. 2,204 ft.  
 Elevation of collar: 12,489 ft.  
 Date begun: July 27, 1950  
 Core size: NX, 0.0 to 15.0 ft.  
           BX, 15.0 to 131.0 ft.  
           AX, 131.0 to 180.0 ft.

Depth: 180.0 ft.  
 Dip: Minus 45°  
 Date finished: Aug. 1, 1950  
 Bearing: S. 7° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	109.0	109.0	85.6	78.5	Overburden to 13.6 ft., then latite and quartz stringers.
109.0	113.5	4.5	4.5	100.0	Vuggy quartz.
113.5	118.0	4.5	4.5	100.0	Latite and quartz stringers.
118.0	126.5	8.5	8.0	94.1	Latite and quartz stringers; quartz at 120.0 ft.
126.5	128.0	1.5	1.5	100.0	Quartz.
128.0	129.5	1.5	1.5	100.0	Do.
129.5	131.0	1.5	1.5	100.0	Do.
131.0	132.0	1.0	1.0	100.0	Do.
132.0	134.5	2.5	2.5	100.0	Do.
134.5	141.5	7.0	7.0	100.0	Do.
141.5	158.5	17.0	11.4	67.1	Latite and rhyolite.
158.5	180.0	21.5	6.6	30.7	Rhyolite.

## Hole 31

Location: N. 4,625 ft., E. 2,204 ft.  
 Elevation of collar: 12,489 ft.  
 Date begun: Aug. 2, 1950  
 Core size: NX, 0.0 to 15.0 ft.  
           BX, 15.0 to 20.0 ft.  
           AX, 20.0 to 218.0 ft.

Depth: 218.0 ft.  
 Dip: Minus 45°  
 Date finished: Aug. 7, 1950  
 Bearing: S. 37° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	137.0	137.0	119.1	86.9	Overburden and latite to 9.0 ft., then latite with pyrite.
137.0	139.5	2.5	2.5	100.0	Latite with pyrite.
139.5	143.0	3.5	3.5	100.0	Quartz.
143.0	149.0	6.0	6.0	100.0	Do.
149.0	149.5	.5	.5	100.0	Do.
149.5	154.0	4.5	3.5	77.8	Do.
154.0	157.0	3.0	3.0	100.0	Do.
157.0	160.0	3.0	3.0	100.0	Do.
160.0	162.0	2.0	1.7	85.0	Do.
162.0	164.5	2.5	2.5	100.0	Do.
164.5	170.0	5.5	5.0	90.9	Quartz and latite.
170.0	218.0	48.0	38.0	80.8	Latite and rhyolite.

## Hole 32

Location: N. 4,643 ft., E. 2,303 ft.  
 Elevation of collar: 12,459 ft.  
 Date begun: Aug. 9, 1950  
 Core size: NX, 0.0 to 15.0 ft.  
           BX, 15.0 to 20.0 ft.  
           AX, 20.0 to 172.5 ft.

Depth: 172.5 ft.  
 Dip: Minus 50°  
 Date finished: Aug. 11, 1950  
 Bearing: N. 15° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	28.5	28.5	24.6	86.3	Overburden to 3.0 ft., then latite.
28.5	120.0	91.5	85.2	93.1	Latite and quartz stringers.
120.0	125.5	5.5	4.2	76.4	Quartz.
125.5	130.0	4.5	3.8	84.4	Quartz and barite.
130.0	131.0	1.0	.3	30.0	Do.
131.0	147.0	16.0	13.2	82.5	Quartz and latite.
147.0	172.5	25.5	22.6	88.6	Latite with pyrite.

## Hole 33

Location: N. 4,643 ft., E. 2,303 ft.  
 Elevation of collar: 12,459 ft.  
 Date begun: Aug. 14, 1950  
 Core size: NX, 0.0 to 15.0 ft.  
           BX, 15.0 to 20.0 ft.  
           AX, 20.0 to 250.0 ft.

Depth: 250.0 ft.  
 Dip: Minus 47°  
 Date finished: Aug. 18, 1950  
 Bearing: S. 30° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	130.5	130.5	105.5	80.8	Overburden to 5.0 ft., then latite.
130.5	133.5	3.5	2.4	80.0	Quartz.
133.5	136.0	2.5	1.2	48.0	Do.
136.0	137.0	1.0	1.0	100.0	Do.
137.0	142.0	5.0	5.0	100.0	Do.
142.0	146.5	4.5	4.5	100.0	Do.
146.5	150.5	4.0	4.0	100.0	Do.
150.5	151.0	.5	.5	100.0	Do.
151.0	155.0	4.0	4.0	100.0	Do.
155.0	161.0	6.0	4.4	73.3	Do.
161.0	162.0	1.0	1.0	100.0	Do.
162.0	162.5	.5	.5	100.0	Do.
162.5	173.0	10.5	10.5	100.0	Do.
173.0	180.0	7.0	7.0	100.0	Do.
180.0	182.5	2.5	1.0	40.0	Do.
182.5	183.0	.5	.5	100.0	Do.
183.0	183.5	.5	.5	100.0	Do.
183.5	187.0	3.5	3.5	100.0	Do.
187.0	192.0	5.0	5.0	100.0	Do.
192.0	194.5	2.5	2.5	100.0	Do.
194.5	197.0	2.5	2.5	100.0	Quartz and latite.
197.0	238.0	41.0	23.2	56.8	Latite.
238.0	250.0	12.0	8.5	70.8	Rhyolite.

## Hole 34

Location: N. 4,643 ft., E. 2,303 ft.  
 Elevation of collar: 12,459 ft.  
 Date begun: Aug. 21, 1950  
 Core size: NX, 0.0 to 8.0 ft.  
           BX, 8.0 to 19.0 ft.  
           AX, 19.0 to 213.0 ft.

Depth: 213.0 ft.  
 Dip: Minus 54°  
 Date finished: Aug. 28, 1950  
 Bearing: S. 16° W.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	140.0	140.0	120.0	85.7	Overburden to 8.0 ft., then latite with pyrite.
140.0	143.0	3.0	3.0	100.0	Latite and quartz.
143.0	143.5	.5	.5	100.0	Do.
143.5	149.5	6.0	5.0	83.3	Do.
149.5	150.0	.5	.5	100.0	Quartz.
150.0	151.0	1.0	.7	70.0	Do.
151.0	152.0	1.0	1.0	100.0	Quartz and rhodonite.
152.0	155.0	3.0	3.0	100.0	Quartz.
155.0	157.0	2.0	1.7	85.0	Do.
157.0	161.0	4.0	2.0	50.0	Do.
161.0	166.5	5.5	2.0	36.4	Do.
166.5	170.5	4.0	1.6	40.0	Do.
170.5	171.5	1.0	1.0	100.0	Do.
171.5	173.5	2.0	1.3	65.0	Do.
173.5	176.0	2.5	1.5	60.0	Do.
176.0	178.5	2.5	1.2	48.0	Do.
178.5	181.0	2.5	2.5	100.0	Quartz and latite.
181.0	213.0	32.0	28.0	87.5	Latite.

## Hole 35

Location: N. 4,643 ft., E. 2,303 ft.  
 Elevation of collar: 12,459 ft.  
 Date begun: Aug. 29, 1950  
 Core size: NX, 0.0 to 6.0 ft.  
           BX, 6.0 to 20.0 ft.  
           AX, 20.0 to 265.5 ft.

Depth: 265.5 ft.  
 Dip: Minus 43°  
 Date finished: Sept. 8, 1950  
 Bearing: N. 88° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	139.0	139.0	127.7	91.9	Overburden to 6.0 ft., then latite.
139.0	166.0	27.0	18.7	69.3	Rhyolite.
166.0	218.0	52.0	46.5	89.4	Latite and quartz stringers.
218.0	222.0	4.0	4.0	100.0	Quartz and latite.
222.0	227.0	5.0	3.5	70.0	Do.
227.0	229.0	2.0	2.0	100.0	Do.
229.0	265.5	36.5	32.3	88.5	Latite and rhyolite.

