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Spokane

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON, D.C.~~
So. 157 Howard Street
Spokane 4, Washington

July 14, 1954

Memorandum

To: DMEA Field Team, Region II

From: Verne C. Fryklund, Jr., Geologist, U. S. Geological Survey

Subject: Docket No. DMEA-3341 (lead-zinc), Examination report, Highland-Surprise Consolidated Mining Company, Shoshone County, Idaho

INTRODUCTION

The Highland-Surprise Consolidated Mining Company, Wallace, Idaho, is completing an exploration project that has explored the downward extensions of ore shoots on the Highland vein and the Surprise vein. This contract is Idm-163. Exploration to date has resulted in the discovery of only minor amounts of ore.

This new application is for underground exploration of an entirely different target in the Nevada-Stewart property, west of the Highland-Surprise mine workings.

SUMMARY AND RECOMMENDATIONS

The original company request on this application was to explore to the east on their 700-foot level, and to the west, under Nevada-Stewart ground, on their 1450-foot level. On advice of this office, the company withdrew the proposal to explore to the east and now desires to explore only Nevada-Stewart ground from the 1450 level of the Highland-Surprise mine; this work to consist of 4,500 feet of drifting and crosscutting, 4,500 feet of long-hole drilling, and 3,000 feet of diamond drilling.

Approximately 2,500 feet of drift will follow the Surprise vein westward, 1,100 feet to be in Highland-Surprise ground, the remainder of the drifting and crosscutting to be in Nevada-Stewart ground. The crosscutting will be northward from the west end of the drift to intersect structures that have been explored up above on the Nevada-Stewart adit level. Additional drifting will follow favorable structures disclosed by crosscutting and diamond drilling.

See maps in Holder (2)

My recommendations are:

1. Exploration west of the Highland-Surprise mine is warranted. Evidence available indicates that the existence of ore shoots in the area is structurally permissive; in addition, one structure on the Nevada-Stewart adit level, explored by the Bureau of Mines and the company, contains ore.

2. The western exploration should be conducted from both the 700 and 1450 levels, the work to be done successively, the 1450 level work first. The completion of work on the 700 level should not be contingent upon results on the 1450 level.

3. Additional funds for about 450 feet of runaround, minor rehabilitation of 700 level, 2,000 feet of drifting and crosscutting, 1,500 feet of diamond drilling, and 1,000 feet of longholing on the 700 level should be made available.

LOCATION

The Highland-Surprise property is in the Pine Creek area of the Coeur d'Alene district in sec. 33, T. 48 N., R. 2 E. The East Fork road from Pinehurst is blacktopped; the road from the East Fork of Pine Creek to the mine is a fair graveled road which is also used by the Sidney mine.

DESCRIPTION OF PROPERTY

The Nevada-Stewart mine consists of one level shown on the applicant's map. During previous work, air and equipment were provided by the Highland-Surprise mine. The applicant's map shows the location of pertinent claims. The Highland-Surprise mine, from which the work will be done, has been described in the application for Contract No. [illegible]-E63.

GENERAL GEOLOGY

The country rock of the Pine Creek area is principally Prichard formation, although east of the Highland-Surprise mine the Burke formation is present. The Prichard formation has been divided into lower and upper members. The lower Prichard is "thin to thick bedded, light to dark gray argillite, laminated in part," interbedded with "white to light gray, subvitreous to vitreous quartzite" (Explanation on USGS map "Smelterville and Vicinity Quadrangle"). The upper Prichard is described as "thin- to thick-bedded, light gray to white, pure to argillaceous quartzite interbedded with thinly laminated, dark gray argillite." Argillite in this case is a district term and much of the argillite is actually

very fine-grained, dark quartzite; in other districts much of the thickly bedded material would be called greywacke. Other portions might well be classified as shales and slates.

Bedding attitudes in the vicinity of the Highland-Surprise mine are diverse, but in general show a northwesterly strike and a southerly dip.

Economically, the most significant structural feature of the Pine Creek area is the Yreka shear zone. The productive mines in the Pine Creek area, except for the Douglas and Constitution mines, are on this shear zone. (See map 1). The productive veins are: the Sunset, the Denver, the New vein in Babob mine, the Sidney, those in the Nevada-Stewart mine, the Surprise, and the Highland vein.

Productive veins of the Pine Creek area, except for the stibnite-bearing veins, are composed mainly of pyrite, carbonates, dark glassy quartz, pyrrhotite, sphalerite and galena. Pyrrhotite is abundant and it is the characteristic gangue mineral.

