# KOLMAKOF MERCURY DEPOSITS

By C. W. Merrill, Jr.
and
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UNITED STATES DEPARTMENT OF THE INTERIOR

Rogers C. B. Morton, Secretary

BUREAU OF MINES

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# KOLMAKOF MERCURY DEPOSITS

by

C. W. Merrill, Jr.[1/] and R. P. Maloney[2/]

## ABSTRACT

The Bureau of Mines mapped and sampled the Kolmakof mercury deposit during the 1969 and 1970 seasons. Samples were analyzed by atomic absorption and by field methods. The experimental techniques used did not reveal extensions of the deposit, possibly because the heavy overburden of moss and loess effectively concealed the bedrock.

## INTRODUCTION

Previously published reports on the Kolmakof mercury deposit in Southwestern Alaska cover only the immediate mine area (pit) on the bluff above the river. During the 1969 and 1970 seasons, the Bureau of Mines mapped and sampled reported extensions of the Kolmakof mercury deposit. The engineer in charge of the project died during the summer of 1972 after a long illness, leaving the 1969 and 1970 reports incomplete. The geologist compiled the assay map, logs of holes, and sample results principally from the engineer's field notes. The mercury values of the auger holes are listed in table 1, and the average values are plotted on map 1. The bulk samples (P1 to P36) are listed in table 2 and plotted on map 1. The pit assay values are plotted on map 2.

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1/ Geologist, Alaska Field Operation Center, Juneau, Alaska.
2/ Mining Engineer, Alaska Field Operation Center, Juneau, Alaska (deceased).

## WORK BY THE BUREAU OF MINES

The Bureau of Mines first examined the Kolmakof deposit in 1944 (Webber) and again in 1958 (Maloney). Rock fragments similar to the sill host rocks at the old mine pit were found with the use of a post auger about 1500 feet to 2000 feet northwest from the pit. This discovery suggested that a sill or sills might extend several thousand feet to the northwest. Cinnabar float was found in bulldozed trenches on the hillside below the potential sill projection and 1500 feet northwest of the pit. The trenches containing the cinnabar float chunks were on the opposite side of the main drainage stream from the pit (Kimball 1974).

During 1969 and 1970, auger holes were drilled at 50-, 100- or 200-foot intervals along ten survey lines. The equipment employed was a two-inch (approximately) auger, powered by a gasoline engine mounted on the back of a "Bombardier" (tracked vehicle). Holes on lines 1, 2, 4, 7 and 9 were spaced at 50-foot intervals; holes on lines 3, 5, 6 and 10 were spaced at 100-foot intervals; and holes on line 8 were spaced at 200-foot intervals. Most of the samples were taken at 3-foot intervals within each auger hole by hand-cleaning the material collected from the lower 3 feet of the auger.

The pit samples were taken by shoveling a few pounds of material from random points within the pit and along the face of the cliff. These were analyzed at the Juneau station by atomic absorpiton methods.

Samples from lines 1 and 2 were shipped to the Juneau station laboratory where they were prepared and analyzed by atomic absorption methods; bottom fractions from these two lines were then shipped to Anchorage where they were analyzed by a private firm (Alaska Mineral Laboratory).

The bulk samples collected during the 1969 season were taken from trench walls and road cuts. These samples were weighed and analyzed by atomic absorption methods.

Samples from lines 3 through 9 were analyzed in the field. They were prepared by washing, breaking up the lumps, and panning down to a concentrate (1 to 10 grams). The concentrates were burned between a fixed willemite screen and a fixed ultraviolet light source.

## FIELD METHOD FOR ESTIMATING MERCURY IN SOILS

A short-wave ultraviolet lamp will cause a screen painted with the mineral willemite to fluoresce a bright green. The short-wave ultraviolet lamp derives its radiation from incandescent mercury vapor. Mercury vapor, passing between the short-wave ultraviolet lamp and a willemite screen, will cast a black moving cloud upon the screen due to ready absorption of mercury radiation by mercury vapors.

If one sets the ultraviolet source at a fixed distance from the willemite screen he can estimate, by use of standard mercury samples, the amount of mercury present in a sample in parts per million. Hence, the magnitude of mercury present can be readily estimated (Gnagy 1970).

## CONCLUSION

Most geologists and engineers believed the Kolmakof deposit to be small. Recent trenching and stream panning indicated that a possibility existed for additional significant cinnabar mineralization in the immediate area, although not necessarily connected or associated with the present mine. An evaluation was attempted. The experimental augering technique used was not successful,

probably because the heavy overburden of moss and loess effectively concealed the bedrock and detritus derived from bedrock.

## BIBLIOGRAPHY

Brooks, A. H. Mineral Resources of Alaska, 1914. USGS Bull. 622, 1955, pp. 280-286.

Cody, W. M. and others. The Central Kuskokwim Region, Alaska. USGS Prof. Paper 268, 1955, pp. 66, 116.

Gnagy, W. L. Semi-Qualitative Estimates of the Mercury Content of Fine Sand or Soils. Unpublished memorandum, 1970, pp. 1-4. Available upon request from AFOC, BuMines, Juneau, Alaska.

Kimball, A. L. Notes and Oral Communication, 1974. Available upon request from AFOC, BuMines, Juneau, Alaska.

Maloney, R. P. Kolmakof Mercury Prospect, Kuskokwim River Region, Alaska. BuMines Examination Report 1528 (unpublished), 1960, pp. 1-5. Available upon request from AFOC, BuMines, Juneau, Alaska.

