February 10, 1958

D. M. E. A. Field Team
1201 North Division Street
Spokane, Washington

To Washington
Branch - Exploration
for Amend. 4

FINAL REPORT OF SILVER BUCKLE MINING COMPANY
VINDICATOR PROJECT

Re: Docket No. D. M. E. A. 3071

The exploration project at the Vindicator property was operated by New Park Mining Company of Salt Lake City, Utah, who assumed management responsibilities of the Vindicator project through investment in Silver Buckle Mining Company.

After preliminary plans had been completed on the location and arrangements of the tunnel level, shaft section, etc., actual work commenced during December, 1953. The project as planned continued without interruption until April, 1955. At this time the Company asked for a recess of the project for a period of six months, in which time to arrange a program for further development in area and magnitude. The work was suspended on April 25. However, the property has been maintained in proper operating condition to this date.

In view of the completed work at the Vindicator under this contract, and the encouraging results geologically this area was classed even higher as a mineral potential and warranted additional exploration in area and at additional depth to prove a commercial mineral discovery. The D. M. E. A. Project now underway adjoining the property to the east could no doubt provide geologic information that would help determine further work in the Vindicator Area.

Following this line of thought accordingly and to the advantage of all parties, the contract performance dates were amended by Amendments No. 1 through No. 6 closing as of December 31, 1957.

RECEIVED
MAR 28 1958
U. S. G. S.
SPOKANE, WASH

The following work has been completed to date in the Vindicator under contract with D. M. E. A.

Consisting of six unit projects: (Note Contract)

1. Installation of five hundred forty feet of track 30 pound @ 24" gage

2. Tunnel enlarging and rehabilitation, one hundred ten feet to shaft area

3. Completion of shaft station, shaft raise and loading pocket

4. Completed eight hundred feet of vertical shaft, fully timbered, two compartment 5' 6" x 4' 6" inside timber, pump station at four hundred foot depth

5. Completed 750 level Station and pocket raise

6. Crosscutting and drifting in mineralized zone consists of one thousand two hundred ninety four feet off the 750 level.

Future Exploration Possibilities

Geologically this property is still considered favorable at greater depths. Geologic information supporting possibilities of a commercial ore discovery in this area are:

1. Persistency of structure and mineralization from the surface to the 750 level.

2. Persistency and increase in alteration and structure with depth to the 750 level.

3. Favorable rocks in the steep limb of the St. Regis and Revett formations continue with depth.

4. Localization of an ore shoot between two great faults, the Paymaster and the White-Ledge.

5. Relationship in the district with known tops of deep seated ore shoots that are progressively deeper seated from west to east, i. e., Burke area, Morning area, Gold Hunter area, Lucky Fridy area - Vindicator area.

6. The property contains all favorable conditions

known to occur in deep seated ore deposits of the Coeur d'Alene district.

7. Other favorable structural targets known to occur in the area.

An exploration program planned for an additional one thousand or one thousand two hundred feet of depth in this area can now be calculated as a much better risk in finding rich Coeur d'Alene type ore bodies than the original project of limited exploration to the 750 foot level depth.

Exploration of this magnitude would be justifiable in the event that favorable operating rights could be arranged through a joint venture with other property holders in the area. In previous correspondence we have indicated that there have been, and are, some problems in negotiating additional operating rights with other interests in the area. These have not been resolved to date and along with the present adverse metal prices, further development at this time is at somewhat of a stalemate. However, it is possible that such an exploration program could be initiated either through the Vindicator shaft or perhaps more economically through deep workings of the Silver Mountain project located to the east. Such a program may well someday be considered.

May we thank the individual members of the D. M. E. A. Field Team for their help and co-operation during this project. Our association with them was a pleasure.

SILVER BUCKLE MINING COMPANY

Gale A. Hansen,
Mine Superintendent

Enc: 1 Map

C. C.: C. L. Wilson
Scott & Gay

DEPARTMENT OF THE INTERIOR

OFFICE OF MINERALS EXPLORATION

FIELD TEAM, REGION I

Royalty paid interest to 10/12/71

FINAL REPORT

Contract Idm-E594

by

John D. Bardill
Metallurgist
U. S. Bureau of Mines

R. D. Sample
Geologist
U. S. Geological Survey

SILVER BUCKLE MINING COMPANY
P. O. Box 1088
Wallace, Idaho

Docket No.:	DMEA-3071
Commodity:	Lead-Zinc
Contract date:	October 12, 1933
Termination date:	May 1, 1935

VINDICATOR MINE
Coeur d'Alene Mining District
Shoshone County, Idaho

Spokane, Washington

November 1938

CONTENTS

	Page
INTRODUCTION	1
Summary	1
Recommendations	2
LOCATION AND ACCESSIBILITY	2
PROPERTY	2
GEOLOGY	4
Regional Geology	4
Local Geology	5
THE PROJECT	8
Summary of Factual Data	12
Discussion of Conclusions	13

ILLUSTRATIONS

Plate		Map in pocket
1	Location Map	
2	Surface Geology in the Vicinity of the Vindicator Mine Area	
3	Property Map Showing Claims and Significant Structures	
3A	Cross Section A-A'	
4	Geology and Progress Map of the Vindicator Vertical Shaft	
5	Progress and Geologic Map of the 750 Level	
6	Geologic Map of No. 2 Adit and 750 Level	

FINAL REPORT

SILVER BUCKLE MINING COMPANY
Vindicator Mine
Coeur d'Alene Mining District
Shoshone County, Idaho

Amended Contract Idm-E594

* * * * * *

INTRODUCTION

This report describes a project conducted jointly by Silver Buckle Mining Company and Defense Minerals Exploration Administration to explore for lead and zinc at the Vindicator mine and adjacent properties, Shoshone County, Idaho.

Summary

The exploration project was designed to explore for the downward extensions of lead-zinc mineralization exposed at the surface and on the main adit level by sinking a shaft 800 feet from the main level and by not more than 1,700 feet of drifting and crosscutting on the 750 level. Estimated total cost of the project on an agreed fixed unit cost basis was $229,500, with Government participation of 50 percent.

The work completed consisted of rehabilitation of 540 feet of the main adit, rehabilitating and enlarging 110 feet of the crosscut to the site of the shaft, excavation of a 15,000-cubic foot shaft station and pocket, 800 feet of 2-compartment shaft, excavation of 5,000 cubic feet for 750 level station and pocket, and 1,294 feet of drifts and crosscuts. Total cost of the project was $209,839, of which the Government contributed $104,919.50, or 50 percent. Actual work started in December 1953 and continued to April 1955 at which time a recess was called.

No important mineralization was discovered by the work done. Over a period of several years the Operator attempted

unsuccessfully to negotiate with neighboring property owners to acquire additional ground which would provide additional exploration targets, and the recess period was extended several times to permit negotiations to continue. It became apparent that no agreement could be reached; consequently, the contract was automatically terminated as of May 1, 1955, under the provisions of Amendment No. 6, dated August 9, 1957.

Recommendations

The results obtained from exploration on the 750 level were discouraging. Structures and mineralization apparently extend downward from surface exposures to the 750 level and show some improvement with depth, but no commercial ore shoots were discovered. Government participation in further exploration at this time is not warranted. If adjacent claims could be obtained, exploration to the north beyond the Paymaster fault might be justified, but the amount of potentially productive ground controlled by Silver Buckle Mining Company is too limited to justify the expense of deeper exploration within the present property limits. A pseudo-certification is incorporated in Amendment No. 6.

LOCATION AND ACCESSIBILITY

The portal of the main adit level is a few yards north of the Northern Pacific Railroad tracks and only a few hundred yards from U. S. Highway 10, which is a main east-west highway. The town of Mullan, the nearest domestic trading center, is approximately 2 miles to the west (pl. 1).

All types of mining materials and supplies are available at Wallace, about 9 miles to the west. There is a high-tension power line to the property and adequate water is available from nearby South Fork of the Coeur d'Alene River.

The property may be reached by traveling easterly from Mullan over paved U. S. Highway 10 for approximately 1 mile to the base of the Lookout Pass road, thence slightly northeasterly over a good graveled road for half a mile, thence northward across the railroad track to the mine portal.