GEOLOGY OF THE NEVADA-STEWART AREA

The surface geology of the Nevada-Stewart area is shown on the "Smelterville and Vicinity Quadrangle," placed on open file by the U. S. Geological Survey in 1953. The area was trenched in 1948 but the trenches are now caved and cannot be remapped. I have seen detailed maps in the files of other operating companies that show the existence of several west trending structures in the area.

The Nevada-Stewart area was drilled by the Bureau of Mines in 1944. No Report of Investigations was published but the surface geology was mapped by F. C. Armstrong of the Geological Survey--who also logged the core--and a Strategic Minerals Investigations map was put on open file (Portion of Nevada-Stewart Property, Yreka Mining District, Shoshone County, Idaho).

Included with this memorandum is a longitudinal section through the Nevada-Stewart area prepared by the applicant showing the Bureau of Mines drill hole intersections and places where minor amounts of ore were stoped in 1952 and 1953. Mining was stopped when the price of zinc dropped in 1953.

ORE RESERVES IN THE NEVADA-STEWART AREA

Reserves in the Nevada-Stewart mine are minor and there is no justification for figuring any inferred tonnage below the adit level with present meager information. (See applicant's longitudinal section submitted with this memorandum).

Of some interest, however, are the production figures from the Sidney mine, immediately to the west and the Highland-Surprise mine, immediately to the east. The Highland-Surprise mine (figures to end of 1953) has produced 312,778 tons of ore from which 66,072,393 pounds of zinc and 21,476,828 pounds of lead have been recovered. The Sidney mine from 1921 to the end of 1953 produced 812,806 tons of ore from which 152,864,000 pounds of zinc and 77,992,000 pounds of lead were recovered.

These figures have considerable significance in view of the fact that the two properties lie in the Yreka shear zone, and are on each side of the target area.

EXPLORATION IN THE PINE CREEK AREA

Inasmuch as the preponderance of productive mines are on the Yreka shear zone (see map 1), it would appear that the most suitable targets for exploration in the Pine Creek area are the unexplored portions of the shear zone. As shown on Nelson and Smith's map of the area (Surface Geology of the Pine Creek area, Shoshone County, Idaho, Strategic Minerals Investigation Preliminary Map), several unexplored gaps occur along the Yreka zone. One such is the deep zone between the Nevada-Stewart west end line and the Highland-Surprise mine workings.

A cross section of the Yreka shear zone at any point may show only one known vein or several known parallel veins. For example, the Denver vein is about 1,000 feet in the footwall of the Sidney vein. The Highland vein is about 150 feet in the footwall of the Surprise vein.

The area to be explored contains several known veins, which include: 3 veins in the Nevada-Stewart tunnel, the Surprise vein that has been traced across Nevada-Stewart ground from Highland-Surprise ground, and the Canary veins that were exposed in the 1948 trenching on the Nevada-Stewart ground. Good possibilities of others exist, which, together with the known veins at higher levels, make up the target of this exploration project.

PROPOSED EXPLORATION OF NEVADA-STEWART AREA

The applicant proposes to do 4,500 feet of drifting and crosscutting, 4,500 feet of long hole drilling, and 3,000 feet of diamond drilling in the Nevada-Stewart area, this work to be done from the Highland-Surprise 1450 level.

Approximately 2,300 feet of drift will explore the Surprise vein, 1,100 feet of this footage to be in Highland-Surprise ground. Crosscutting to the north will explore the veins exposed in the Nevada-Stewart adit level. Diamond drilling will explore veins south of the Surprise vein.

This exploration has considerable merit in that it will explore the full width of the Yreka shear zone, at this point on the order of 2,500 feet wide, at depth in an area where previous Government exploration has demonstrated the existence of ore. I do question whether all the exploration should be confined to the 1450 level. If the veins in the Nevada-Stewart area should prove to be barren on the 1450 level, there will be no proof that ore is not present at higher elevations (Nabob exploration for example). I believe that funds should be made available so that additional drifting, crosscutting, and drilling can be done on the 700 level; otherwise, the exploration of this block of ground will be inadequate. Unit costs as determined by Erickson for 1450 level work should be applicable to the 700 level work.