Sainsbury, C. L., and E. M. MacKevett, Jr. Quicksilver Deposits of Southwestern Alaska. USGS Bull. 1187, 1965, pp. 49-50.

Webber, B. S. and others. Mercury Deposits of Southwestern Alaska. BuMines RI 4065, 1947, pp. 49-50.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits

Line 1 [1]

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 1 | 0-1 | 13.5 |
| | 1-9 | 7.0 |
| 2 | 0-1 | 1.5 |
| | 1-9 | 2.4 |
| 3 | 0-3 | 0.3 |
| | 3-6 | 2.4 |
| | 6-9 | 0.2 |
| | 9-12 | 0.3 [2] |
| 4 | 0-1 | 0.5 |
| | 1-9 | 0.3 |
| 5 | 0-1 | 0.5 |
| | 1-9 | 0.6 |
| 6 | 0-1 | 0.1 |
| | 1-9 | 0.3 |
| 7 | 0-3 | 0.1 |
| | 3-6 | 0.3 |
| | 6-9 | 0.2 |
| 8 | 0-1 | 0.2 |
| | 1-9 | no sample |
| 9 | 0-1 | 0.5 |
| | 1-9 | no sample |
| 10 | 0-1 | 0.5 |
| | 1-9 | 0.5 |
| 11 | 0-1 | 0.3 |
| | 1-9 | 0.2 |
| 12 | 0-1 | 0.4 |
| | 1-9 | 0.3 |
| 13 | 0-1 | 0.3 |
| | 1-9 | 0.1 |
| 14 | 0-1 | 0.2 |
| | 1-9 | 0.7 |
| 15 | 0-1 | [3] |
| | 1-9 | [3] |
| 16 | 0-1 | 0.2 |
| | 1-9 | 0.1 |
| | 9-12 | 1.6 [2] |
| 17 | 0-1 | 0.1 |
| | 1-9 | 0.6 |
| 18 | 0-1 | 0.2 |
| | 1-9 | 22.5 |
| 19 | 0-1 | 8.5 |
| | 1-9 | 0.1 |
| 20 | 1-9 | 1.4 |
| | 9-12 | 0.8 [2] |
| 21 | 0-1 | 0.4 |
| | 1-9 | no sample |
| 22 | 0-1 | 1.6 |
| | 1-9 | 0.2 |
| 23 | 0-1 | 0.6 |
| | 1-9 | 0.1 |
| 24 | 0-1 | 0.2 |
| | 1-9 | 0.1 |
| 25 | 0-1 | 0.4 |
| | 1-9 | 0.3 |
| 26 | 0-3 | 0.7 |
| | 3-6 | 0.1 |
| | 6-9 | 0.3 |
| | 9-12 | 0.3 |
| 27 | 0-1 | no sample |
| | 1-3 | 0.1 |
| | 3-6 | 0.2 |
| | 6-9 | 0.4 |

[1] Samples analyzed by U.S. Bureau of Mines, Juneau, Alaska, unless otherwise noted.
[2] Samples analyzed by Alaska Mineral Laboratory, Anchorage, Alaska.
[3] Samples sent to University of Alaska.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 1 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 28 | 0-3 | 0.2 |
| | 3-6 | 0.1 |
| | 6-9 | no sample |
| 29 | 0-1 | 2/ |
| | 1-9 | 2/ |
| 30 | 0-1 | 0.5 |
| | 1-9 | 0.3 |
| | 9-12 | 1.4 3/ |
| 31 | 0-1 | 0.4 |
| | 1-9 | 0.2 |
| 32 | 0-1 | 0.1 |
| | 1-9 | 0.1 |
| 33 | 0-1 | 0.2 |
| | 1-9 | Tr. |
| 34 | 0-1 | 0.1 |
| | 1-9 | 0.1 |
| 35 | 0-1 | Tr. |
| | 1-9 | 0.1 |
| 36 | 0-1 | 0.1 |
| | 1-9 | 0.1 |
| 37 | 0-1 | 0.1 |
| | 1-9 | 0.1 |
| 38 | 0-1 | 0.2 |
| | 1-9 | 0.2 |
| 39 | 0-1 | Tr. |
| | 1-9 | 0.1 |
| 40 | 0-1 | 0.1 |
| | 1-9 | 0.1 |
| 41 | 0-1 | 0.1 |
| | 1-9 | 0.1 |
| 42 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | 0.3 |
| 43 | 0-1 | 0.2 |
| | 1-9 | 0.4 |
| 44 | 0-1 | 0.2 |
| | 1-9 | 0.3 |
| 45 | 0-1 | 0.3 |
| | 1-9 | 0.2 |
| 46 | 0-1 | 0.2 |
| | 1-9 | 0.2 |
| 47 | 0-1 | 0.2 |
| | 1-9 | 0.1 |
| 48 | 0-1 | 0.3 |
| | 1-9 | 0.2 |
| 49 | 0-1 | 0.5 |
| | 1-9 | 0.3 |
| 50 | 0-1 | no sample |
| | 1-9 | no sample |
| 51 | 0-1 | 0.2 |
| | 1-9 | 0.2 |
| 52 | 0-1 | 0.4 |
| | 1-6 | 0.1 |
| | 6-9 | 0.5 3/ |
| 53 | 0-1 | 0.1 |
| | 1-9 | 0.2 |
| 54 | 0-1 | Tr. |
| | 1-9 | 0.5 |
| 55 | 0-1 | 0.1 |
| | 1-9 | 0.4 |
| 56 | 0-1 | 0.1 |
| | 1-9 | 0.1 |
| 57 | 0-1 | 0.1 |
| | 1-9 | Tr. |
| 58 | 0-1 | 0.2 |
| H2-A1 | 0-3 | nil 4/ |
| | 3-6 | nil 4/ |
| | 6-9 | nil 4/ |
| | 9-12 | 100 ppm 4/ |
| | 12-15 | nil 4/ |
| 2-A2 | 0-3 | 2 ppm 4/ |
| | 3-6 | 3 ppm 4/ |
| | 6-9 | nil 4/ |
| | 9-12 | nil 4/ |

