Geochemical investigation of the

CASTLE PEAK MERCURY MINE

Lousetown Mining District
Storey County, Nevada

by

Anthony L. Payne

June, 1965

ANTHONY L. PAYNE mining geologist

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June 9, 1965

Mr. H. J. Knell, Facilities Engineer
Curtiss-Wright Corporation
304 Valley Boulevard
Wood-Ridge, New Jersey 07075

Dear Mr. Knell:

Herewith please find submitted four copies of my report of a geochemical investigation of the Castle Peak Mercury Mine, Storey County, Nevada. This work was originally proposed in my letter to you of May 25, 1965. The agreement with Curtiss-Wright Corporation is dated June 3, 1965.

If further details are desired, or if you have any questions concerning this geochemical investigation, please be assured of my cooperation.

Yours very truly,

Anthony L. Payne

Anthony L. Payne
Mining Geologist

ALP:ak

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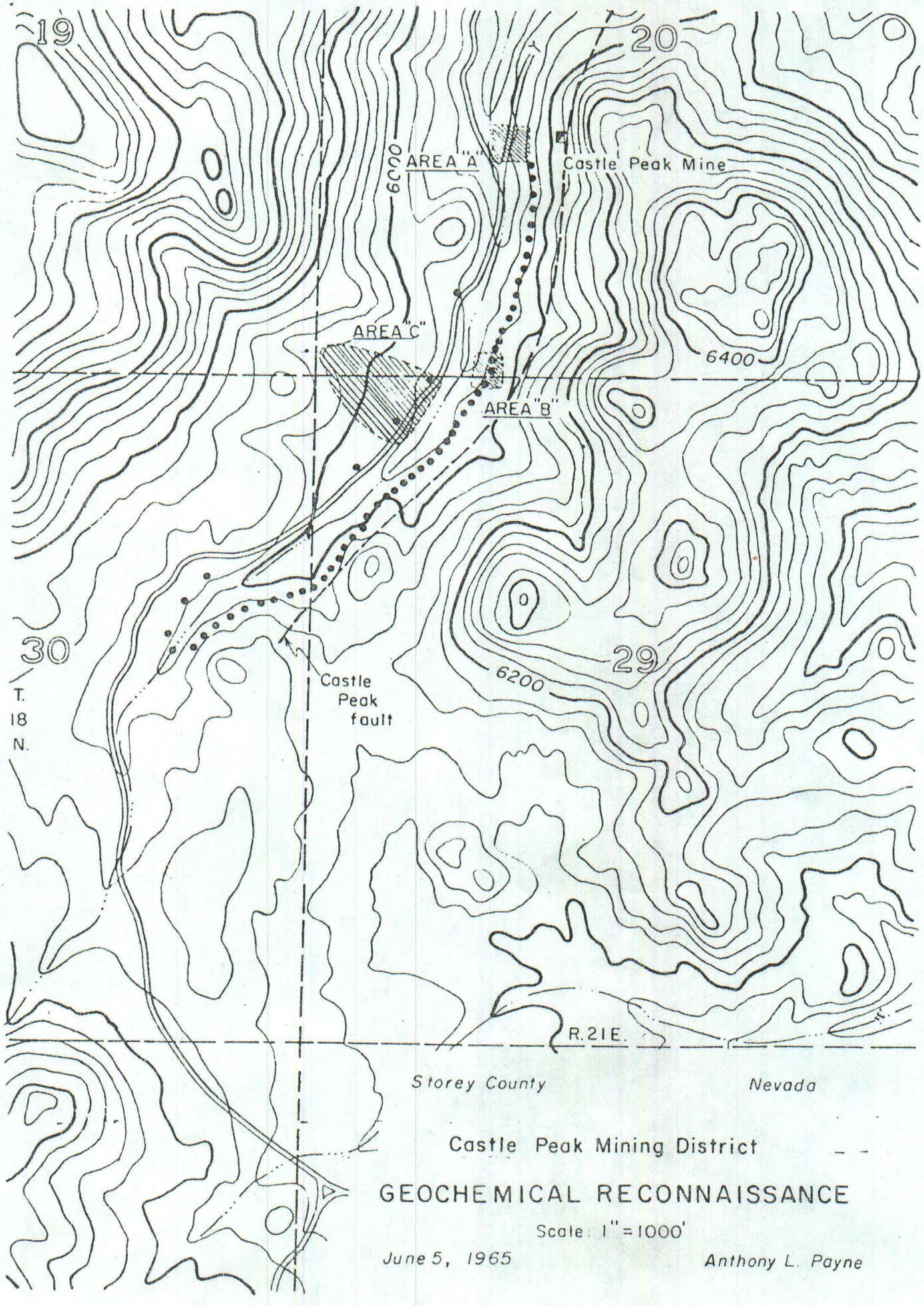
INTRODUCTION