An abortive attempt at such exploration has been made by drifting westward from the Highland-Surprise 700 level (the location of the drift is shown on the applicant's map). The drift was not carried far enough west nor were crosscuts northward to the vein zone made. I was out to the end of the 700 level in 1952 and found that all track and pipe had been pulled. If this level is to be rehabilitated, track and pipe would have to be replaced, some of the curves slabbed, and a runaround driven near the shaft as the present drift is caving at the No. 1 ore shoot.

I feel that if a contract is awarded it should specify that the zone be explored on 2 levels.

Distribution:
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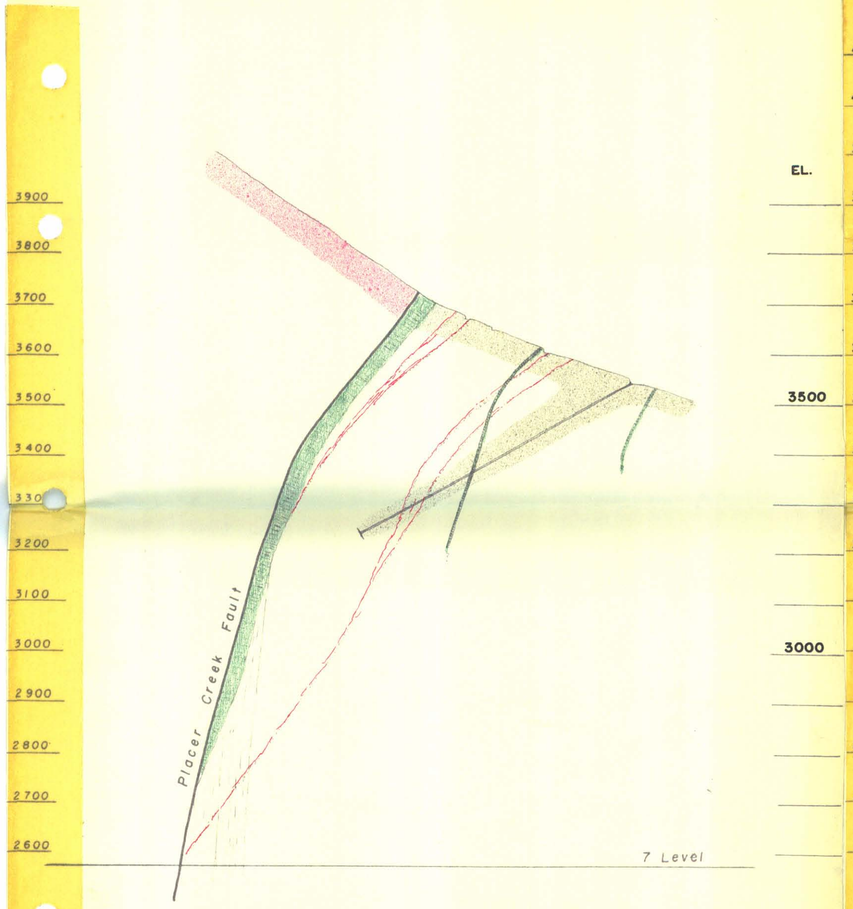
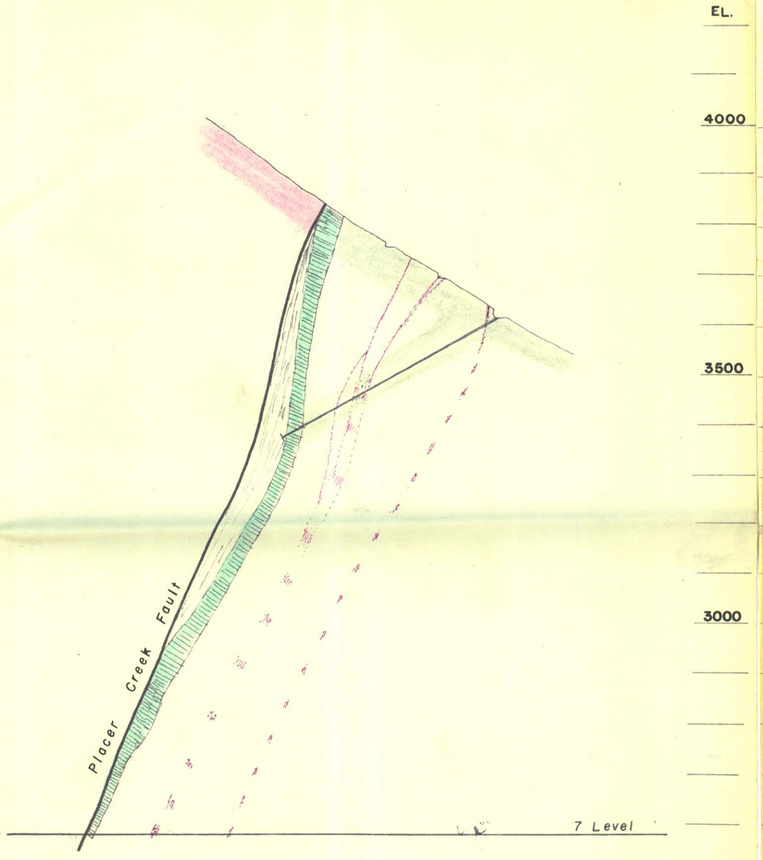
Docket
Fryklund