1/ Samples analyzed by U.S. Bureau of Mines, Juneau, Alaska, unless otherwise noted.
2/ Samples sent to the University of Alaska.
3/ Samples analyzed by Alaska Mineral Laboratory, Anchorage, Alaska.
4/ Samples analyzed in the field by U.S. Bureau of Mines.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 1 [1]

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 3-A2 | 0-3 | nil [2] |
| | 3-6 | 75 ppm [2] |
| | 6-9 | nil [2] |
| | 9-12 | nil [2] |
| H-3-A1 | 0-3 | nil [2] |
| | 3-6 | nil [2] |
| | 6-9 | nil [2] |
| | 9-12 | nil [2] |
| | 12-13.5 | nil [2] |
| 4-A1 | 0-3 | nil [2] |
| | 3-6 | nil [2] |
| | 6-9 | nil [2] |
| | 9-12 | nil [2] |
| | 12-14 | nil [2] |
| 4-A2 | 0-3 | 2 ppm [2] |
| | 3-6 | 2 ppm [2] |
| | 6-9 | nil [2] |
| | 9-12 | nil [2] |
| | 12-14 | 2 ppm [2] |

Line 2

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 1 | 0-3 | 0.1 |
| | 3-6 | Tr. |
| | 6-9 | 0.1 |
| | 9-12 | 0.8 [3] |
| | 12-15 | 0.7 [3] |
| 2 | 0-3 | 0.1 |
| | 3-6 | Tr. |
| | 6-9 | Tr. |
| | 9-12 | 0.7 [3] |
| | 12-15 | 1.1 |
| 3 | 0-3 | 0.1 |
| | 3-6 | Tr. |
| | 6-9 | 0.3 |
| | 9-12 | 0.6 [3] |
| | 12-15 | 1.0 [3] |
| 4 | 0-3 | 0.3 |
| | 3-6 | 0.2 |
| | 6-9 | 0.8 |
| | 9-12 | 0.7 [3] |
| | 12-15 | 1.4 [3] |
| 5 | 0-3 | 0.1 [3] |
| | 3-6 | Tr. |
| | 6-9 | 0.8 |
| | 9-12 | 1.7 [3] |
| | 12-15 | 0.8 [3] |
| 6 | 0-3 | Tr. |
| | 3-6 | 0.1 |
| | 6-9 | 0.6 |
| | 9-12 | 0.9 [3] |

1/ Samples analyzed by U.S. Bureau of Mines, Juneau, Alaska, unless otherwise noted.
2/ Samples analyzed in field by U.S. Bureau of Mines.
3/ Samples analyzed by Alaska Mineral Laboratory, Anchorage, Alaska.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 2 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 6 | 12-15 | 1.9 2/ |
| 7 | 0-3 | Tr. |
| | 3-6 | 0.2 |
| | 6-9 | 0.3 |
| | 9-12 | 1.0 2/ |
| | 12-15 | 0.7 2/ |
| 8 | 0-3 | Tr. |
| | 3-6 | 0.2 |
| | 6-9 | no sample |
| | 9-12 | 1.3 2/ |
| | 12-14 | 2.3 2/ |
| 9 | 0-3 | 0.1 |
| | 3-6 | 0.5 |
| | 6-9 | 0.3 |
| | 9-12 | 2.3 2/ |
| | 12-15 | no sample |
| 10 | 0-3 | 0.1 |
| | 3-6 | 0.2 |
| | 6-9 | 0.1 |
| | 9-12 | 1.2 2/ |
| | 12-15 | 1.3 |
| 11 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | 0.4 |
| | 9-12 | 6.6 2/ |
| 12 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | no sample |
| | 9-12 | 0.5 2/ |
| | 12-15 | 1.1 2/ |
| 13 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | no sample |
| | 9-12 | 0.2 2/ |
| 14 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | 0.1 |
| | 9-12 | 0.1 2/ |
| 15 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | 0.1 |
| 16 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | Tr. |
| | 9-11 | 0.1 2/ |
| 17 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | Tr. |
| 18 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | Tr. |
| 17 | 0-1 | Tr. |
| 19 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | Tr. |
| | 9-11 | 0.1 2/ |
| 20 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-8.5 | Tr. |
| 21 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | 0.2 |
| | 9-12 | 0.1 2/ |
| 22 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | no sample |

1/ Samples analyzed by U.S. Bureau of Mines, Juneau, Alaska, unless otherwise noted.