## Hole 36

Location: N. 4,580 ft., E. 2,546 ft.

Depth: 173.5 ft.

Elevation of collar: 12,470 ft.

Dip: Minus 59°

Date begun: Sept. 13, 1950

Date finished: Sept. 22, 1950

Core size: NX, 0.0 to 8.0 ft.

Bearing: S. 48° W.

BX, 8.0 to 102.0 ft.

AX, 102.0 to 173.5 ft.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	85.0	85.0	76.3	89.8	Overburden to 8.0 ft., then latite and pyrite.
85.0	87.5	2.5	2.5	100.0	Quartz.
87.5	93.0	5.5	5.2	94.5	Do.
93.0	96.0	3.0	3.0	100.0	Do.
96.0	102.0	6.0	6.0	100.0	Do.
102.0	105.5	3.5	3.5	100.0	Do.
105.5	106.5	1.0	1.0	100.0	Do.
106.5	111.0	4.5	4.5	100.0	Do.
111.0	112.5	1.5	1.3	86.7	Quartz and rhodonite.
112.5	114.5	2.0	2.0	100.0	Do.
114.5	116.5	2.0	1.6	80.0	Do.
116.5	117.0	.5	.5	100.0	Do.
117.0	120.5	3.5	3.5	100.0	Rhodonite.
120.5	128.5	8.0	7.0	87.5	Do.
128.5	132.0	3.5	3.0	85.7	Do.
132.0	173.5	41.5	29.7	71.6	Latite with pyrite.

## Hole 37

Location: N. 4,580 ft., E. 2,546 ft.

Depth: 143.0 ft.

Elevation of collar: 12,470 ft.

Dip: Minus 45°

Date begun: Sept. 25, 1950

Date finished: Oct. 4, 1950

Core size: BX, 0.0 to 40.0 ft.

Bearing: S. 11° W.

AX, 40.0 to 143.0 ft.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	62.0	62.0	55.2	89.0	Overburden to 6.0 ft., then latite and pyrite.
62.0	65.0	3.0	3.0	100.0	Latite and mud.
65.0	66.0	1.0	1.0	100.0	Do.
66.0	68.5	2.5	2.0	80.0	Quartz.
68.5	71.5	3.0	3.0	100.0	Do.
71.5	80.0	8.5	6.5	76.5	Do.
80.0	83.0	3.0	3.0	100.0	Do.
83.0	87.0	4.0	3.7	92.5	Do.
87.0	89.0	2.0	2.0	100.0	Quartz and rhyolite.
89.0	97.0	8.0	7.2	90.0	Rhyolite.
97.0	104.5	7.5	7.5	100.0	Quartz.
104.5	108.0	3.5	3.5	100.0	Do.
108.0	110.0	2.0	1.2	60.0	Do.
110.0	112.0	2.0	1.7	85.0	Do.
112.0	116.0	4.0	2.2	55.0	Do.
116.0	143.0	27.0	17.0	63.0	Volcanic tuff with pyrite.

## Hole 38

Location: N. 4,580 ft., E. 2,546 ft.  
 Elevation of collar: 12,470 ft.  
 Date begun: Oct. 9, 1950  
 Core size: NX, 0.0 to 10.0 ft.  
           BX, 10.0 to 17.0 ft.  
           AX, 17.0 to 208.5 ft.

Depth: 208.5 ft.  
 Dip: Minus 45°  
 Date finished: Oct. 20, 1950  
 Bearing: S. 38° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	85.0	85.0	79.5	93.5	Overburden to 2.0 ft., then latite and quartz stringers.
85.0	100.0	15.0	10.5	70.0	Volcanic tuff.
100.0	102.5	2.5	2.5	100.0	Volcanic tuff to 101.5 ft., then quartz.
102.5	104.0	1.5	1.5	100.0	Quartz.
104.0	105.5	1.5	1.2	80.0	Do.
105.5	109.0	3.5	2.1	60.0	Do.
109.0	112.0	3.0	3.0	100.0	Do.
112.0	113.5	1.5	1.5	100.0	Do.
113.5	115.5	2.0	2.0	100.0	Do.
115.5	119.5	4.0	4.0	100.0	Do.
119.5	121.5	2.0	2.0	100.0	Do.
121.5	123.5	2.0	2.0	100.0	Do.
123.5	125.5	2.0	2.0	100.0	Do.
125.5	131.0	5.5	5.5	100.0	Do.
131.0	136.0	5.0	5.0	100.0	Do.
136.0	139.5	3.5	3.5	100.0	Do.
139.5	140.5	1.0	1.0	100.0	Do.
140.5	143.0	2.5	2.3	92.0	Do.
143.0	145.0	2.0	1.4	70.0	Do.
145.0	148.0	3.0	3.0	100.0	Do.
148.0	154.0	6.0	3.7	61.7	Do.
154.0	156.5	2.5	1.3	52.0	Do.
156.5	160.0	3.5	3.5	100.0	Do.
160.0	162.0	2.0	1.9	95.0	Do.
162.0	166.5	4.5	4.5	100.0	Do.
166.5	170.0	3.5	3.2	91.4	Do.
170.0	171.0	1.0	1.0	100.0	Latite with quartz stringers.
171.0	208.5	37.5	34.2	91.2	Do.

## Hole 39

Location: N. 4,580 ft., E. 2,546 ft.  
 Elevation of collar: 12,470 ft.  
 Date begun: Oct. 20, 1950  
 Core size: NX, 0.0 to 10.0 ft.  
           BX, 10.0 to 20.0 ft.  
           AX, 20.0 to 185.0 ft.

Depth: 185.0 ft.  
 Dip: Minus 62°  
 Date finished: Oct. 26, 1950  
 Bearing: S. 12° E.

Footage			Core recovery		Formation
From-	To-	Total	Feet	Percent	
0.0	82.5	82.5	59.0	71.5	Overburden to 10.0 ft., then latite and pyrite.
82.5	83.5	1.0	1.0	100.0	Quartz.
83.5	86.5	3.0	3.0	100.0	Rhodonite and volcanic ash.
86.5	90.0	3.5	1.4	40.0	Do.
90.0	93.5	3.5	3.4	97.1	Do.
93.5	95.5	2.0	1.7	85.0	Quartz.
95.5	96.0	.5	.5	100.0	Do.
96.0	100.5	4.5	4.5	100.0	Do.
100.5	105.0	4.5	4.0	88.9	Do.
105.0	107.0	2.0	1.7	85.0	Do.
107.0	115.0	8.0	8.0	100.0	Do.
115.0	116.5	1.5	1.5	100.0	Do.
116.5	125.5	9.0	6.8	75.6	Do.
125.5	127.0	1.5	1.5	100.0	Do.
127.0	131.0	4.0	4.0	100.0	Do.
131.0	135.0	4.0	2.5	62.5	Do.
135.0	138.5	3.5	3.4	97.1	Latite and quartz stringers.
138.5	185.0	46.5	43.8	94.2	Latite.