On May 25, 1965 a letter proposal was submitted to Curtiss-Wright Corporation outlining untested exploration possibilities for mercury in the area immediately south of the Castle Peak Mine, in Secs. 20 and 29, T. 18 N., R. 21 E., Storey County, Nevada.

Previous work by the writer has shown that the presence of the Castle Peak ore deposit was clearly revealed by mercury content of soils collected over the ore deposit, and for some distance down the slope to the west, in a "dispersion" of anomalous values in response to gravity. A closely spaced grid of soil samples collected in an area such as this would therefore delimit additional ore occurrences, if any be present.

Immediately southwest of the Castle Peak ore deposit, several samples were taken a year or more ago as a matter of curiosity. Analysis of the samples showed them to contain anomalous high concentrations of mercury. This anomalous condition might reflect the presence of a hidden ore deposit, it might represent surface contamination by man, or it may represent the southwest edge of a landslide which appears to have formed over the soft, highly altered ore zone. It is believed that the slide carried bits and fragments of ore within it, and that it reached the bottom of the small valley, for the stream is clearly deflected in a broad curve to the west around the base of the slope below the Castle Peak glory hole. A grid of 46 closely-spaced samples was collected



Castle Peak Mining District

GEOCHEMICAL RECONNAISSANCE

Scale: 1" = 1000'

June 5, 1965

Anthony L. Payne

in the area southwest of the mine, for it was believed to lie to the south of the base of the landslide, and represent an interesting prospect for mercury ore. This area is shown as "Area A" on the detailed geochemical map accompanying this report.

A second geochemical possibility is related to the geologic-structural control of the Castle Peak ore deposit. A very well developed fault extends north-south squarely through the center of the Castle Peak workings, and the inference is that this fault acted as a channelway for ascending mineralising solutions. The fault can be traced for a mile or more without difficulty, for different rocks have been faulted one against the other on each side of this structure. Fifty samples were collected on 100-foot intervals in a traverse away to the south and southwest from the Castle Peak mine, working along the slope just downhill from the fault. Outcrops are very poor, and it was hoped that significant mineralization may have been missed by earlier prospectors. One slightly anomalous (6 ppm Hg) reading was obtained on this traverse, and follow-up geochemical sampling was done, as shown on the detailed geochemical map for "Area B".

A third geochemical possibility is in the NE 1/4 of Section 30, where the andesite is strongly altered and contains numerous mineralized structures. These conditions are in general favorable for mercury mineralization, and it was a relatively easy matter to collect 12 samples of stream sediments from washes draining the area. It was thought that any anomalous amounts of mercury in the stream sediments might easily be checked out by following up the drainage and taking additional samples. Soil sampling would further narrow down exploration possibilities in this poorly exposed area, if stream sediment anomalies continued into the high areas. Two low (2 ppm) readings were followed upstream, as shown on the detailed map for "Area C".