2/ Samples analyzed by Alaska Mineral Laboratory, Anchorage, Alaska.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 2 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| | 9-12 | 0.1 2/ |
| | 12-13 | 0.1 2/ |
| 23 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | no sample |
| | 9-12 | 0.1 2/ |
| 24 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | no sample |
| | 9-12 | 0.1 |
| 25 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | no sample |
| | 9-11 | 0.1 2/ |
| 26 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | Tr. |
| | 9-10.5 | 0.1 2/ |
| 27 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | no sample |
| | 9-11 | 0.5 2/ |
| 28 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | Tr. |
| 29 | 0-3 | Tr. |
| | 3-6 | Tr. |
| | 6-9 | Tr. |
| | 9-12 | 0.1 2/ |
| 30 | 0-3 | no sample |
| | 3-6 | Tr. |
| | 6-8 | Tr. 2/ |
| 31 | 0-3 | no sample |
| | 3-6 | 0.1 2/ |
| | 6-7 | 0.1 |
| 32 | 0-3 | 0.1 |
| | 3-6 | Nil |
| | 6-7 | 0.1 2/ |
| 33 | 0-3 | no sample |
| | 3-6 | 0.1 |
| | 6-6.5 | 0.1 2/ |
| 34 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | no sample |
| | 9-12 | 0.3 2/ |
| | 12-13 | 0.6 |
| 35 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | 0.4 |
| | 9-12 | 0.8 2/ |
| 36 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-8.5 | 0.1 2/ |
| 37 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | no sample |
| | 9-12 | 0.1 |
| | 12-15 | 0.4 2/ |
| 38 | 0-3 | Tr. |
| | 3-6 | Tr. |
| | 6-9 | 0.7 2/ |
| 39 | 0-3 | Tr. |
| | 3-6 | 0.1 |
| | 6-9 | Tr. 2/ |

1/ Samples analyzed by U.S. Bureau of Mines, Juneau, Alaska, unless otherwise noted.

2/ Samples analyzed by Alaska Mineral Laboratory, Anchorage, Alaska.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 2 [1]

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 40 | 0-3 | Tr. [2] |
| | 3-6 | 1.6 [3] |
| 41 | 0-3 | 0.1 [2] |
| | 3-6 | 0.3 [2] |
| | 6-9 | 0.1 [3] |
| 42 | 0-3 | Nil [2] |
| | 3-6 | 0.2 [2] |
| | 6-8 | 0.3 [3] |
| 43 | 0-3 | Tr. [2] |
| | 3-5 | 0.7 [3] |
| 44 | 0-3 | Tr. [2] |
| | 3-6 | Tr. [2] |
| | 6-9 | Tr. [3] |
| 45A | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | 6.5 |
| | 9-10 | 3 |
| 46A | 0-3 | 2 |
| | 3-6 | nil |
| | 6-8 | nil |
| | 8-9.5 | 2 |
| 47A | 0-3 | 2 |
| | 3-6 | nil |
| | 6-8 | 2 |
| 48A | 0-3 | 2 |
| | 3-6 | 3 |
| 49A | 0-3 | nil |
| | 3-6 | 2 |
| 50A | 0-3 | nil |
| | 3-4.5 | 2 |
| 51A | 0-3 | 3 |
| | 3-4 | 1 |
| | 0-3 | nil |
| | 3-6 | nil |
| 53A | 0-3 | nil |
| | 3-6 | 3 |
| | 6-9 | 2 |
| 54A | 0-3 | 2 |
| | 3-4 | 2 |
| 55A | 0-3 | nil |
| | 3-4.5 | 8 |
| 56A | 0-3 | nil |
| | 3-5.5 | nil |
| 57A | 0-3 | 2 |
| | 3-6 | nil |
| 58A | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-7.5 | nil |
| 59A | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-10 | nil |
| 60A | 0-3 | 30 |
| | 3-6 | nil |
| | 6-9 | no sample |
| | 9-10.5 | nil |
| 61A | 0-3 | nil |
| | 3-5 | nil |
| 62A | 0-3 | 2 |
| | 3-6 | nil |
| 63A | 0-3 | nil |
| | 3-4 | nil |

Line 3

| | | |
|---|---|---|
| 1 | 0-3 | 5.5 |
| | 3.6 | 1 |
| | 6-9 | 5.5 |
| | 9-12 | 1 |
| | 12-15 | 2 |
| 2 | 0-3 | Tr. |
| | 3-6 | 1 |
| | 6-9 | Tr. |

[1] Samples analyzed in field by U.S. Bureau of Mines unless otherwise noted.
[2] Samples analyzed by U.S. Bureau of Mines, Juneau, Alaska.
[3] Samples analyzed by Alaska Mineral Laboratory, Anchorage, Alaska.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 3 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 3 | 0-3 | Tr. |
| | 3-6 | nil |
| | 9-12 | Tr. |
| | 12-15 | Tr. |
| | 6-9 | Tr. |
| | 9-12 | Tr. |
| | 12-15 | Tr. |
| 4 | 0-3 | 1 |
| | 3-6 | Tr. |
| | 6-9 | Tr. |
| | 9-12 | Tr. |
| | 12-15 | nil |
| 5 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | Tr. |
| | 9-12 | Tr. |
| | 12-15 | nil |
| 6 | 0-3 | Tr. |
| | 3-6 | Tr. |
| | 6-9 | 1 |
| | 9-12 | Tr. |
| | 12-15 | 2 |
| 7 | 0-3 | nil |
| | 3-6 | Tr. |
| | 6-9 | Tr. |
| | 9-12 | Tr. |
| | 12-15 | Tr. |
| 8 | 0-3 | Tr. |
| | 3-6 | nil |
| | 6-9 | Tr. |
| | 9-12 | 1 |
| | 12-15 | Tr. |
| 9 | 0-3 | Tr. |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | Tr. |
| | 12-15 | Tr. |
| 10 | 0-3 | 1 |
| | 3-6 | Tr. |
| | 6-9 | Tr. |
| | 9-12 | nil |
| | 12-15 | Tr. |
| 11 | 0-3 | nil |
| | 3-6 | Tr. |
| | 6-9 | Tr. |
| | 9-12 | nil |
| | 12-15 | Tr. |
| 12 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | Tr. |
| | 9-12 | nil |
| | 12-15 | nil |
| 13 | 0-3 | 2 |
| | 3-6 | 5.5 |
| | 6-9 | 2 |
| | 9-12 | nil |
| 13 | 12-15 | Tr. |
| 14 | 0-3 | Tr. |
| | 3-6 | 2 |
| | 6-9 | 2 |
| | 9-12 | Tr. |
| | 12-15 | Tr. |
| 15 | 0-3 | 5.5 |
| | 3-6 | 5.5 |
| | 6-9 | nil |
| | 9-12 | Tr. |
| | 12-15 | Tr. |
| 16 | 0-3 | Tr. |
| | 3-6 | Tr. |
| | 6-9 | nil |
| | 9-12 | 2 |
| | 12-15 | 2 |
| 17 | 0-3 | Tr. |
| | 3-6 | 1 |
| | 6-9 | 1 |
| | 9-12 | 1 |
| | 12-15 | 2 |
| 18 | 0-3 | 1 |
| | 3-6 | 5.5 |