## APPENDIX III

## Summary of Hole Analyses

Seven Thirty vein

Hole No.	Depth, feet		Length of core, ft.	Analysis					Best portion			Remarks
				Ounces per ton		Percent			Length, ft.	Ag, oz.	Cu-Pb-Zn, percent	
	From-	To-		Au	Ag	Cu	Pb	Zn				
8	-	-	-	-	-	-	-	-	-	-	-	Poor.
20	208.2	213.2	5	0.02	7.56	0.62	6.83	3.87	3.0	10.2	17.3	Do.
30	-	-	-	-	-	-	-	-	-	-	-	
15	182.0	187.0	5	<.01	2.48	.95	5.20	5.55	.9	5.6	22.7	
31	160.25	165.25	5	<.01	2.33	.31	2.38	3.37	2.5	4.3	11.49	Do.
34	-	-	-	-	-	-	-	-	-	-	-	
19	219.0	224.0	5	.15	9.4	.23	.55	.55	-	-	-	
	234.0	239.0	5	.02	5.14	.29	4.15	1.0	1.0	7.7	19.88	Do.
12	-	-	-	-	-	-	-	-	-	-	-	
33	192.0	197.0	5	.58	5.15	.37	5.55	5.13	2.5	8.0	20.56	
35	-	-	-	-	-	-	-	-	-	-	-	Do.
36	-	-	-	-	-	-	-	-	-	-	-	Do.
37	83.0	88.0	5	.01	4.6	.82	8.85	3.5	-	-	-	Do.
39	-	-	-	-	-	-	-	-	-	-	-	
38	113.5	118.5	5	.02	11.8	.60	.25	.22	2.0	18.4	2.31	
Red Rogers vein												
14	-	-	-	-	-	-	-	-	-	-	-	Poor.
16	120.0	125.0	5	<.005	1.56	.15	.66	3.87	1.6	3.4	14.44	Do.
24	-	-	-	-	-	-	-	-	-	-	-	
25	222.5	242.0	19.5	.03	11.05	2.35	.11	<.15	8.0	17.3	2.86	
17	-	-	-	-	-	-	-	-	-	-	-	Do.
26	-	-	-	-	-	-	-	-	-	-	-	Do.
9	-	-	-	-	-	-	-	-	-	-	-	Do.
10	-	-	-	-	-	-	-	-	-	-	-	Do.
11	-	-	-	-	-	-	-	-	-	-	-	Do.
18	-	-	-	-	-	-	-	-	-	-	-	Do.
13	-	-	-	-	-	-	-	-	-	-	-	Do.
Cashier-Short Stop-Canandaigua vein												
7	-	-	-	-	-	-	-	-	-	-	-	Poor.
6	99.0	104.0	5	<.01	2.18	.15	4.89	7.17	4.0	2.5	15.02	Do.
4	-	-	-	-	-	-	-	-	-	-	-	
2	35.8	40.8	5	<.01	2.3	.04	9.27	1.07	2.0	5.5	25.37	
	129.3	134.3	5	.01	1.94	.12	1.36	1.96	.9	4.4	15.45	Do.
22	-	-	-	-	-	-	-	-	-	-	-	
1	108.0	113.0	5	<.02	1.7	.12	.82	2.32	.7	7.0	14.04	
	163.9	168.9	5	<.01	.55	.09	.85	2.23	.6	2.1	14.37	Do.
23	-	-	-	-	-	-	-	-	-	-	-	
3	-	-	-	-	-	-	-	-	1.6	8.8	1.40	
21	-	-	-	-	-	-	-	-	-	-	-	Do.
5	115.6	125.7	10.1	.08	10.9	.19	.20	.40	-	-	-	Do.
Queen Anne vein												
27	-	-	-	-	-	-	-	-	-	-	-	Poor.
28	-	-	-	-	-	-	-	-	-	-	-	Do.
29	136.0	142.5	6.5	<.01	3.0	.17	7.3	7.5	-	-	-	
Vein northwest of the Seven Thirty vein												
32	-	-	-	-	-	-	-	-	-	-	-	Poor.

## APPENDIX IV

Sample Data

## Hole 1

Sample No.	Depth, feet		Feet sampled	Analysis								
				Ounces per ton		Percent						
	From-	To-		Au	Ag	Cu	Pb	Zn	Fe	Mn	Sb	Bi
1...	98.0	102.0	4.0	0.01	1.2	0.12	0.25	0.25	-	-	-	-
2...	102.0	108.0	6.0	.01	1.2	.12	.3	.3	-	-	-	-
3...	108.0	109.8	1.8	.01	.8	.12	.55	1.3	-	-	-	-
4...	109.8	110.5	.7	.05	7.0	.29	3.4	10.35	-	-	-	-
5...	110.5	118.0	7.5	.01	.9	.07	.3	.85	-	-	-	-
6...	118.0	123.0	5.0	.01	.9	.08	.5	.5	-	-	-	-
7...	123.0	134.0	11.0	.005	1.3	.04	.3	.3	-	-	-	0.04
8...	134.0	144.0	10.0	.01	2.1	.05	.2	.5	-	-	-	-
9...	144.0	157.0	13.0	.005	1.4	.07	.2	.6	-	-	-	-
10...	157.0	163.9	6.9	.005	.4	.06	.15	.25	-	-	<0.1	<.01
11...	163.9	164.5	.6	.01	2.1	.42	2.9	11.05	-	-	-	-
12...	164.5	175.0	.5	<.005	.6	.05	.55	1.2	-	-	-	-
13...	175.0	181.0	6.0	<.005	.6	.06	.15	.9	-	-	-	-
14...	181.0	191.0	10.0	<.005	.5	.06	.35	1.0	-	-	-	-
Hole 2												
15...	34.2	37.3	3.1	<.005	.5	.03	.05	.5	-	-	-	-
16...	37.3	39.3	2.0	.02	5.5	.07	23.1	2.2	-	-	-	-
17...	39.3	42.5	3.2	<.005	.3	.01	.15	.1	-	-	-	-
18...	109.7	113.3	3.6	.03	2.5	.26	.6	1.65	-	-	-	-
19...	119.5	127.0	7.5	.01	.8	.07	.15	.65	-	-	-	-
20...	127.0	133.4	6.4	.01	1.4	.1	.3	.4	-	-	<.01	<.01
21...	133.4	134.3	.9	.025	4.4	.2	6.2	9.05	-	-	-	-
22...	134.3	141.0	6.7	.005	.5	.06	.4	.7	-	-	-	-
23...	166.5	173.5	7.0	.001	1.2	.05	.25	.2	-	-	-	-
Hole 3												
24...	110.9	112.5	1.6	.006	8.8	1.0	.1	.3	-	-	-	-
25...	116.0	119.7	3.7	.02	3.5	.22	.2	.3	-	-	-	-
26...	146.5	155.0	8.5	.01	2.0	.09	.45	1.9	-	-	-	-
Hole 4												
27...	99.0	104.5	5.5	<.005	.4	.03	.65	.95	-	-	-	-
28...	159.0	165.0	6.0	.01	1.6	.12	.05	.1	-	-	-	-
Hole 5												
35...	115.6	125.7	10.1	.08	10.9	.19	.2	.4	-	-	-	-
36...	140.7	149.2	8.5	.02	1.7	.04	.15	.3	-	-	-	-
37...	162.5	176.0	13.5	.005	.8	.01	.1	.25	-	-	-	-

## Hole 6

Sample No.	Depth, feet		Feet sampled	Analysis								
				Ounces per ton		Percent						
	From-	To-				Cu	Pb	Zn	Fe	Mn	Sb	Bi
29...	91.0	99.5	8.5	0.01	0.8	0.06	0.8	1.0	-	-	-	-
30...	99.5	103.5	4.0	.01	2.5	.17	6.0	8.85	-	-	<0.01	<0.01
31...	103.5	112.5	9.0	.005	.9	.06	.45	.45	-	-	-	-
32...	123.5	133.5	10.0	.01	2.0	.06	.25	.3	-	-	-	.06
33...	150.0	153.0	3.0	.01	4.4	.07	.4	.2	-	-	-	.08
51...	153.0	157.5	4.5	.005	2.6	.03	.1	.15	-	-	-	.027
34...	157.5	160.6	3.1	.005	.8	.1	4.4	1.5	-	-	-	-

## Hole 7

38...	179.0	185.0	6.0	.005	.9	.06	.55	.9	-	-	-	-
39...	193.0	202.0	9.0	<.005	.8	.03	.15	.6	-	-	-	-
40...	214.0	229.0	15.0	<.005	.6	.03	.5	.55	-	-	<.1	<.1

## Hole 8

48...	354.0	358.0	4.0	.001	.8	.02	<.1	<.05	-	-	-	-
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## Hole 9

41...	159.0	169.0	10.0	<.005	.2	.01	<.1	<.05	-	-	-	-
42...	169.0	174.5	5.5	<.005	.3	.02	.1	<.05	-	-	-	-
43...	181.7	188.3	6.6	<.005	.2	.03	<.1	<.05	-	-	-	-
44...	193.0	209.0	16.0	.005	.7	.22	<.1	<.05	-	-	-	-
45...	209.0	225.0	16.0	.005	.6	.08	<.1	<.05	-	-	-	-
46...	225.0	236.5	11.5	<.005	.8	.04	.15	.2	-	-	-	-