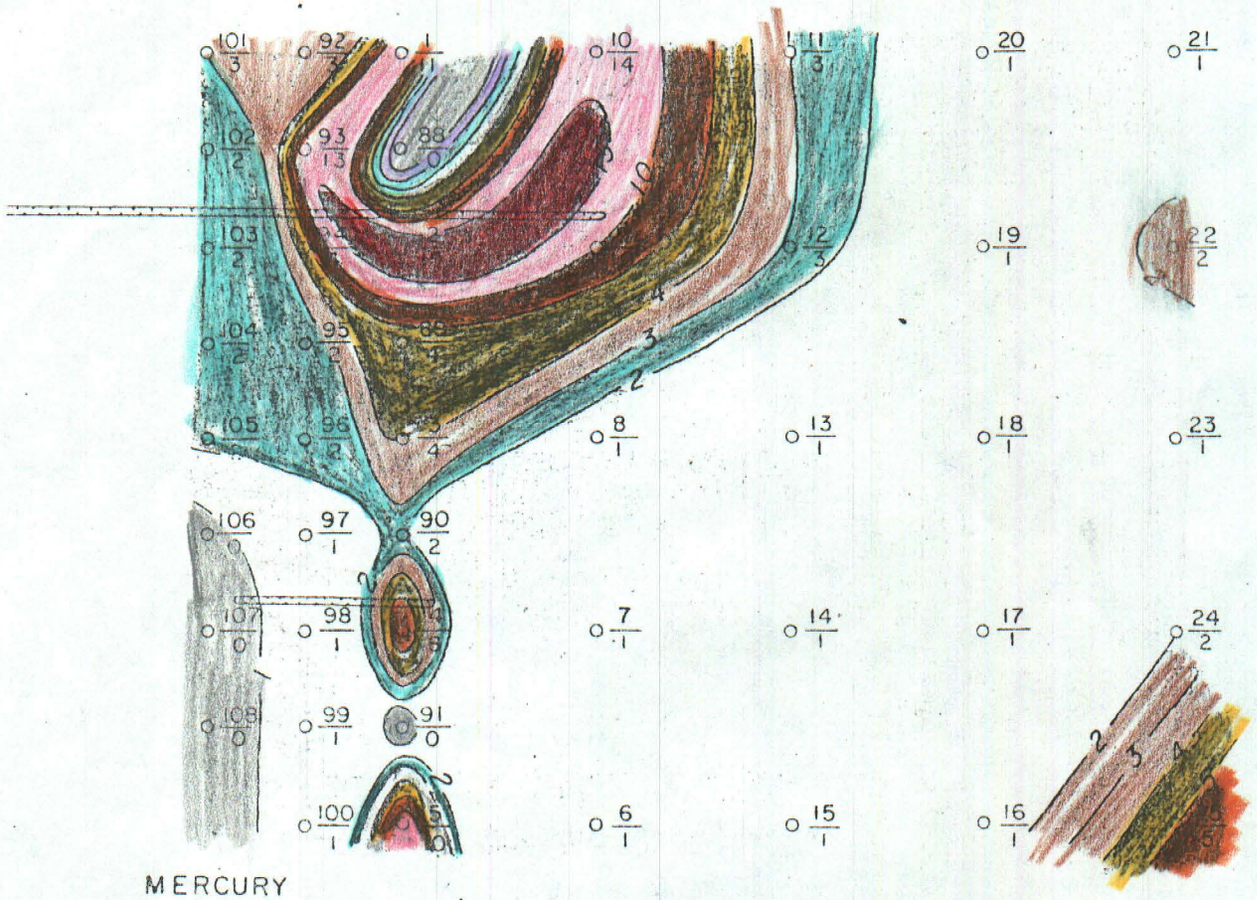
AREA "A"

The positions of the forty-six soil samples collected in Area "A" are shown on the detailed map on the following page. As can readily be seen, an apparent anomaly begins at the northwest of the area, and trends due south through sample row "1" through "5". Two trenches were cut into this anomaly on June 8, 1965, using a John Deere JD 500 back-hoe.

The north trench averages 12 to 13 feet deep, and is 20" wide. It cuts through old deeply weathered land slide material that consists of a mixture of fragments of mineralized rock (including ore), several kinds of andesite, and basalt. This mixture of rocks could only represent a major slide. At the extreme western end of the trench, bedrock is cut for thirty feet or so, all of it relatively fresh shale from the old basement rock beneath the productive volcanics of the district.

A second trench was cut across the southern edge of the anomaly, and revealed that certainly sample No. 4, and perhaps sample No. 5 as well, are high because of contamination due to the work of man. The southern trench cut down through about a yard of dump-like material that apparently contains a small amount of mercury. Beneath this dump-like material at the surface is at least 9 feet of landslide, which in turn is underlain by rounded stream cobbles and boulders which are good evidence that the major landslide did bury the bottom of the valley, and probably dammed the water up for some time before the stream could cut down through it and remove the excess.

