Geological Report
on the
Vipont Silver Mine
Box Elder County, Utah

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Oakley, Idaho

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Geological Reports on Vipont Mine
Ashbrook Mining District, Utah

1.

A. T. F. Miller, Office of Minerals Exploration Report on the Vipont Mine October, 1968.

B. U.S. Geological Survey Certification; Certification of Possible Production under T. F. Miller O.M.E. contract on Vipont Mine, 28 April, 1969.

C. T. F. Miller, Proposed Underground Exploration on Vipont Mine for Northfield Mines, Inc., January, 1970.

D. U. S. Geological Survey letter dated 3 August, 1976. Cancellation of Lein Subordination agreement.

2. Wm. R. Wade; Report on Vipont Mine, October, 1967.

3. Dr. Victor E. Peterson; Study of Geology and Ore Deposits of Ashbrook Silver Mining District, (Vipont Mine) Utah. Doctorate thesis University of Chicago, 1942.

4. A. L. Foss; Geology of the Vipont Silver Mine, September, 1922.

5. S. Frank Hunt; Vipont District Mines and Prospects, July, 1921.

6. Frank A. Wardlaw Jr. (Former Vipont Superintendent); Report on Vipont Mine, to Thayer Lindsley, December, 1924.

7. Vipont Silver Mining Co. correspondence operating reports, 1923.

8. B. S. Butler; Ore Deposits of Utah. U.S.G.S. professional paper III, pp. 494, 1920.

9. Thayer Lindsley Summary.

10. Geology and Mineral Resources of Eastern Cassia County, Idaho; Idaho Bureau of Mines and Geology Bulletin 149, A. L. Anderson, 1931.

11. Feasibility Report by Marston & Marston September, 1981--two volumes.

Report on the
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Box Elder County, Utah
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SUMMARY

The Vipont Silver Mine is located in the Ashbrook Mining District in the extreme northwestern corner of Box Elder County, Utah, approximately 10 miles east of the Nevada state line, and one mile south of the Idaho state line. The Vipont Mine has at times attained a very high-ranking position in the state's total silver production. The mine property consists of 53 patented (deeded) mining claims, about 1000 acres, and 48 adjoining unpatented mining claims.

Its greatest period of activity was from 1919 thru mid 1923 during the life of the Pittman Silver Purchase Act. The mine was closed in August, 1923 when the Pittman Act expired. It did not close because of lack of ore. The price of silver dropped from $1.00 to $.64 an ounce; it was not economical to mine. Presently proven and probable reserves are 11,700,000 ounces of silver and 30,000 ounces of gold. Total potential for the property is 40,000,000 to 50,000,000 ounces of silver and 120,000 ounces of gold.

Some leasing was done in the 30's at a profit. The mine was shut down in 1942 when Congress passed War Order L-208, which law closed all gold and silver mines at that time.

Past production from the mine was 170,000 tons containing 3,423,470 ozs. of silver and 8,303 ozs. of gold, nearly all produced in a $3\frac{1}{2}$ year period from 1920 thru mid 1923 under the Pittman Silver Purchase Act. The mine produced in excess of 1,000,000 ozs. of silver in 1922 and 3,000 ozs. of gold. This production was processed through a flotation mill. Mill ore averaged 20 ozs. of silver per ton, plus a relatively large amount of high grade shipping ore that ran from 100 to 1000 ozs. of silver per ton. Successful heap leaching done by United Silver Mines in 1978 thru 1984 produced 80,000 ozs. of silver and minor amounts of gold from the tailings and part of the "A" level Dump.

The mine is essentially a silver mine, with accessory amounts of gold, lead, zinc, and copper.

The ore occurs as replacement in three different limestone beds, two of which have only been partially tested (Sentinel and Phelan). The Vipont limestone, in which predominately all of the production to date has been obtained, lies between a rhyolite sill on the foot wall and under an impervious carbonaceous shale on the hanging wall. The limestone and sill occur in the form of a plunging synclinal fold. The ore bodies in the Vipont Limestone occur as a manto type ore body; all ore occurances are considered to be Mesothermal in temperature.