1/ Samples analyzed in field by U.S. Bureau of Mines.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 3 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| | 6-9 | 2 |
| | 9-12 | 1 |
| | 12-15 | 1 |
| 19 | 0-3 | 1 |
| | 3-6 | 5.5 |
| | 6-9 | nil |
| | 9-12 | Tr. |
| | 12-15 | nil |
| 20 | 0-3 | Tr. |
| | 3-6 | nil |
| | 6-9 | Tr. |
| | 9-12 | 1 |
| | 12-15 | Tr. |
| 21 | 0-3 | Tr. |
| | 3-6 | 5.5 |
| | 6-9 | Tr. |
| | 9-12 | Tr. |
| | 12-15 | 5.5 |
| 22 | 0-3 | 1 |
| | 3-6 | 2 |
| | 6-9 | Tr. |
| | 9-12 | 5.5 |
| | 12-15 | 1 |
| 23 | 0-3 | 5.5 |
| | 3-6 | 2 |
| | 6-9 | 2 |
| | 9-12 | 2 |
| | 12-15 | 5.5 |
| 24 | 0-3 | Tr. |
| | 3-6 | 5.5 |
| 25 | 0-3 | Tr. |
| | 3-6 | nil |
| | 6-9 | Tr. |
| | 9-12 | Tr. |
| | 12-15 | nil |
| 26 | 0-3 | Tr. |
| | 3-6 | Tr. |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | 5.5 |
| 28A | 0-3 | 10 |
| | 3-6 | 10 |
| | 6-9 | 5 |
| | 9-12 | 2 |
| | 12-15 | 2 |
| 29A | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | 4 |
| | 9-12 | 4 |
| | 12-15 | 4 |
| 30A | 0-3 | nil |
| | 3-6 | 2 |
| | 6-9 | 10 |
| | 9-12 | 60 |
| | 12-15 | 9 |
| 31A | 0-3 | 5 |
| | 3-6 | nil |
| | 6-9 | 6 |
| | 9-12 | 8 |
| | 12-15 | nil |
| 32A | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | 4 |
| | 9-12 | 2 |
| 33A | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | 2 |
| | 9-12 | nil |
| | 12-15 | nil |
| 34A | 0-3 | 5 |
| | 3-6 | nil |
| 34A | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | nil |
| 35A | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | 5.5 |
| | 12-15 | nil |

1/ Samples analyzed in field by U.S. Bureau of Mines.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 4 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 1 | 0-3 | 50 |
| | 3-6 | nil |
| 2 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-13 | nil |
| 3 | 0-3 | nil |
| | 3-6 | 2 |
| | 6-9 | 10 |
| | 9-12 | nil |
| | 12-14 | nil |
| 4 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | 5.5 |
| | 9-12 | 2 |
| | 12-15 | nil |
| 5 | | no sample |
| 6 | 0-3 | no sample |
| | 3-6 | no sample |
| | 6-9 | 2 |
| | 9-12 | 6 |
| | 12-15 | > 10 |
| 7 | 0-3 | 3 |
| | 3-6 | 4 |
| | 6-9 | 2 |
| | 9-12 | 4 |
| | 12-15 | 1 |

Line 5

| | | |
|---|---|---|
| 1 | 0-3 | nil |
| 2 | 0-3 | 3 |
| | 3-6 | 1 |
| 3 | 0-3 | 1 |
| | 3-6 | 4 |
| | 6-8 | 1 |
| 4 | 0-3 | 2 |
| | 3-6 | nil |
| | 6-7 | 2 |
| 5 | 0-3 | 5 |
| | 3-6 | nil |
| | 6-9 | 1 |
| 6 | 0-3 | 5 |
| | 3-6 | nil |
| | 6-9 | 1 |
| 7 | 9 | nil |
| | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | 3 |
| | 9-12 | 3 |
| 8 | 12-15 | 2 |
| | 0-3 | 2 |
| | 3-6 | 2.5 |
| | 6-9 | 6.5 |
| 9 | 9 | 2.5 |
| | 0-3 | 3 |
| | 3-6 | 2 |
| | 6-9 | 3 |
| | 9-12 | 3.5 |
| 10 | 12-15 | 4 |
| | 0-3 | 3 |
| | 3-6 | nil |
| | 6-9 | 4 |
| | 9-12 | 4.5 |
| 11 | 12-14 | 4 |
| | 0-3 | 5 |
| | 3-6 | 3 |
| | 6-9 | 2.5 |
| | 9-12 | 4 |
| 12 | 12-14 | 2.5 |
| | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | 3.5 |
| 13 | 9-11 | 4.5 |
| 14 | 0-3 | 2.5 |
| | 0-3 | 2 |
| 15 | 3-4 | 2 |
| | 0-3 | 2 |