It is apparent that the large anomaly shown in the northwest corner of Area "A" is due to sliding of material from the ore zone far up the hill to the northwest. The barren margin along the western edge of the sample grid probably represents a thin veneer of surface deposit laid down by streams during and after the damming effect of the slide. Samples No. 4 and 5 are contaminated. The net effect of these relationships is to give a linear impression to values, and



MERCURY

- 15-20 ppm Hg
- 10-15
- 5-10
- 4-5
- 3-4
- 2-3
- 1-2
- 0-1

N

sample site → o 99/2 ← sample number; ppm mercury

Storey County *Nevada*

Castle Peak Mining District

DETAILED GEOCHEMISTRY - AREA "A"

Scale: 1" = 50'

June 5, 1965 *Anthony L. Payne*

strong temptation for a vein interpretation of the anomaly. The two trenches conclusively prove that such a vein does not underly the anomaly.

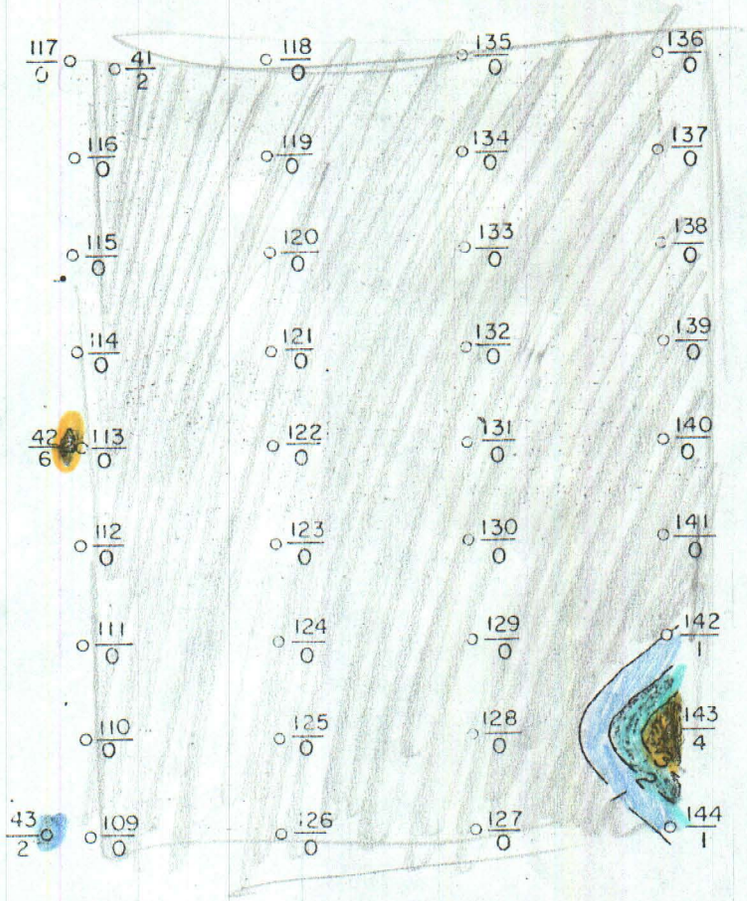
AREA "B"

Of the fifty reconnaissance samples taken along the fault to the south of Castle Peak, only one, sample No. 42, showed any appreciable amount of mercury. Thirty-six samples were collected in a rectangular grid up slope (to the east) of this one high value, and the results are plotted on the detailed geochemistry map, Area B. The extreme southeast portion of the grid showed low readings, and a dozen additional samples were collected and determined in the field just uphill from sample 143. These samples are not shown on the map, as they were collected almost at random. Values on these 12 samples range from 0 to 4 ppm Hg, and the soil in this area contains "float" (small fragments and chips of obvious mineralized rock). Just about where the float is no longer found working up the slope, the mercury values in the soil fall off to zero. This point is about 150 feet due east of sample 143, and about 40 feet above it topographically. There are no outcrops in this area, but it is obvious that there is a very feeble showing of mercury here. The showing is so small and weak, that back-hoe trenching was not done, for it would have required too much work to get the machine up the slope, in view of the slight prospects for success.

No other showing of mercury was found along the Castle Peak fault, and it is presumed that this mile of structure contains no shallow mercury mineralization of importance.