## Hole 10

47...	110.0	123.0	13.0	<.005	.2	.02	<.1	.05	-	-	-	-
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## Hole 11

49...	173.7	195.0	21.3	.005	.6	.02	.25	.1	-	-	-	-
50...	195.0	208.5	13.5	<.005	.4	.03	.2	<.05	-	-	-	-

## Hole 12

52...	150.5	155.0	4.5	<.005	.2	.02	<.1	.2	-	-	-	-
53...	155.0	160.0	5.0	<.005	.3	.01	<.1	.2	-	-	-	-
54...	182.0	191.0	9.0	<.005	.5	.04	.1	.15	-	-	-	-
55...	255.0	259.5	4.5	<.005	.3	.03	<.1	.1	-	-	-	-
56...	259.5	263.5	4.0	<.005	.2	.05	<.01	.05	-	-	-	-
57...	263.5	268.5	5.0	<.005	.3	.04	<.1	.1	-	-	-	-
58...	268.5	269.1	.6	<.005	.4	.05	.15	.15	-	-	-	-
59...	269.1	274.3	5.2	<.005	.3	.07	.1	.1	-	-	-	-
60...	274.3	278.9	4.6	<.005	.5	.08	<.1	.2	-	-	-	-
61...	278.9	283.5	4.6	<.005	.1	.01	<.1	.1	-	-	-	-
62...	283.5	288.4	4.9	<.005	.1	.03	<.1	.05	-	-	-	-
63...	288.4	293.4	5.0	<.005	.1	.03	<.1	<.05	-	-	-	-
64...	293.4	298.0	4.6	<.005	.1	.02	<.1	<.05	-	-	-	-
65...	298.0	303.0	5.0	<.005	.2	.03	<.1	<.05	-	-	-	-
66...	303.0	308.0	5.0	<.005	.4	.04	.1	<.05	-	-	-	-
67...	308.0	313.0	5.0	<.005	.2	.04	.1	<.05	-	-	-	-
68...	313.0	318.0	5.0	<.005	.1	.03	<.1	<.05	-	-	-	-
69...	318.0	323.0	5.0	<.005	<.1	.03	<.1	<.05	-	-	-	-
70...	336.5	340.4	3.9	<.005	.5	.03	.1	.1	-	-	-	-
71...	348.5	354.0	5.5	<.005	.1	.03	<.1	<.05	-	-	-	-

## Hole 13

Sample No.	Depth, feet		Feet sampled	Analysis								
				Ounces per ton				Percent				
	From-	To-		Au	Ag	Cu	Pb	Zn	Fe	Mn	Sb	Bi
72...	237.8	243.5	5.7	0.035	2.1	0.06	0.25	0.4	-	-	-	-
73...	243.5	248.0	4.5	.005	.3	.01	<.1	<.05	-	-	-	-
74...	248.0	252.0	4.0	<.005	.2	.02	<.1	<.05	-	-	-	-
75...	252.0	255.0	3.0	<.005	.2	.02	<.1	<.05	-	-	-	-

## Hole 14

76...	147.0	152.0	5.0	<.005	.8	.06	.65	.6	-	-	-	-
77...	152.0	156.5	4.5	<.005	.5	.03	<.1	.3	-	-	-	-
78...	156.5	161.5	5.0	<.005	2.3	.07	1.0	1.55	-	-	-	-
79...	161.5	166.0	4.5	<.005	.7	.03	.3	.35	-	-	-	-
80...	166.0	171.0	5.0	<.005	.7	.03	.15	.05	-	-	-	-
81...	171.0	175.0	4.0	<.005	.6	.02	<.1	.05	-	-	-	-
82...	219.5	225.0	5.5	<.005	.5	.01	<.1	<.05	-	-	-	-

## Hole 15

83...	165.0	170.0	5.0	.015	.6	.06	<.15	<.05	-	-	-	-
84...	170.0	175.0	5.0	.02	1.7	.11	<.1	<.15	6.0	-	-	-
85...	175.0	177.0	2.0	.005	1.8	.11	<.1	<.05	14.0	-	-	-
86...	177.0	182.0	5.0	.005	.7	.11	.15	.06	-	-	-	-
87...	182.0	182.9	.9	.02	5.6	3.5	4.5	14.7	3.3	-	-	-
88...	182.9	187.1	4.2	.005	1.8	.39	5.4	3.3	3.3	-	-	-
89...	187.1	192.0	4.9	.01	1.3	.1	.55	1.05	-	-	-	-
90...	192.0	197.0	5.0	.01	1.1	.05	.45	.75	-	-	-	-
91...	197.0	201.0	4.0	.03	11.1	.46	2.5	6.35	-	-	-	-
92...	201.0	206.0	5.0	.01	2.4	.14	.5	1.05	-	-	-	-
93...	206.0	211.0	5.0	.005	1.5	.07	.1	.35	-	-	-	-
94...	211.0	216.0	5.0	<.005	.5	.03	<.1	.2	-	-	-	-
95...	216.0	220.0	4.0	<.005	.3	.02	<.1	.1	-	-	-	-

## Hole 16

96...	115.0	120.0	5.0	.005	.9	.07	<.1	.05	-	-	-	-
97...	120.0	121.6	1.6	.005	3.4	.39	2.05	12.0	-	-	-	-
98...	121.6	125.0	3.4	<.005	.7	.05	<.1	<.05	-	-	-	-
99...	125.0	130.0	5.0	.01	.4	.02	<.1	.05	-	-	-	-
100...	130.0	135.0	5.0	<.005	.3	.02	<.1	<.05	-	-	-	-
101...	135.0	140.0	5.0	.005	.4	.02	<.1	<.05	-	-	-	-
102...	140.0	145.0	5.0	.03	1.3	.15	.2	.3	-	-	-	-
103...	145.0	150.0	5.0	.06	2.6	.06	<.1	<.05	-	-	-	-
104...	150.0	155.0	5.0	.015	2.2	.11	.45	.75	-	-	-	-
105...	155.0	158.0	3.0	.01	3.2	.09	1.55	.85	-	-	-	0.013

## Hole 17

Sample No.	Depth, feet		Feet sampled	Analysis								
				Ounces per ton		Percent						
	From-	To-				Cu	Pb	Zn	Fe	Mn	Sb	Bi
106...	138.0	143.0	5.0	<0.005	0.8	0.04	0.15	<0.05	-	-	-	-
107...	143.0	148.0	5.0	<.005	.2	.02	<.1	<.05	-	-	-	-
108...	148.0	153.0	5.0	<.005	.5	.13	<.1	<.05	-	-	-	-
109...	153.0	158.0	5.0	<.005	.2	.03	<.1	<.05	-	-	-	-
110...	158.0	163.0	5.0	<.005	.4	.1	<.1	.05	-	-	-	-
111...	163.0	168.0	5.0	<.005	.3	.06	.1	.05	-	-	-	-
112...	168.0	173.0	5.0	<.005	.8	.02	<.1	<.05	-	-	-	-
113...	173.0	178.0	5.0	<.005	.4	.03	<.1	<.05	-	-	-	-
114...	178.0	183.0	5.0	<.005	.7	.06	<.1	<.05	-	-	-	-
115...	183.0	188.0	5.0	<.005	.4	.02	<.1	<.1	-	-	-	-
116...	188.0	191.0	3.0	<.005	.4	.09	.15	.65	-	-	-	-

## Hole 18

117...	249.0	254.0	5.0	<.005	.6	.07	<.1	<.05	6.6	-	-	-
118...	254.0	259.0	5.0	<.005	.3	.03	<.1	<.05	-	-	-	-
119...	285.0	290.0	5.0	<.005	.7	.04	.25	.3	-	-	-	-
120...	290.0	295.0	5.0	<.005	.4	.02	.2	<.05	-	-	-	-
121...	295.0	300.0	5.0	<.005	.6	.02	<.1	<.05	-	-	-	-
122...	300.0	305.0	5.0	<.005	.6	.02	<.1	.05	-	-	-	-
123...	305.0	310.0	5.0	<.005	.6	.04	<.1	.75	-	-	-	-
124...	310.0	316.0	6.0	<.005	.6	.02	.2	.4	-	-	-	-