1/ Samples analyzed in field by U.S. Bureau of Mines.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 5 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 16 | 3-4 | nil |
| | 0-3 | 2 |
| | 3-6 | 2.5 |
| | 6-9 | 2.5 |
| 17 | 9-12 | 2 |
| | 0-3 | 2 |
| 18 | 3-6 | 2 |
| | 0-3 | 2 |

Line 6

| | | |
|---|---|---|
| | 3-6 | nil |
| | 6-7 | 2 |
| 1 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | 2 |
| 2 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | nil |
| 3 | 0-3 | 2 |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | 2 |
| | 12-15 | nil |
| 4 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-13.5 | nil |
| 5 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | nil |
| 6 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-13.5 | nil |
| 7 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-14 | nil |
| 8 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | 2 |
| | 9-12 | nil |
| | 12-15 | 2 |
| 9 | 0-3 | 3 |
| | 3-6 | 2 |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | 2 |
| 10 | 0-3 | nil |
| | 3-6 | 2 |
| | 6-9 | 2 |
| | 12-15 | nil |
| 11 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | 2 |
| | 12-14 | 6 |
| 12 | 0-3 | > 10 |
| | 3-6 | 10 |
| | 6-9 | > 10 |
| | 9-12 | > 10 |
| | 12-13 | 8 |
| 13 | 0-3 | > 10 |
| | 3-6 | 5.1 |
| | 6-7 | 2 |
| 14 | 0-3 | 3 |
| | 3-6 | 3 |

1/ Samples analyzed in field by U.S. Bureau of Mines.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 6 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 15 | 0-3 | > 2 |
| | 3-6 | > 2 |

Line 7

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 1 | 0-3 | > 10 |
| | 3-6 | > 10 |
| | 6-9 | > 10 |
| | 9-12 | > 10 |
| 2 | 0-3 | > 10 |
| | 3-6 | > 10 |
| | 6-9 | > 10 |
| | 9-12 | > 10 |
| | 12-15 | > 10 |
| | 15-17 | > 10 |
| 3 | 0-3 | > 10 |
| | 3-6 | > 10 |
| | 6-9 | > 10 |
| | 9-12 | > 10 |
| | 12-15 | > 10 |
| | 15-17 | > 10 |
| 4 | 0-3 | 3 |
| | 3-6 | 10 |
| | 6-9 | > 10 |
| | 9-12 | > 10 |
| | 12-15 | > 10 |
| 4 | 15-17 | 5 |
| 5 | 0-3 | nil |
| | 3-6 | 7.5 |
| | 6-9 | 2 |
| | 9-12 | > 10 |
| | 12-15 | 10 |
| | 15-19 | 7.5 |
| 6 | 0-3 | > 10 |
| | 3-6 | > 10 |
| | 6-9 | 8 |
| | 9-12 | 2 |
| | 12-15 | 2 |
| 7 | 0-3 | 2 |
| | 3-6 | > 10 |
| | 6-9 | 2 |
| | 9-12 | > 10 |
| | 12-14 | > 10 |
| 8 | 0-3 | > 10 |
| | 3-6 | > 10 |
| | 6-8 | 2 |
| | 8-9.5 | nil |
| 9 | 0-3 | > 10 |
| | 3-6 | 10 |
| | 6-9 | 2 |
| | 9-12 | 2 |
| 10 | 0-3 | > 10 |
| | 3-6 | 2 |
| 11 | 0-3 | 2 |
| | 3-6 | 8 |
| | 6-7.5 | 2 |
| 12 | 0-3 | 2 |
| | 3-6 | 2 |
| 13 | 0-3 | > 10 |
| 14 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | 2 |
| | 9-10 | > 10 |
| 15 | 0-3 | 4.5 |
| | 3-4 | 2 |
| 16 | 0-3 | 2 |
| 17 | 0-3 | 2 |
| 18 | | no sample |
| 19 | 0-3 | 2 |
| 20 | 0-3 | > 10 |

1/ Samples analyzed in field by U.S. Bureau of Mines.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 8 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 1 | 0-3 | 2 |
| | 3-6 | nil |
| 2 | 0-3 | 4 |
| | 3-4.5 | nil |
| 3 | 0-3 | > 10 |
| | 3-6 | 6 |
| 4 | 0-3 | 2 |
| 5 | 0-3 | nil |
| 6 | 0-3 | nil |
| | 3-6 | 2 |
| 7 | 0-3 | nil |
| 8 | 0-3 | nil |
| | 3-4 | 3 |
| 9 | 0-3 | nil |
| | 3-4 | 1.3 |
| 10 | 0-3 | 2 |
| 11 | 0-3 | 3 |
| 12 | 0-3 | nil |
| | 3-6 | 2 |
| | 6-8 | 2 |
| 13 | 0-3 | >10 |
| | 3-6 | nil |
| | 6-8 | nil |
| 14 | 0 3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| 15 | 0-3 | >10 |
| | 3-6 | nil |
| 16 | 0-3 | nil |
| | 3-6 | nil |
| 17 | 0-3 | 5 |
| | 3-6 | >10 |
| | 6-9 | >10 |
| | 9-12 | 2 |
| | 12-14 | 2.5 |
| 18 | 0-3 | 6.5 |
| | 3-6 | 2 |
| | 6-7 | 2 |