The mine is on the south slope of the Coeur d'Alene River Valley at an altitude of about 3,450 feet. Moderately wooded mountains rise steeply on two sides. Sub-zero weather with moderately heavy snowfalls are not uncommon, but the roads are kept open for year-around use by the county and mine operators. Summers are mild.

PROPERTY

The claims included in the contract are recorded in the courthouse at Wallace, Shoshone County, Idaho, as follows: Sec. 25, T. 48N.-R.5E

Claim	Book	Page
Horn Silver	J	623
Horn Silver Amended	25	241
Siskiyou Belle Fraction	M	236
Siskiyou Belle Fraction Amended	U	473
Siskiyou Belle Fraction Amended	25	240
Curragh Buck	M	235
Curragh Buck Amended	25	242
Curragh Buck Amended	25	626
Gentle Annie	C	162
Overnight Fraction	31	259
Bulldog Lode (U. S. Mineral Survey No. 2943) (Deed Book)	56	458

Prior to the contract the mine had been explored by two adit levels and a number of surface cuts (pls. 3, 3A, and 6).

The upper No. 1 adit level at elevation 3,740 feet consisted of about 245 feet of crosscut and about 75 feet of accessible drifts. There were two short raises and stopes above the level.

The lower No. 2 main adit level at elevation of about 3,450 feet consisted of 1,600 feet of crosscut and 1,000 feet of drifts. Most of the workings were accessible for examination and the geology of the entire mine had previously been well mapped.

The crosscut and drifts were timbered at random, and some untimbered sections have caved.

Reportedly, a small but unknown tonnage of ore was produced from the upper level and surface cuts years ago.

The surface plant consisted of a 40- by 25-foot galvanized iron compressor building with concrete floor housing an Ingersoll-Rand, Imperial 10 air compressor, Type XRB complete with 75 hp motor, starter and accessories. There was a 12- by 17-foot frame blacksmith shop and a 15- by 23-foot alvanized iron office and dry.

GEOLOGY

Regional Geology

The regional geology of the area is described in various professional papers, bulletins, pamphlets, and reports, both published and unpublished by geologists of the U. S. Geological Survey, and others. Among the published reports the following are significant in describing the geology of the Coeur d'Alene Mining District:

1. Ransome, F. L., Calkins, F. C., Geology and ore deposits of the Coeur d'Alene district, Idaho: U. S. Geol. Survey Prof. Paper 62, 1908.

2. Umpleby, J. B., Jones, E. L., Jr., Geology and ore deposits of Shoshone County, Idaho: U. S. Geol. Survey Bull. 732, 1923.

3. Shenon, P. J., Silver belt of the Coeur d'Alene district: Idaho Bureau of Mines and Geology, Pamphlet 50, 1939.

4. Anderson, Alfred L., Monzonite intrusion and mineralization in the Coeur d'Alene District, Idaho: Econ. Geology, v. 44, no. 3.

In recent years the geology of the Coeur d'Alene District has been restudied by S. W. Hobbs, V. C. Fryklund, R. E. Wallace, and others of the U. S. Geological Survey. Surface and underground geology of the Smeltorville, Kellogg, Wallace, Mullan, and Pottsville quadrangles are now available as open file reports of the U. S. Geological Survey.

In addition, there are numerous unpublished reports on the geology of the Coeur d'Alene district in the DMEA files. In a final DMEA report on the National, Copper King, and Missoula properties of Day mines, Inc., Docket No. DMA-1084, dated September 30, 1953, V. C. Fryklund, Jr., summarizes the regional geology in the following paragraph:

"The country rock of the Coeur d'Alene district consists of slightly metamorphosed sediments of the Precambrian Belt series that have been folded, faulted, and intruded by granitic stocks and dikes of various types. The Belt series in this area has been subdivided into six formations on the basis of lithology. No unconformities have been recognized. From bottom of the series to top, the formations are as follows: Prichard, Burke, Revett, St. Regis, Wallace, and Striped Peak. The total section is a least 23,000 feet thick. The veins in the district

generally strike between N. 45° W. and west and usually dip steeply to the southwest. Many of the veins and faults of the district are in zones of rock that are bleached to a color lighter than normal, presumably by hydrothermal solutions that preceded the ore-forming solutions. The exact nature of the bleaching is currently being studied by the U. S. Geological Survey."

Ore deposits have been found in all of the Belt formations except the youngest formation -- Striped Peak. The Wallace formation is generally considered an unfavorable host rock for mineralization although there have been some notable exceptions to this rule. The St. Regis and Revett formations are generally considered to be the most favorable host rock in the district although in the Pine Creek area the Prichard formation has been an important producer.

One of the most important structural features of the district is the west-northwesterly trending Osburn fault or fault zone (pl. 1) which has been traced intermittently through the district for over 30 miles. Locally, the fault zone ranges in width from 100 to 200 feet and, wherever exposed, dips steeply south. It has been postulated by many geological workers that there have been strike-slip movements of considerable magnitude along this fault. The extent of the pre-ore movements are not known, but it is believed there may be a post-ore strike-slip component of movement of about 16 miles. Numerous mineralized faults and zones are subparallel to the Osburn fault. The Vindicator vein is on one of these subparallel structures about 1,800 feet north of the fault zone. Many of the important mines of the Coeur d'Alene District are found in the wide, irregular belts or zones of bleaching in the Belt series which occur throughout the district.

There appears to be a relationship between the bleached zones and much of the mineralization throughout the Coeur d'Alene District although the relations are not everywhere the same. Many of the veins are in the bleached rock, but some are in unbleached rock and others are partly in bleached and partly in unbleached rock. The Vindicator vein is within a zone of bleached and partially bleached rock (pl. 6).

Local Geology

The geology in the vicinity of the Vindicator mine is best shown on the Geologic Map of the Pottsville Quadrangle, Northern Idaho, prepared by R. E. Wallace, S. W. Hobbs, H. C. Rainey, and B. Bowyer of the U. S. Geological Survey in 1952. This map shows that the Vindicator vein is in an area that is underlain by the indurated shales and quartzites of the St. Regis formation; also that it lies

approximately 1,800 feet north of the Osburn fault and approximately 700 feet south of the Paymaster fault zone. The Paymaster fault also trends in a northwesterly direction. The exploration program was designed to cut the Vindicator and associated veins on the 750 level.

All of the shaft sinking from the main haulage (No. 2 adit) to the 750 level was in steeply dipping argillites and quartzites of the St. Regis formation (pls. 4 and 6). Crosscutting and drifting on the 750 level showed the deformation of these rocks to be intense with much cleavage and many localized zones of intense shearing. Hydrothermal solutions have permeated the shear zones with a resultant bleaching and alteration of the rocks into seriatic phyllites (pl. 6). Most of the beds dip steeply to the north and appear to be overturned.

Ore deposits in the upper workings of the mine occur in a broad, sheared, crushed, and highly bleached zone. The applicant states:

> "As exposed in the No. 2 level this zone is over 200 feet wide, strikes nearly east-west and dips from 80° N. to vertical. Within this zone alteration has been extremely intense. The purple, argillaceous quartzite of the St. Regis formation has been completely altered to fine-grained, white, sericitic quartzite. The zone is intricately crumpled and sheared and contains numerous lenses, pods, and stringers of quartz, ankerite, and siderite with minor amounts of pyrite, galena, sphalerite, chalcopyrite and tetrahedrite. The strongest and best mineralized of these veinlike structures strikes N. 85° W. and in the lower tunnel dips 80°-85° N. The vein from which a small amount of ore was produced in the upper workings strikes N. 85° W. and dips about 60° N. This structure must either steepen rapidly in order to be the same as that exposed in the lower tunnel or else it is an entirely separate structure taking off from the nearly vertical one. Most of the productive veins in the area have a steep southerly dip. It is probable, therefore, that the Vindicator vein-zone has a fairly flat north dip near the surface (conforming closely to the bedding), that it steepens to nearly vertical in the lower tunnel and that it will continue to roll until it assumes a steep southerly dip at lower elevations. The productive Lucky Friday mine, a short distance west of the Vindicator, has shown such reversals in dip."