Section Thru DD # 3
1" = 200'

Map with updates. dated 5-4-54



Section Thru DD # 1
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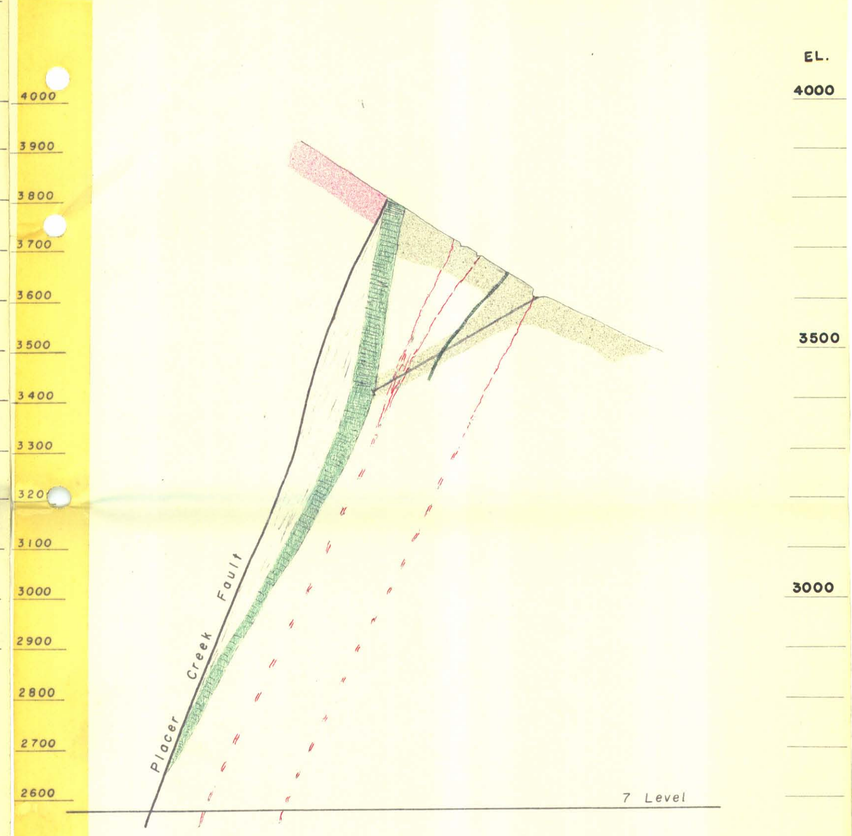
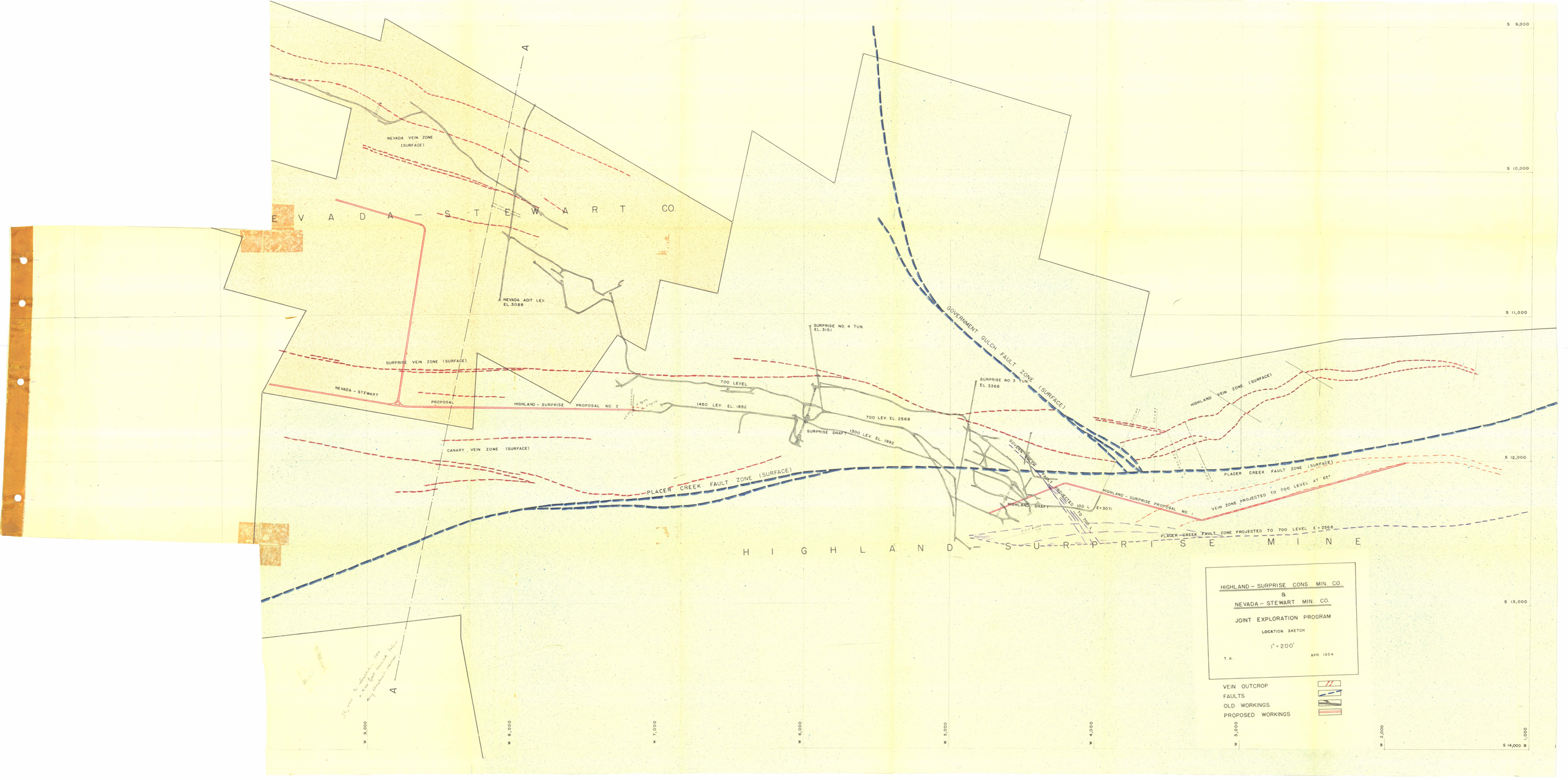
Map with updates dated 5-4-54