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| | Line 9 | |
| 1 | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | 2 |
| | 9-12 | 2 |
| | 12-15 | 2 |
| 2 | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | 2 |
| | 9-12 | nil |
| | 12-15 | nil |
| 3 | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | 2 |
| 4 | 0-3 | 2 |
| | 3-6 | nil |
| | 6-9 | 2 |
| | 9-12 | nil |
| | 12-15 | nil |
| 5 | 0-3 | 3.5 |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | nil |
| 6 | 0-3 | nil |
| | 3-6 | 2 |
| | 6-9 | 2 |
| | 9-12 | 2 |
| | 12-15 | nil |
| 7 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | 2 |
| 8 | 0-3 | 2 |
| | 3-6 | nil |
| | 6-9 | nil |

1/ Samples analyzed in field by U.S. Bureau of Mines.

TABLE 1. -Mercury values from auger holes of Kolmakof mercury deposits- Continued

Line 9 1/

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| | 9-12 | 2 |
| | 12-15 | 2 |
| 9 | 0-3 | 2 |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | nil |
| 10 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | nil |
| 11 | 0-3 | 2 |
| | 3-6 | nil |
| | 6-9 | 2 |
| | 9-12 | 2 |
| | 12-15 | 2 |
| 12 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | 2 |
| | 9-12 | 2 |
| | 12-15 | nil |
| 13 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | 2 |
| | 9-12 | nil |
| 14 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | 10 |
| | 9-12 | 2 |
| | 12-15 | 2.5 |
| 15 | 0-3 | > 10 |
| 16 | 0-3 | nil |
| 17 | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-8 | 2 |

Line 10

| Hole | Interval (ft.) | Hg (ppm) |
|---|---|---|
| 1 | 0-3 | nil |
| | 3-6 | 3 |
| | 6-9 | nil |
| | 9-10 | 3 |
| 2 | 0-3 | nil |
| | 3-6 | 2 |
| | 6-9 | 2 |
| | 9-12 | 2 |
| | 12-15 | 2 |
| 3 | 0-3 | nil |
| | 3-6 | 2 |
| | 6-9 | nil |
| | 9-12 | 2 |
| | 12-15 | 2 |
| 4 | 0-3 | nil |
| | 3-6 | nil |
| | 6-9 | nil |
| | 9-12 | nil |
| | 12-15 | 2 |
| 5 | 0-3 | 2 |
| | 3-6 | 2 |
| | 6-9 | nil |
| | 9-12 | 2 |
| | 12-15 | 2 |

1/ Samples analyzed in field by U.S. Bureau of Mines.

TABLE 2. - Chemical laboratory report of bulk samples

| Number | Sample weight (in pounds) | Hg (ppm) |
|---|---|---|
| P-1 | 109 | 1.9 |
| P-2 | 57 | 0.4 |
| P-3 | 31 | 0.2 |
| P-4 | 47 | 0.2 |
| P-5 | 63 | 0.1 |
| P-6 | 63.5 | Tr. |
| P-7 | 55.5 | 0.1 |
| P-8 | 99.5 | 0.2 |
| P-9 | 115 | 0.3 |
| P-10 | 42 | Tr. |
| P-11 | 57 | Tr. |
| P-12 | 57.5 | Tr. |
| P-13 | 70 | Tr. |
| P-14 | 38.5 | 0.1 |
| P-15 | 47 | nil |
| P-16 | 55.5 | nil |
| P-17 | 35.5 | nil |
| P-18 | 47 | 0.2 |
| P-19 | 81 | nil |
| P-20 | 86 | 0.1 |
| P-21 | 51 | 0.6 |
| P-22 | 41.5 | 2.1 |
| P-23 | 50 | 0.7 |
| P-24 | 88.5 | 0.3 |
| P-25 | 102.5 | 0.8 |
| P-26 | 73 | 2.7 |
| P-27 | 55 | 0.9 |
| P-28 | 85 | 0.7 |
| P-29 | 105 | 15.3 |
| P-30 | 71.5 | 1.1 |
| P-31 | 74.5 | 1.0 |
| P-32 | 74 | 34 |
| P-33 | 110 | 1.7 |
| P-34 | 108 | 40 |
| P-35 | 68 | 37 |
| P-36 | 57 | 2.5 |