From S. W. Hobbs, U. S. Geological Survey, who has done extensive work in the Coeur d'Alene District, the following is quoted:

> "The Vindicator vein is exposed on the surface of the property in a series of 10-12 open cuts and trenches along a length of over 1,000 feet. As exposed in these trenches, the vein is from 1" to 6" wide and composed predominantly of quartz with some carbonate (ankerite?) and notable amounts of galena. The galena shows in at least three contiguous pits along a 150-foot portion of the vein. The underground workings cut several zones in which narrow quartz stringers and veins are localized, but one of these is stronger and more persistent than the rest and is correlated with the vein exposed on the surface. The vein is exposed in the drifts and crosscuts underground for a strike length of 350 feet and has much the same characteristics as the vein at the surface -- a narrow predominantly quartz vein with some high iron carbonate and local stringers and pockets of sulfides. The vein strikes about N. 85° W. and dips from 55° N. at the surface to 85° N. on the No. 2 tunnel level. The progressive steepening at depth may be inherent in the original vein, but also may be due in part to two other factors: (1) normal down-hill creep of the nearly vertical, sheared argillite at and near the surface on the steep slope and (2) a shifting of the upper portion of the vein to the south along a series of low-angle, south-dipping displacement structures along each of which the upper (hanging wall) portion of the rock has shifted slightly down dip. The net effect of the movement on the numerous slip planes may be very appreciable and may be measured in tens or hundreds of feet."

It is generally believed among geologists working in the Coeur d'Alene Mining District that the productive veins are formed along shear zones where there was relatively minor displacement, and principally in a strike-slip direction. The shear zones themselves are undoubtedly the result of major strike-slip movement along the major early east-west-striking faults of the area. Verne C. Fryklund, Jr., believes that the productive veins of the Coeur d'Alene District are confined to seven distinct zones or belts that have a northwesterly trend. Two of these zones are south of the Osburn fault; the others lie north of the Osburn fault. The Vindicator vein lies in one of the belts north of the fault. Fryklund also believes that these formerly contiguous zones have been separated on the order of 16 miles by post-ore movement along the Osburn fault.

THE PROJECT

The program at the Vindicator mine was based partly upon a similarity to the geologic setting at the neighboring Lucky Friday mine, about 1 mile to the west. At the Lucky Friday mine commercial lead-silver ore is being mined from a deep-seated ore shoot which showed only weak mineralization at or near the surface but which became progressively better with depth. This ore shoot has been developed to the 2,000-foot level and was being extended eastward toward the Vindicator property. A geologic map of the Lucky Friday main level showed a striking analogy to the geologic conditions on the Vindicator main level which is within 50 feet of the same altitude. The Lucky Friday is apparently on a different vein zone from that at the Vindicator, but both are in the same stratigraphic and structural environment.

Although the similarity of geologic environment with the Lucky Friday mine was an important factor in outlining the deep exploration program for the Vindicator mine, the property had geologic merits in its own right upon which to base an exploration program. (1) The mine was located on a known-mineralized structure between the Paymaster fault on the north and the Osburn fault zone on the south. Both of these structures are commonly associated with mineralization in the Coeur d'Alene District. (2) The Vindicator vein structure has produced a small but unknown tonnage of ore from the upper level and open surface cuts which assayed well in zinc, lead, copper, and silver. (3) The vein structure is exposed in the drifts and crosscuts for a strike length of about 350 feet and has much the same characteristics as the vein at the surface. (4) The Vindicator vein occurs in a highly folded, sheared, and faulted block of the St. Regis argillites and argillaceous quartzites which has always been considered a favorable host rock in the Coeur d'Alene District.

In addition to the above geochemical prospecting in the Vindicator area had found some interesting anomalies. S. Warren Hobbs in a report, dated June 15, 1953, appraising the proposed project on the Vindicator mine describes the anomalies as follows:

> "A fairly extensive program of geochemical prospecting was done on the Vindicator and adjacent property by the Geological Survey in 1951-52. The results of traverses perpendicular to the vein and downslope showed that the lead content of the soil exceeded three times background for more than 200 feet downslope and for 60 feet upslope from the vein outcrop. The angle of slope was 30°. This anomaly is added proof of significant lead mineralization in the structure, and the anomaly upslope from the main structure can only mean the presence of additional lead-bearing structures north of the main one. Much more extensive sampling was done on the Vindicator as well as adjoining

property to the north and the general results point to an average lead content in the soil, well above the established background, for a considerable area."

Hobbs in his report concludes that:

"Taken at its face value, and out of the context of its environment, the Vindicator vein is not too impressive. However, the structural and stratigraphic conditions of the mine area, the widespread and pervasive hydrothermal activity as attested by the alteration, and veining of the country rock, and the proven high productivity of adjacent property in the same structural block add up to an impressive array of evidence pointing up the Vindicator property as an exceptionally good exploration possibility. It compares favorably with any exploration now being undertaken in the Coeur d'Alene region, where there are many exploratory projects going on, both by DMEA contracts and entirely by private companies."

Vindicator Silver-Lead Mining Company submitted an application dated April 6, 1953, to Defense Minerals Exploration Administration to explore the Vindicator mine at depth by rehabilitating and enlarging the crosscut to the shaft site on the main adit land, excavating a shaft station and installing equipment, sinking a 2-compartment vertical shaft 800 feet, excavating a shaft station and pocket on the 750 level and a maximum of 1,700 feet of drifts and crosscut on the 750 level.

Later, Silver Buckle Mining Company negotiated an agreement with Vindicator Silver-Lead Mining Company whereby they would perform the work outlined in the application. Then, New Park Mining Company bought an interest in Silver Buckle Mining Company and agreed to perform the exploratory work contemplated in the application for Silver Buckle Mining Company.

A DMEA contract dated October 12, 1953, was granted in the name of Silver Buckle Mining Company on an agreed fixed unit cost basis to perform the following exploration work:

1. Install track, air, water, and vent pipes in the first 540 feet of the main adit level.

2. Rehabilitate and enlarge 110 feet of the crosscut from 5 by 7 feet to 8 by 8 feet to the proposed shaft site.

3. Excavate on the adit level at the proposed shaft site a shaft station and pocket of not less than 15,000 cubic feet, and install equipment.

4. Sink a 2-compartment, timbered, vertical shaft, 6 by 11 feet in the clear of timber, 800 feet including sump.

5. Excavate a shaft station and pocket at the 750 level of not less than 5,000 cubic feet and install equipment.

6. Crosscut and drift, not more than 1,700 feet on the 750 level, including sampling and assaying.

7. Timber drifts and crosscuts where necessary not in excess of 500 feet.

Total agreed unit cost of the project was $229,500, in which the Government would participate to the extent of 50 percent.

The project was under the management of New Park Mining Company, Salt Lake City, Utah, for Silver Buckle Mining Company. Rehabilitation and enlargement of the crosscut was begun in December 1953. The 20-pound rail previously set at 18-inch gauge was removed for 540 feet and 30-pound rail installed at 24-inch gauge. A TM-8 Coppus fan, 15-inch ventilation pipe, 4-inch air line and 2-inch water line were installed.

Rehabilitating and enlarging the 110 feet of crosscut was completed early in February 1954. An additional 39 feet of rehabilitation was done at company expense.

The shaft station, pocket, and head raise on the adit level were completed late in March 1954. Total rock excavation was about 18,500 cubic feet. The shaft station measured about 40 feet long, 14 feet wide, 9 feet high, and 14 feet high at the station brow. Top of the head raise was about 67 feet above the sill. The pocket was raised about 42 feet above the sill at 60°. Random rock bolts were used for ground support in the station. A 75-hp Coeur d'Alene Hardware Company hoist was installed with necessary power cable, transformers, signal system, skip and crosshead, etc.

Shaft sinking was started early in April 1954.

The shaft had been almost dry until, at 240 feet deep, a small water course was cut. A 4-inch water column and pumps were installed.

A pump station and sump approximately 13 by 7 by 11 feet was cut at the 400-foot level at company expense and a shaft-bearing set placed.

The shaft was completed to a depth of 804.5 feet early in December 1954. The 750-level station and pocket raise were completed. The station measured 28 by 14 by 11 feet. Excavation for the shaft pocket amounted to about 1,600 cubic feet, or a total of about 5,900 cubic feet for the 2 excavations. In addition, a tail drift was driven 11 feet to the south. West of the shaft an 11-foot drift was driven for a sump. The north crosscut was driven 34 feet and was widened to 11 feet for installation of double track, ventilation fan, air receiver, pump, etc.