Recent diamond drilling in the Vipont oreshoot has demonstrated the ore another 680 feet measured down-dip below the old mine workings. It is estimated that at least 135,000 tons of ore containing 2,200,000 ozs. of silver and 6,000 ozs. of gold has been indicated by this drilling.

A cross-cut (tunnel) 1950' in length will provide access to the unmined portion 900' below deepest stoping. This cross-cut was started in February, 1978, and stopped after advancing 451' because of lack of capital. The upper A-level cross-cut was rehabilitated in 1981.

The new cross-cut will provide access to very large areas of unexplored ground outside the Vipont ore shoot. A drift on this level can be run in the host limestone in excess of 7000' on the property. It would take approximately one year to complete the cross-cut and develop the mine in this area. At this time considerable mill ore would be developed and some mined for milling and shipping.

In addition to the above development, money should be spent to do surface exploration, including sampling and extensive drilling for additional ore. The cost to do this would be four to ten million dollars.

It is my opinion the Vipont Mine has a potential to produce an additional 40,000,0000 to 50,000,000 ounces of silver and 120,000 ounces of gold. When the mine is fully developed, I would project the mining rate to be approximately 3,000,000 ounces of silver and 7500 ounces of gold a year, divided as follows: 2,000,000+ in the sulphide zone, and approximately 1,000,000 in the oxide zone.

In the Vipont oreshoot, it is thought that the possible total value of the ore between the bottom of the old workings and the igneous stock is substantial (about 4600' distance). Future drilling and development is necessary to prove this.

There are also four other ore shoots (i.e. Midway, Sentinel, Lexinton Argenta, Dolly Clark and Peg Leg) on the property that remain to be further explored and developed that combined may have a greater potential than the above mentioned Vipont ore shoot. Some excellent grade ore has been produced in the upper portions of two of these ore shoots.

Another target is another limestone bed (Sentinel limestone) beneath the intrusive sill and above a thrust fault many geologists, including myself, believe has an excellent potential for large tonnages of ore. This target has never been explored at depth, although some of the very upper portions did show excellent grade mineralization.

In 1981 Marston & Marston, Mining Consultants, completed a feasility study and report on the property with emphasis in the A-Level oxide area. The A-Level crosscut was rehabilitated after 45 years and extensive sampling and ore treatment testing was done on oxide ore in this zone. Total cost for this work was in excess of $500,000. They estimated that there were 2,777,000 tons of ore from proven to possible, containing 11,379,175 ounces of silver that could be mined from this area by open pit methods and treated by cyanide heap leaching with recoveries of 80%. Average proven grade would be 4.4 ozs. per ton.

In addition to the above tonnages, it is my opinion that the open pit tonnage could be nearly doubled by extensively drilling to the West and northwest of this zone. This would make a potential of 20,000,000 ounces of silver and 50,000 ounces of gold, that could be mined by open pit methods.