## Hole 19

125...	204.0	209.0	5.0	<.005	.6	.18	.35	.4	-	-	-	-
126...	209.0	209.6	.6	<.005	2.0	.76	6.3	9.55	3.7	-	-	-
127...	209.6	214.0	4.4	<.005	1.2	.25	.25	.25	-	-	-	-
128...	214.0	219.0	5.0	.005	1.6	.27	1.1	.45	-	-	-	-
129...	219.0	224.0	5.0	.15	9.4	.23	.55	.55	-	-	-	0.053
130...	224.0	229.0	5.0	.005	2.2	.31	1.6	1.05	2.5	-	-	-
131...	229.0	234.0	5.0	<.005	1.8	.16	.2	.05	-	-	-	-
132...	234.0	238.0	4.0	.02	4.5	.33	.3	1.25	-	-	-	-
133...	238.0	239.0	1.0	.04	7.7	.13	19.55	.2	7.5	-	-	-
134...	239.0	243.0	4.0	.005	1.1	.11	.55	.4	-	-	-	-
135...	268.0	273.0	5.0	.005	.8	.03	.15	.1	-	-	-	-
136...	273.0	277.0	4.0	.005	1.1	.03	.45	2.3	-	-	-	-

## Hole 20

Sample No.	Depth, feet		Feet sam-pled	Analysis								
				Ounces per ton		Percent						
	From-	To-				Au	Ag	Cu	Pb	Zn	Fe	Mn
137...	187.0	191.0	4.0	<0.005	0.2	0.05	0.1	0.05	-	-	-	-
138...	191.0	195.0	4.0	.005	.7	.06	<.1	<.05	7.1	-	-	-
139...	195.0	200.0	5.0	.01	.7	.05	<.1	<.05	5.9	-	-	-
140...	200.0	204.0	4.0	.025	1.5	.16	<.1	<.05	18.5	-	-	-
141...	204.0	208.5	4.5	.005	1.5	.17	.5	.55	-	-	-	-
142...	208.5	211.5	3.0	.02	10.2	.8	10.9	5.6	4.95	-	-	-
143...	211.5	213.2	1.7	.015	4.0	.38	.85	1.4	-	-	-	-
144...	213.2	218.0	4.8	<.005	.4	.08	<.1	.1	-	-	-	-
145...	218.0	223.0	5.0	<.005	.8	.09	.25	.4	-	-	-	-
146...	223.0	228.0	5.0	<.005	.3	.02	.1	.25	-	-	-	-
147...	228.0	233.0	5.0	.005	.4	.02	.1	.4	-	-	-	-
148...	233.0	238.0	5.0	<.005	.9	.06	.35	1.35	-	-	-	-
149...	238.0	243.0	5.0	.005	1.1	.09	.35	.65	-	-	-	-
150...	243.0	248.0	5.0	.005	.3	.05	.1	.05	-	-	-	-
151...	248.0	253.0	5.0	.01	.8	.03	<.1	<.05	-	-	-	-
152...	253.0	258.0	5.0	<.005	.5	.05	<.1	1.25	-	-	-	-
153...	258.0	263.0	5.0	<.005	.4	.04	.35	.6	-	-	-	-
154...	263.0	268.0	5.0	.005	.4	.06	.7	.95	2.5	-	-	-
155...	268.0	273.0	5.0	.005	1.0	.07	.15	.45	-	-	-	-
156...	273.0	278.0	5.0	<.005	.7	.08	.1	.1	-	-	-	-

## Hole 21

157...	284.0	289.0	5.0	<.005	.2	<.02	<.1	.25	5.15	-	-	-	-	-
158...	289.0	294.0	5.0	<.005	.3	<.02	.1	.4	2.6	-	-	-	-	-
159...	321.0	325.0	4.0	<.005	.8	<.02	<.1	.05	5.9	-	-	-	-	-
160...	347.5	352.5	5.0	<.005	.3	<.02	<.1	.15	2.4	-	-	-	-	-
161...	352.5	357.5	5.0	.005	.5	<.09	.1	.05	3.5	-	-	-	-	-
162...	357.5	362.5	5.0	.005	.7	.04	.1	<.05	11.6	-	-	-	-	-
163...	362.5	366.5	4.0	<.005	.3	.2	.1	<.05	4.1	-	-	-	-	-
164...	366.5	371.5	5.0	<.005	.5	<.2	.35	.4	2.7	-	-	-	-	-

## Hole 22

165...	299.5	304.0	4.5	<.005	.7	<.02	.25	.55	2.15	-	-	-	-	-
166...	304.0	309.0	5.0	<.005	.7	.04	.65	.85	2.2	-	-	-	-	-
167...	336.5	341.0	4.5	<.005	.9	.04	.15	.1	3.6	-	-	-	-	-
168...	341.0	345.0	4.0	<.005	2.4	<.02	<.1	1.2	3.15	-	-	-	-	-
169...	345.0	349.0	4.0	<.005	.3	.06	.3	.4	2.8	-	-	-	-	-
170...	349.0	354.0	5.0	<.005	.3	.04	.15	.25	2.4	-	-	-	-	-

## Hole 23

1a..	382.0	384.0	2.0	<.01	.1	<.05	.1	.15	-	-	-	-	-	-
2a..	384.0	391.0	7.0	<.01	.7	.09	.45	.7	-	-	-	-	-	-
3a..	391.0	393.0	2.0	<.01	1.1	.12	3.85	1.25	-	-	-	-	-	-
161a..	393.0	397.0	4.0	<.01	<.1	<.05	.1	<.05	-	-	-	-	-	-

## Hole 24

Sample No.	Depth, feet		Feet sam-pled	Analysis								
				Ounces per ton		Percent						
	From-	To-				Au	Ag	Cu	Pb	Zn	Fe	Mn
4a..	92.0	93.5	1.5	<0.01	0.8	<0.05	1.3	2.6	-	-	-	-
5a..	93.5	96.0	2.5	<.01	.2	<.05	<.1	.05	-	-	-	-
6a..	237.0	245.0	8.0	.01	.6	<.05	<.1	<.05	-	-	-	-
7a..	267.0	271.0	4.0	.01	.5	<.05	<.1	<.05	-	-	-	-
8a..	271.0	277.0	6.0	<.01	.8	<.05	<.1	<.05	-	-	-	-
9a..	283.0	286.0	3.0	<.01	2.9	1.06	<.1	<.05	-	-	-	-
10a..	311.5	314.0	2.5	.01	1.2	.16	.15	1.4	-	-	-	-
162a..	314.0	315.0	1.0	<.01	.8	.06	.15	.05	-	-	-	-
163a..	315.0	316.0	1.0	.03	1.2	.20	<.1	.05	-	-	-	-

## Hole 25

61a..	222.5	232.0	9.5	.03	6.6	2.15	.1	<.05	-	-	-	-
62a..	232.0	234.0	2.0	.03	7.2	1.82	.15	<.05	-	-	-	-
63a..	234.0	242.0	8.0	.02	17.3	2.46	.1	.3	-	-	-	-
64a..	242.0	244.0	2.0	<.01	.8	.11	<.1	<.5	-	-	-	-

## Hole 26

164a..	15.0	20.0	5.0	-	-	-	-	-	-	0.10	-	-
165a..	20.0	25.0	5.0	-	-	-	-	-	-	.70	-	-
166a..	25.0	30.0	5.0	-	-	-	-	-	-	1.20	-	-
167a..	30.0	31.5	1.5	-	-	-	-	-	-	11.5	-	-
65a..	320.0	322.0	2.0	.01	.8	.06	<.1	<.05	-	-	-	-
66a..	322.0	325.0	3.0	.02	1.0	.06	<.1	<.05	-	-	-	-
67a..	325.0	335.0	10.0	.02	.8	.07	<.1	.05	-	-	-	-
68a..	350.0	356.0	6.0	<.01	.4	.06	<.1	<.05	-	-	-	-
69a..	356.0	360.0	4.0	<.01	.3	<.05	<.1	<.05	-	-	-	-
70a..	360.0	369.0	9.0	.01	.7	.12	<.1	<.05	-	-	-	-
71a..	375.5	377.5	2.0	.01	1.1	<.05	.1	<.05	-	-	-	-
72a..	377.5	380.5	3.0	.01	.7	.05	.1	.15	-	-	-	-