The 750 level northerly crosscut was driven a total distance of about 413 feet from the shaft station. Between 85 and 215 feet from the shaft station the crosscut passed through a sheared zone. At approximately 203 feet a drift was driven about 265 feet easterly along a faulted structure which contained lenses of quartz but was almost barren of sulfide mineralization. About 160 feet east of the north crosscut another crosscut was driven for 90 feet southeasterly from the drift. It cut a few small quartz stringers containing little, if any, sulfides.

About 325 feet north of the shaft station the crosscut passed through another faulted structure. Drifts east and west were driven on the structure. The east drift followed the faulted structure and was driven a total distance of 306 feet. Locally, occurrences of sulfide minerals were exposed in the drift. The west drift following the same structure was driven 209 feet. Only two isolated occurrences of sulfide mineralization were exposed.

The project was recessed April 25, 1955, because of the discouraging results and because the Operator wished to negotiate for adjoining ground which they believed might have additional geologic targets. The Operator requested a 6 months recess.

Amendment No. 1, dated May 25, 1955, suspended work during the period beginning May 1, 1955, and ending not later than November 1, 1955.

Amendments No. 2, 3, 4, and 5 consecutively suspended the work until not later than July 1, 1957. Finally, Amendment No. 6, dated August 9, 1957, suspended work until not later than December 31, 1957, and further stipulated that the contract would be terminated effective May 1, 1955, if the work had not been resumed on or before December 31, 1957, and not completed by October 12, 1958. Work was not resumed by December 31, 1957, and the contract was automatically terminated effective May 1, 1955.

Although the exploration program was not completed according to the contract, the work done in rehabilitation, sinking, crosscutting, and drifting closely approximated the program as originally proposed by the Operator. No ore was discovered by the exploration however, a pseudo-certification was incorporated in Amendment No. 6.

Summary of Factual Data

The project work completed consisted of rehabilitation and installation of facilities in 540 feet of the main adit, rehabilitation and enlarging 110 feet of adit level crosscut, excavating an adit level shaft station, sinking a 2-compartment vertical winze 800 feet including sump to the 750 level, excavating a station and pocket at the 750 level, and crosscutting and/or drifting 1,700 feet on the 750 level. All items except 406 feet of drifting were completed when the contract was terminated.

Following is a summary of the units of work completed and their cost. All work was on an agreed fixed unit cost basis.

Item	Authorized	Completed	Unit cost	Total cost
Lay track, air, water and vent line	540 ft.	540 ft.	$ 2.50/ft.	$ 1,350.00
Enlarge and rehabilitate crosscut	110 ft.	110 ft.	20.00/ft.	2,200.00
Cut station and pocket on adit level	Job	Job	7,000.00	7,000.00
Sink shaft	800 ft.	800 ft.	175.00	140,000.00
Cut station and pocket on 750 level	Job	Job	3,000.00	3,000.00
Crosscutting and drifting	1,700 ft.	1,294 ft.	43.50/ft.	56,289.00
Timbering	500 ft.	None	--	--
Total cost of project				$209,839.00

Total amount of contract	$229,500.00
Government's share at 50 percent	114,750.00
Total amount expended	$209,839.00
Government's participation	104,919.50
Total amount unexpended	$ 19,661.00
Government's share unexpended	9,830.50

The Government did not have an equity in any supplies or equipment.

There was no ore production from any of the DMEA mine workings during the contract period.

Discussion of Conclusions

The contract work was performed in a minerlike manner by an Operator competent both administratively and financially.

The project came to a halt because further drifting on the two mineralized veins found on the 750 level did not appear justified even though approximately 400 feet of drifting authorized in the contract remained unused. The Operator hoped to negotiate an agreement with adjacent property owners which would make possible exploration of other targets outside the contract ground and the contract was recessed several times while negotiations to this end were in progress. No agreement was reached and consequently the contract was terminated.

Although mineralization was generally weak along the structures found by the exploration on the 750 level, there are encouraging indications that commercial ore might be discovered in the area at some future date. The exploration did prove that (1) mineralized structures at the surface do persist at depth to the 750 level and probably continue to greater depth, and that (2) alteration of the country rocks increases at depths; also that (3) the structures and alterations are all in the St. Regis formation -- a favorable host rock. Thus a promising target would be the exploration of these structures at greater depth.

Another promising target which warrants consideration is the area north of the Paymaster fault zone and associated structures. Similar areas associated with this zone have been productive at the Gold Hunter and Lucky Friday mines. Both of these targets require more ground, consequently, no further exploration is recommended unless an agreement can be reached with adjacent property owners so that a greater area can be explored.

Enclosures
Distribution:
DMEA(3)
USBM(5)
USGS(SRO)
Docket
Sample

SCAN COVER SHEET ONLY

U.S. v. ASARCO

DOCUMENT CONTROL FORM: PRIVILEGED DOCUMENT

(Staple to Original Privilege Document or to copy of privilege document)

Repository Name USGS

Repository Location SPOKANE, WASHINGTON

File Bates Number: UGSPD0000831

File Owner: N. EADES

File Location: DOI - SOL, WASH DC

Document Date: 2/10/58

Document Title: Re: Docket No. D.M.E.A. 3091 FINAL REPORT of Silver Buckle Mining Co. Vindicator Project

Document Author: GALE A. HANSEN

Original Document Attached: Y (N)

If not attached, Original Document Current Location
(must be segregated from other documents)

Type of Privilege:

ACC WP (CBI) DP (PI) Other

Reviewer: C. PALUT.

STATUTORY PRIVILEGE OF CONFIDENTIAL BUSINESS & PROPRIETARY INFO

SCAN COVER SHEET ONLY

U.S. v. ASARCO

DOCUMENT CONTROL FORM: PRIVILEGED DOCUMENT

(Staple to Original Privilege Document or to copy of privilege document)

Repository Name USGS

Repository Location SPOKANE, WASHINGTON

File Bates Number: USGSPA 0000831

File Owner: N. EADES

File Location: DOI - SOL, WASH DC

Document Date: 11/58

Document Title: FINAL REPORT SILVER BUCKLE MINING CO. CONTRACT NO. Idm-E594

Document Author: J. D. BAADII R. D. SAMPLE

Original Document Attached: Y (N)

If not attached, Original Document Current Location
(must be segregated from other documents)

Type of Privilege:

ACC WP (CBI) DP (PI) Other

Reviewer: C PALUTI

STATUTORY PRIVILEGE OF
CONFIDENTIAL BUSINESS &
PROPRIETARY INFO

SCAN COVER SHEET ONLY

U.S. v. ASARCO

DOCUMENT CONTROL FORM: PRIVILEGED DOCUMENT

(Staple to Original Privilege Document or to copy of privilege document)

Repository Name USGS

Repository Location SPOKANE, WASHINGTON

File Bates Number: USGS00000831

File Owner: N. EADES

File Location: DOI - SOL, WASH DC

Document Date: 11/58

Document Title: 9 MAPS RE: SILVER BUCKLE MINING CO. IDM-E594

Document Author:

Original Document Attached: Y (N)