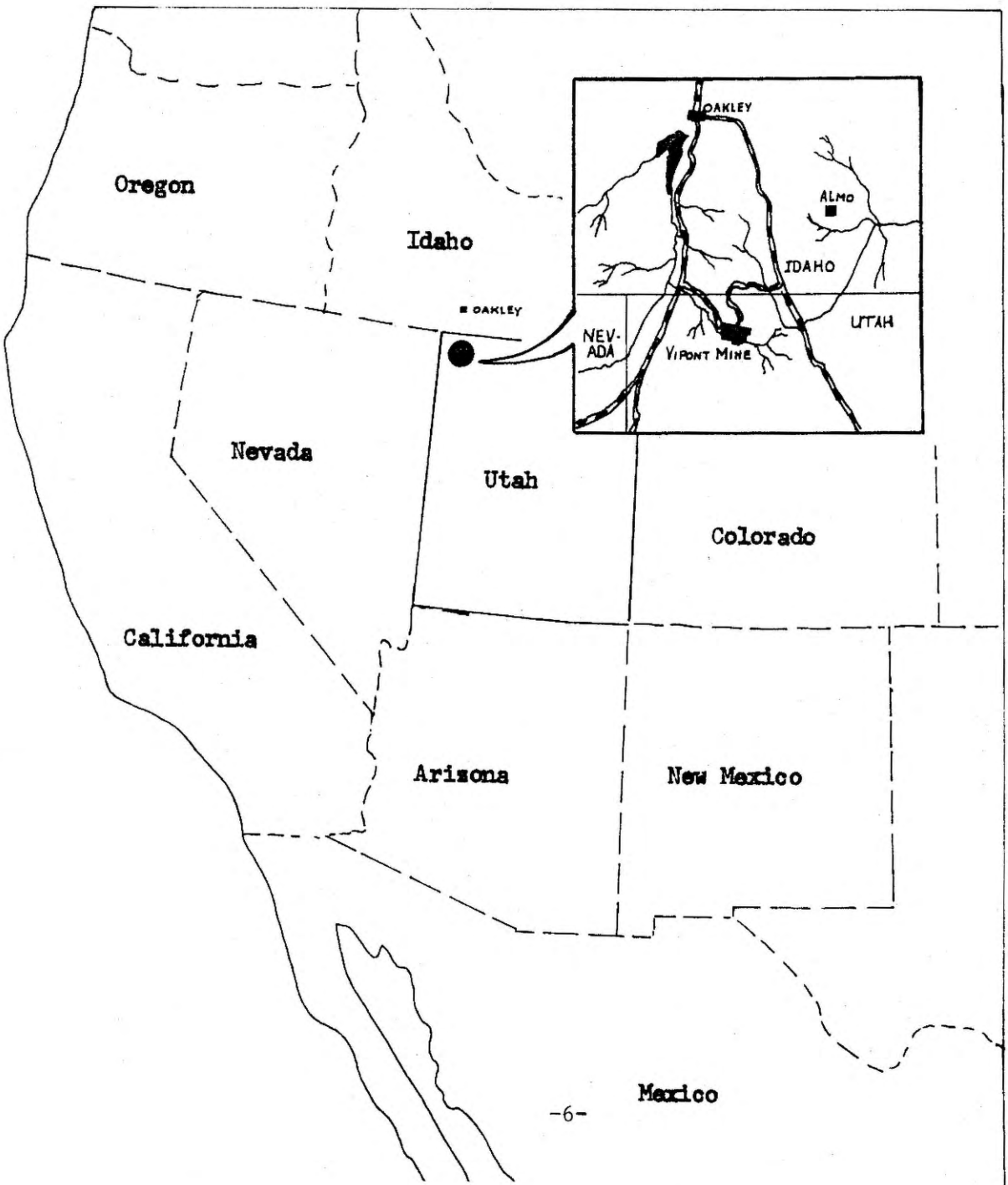
The above pit could be developed and in operation in $1\frac{1}{2}$ years, provided adequate capital was provided for its completion and operation.

The above property is owned by United Silver Mines Inc.

LOCATION

The Vipont Mine property is located in the northwest corner of Utah in Box Elder County, one mile south of the Idaho border and ten miles east of the Nevada border in Section 36, T. 15 N., R. 18 W.; Sections 6 and 7, T. 14 N., R. 17 W.; Section 31, T. 15 N., R. 17 W.; Sections 1 and 12, T. 14 N., R. 18 W., Salt Lake City Base and Meridian. It is located in the Ashbrook Mining District.

Access: The mine can be reached by two different gravel roads equal distances from Oakley, Idaho, the nearest town of any size. (28 miles) The Goose Creek road, which comes in from the west side, is the best year around road.



GEOGRAPHY

The mine area ranges from 6450' to 8100' in elevation and is in rather rugged country. It is located in the Little Birch Creek drainage, a tributary of Goose Creek. It is further located on the west slope of the north-south trending Goose Creek Range of mountains. The crest of the range is near 9500' in the Twin Peaks area about two miles south of the mine. The area is in a beautiful high mountain setting.

Climate

This is typical Great Basin climate relatively dry with temperatures ranges from 100° above zero to -20° below zero. Rainfall is in range of 10" to 15" per year. Snowfall at the mine is sometimes three feet. Nights are cool in summer. As a whole, winters are not severe.

Vegetation

Vegetation consists principally of sage brush, juniper, mountain mahogany, balsam fir, and various high mountain native grasses.

Drainage and Water Supply

The mine area is over 8000' high; therefore it drains well. Adequate water for mill use is available from Little Birch Creek and/or springs. Camp water is derived from springs located on the property.