## Hole 27

136a..	236.0	237.0	1.0	<.01	.3	<.05	.3	.3	-	-	-	-
137a..	237.0	240.0	3.0	.01	.4	<.05	.35	.05	-	-	-	-
138a..	240.0	247.0	7.0	<.01	.2	<.05	.1	.1	-	-	-	-
139a..	247.0	250.0	3.0	<.01	.1	<.05	<.1	.05	-	-	-	-
140a..	250.0	253.0	3.0	<.01	.3	<.05	<.1	.1	-	-	-	-
141a..	253.0	254.0	1.0	<.01	.7	<.05	<.1	.05	-	-	-	-
142a..	254.0	257.0	3.0	<.01	.3	<.05	.25	.25	-	-	-	-
143a..	257.0	260.0	3.0	<.01	.3	<.05	.2	.05	-	-	-	-
144a..	260.0	261.0	1.0	<.01	.4	<.05	.35	.15	-	-	-	-
145a..	261.0	266.5	5.5	<.01	.4	<.05	.15	.2	-	-	-	-
146a..	266.5	270.0	3.5	<.01	.3	<.05	.2	.25	-	-	-	-

## Hole 28

Sample No.	Depth, feet		Feet sampled	Analysis								
				Ounces per ton		Percent						
	From-	To-		Au	Ag	Cu	Pb	Zn	Fe	Mn	Sb	Bi
147a..	138.0	141.0	3.0	<.01	0.7	<.05	1.15	1.1	-	-	-	-
148a..	141.0	142.0	1.0	<.01	.7	<.05	1.35	1.3	-	-	-	-
149a..	142.0	146.0	4.0	<.01	.6	<.05	1.1	1.3	-	-	-	-
150a..	146.0	151.0	5.0	<.01	.5	<.05	1.0	1.25	-	-	-	-
151a..	151.0	152.0	1.0	<.01	.4	<.05	.65	.65	-	-	-	-
152a..	152.0	159.0	7.0	.01	1.0	.11	.95	1.55	-	-	-	-
153a..	205.0	210.0	5.0	<.01	.3	<.05	<.1	.05	-	-	-	-
154a..	210.0	213.0	3.0	<.01	.3	<.05	<.1	.1	-	-	-	-
155a..	276.0	278.0	2.0	.01	1.6	<.05	<.1	.05	-	-	-	-

## Hole 29

156a..	132.0	134.5	2.5	<.01	.5	.07	.25	.1	-	-	-	-
157a..	134.5	136.0	1.5	<.01	.3	.05	.3	.35	-	-	-	-
158a..	136.0	142.5	6.5	<.01	3.0	.17	7.3	7.5	-	-	-	-
159a..	142.5	145.5	3.0	<.01	.4	<.05	.15	<.05	-	-	-	-
160a..	145.5	147.5	2.0	<.01	.2	<.05	.1	.05	-	-	-	-

## Hole 30

21a..	110.0	113.5	3.5	<.01	1.9	.11	1.25	1.45	-	-	-	-
22a..	120.0	126.5	6.5	.01	3.8	.22	1.15	1.30	-	-	-	-
23a..	126.5	128.0	1.5	.01	.6	<.05	.1	<.05	-	-	-	-
24a..	128.0	129.5	1.5	.03	3.7	.05	<.1	.15	-	-	-	-
25a..	129.5	131.0	1.5	.06	4.2	<.05	<.1	<.05	-	-	-	-
26a..	131.0	132.0	1.0	<.01	1.2	.1	.1	.35	-	-	-	-
27a..	132.0	133.0	1.0	.01	2.4	.17	3.3	2.75	-	-	-	-

## Hole 31

11a..	137.5	139.5	2.0	.03	.9	.05	.3	.55	-	-	-	-
12a..	139.5	143.0	3.5	.02	2.6	.07	.4	.6	-	-	-	-
13a..	143.0	149.0	6.0	.07	9.5	.44	.75	2.6	-	-	-	-
14a..	149.0	149.5	.5	.02	1.9	.12	.3	.6	-	-	-	-
15a..	149.5	154.0	4.5	.02	1.3	.16	.95	1.45	-	-	-	-
16a..	154.0	157.0	3.0	.04	2.5	.23	2.65	3.2	-	-	-	-
17a..	157.0	160.0	3.0	.02	2.0	.24	.45	2.65	-	-	-	-
18a..	160.0	162.0	2.0	<.01	.3	.08	.1	.45	-	-	-	-
19a..	162.0	164.5	2.5	.01	4.3	.54	4.55	6.45	-	-	-	-
20a..	164.5	167.0	2.5	<.01	.4	.05	.3	.15	-	-	-	-

## Hole 32

28a..	125.0	130.0	5.0	<.01	.9	.28	<.1	<.05	-	-	-	-
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## Hole 33

Note 55

Sample No.	Depth, feet		Feet sampled	Analysis								
				Ounces per ton		Percent						
	From-	To-		Au	Ag	Cu	Pb	Zn	Fe	Mn	Sb	Bi
29a..	130.5	133.5	3.0	<0.01	1.7	<0.05	<0.1	<0.05	-	-	-	-
30a..	133.5	136.0	2.5	.01	.2	<.05	<.1	<.05	-	-	-	-
31a..	136.0	137.0	1.0	.02	1.4	.07	.2	.05	-	-	-	-
32a..	137.0	142.0	5.0	.01	1.9	.2	<.1	.05	-	-	-	-
33a..	142.0	146.5	4.5	.02	1.7	<.05	.1	.4	-	-	-	-
34a..	146.5	150.5	4.0	<.01	.1	<.05	<.1	.05	-	-	-	-
35a..	150.5	151.0	.5	<.01	.2	<.05	<.1	<.05	-	-	-	-
36a..	151.0	155.0	4.0	.04	3.2	.17	<.1	<.05	-	-	-	-
37a..	155.0	161.0	6.0	.01	3.1	.34	<.1	<.05	-	-	-	-
38a..	161.0	162.0	1.0	<.01	.7	<.05	<.1	.3	-	-	-	-
39a..	162.0	162.5	.5	<.01	.1	<.05	.2	.2	-	-	-	-
40a..	173.0	180.0	7.0	.02	1.5	.16	.1	<.05	-	-	-	-
41a..	180.0	182.5	2.5	.01	1.4	.07	.1	<.05	-	-	-	-
42a..	182.5	183.0	.5	.01	1.8	.12	.2	<.05	-	-	-	-
43a..	183.0	183.5	.5	.01	2.0	.1	.15	.1	-	-	-	-
44a..	183.5	187.0	3.5	<.01	1.1	.09	.15	.2	-	-	-	-
170a..	187.0	192.0	5.0	.025	2.0	.12	.15	.2	-	-	-	-
45a..	192.0	194.5	2.5	1.09	8.0	.66	10.8	9.1	-	-	-	-
46a..	194.5	197.0	2.5	.06	2.3	.07	.3	1.15	-	-	-	-