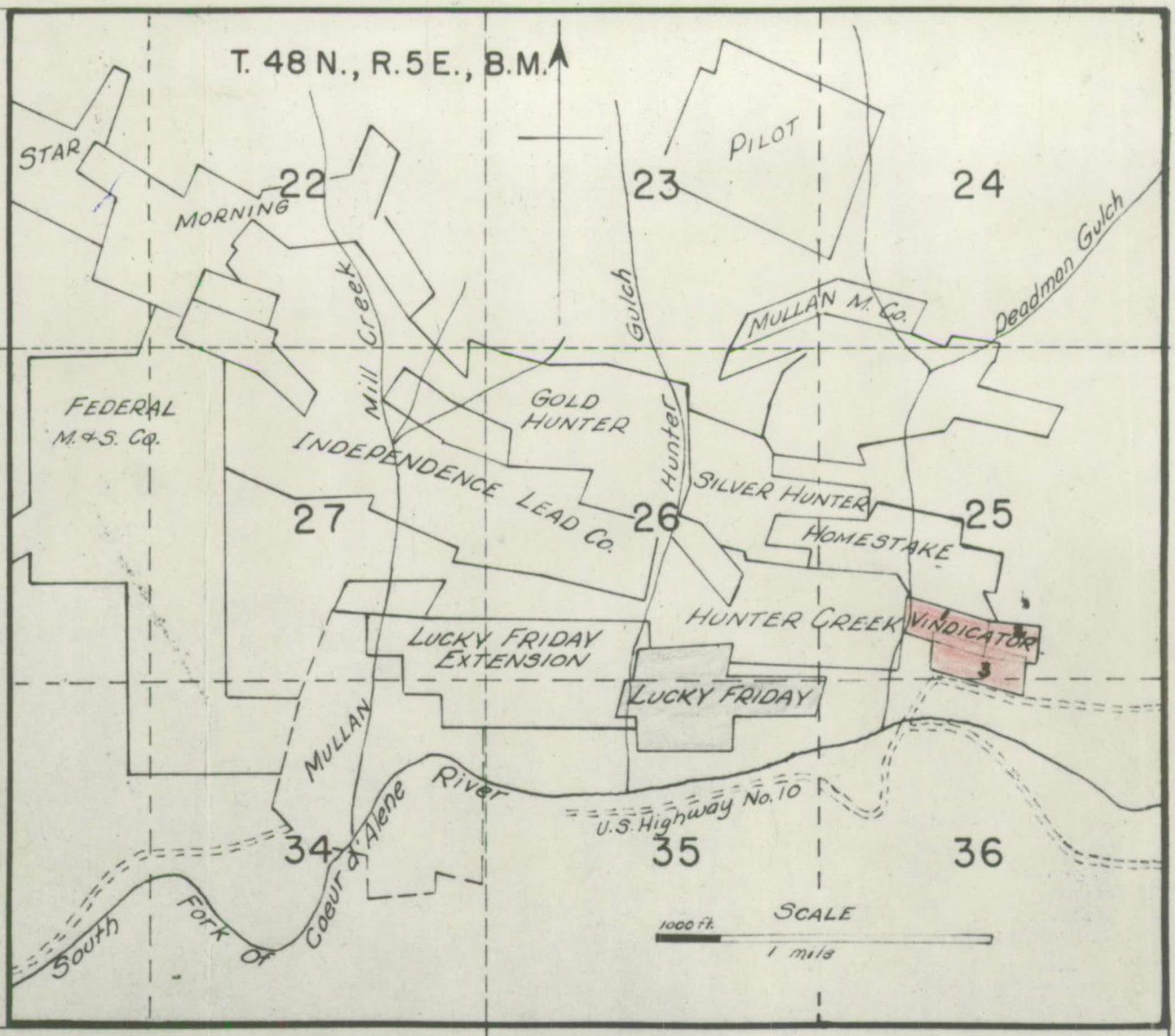
If not attached, Original Document Current Location
(must be segregated from other documents)

Type of Privilege:

ACC WP (CBI) DP (PI) Other

Reviewer: C. PALUTI

STATUTORY PRIVILEGE OF
CONFIDENTIAL BUSINESS &
PROPRIETARY INFO



KEY MAP SHOWING LOCATION
VINDICATOR RELATIVE TO OTHER PROPERTIES

Docket No. DMEA-3071

Claims

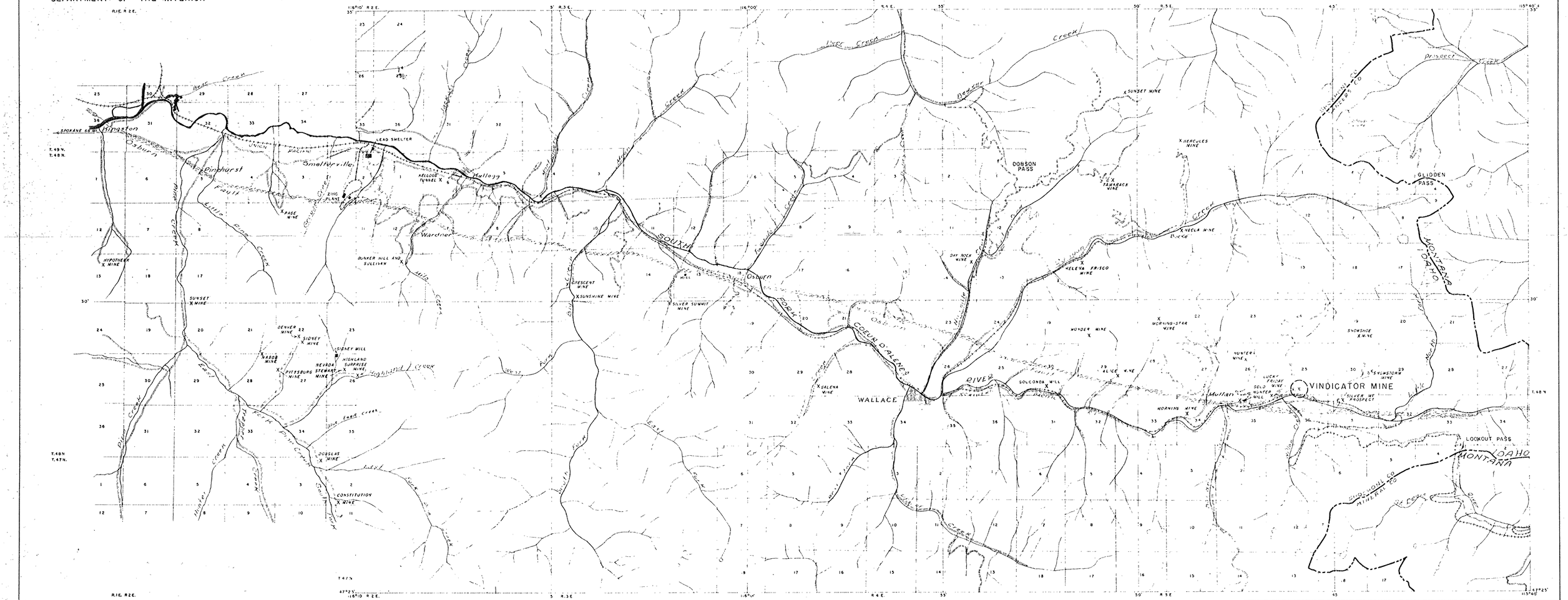
1.- Horn Silver Lode
2.- Siskiyou Bell Lode
3.- Curragh Buck Lode