Section Thru DD # 2
1" = 200'

Map with updates. dated 5-4-54


NEVADA VEIN ZONE (SURFACE)
E V A D A – S T E W A R T CO.
NEVADA ADIT LEV. EL. 3088
SURPRISE NO. 4 TUN. EL. 3151
SURPRISE VEIN ZONE (SURFACE)
NEVADA – STEWART PROPOSAL
HIGHLAND – SURPRISE PROPOSAL NO. 2
700 LEVEL
1450 LEV. EL. 1852
SURPRISE SHAFT
1300 LEV. EL. 1992
700 LEV. EL. 2568
SURPRISE NO. 3 TUN. EL. 3366
GOVERNMENT GULCH FAULT ZONE (SURFACE)
HIGHLAND VEIN ZONE (SURFACE)
CANARY VEIN ZONE (SURFACE)
PLACER CREEK FAULT ZONE (SURFACE)
GOVERNMENT GULCH FAULT ZONE PROJECTED TO 100 L. E+3071
HIGHLAND SHAFT
HIGHLAND – SURPRISE PROPOSAL NO. 1
VEIN ZONE PROJECTED TO 700 LEVEL AT 65°
PLACER CREEK FAULT ZONE PROJECTED TO 700 LEVEL E+2568
H I G H L A N D – S U R P R I S E M I N E
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HIGHLAND – SURPRISE CONS. MIN. CO.
&
NEVADA – STEWART MIN. CO.
JOINT EXPLORATION PROGRAM
LOCATION SKETCH
1" = 200'
T. K.
APR. 1954
VEIN OUTCROP
FAULTS
OLD WORKINGS
PROPOSED WORKINGS