## Hole 34

47a..	142.0	143.5	1.5	<.01	.6	<.05	.15	.7	-	-	-	-	-	-
48a..	143.5	149.5	6.0	<.01	.9	<.05	.6	.15	-	-	-	-	-	-
49a..	149.5	151.0	1.5	.02	4.4	.11	.1	.15	-	-	-	-	-	-
50a..	151.0	152.0	1.0	<.01	1.6	.06	.4	.4	-	11.1	-	-	-	-
51a..	152.0	155.0	3.0	<.01	.4	.11	.4	.3	-	12.2	-	-	-	-
52a..	155.0	157.0	2.0	<.01	.3	<.05	<.1	<.05	-	-	-	-	-	-
53a..	157.0	161.0	4.0	<.01	.7	.07	.25	.15	-	-	-	-	-	-
54a..	161.0	166.5	5.5	<.01	.6	.08	.15	<.05	-	-	-	-	-	-
55a..	166.5	170.5	4.0	<.01	1.4	<.05	.45	.15	-	-	-	-	-	-
56a..	170.5	171.5	1.0	<.01	.7	<.05	.15	<.05	-	-	-	-	-	-
57a..	171.5	173.5	2.0	<.01	.9	<.05	.1	<.05	-	-	-	-	-	-
58a..	173.5	176.0	2.5	<.01	.3	<.05	.1	<.05	-	-	-	-	-	-
59a..	176.0	178.5	2.5	<.01	.5	<.05	.1	<.05	-	-	-	-	-	-
60a..	178.5	181.0	2.5	<.01	.7	<.05	.25	.5	-	-	-	-	-	-

## Hole 35

73a..	220.0	222.0	2.0	<.01	.2	<.05	.1	<.05	-	-	-	-	-	-
74a..	222.0	227.0	5.0	<.01	.1	<.05	<.1	<.05	-	-	-	-	-	-
75a..	227.0	229.0	2.0	<.01	.2	<.05	<.1	<.05	-	-	-	-	-	-

## Hole 36

Sample No.	Depth, feet		Feet sampled	Analysis								
				Ounces per ton		Percent						
	From-	To-										
				Au	Ag	Cu	Pb	Zn	Fe	Mn	Sb	Bi
76a..	86.0	87.5	1.5	0.03	1.3	0.25	<0.1	<0.05	-	-	-	-
77a..	87.5	93.0	5.5	<.01	.3	<.01	<.1	<.05	-	-	-	-
78a..	93.0	96.0	3.0	.01	2.8	.25	.2	.55	-	-	-	-
79a..	96.0	102.0	6.0	.02	2.3	.3	.1	.2	-	-	-	-
80a..	102.0	105.5	3.5	.01	6.6	.41	.15	.15	-	-	-	-
81a..	105.5	106.5	1.0	.01	1.6	.21	.1	.05	-	-	-	-
82a..	106.5	111.0	4.5	.01	1.5	.17	.25	.25	-	-	-	-
83a..	111.0	114.5	3.5	<.01	.7	<.05	.5	.25	-	11.9	-	-
84a..	114.5	117.0	2.5	<.01	.4	2.05	.25	.3	-	7.2	-	-
85a..	117.0	121.5	4.5	.01	1.0	<.05	.2	.4	-	7.2	-	-
86a..	121.5	128.5	7.0	.01	1.7	.18	1.3	2.0	-	7.0	-	-
87a..	128.5	132.0	3.5	<.01	.5	.17	.2	.45	-	6.6	-	-

## Hole 37

88a..	62.0	66.0	4.0	<.01	.1	.05	<.01	.05	-	-	-	-
89a..	66.0	68.5	2.5	<.01	1.7	.21	2.0	3.3	-	-	-	-
90a..	68.5	71.5	3.0	<.01	.9	.12	.85	.65	-	-	-	-
91a..	71.5	80.0	8.5	.01	3.0	.30	.6	.5	-	-	-	-
92a..	80.0	83.0	3.0	.01	1.2	.05	.7	.5	-	-	-	-
93a..	83.0	88.0	5.0	.01	4.6	.82	8.75	3.5	-	-	-	-
94a..	97.0	104.5	7.5	.01	3.5	.58	2.15	2.05	-	-	-	-
95a..	104.5	108.0	3.5	.01	2.1	.43	2.55	2.4	-	-	-	-
96a..	108.0	112.0	4.0	<.01	.6	.13	.1	.15	-	-	-	-

## Hole 38

Sample No.	Depth, feet		Feet sampled	Analysis								
	From-	To-		Ounces per ton		Percent						
				Au	Ag	Cu	Pb	Zn	Fe	Mn	Sb	Bi
168a..	44.5	49.0	4.5	-	-	-	-	-	-	0.3	-	-
169a..	49.0	54.5	5.5	-	-	-	-	-	-	.3	-	-
97a..	101.0	102.5	1.5	<0.01	0.2	<0.05	<0.1	<0.05	-	-	-	-
98a..	102.5	104.0	1.5	.01	.7	.06	<.1	<.05	-	-	-	-
99a..	104.0	109.0	5.0	.01	1.1	<.05	<.1	.2	-	5.65	-	-
100a..	109.0	112.0	3.0	<.01	1.2	<.05	.1	.3	-	4.05	-	-
101a..	112.0	113.5	1.5	.01	3.0	.35	.15	.1	-	-	-	-
102a..	113.5	115.5	2.0	.02	18.4	1.11	.1	.1	-	-	-	-
103a..	115.5	119.5	4.0	.02	6.2	.26	.35	.3	-	-	-	-
104a..	119.5	121.5	2.0	.01	1.0	.15	.55	.15	-	-	-	-
105a..	121.5	123.5	2.0	.01	.9	.06	.9	2.05	-	-	-	-
106a..	123.5	125.5	2.0	.01	2.2	.18	.3	.04	-	-	-	-
107a..	125.5	131.0	5.5	.01	1.2	.06	<.1	.05	-	-	-	-
108a..	131.0	136.0	5.0	.03	2.0	.25	.15	.1	-	-	-	-
109a..	136.0	139.5	3.5	.03	.4	.25	.65	.3	-	-	-	-
110a..	139.5	140.5	1.0	.02	.5	.07	.2	.2	-	-	-	-
111a..	140.5	143.0	2.5	.01	.8	.06	.1	<.05	-	-	-	-
112a..	143.0	145.0	2.0	<.01	.2	.06	.1	.05	-	-	-	-
113a..	145.0	148.0	3.0	<.01	.2	<.05	<.1	<.05	-	-	-	-
114a..	148.0	154.0	6.0	<.01	.2	<.05	<.1	<.05	-	-	-	-
115a..	154.0	156.5	2.5	.01	1.4	<.05	<.1	<.05	-	-	-	-
116a..	156.5	160.0	3.5	.05	2.3	.23	.1	<.05	-	-	-	-
117a..	160.0	162.0	2.0	.02	.6	.08	<.1	<.05	-	-	-	-
118a..	162.0	166.5	4.5	<.01	.4	<.05	.1	<.05	-	-	-	-
119a..	166.5	170.0	3.5	.01	1.0	.12	.3	.3	-	-	-	-
120a..	170.0	171.0	1.0	<.01	.2	<.05	<.1	<.05	-	-	-	-

## Hole 39

121a..	82.5	83.5	1.0	<.01	1.2	<.05	4.2	.25	-	-	-	-
122a..	83.5	86.5	3.0	<.01	.2	<.05	.1	.15	-	6.4	-	-
123a..	86.5	90.0	3.5	<.01	.2	.05	<.1	.05	-	-	-	-
124a..	90.0	93.5	3.5	<.01	.2	.05	<.1	<.05	-	-	-	-
125a..	93.5	96.0	2.5	<.01	.9	<.05	<.1	.3	-	-	-	-
126a..	96.0	100.5	4.5	<.01	.4	<.05	.1	1.25	-	-	-	-
127a..	100.5	105.0	4.5	.02	2.1	.05	<.1	.1	-	-	-	-
128a..	105.0	107.0	2.0	.01	1.3	<.05	.15	.1	-	-	-	-
129a..	107.0	115.0	8.0	.01	1.1	<.05	.25	.25	-	-	-	-
130a..	115.0	116.5	1.5	<.01	<.1	<.05	.15	.25	-	-	-	-
131a..	116.5	125.5	9.0	<.01	.4	<.05	.1	.1	-	-	-	-
132a..	125.5	127.0	1.5	<.01	.2	.05	<.1	<.05	-	-	-	-
133a..	127.0	131.0	4.0	<.01	1.4	.21	.1	.15	-	-	-	-
134a..	131.0	135.0	4.0	.01	4.4	.43	.95	1.6	-	-	-	-
135a..	135.0	138.0	3.0	<.01	.3	.05	.1	.15	-	-	-	-