AREA "C"

About a dozen small streams drain the NE 1/4 of Section 30, and most of these drainages cross the unimproved access road into Castle Peak. Twelve stream sediment samples were taken, and two of them showed values of at least 1 ppm Hg. These samples are Nos. 82 and 83, shown on the accompanying detailed geochemical map for Area "C". Additional sampling upstream from these two sam-



sample site → 110 / 2 ← sample number; ppm mercury

N

MERCURY

- 3-4 ppm Hg
- 2-3
- 1-2
- 0-1

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DETAILED GEOCHEMISTRY - AREA "B"

Scale: 1" = 50'

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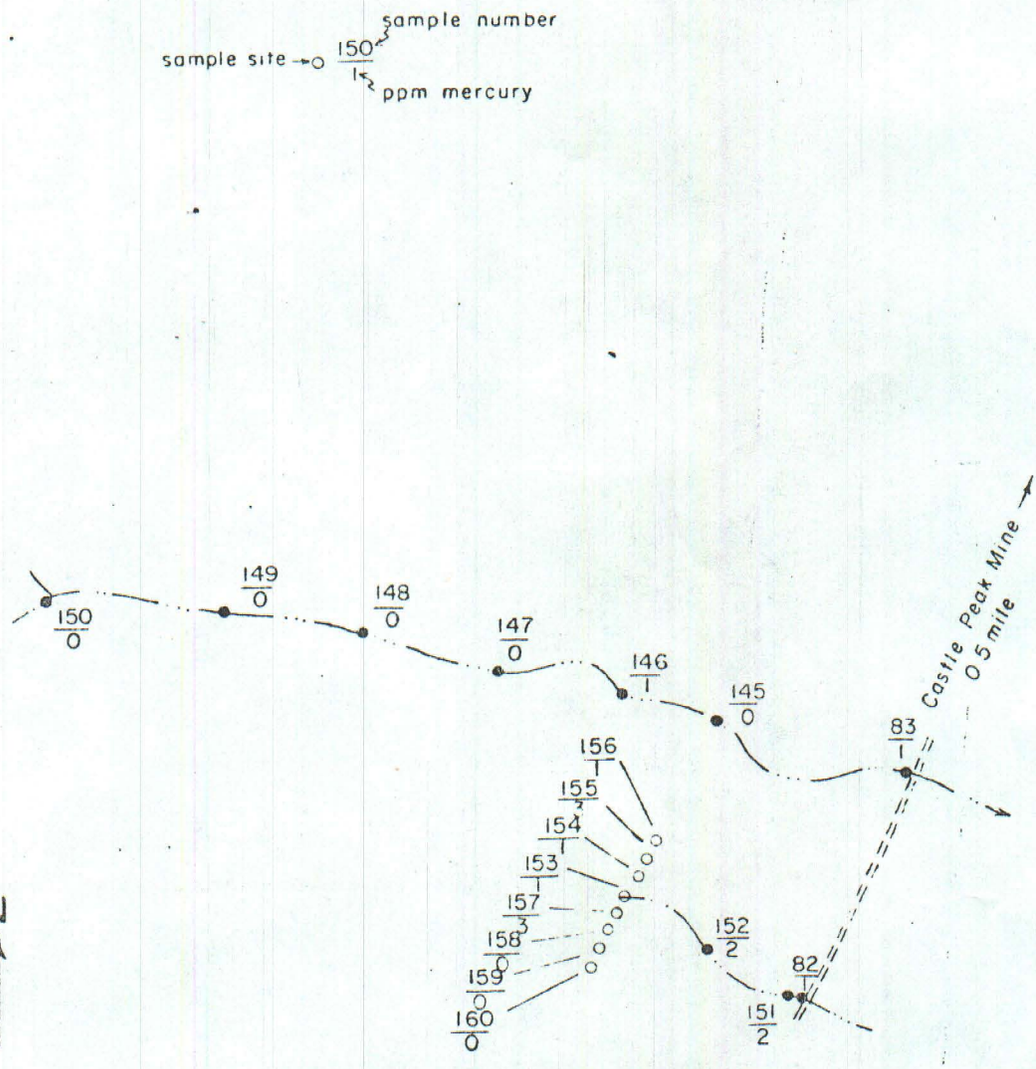

Note open circles are soil samples, solid circles are stream sediment samples

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DETAILED GEOCHEMISTRY-AREA "C"

Scale: 1" = 100'

June 5, 1965 *Anthony L. Payne*

ples substantiate the low readings, for increase in values was not high enough to indicate proximity to an ore deposit in either stream catchment basin.

It is concluded that no major mercury ore deposit lies at or near the surface in the altered zone in the northeast quarter of section 30.

Respectfully submitted,

Anthony L. Payne

Anthony L. Payne
Mining Geologist

June, 1965