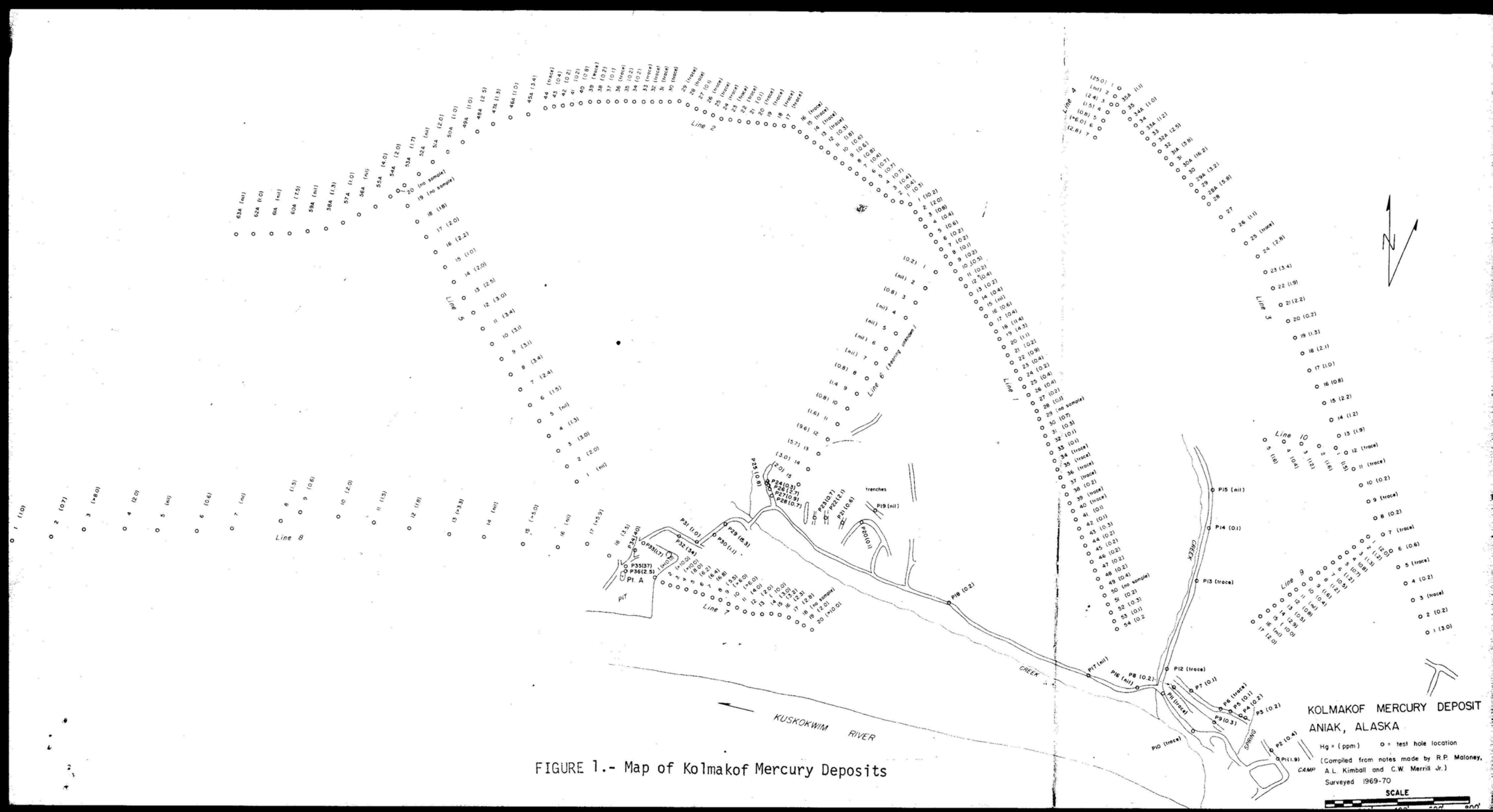


FIGURE 1.- Map of Kolmakof Mercury Deposits

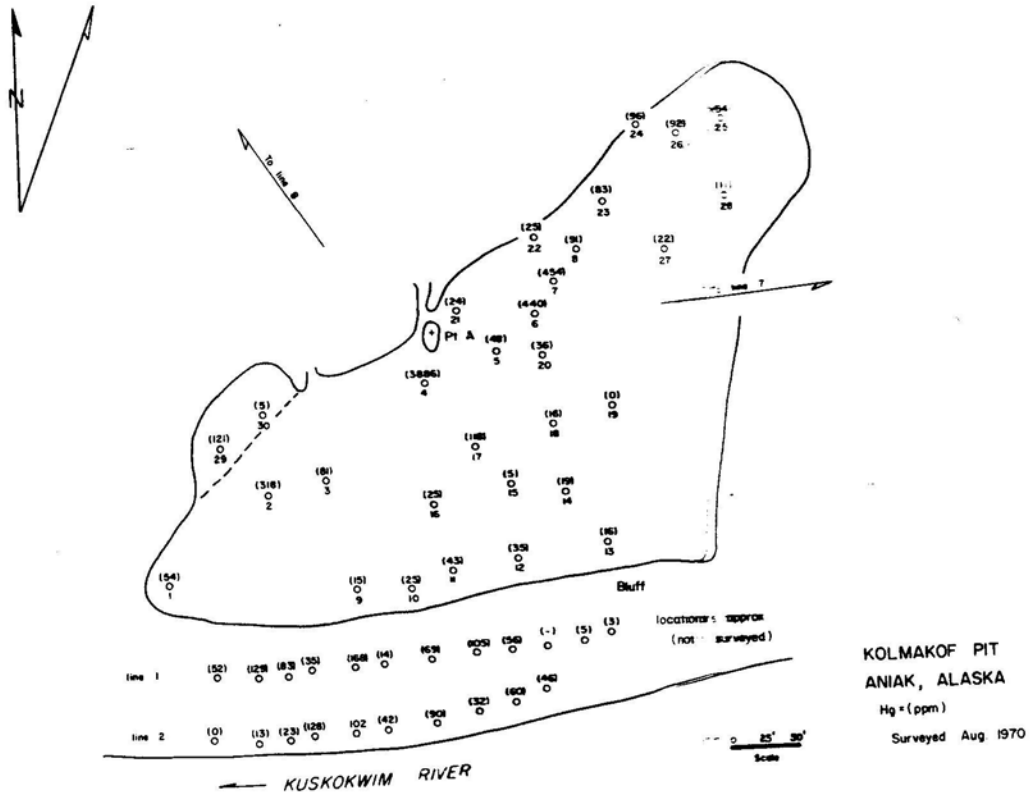


FIGURE 2.- Map of Kolmakof Pit Showing Mercury Values