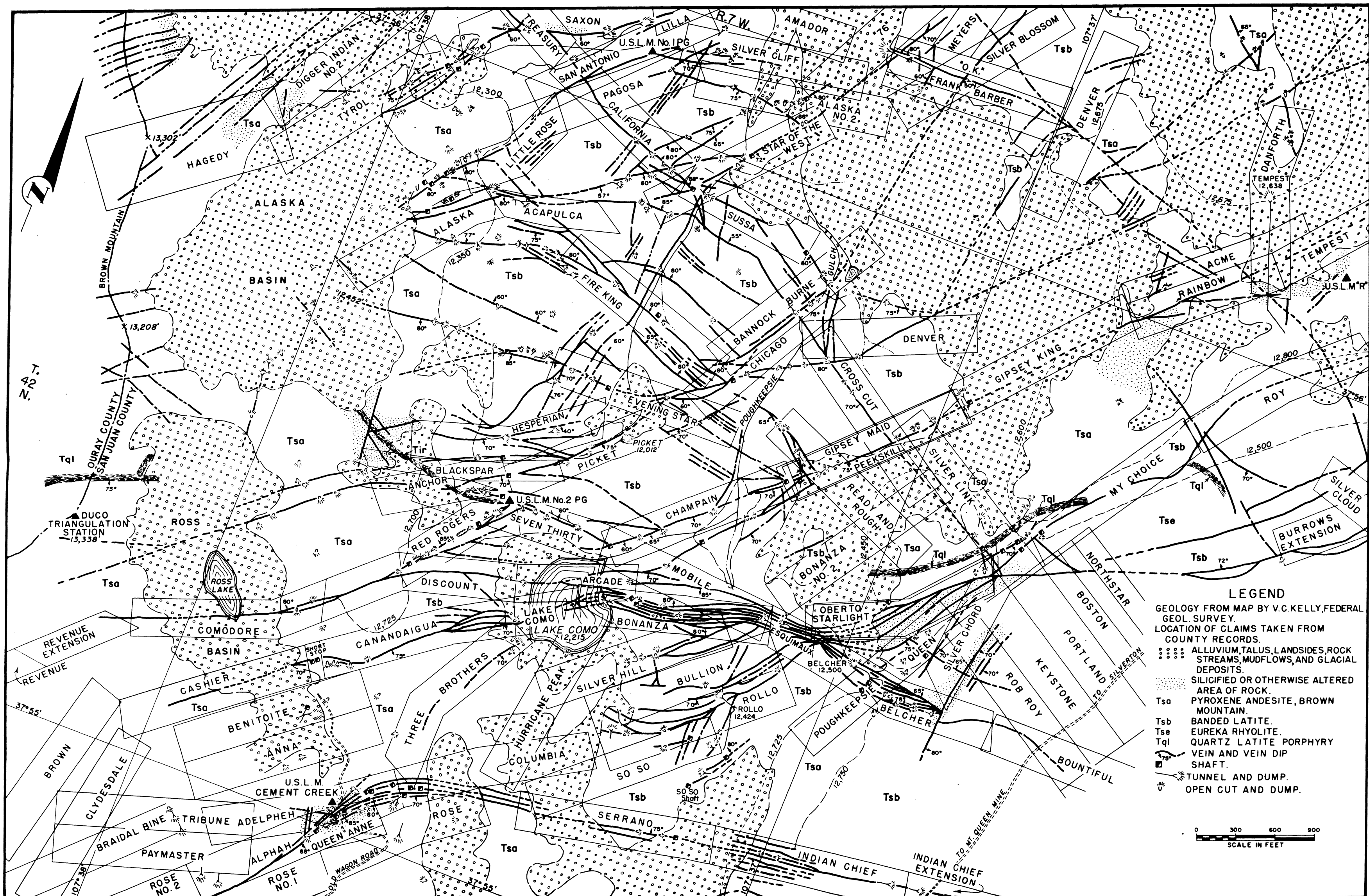
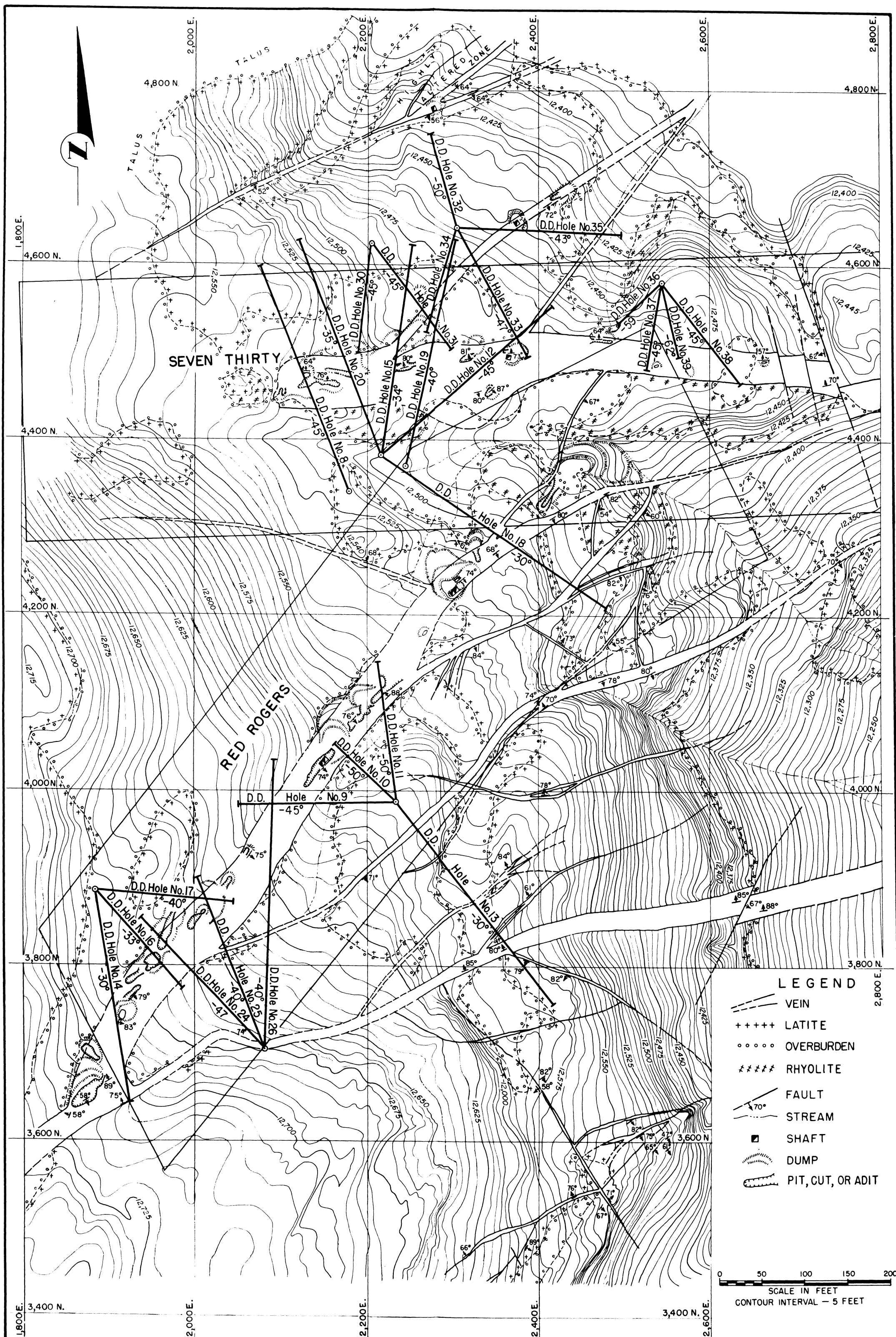


FIGURE 4. - Geologic and Claim Map, Ross Basin-Lake Como Area.





**FIGURE 5. - Topographic Map Showing Diamond-Drill-Hole Locations, San Juan County.**