No. 1 Folder

UNITED STATES
DEPARTMENT OF THE INTERIOR

PREPARED FOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
FINAL REPORT

DOCKET NO. DMEA 3071



LOCATION MAP

VINDICATOR MINE

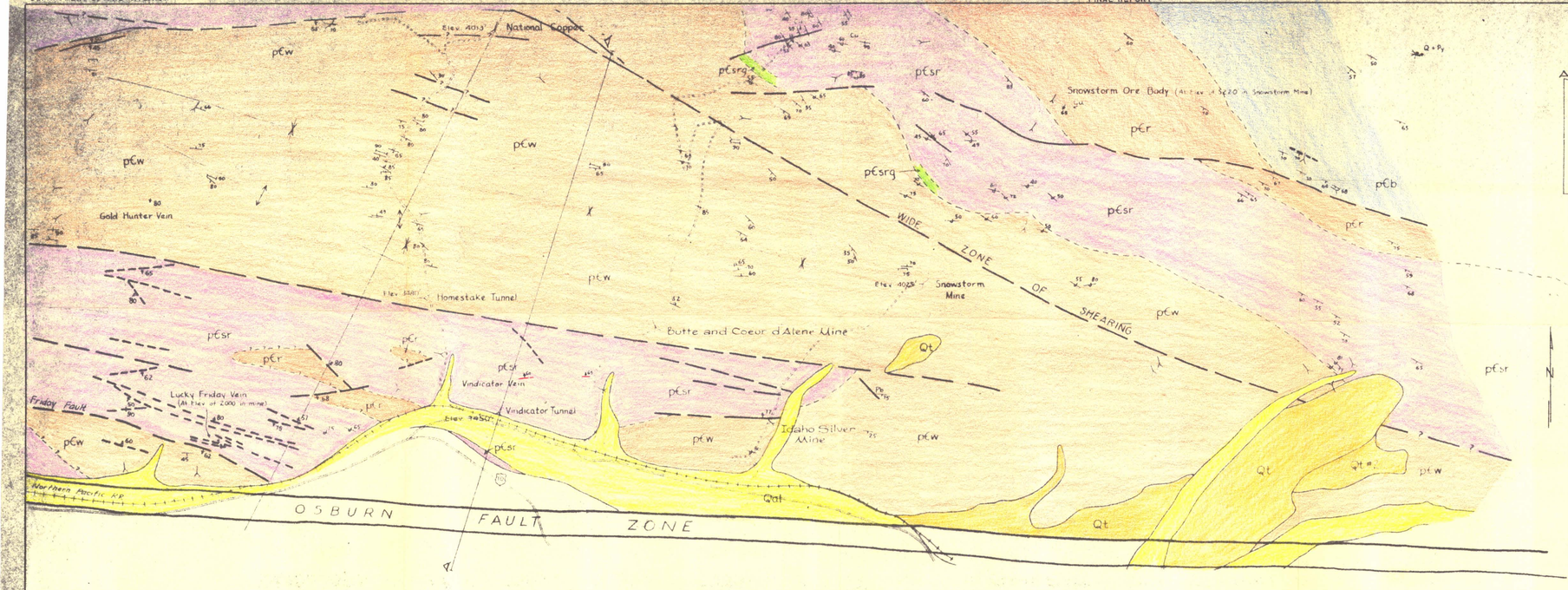
COEUR D'ALENE DISTRICT, IDAHO

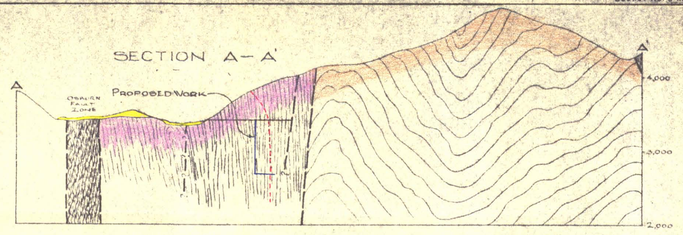
1 0 1 2 MILES

R. D. Sample

JULY 1958

PLATE I





EXPLANATION

- Qal — Alluvial deposits
- Qt — Terrace gravels
- p€w — Wallace formation
- p€srg, p€sr — St. Regis formation (p€srg – thin bedded, light green member. p€sr – purple St. Regis)
- p€r — Revett formation
- p€b — Burke formation

- Veins
- Contact (Dashed where approximately located)
- Contact indefinite
- Fault showing dip (Dashed where approximately located. U, upthrown side, D, downthrown side)
- Strike and dip of beds
- Strike and dip of overturned beds
- Strike and dip of cleavage
- Anticline
- Syncline
- Portal of adit

Map from R. E. Wallace and S. W. Hobbs

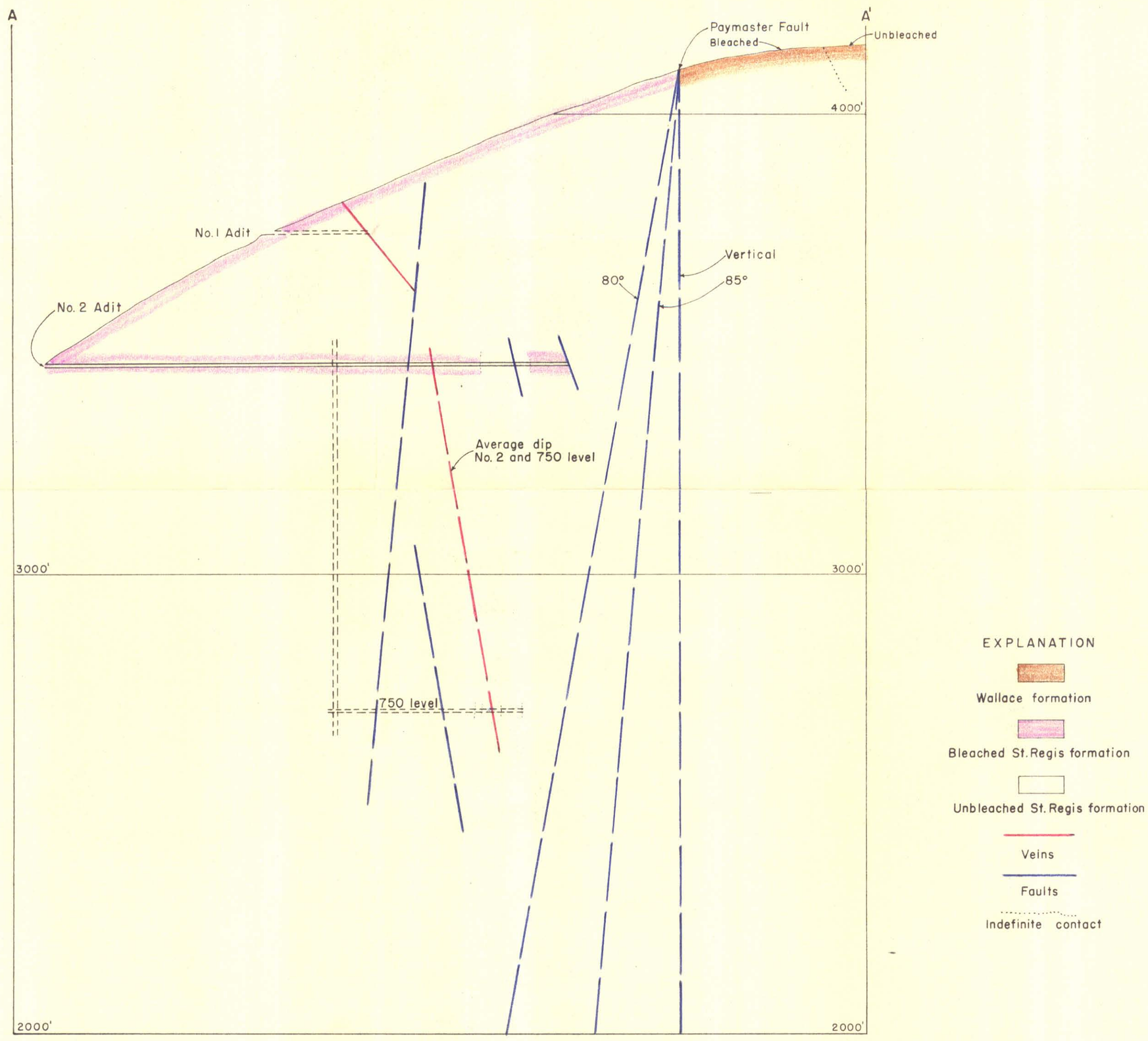
SURFACE GEOLOGY IN THE VICINITY OF THE VINDICATOR MINE AREA
COEUR D'ALENE DISTRICT
SHOSHONE COUNTY, IDAHO

1000 0 1000 2000 3000 FT.

R. D. Sample

July 1958

Plate 2



EXPLANATION

Wallace formation

Bleached St. Regis formation

Unbleached St. Regis formation

Veins

Faults

Indefinite contact

CROSS SECTION A—A'
VINDICATOR MINE
SILVER BUCKLE MINING CO.
COEUR D'ALENE DISTRICT
SHOSHONE COUNTY, IDAHO

200 0 200 400 FT.

R. D. Sample

JULY 1958

PLATE 3 A

Slightly modified from map by Verne C. Fryklund

PROPERTY MAP

VINDICATOR MINE

SHOWING CLAIMS AND SIGNIFICANT STRUCTURES

SILVER BUCKLE MINING CO.
COEUR D'ALENE DISTRICT
SHOSHONE COUNTY, IDAHO

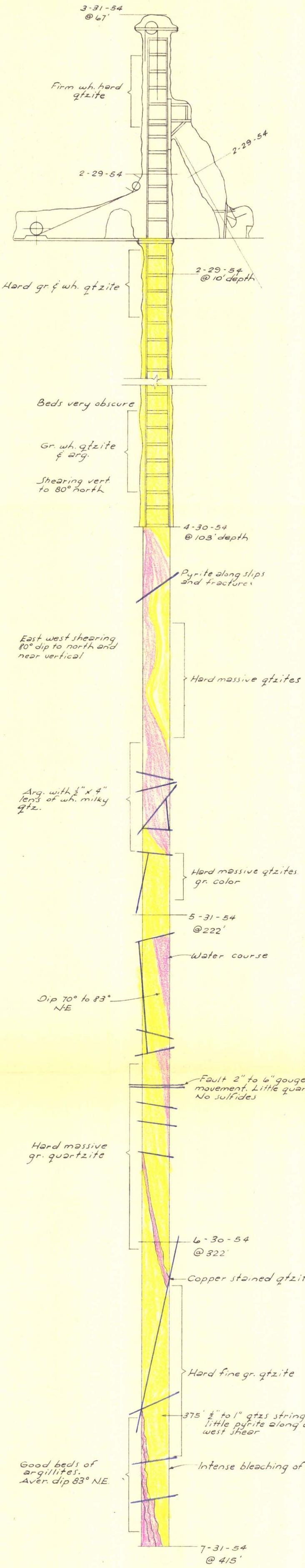
200 0 200 400 FT.

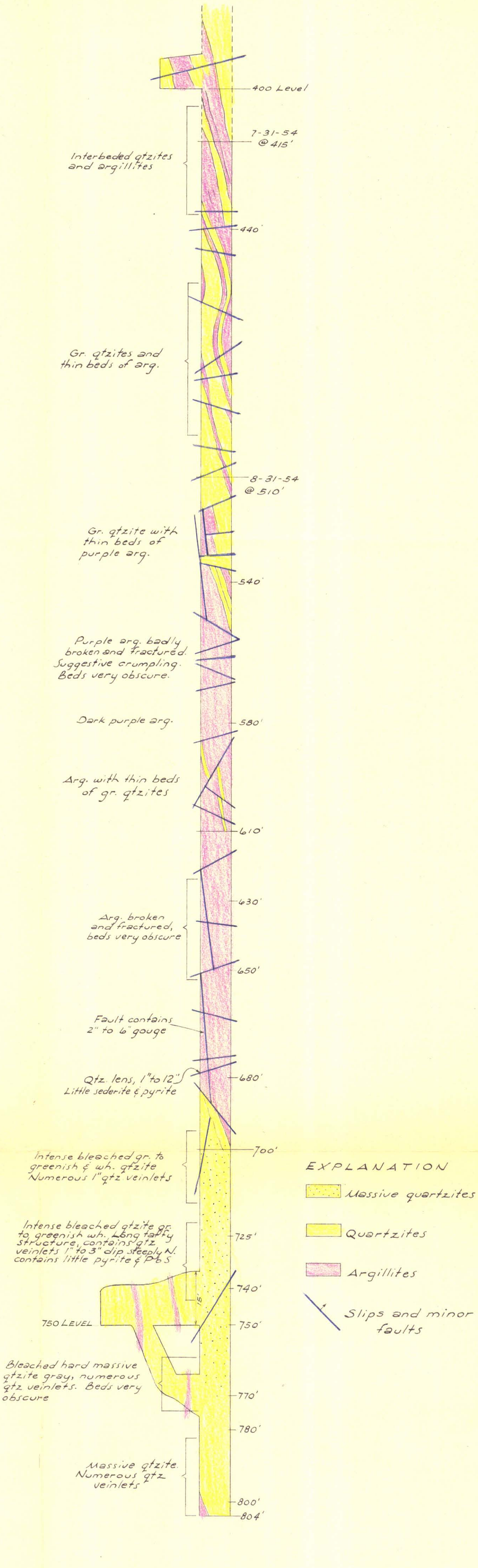
R. D. Sample

July 1958

Plate 3

Slightly modified from operator's map





Slightly modified from operators monthly reports

GEOLOGY AND PROGRESS MAP OF THE
VINDICATOR VERTICAL SHAFT
SILVER BUCKLE MINING COMPANY
COEUR D'ALENE DISTRICT
SHOSHONE COUNTY, IDAHO

20 0 20 40 FT.

R. D. Sample

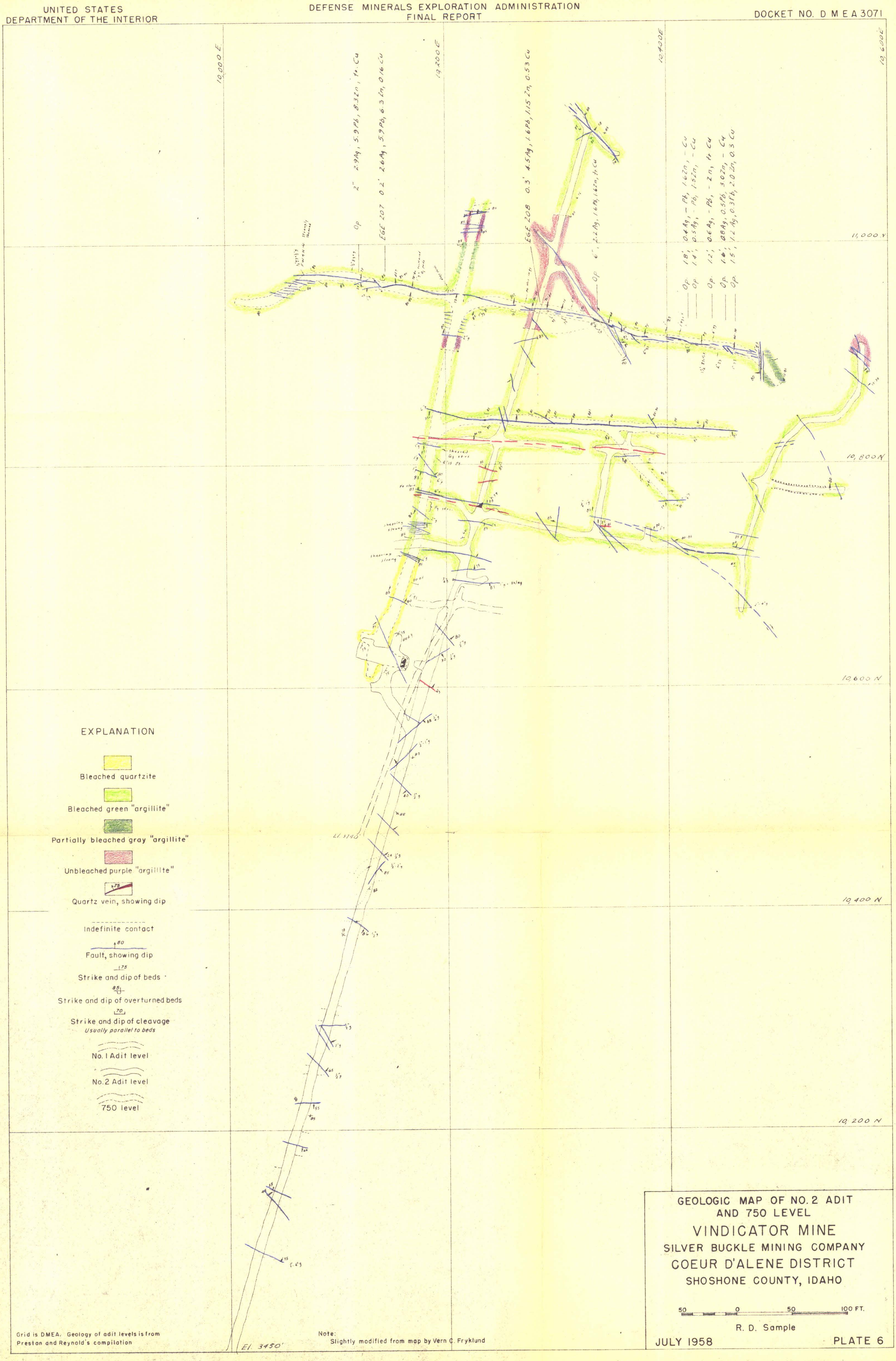
JULY 1958

PLATE 4

UNITED STATES
DEPARTMENT OF THE INTERIOR

PREPARED FOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
FINAL REPORT

DOCKET NO. D M E A 3071



GEOLOGIC MAP OF NO. 2 ADIT
AND 750 LEVEL

VINDICATOR MINE

SILVER BUCKLE MINING COMPANY
COEUR D'ALENE DISTRICT
SHOSHONE COUNTY, IDAHO

50 0 50 100 FT.

R. D. Sample

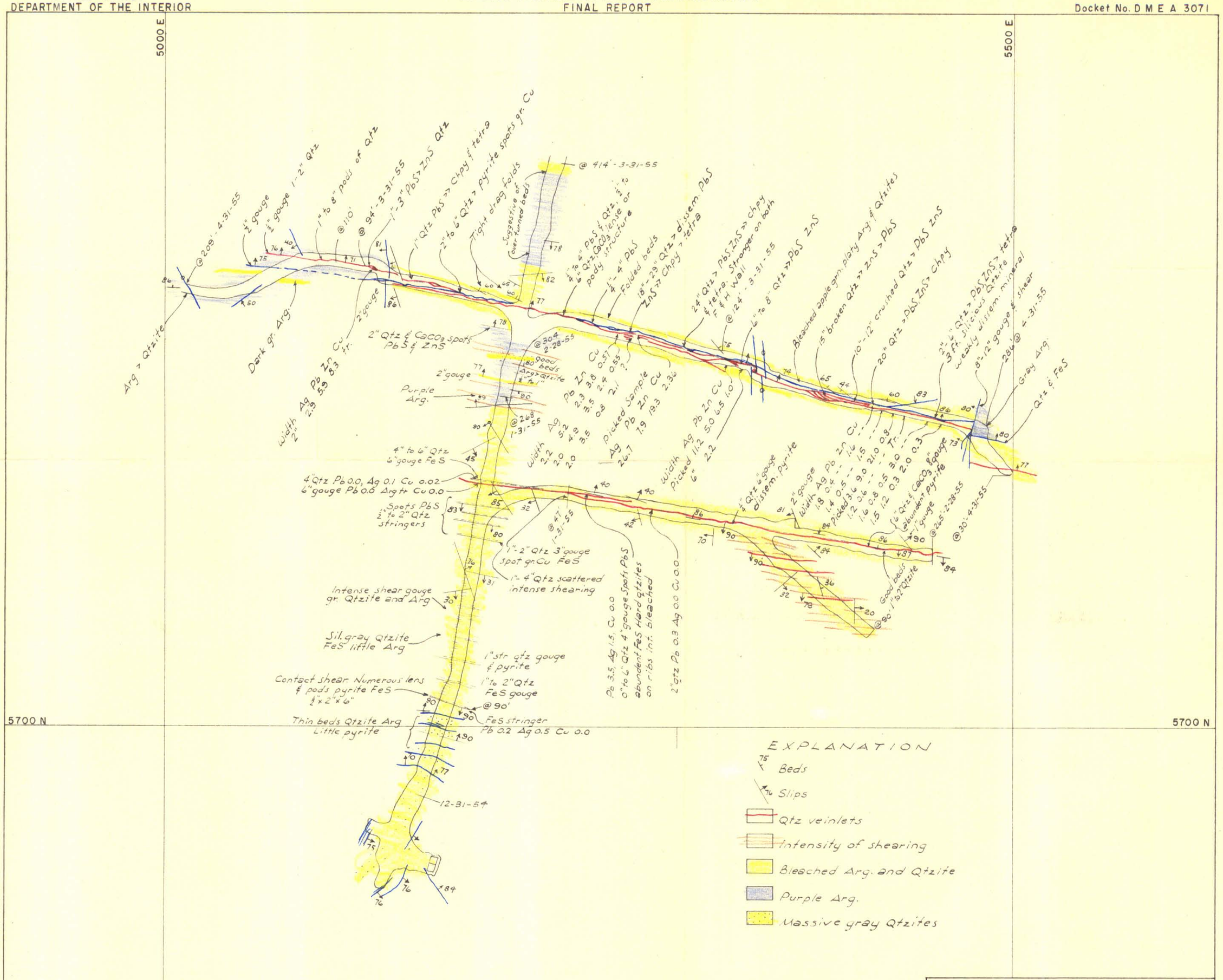
JULY 1958

PLATE 6

UNITED STATES
DEPARTMENT OF THE INTERIOR

PREPARED FOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
FINAL REPORT

Docket No. D M E A 3071



Note:
Slightly modified from applicants maps

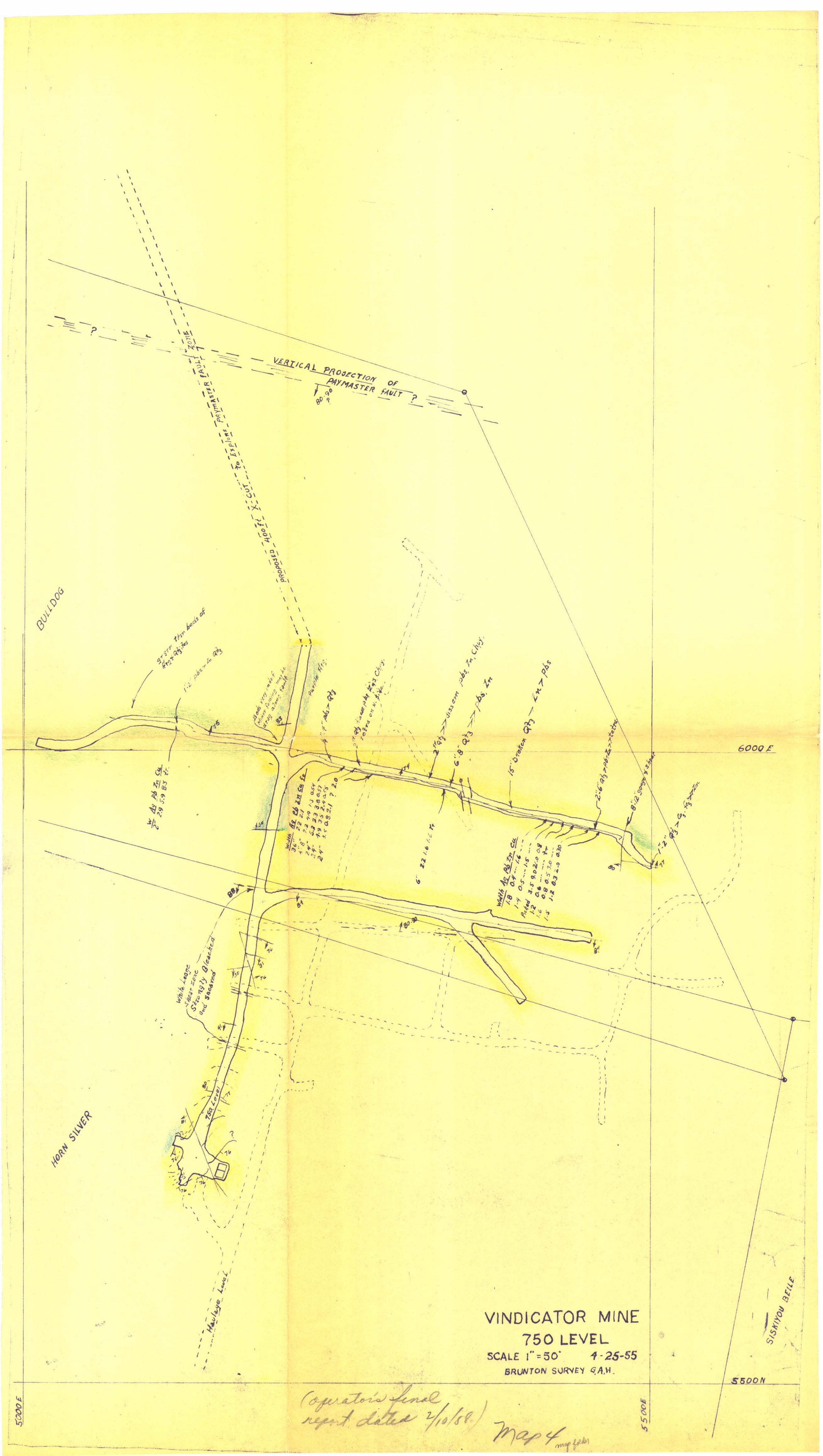
PROGRESS AND GEOLOGIC MAP
OF THE 750 LEVEL
VINDICATOR MINE
SILVER BUCKLE MINING CO.
COEUR D'ALENE DISTRICT
SHOSHONE COUNTY, IDAHO

50 0 50 100 FT.

R. D. Sample

JULY 1958

PLATE 5



(operator's final report dated 2/10/58.)

Map 4 map folder