CULTURE

Cities and Towns

The nearest town to the mine is Oakley, Idaho, population 713, a distance of 28 miles by either of two roads. Burley, Idaho is 20 miles north of Oakley, and is the location of the nearest hospital and doctor services. Its population is about 15,000. Twin Falls, population 25,000, is 45 miles northwest of Oakley. All these towns are basically farming communities. A branch of the Union Pacific Railroad terminates in Oakley, where there are good loading and unloading facilities.

PROPERTY

The property, which is known as the Vipont Mine, consists of 53 patented lode mining claims. The claims, described by name and patent number, are as follows:

Claims	Patent No.
Catherine, Nos. 1-6	42134
Contact Mine, Nos. 1-3	42134
Dugway, Nos. 1-6, 8-20	42134
Fraction	42134
Northern, 1-5	42134
Park, Nos. 1-4	42134
Poorman	42134
Sentinel Mine No. 2	42134
Southern, Nos. 1-3	42134
West End	42134
Argenta	24640
Black	24639
Champion	24642
Clipper	24577
Homestake	24576
Homestake Millsite	24576
Lexington	24643
Mahogany	24641
Sentinel	24578

In addition to the above, there are 48 unpatented mining claims adjoinging the above. These claims have within their boundaries the Dolly Clark and Peg Leg mines.

HISTORY

The district was discovered in 1864 by the Vipont brothers (John and William), and located ten years later in July, 1874. The Vipont property changed hands many times in the early years until 1903 when Frank Lake and J. H. Paris acquired it and formed the Vipont Mining Co. The Vipont Minning Co. sunk the #1 and 2 shafts, drove the Midway and A-Level cross-cuts, and developed an appreciable tonnage of ore. A limited amount of high grade ore was shipped during this period.

Active large scale development work in the district did not start until 1918, at the time of the acquisition by Vipont Silver Mining Co. Vipont Mining Co. sold the property to the Vipont Silver Mining Co.

The Vipont Silver Mining Co. was a group of eastern investors headed by Roscoe Channing, in association with his brother, J. Park Channing, a mininig engineer. Robert Phelan, a geologist, was the promoter of the venture and was president of the company. Frank A. Wardlaw Jr., a mining engineer, was engaged as mine superintendent. They put in a 20 mile power line from Oakley, built a 250 ton mill, and drove the Phelan level cross-cut (elevation 7201).

From 1918 to 1923, the mine attained a high-ranking position in the state's total production of silver. Utah was the largest producer of silver in 1923. The mine was well run and made a profit of about $1000 a day.

The Vipont Silver Mining Co. discontinued active operations on August 17, 1923, when buying under the Pittman Silver Purchase Act ceased and the price of silver dropped from $1.00 to $.64 an ounce. Production from this date until 1929, when the mining and milling machinery was sold and moved away from the mine, was small.

The mine was leased to Thayer Lindsley for two years in 1924. He was unable to do much with the mine because of depressed silver prices.

The mine remained idle until 1934, when operations at the Vipont Mine were renewed on a small scale. These operations consisted mainly of mining small bodies of high grade silver ore and proceeded sporadically until 1942. The total production was about 300,000 ounces of silver and several hundred ounces of gold. Heaas from these direct smelter shipments averaged 53 oz. silver per ton.

Operations from 1934 to 1942 did not consist of new exploration or major development, but merely cleanup mining operations of high-grade pockets left in the old workings. The mine was closed in 1942 because of the war order L-208, which law closed all gold and silver mines at that time. It has not reopened since.

Thomas F. Miller commenced active exploration work for new ore in 1966 and 1967. This work was successful in that it was proven that the Vipoont ore shoot extendeo another 680' down-dip. Also other areas of mineralization were encountered.

In 1981 Marston & Marston mining consultants were commissioned to complete a feasibility study of the Vipont property. They rehabilitated the A-Level cross-cut and extensively sampled and tested this ozide zone. The study cost in excess of $500,000. They estimated a large low-grade open pit deposit consisting of 2,777,000 tons averaging 4.4 ozs. per ton.

Thomas Miller has in his possession nearly all of the pertinent production records on the mine when it was run in the 20's. These include production records, smelter return settlement sheets, mill flow records, mine maps, and numerous other important data.

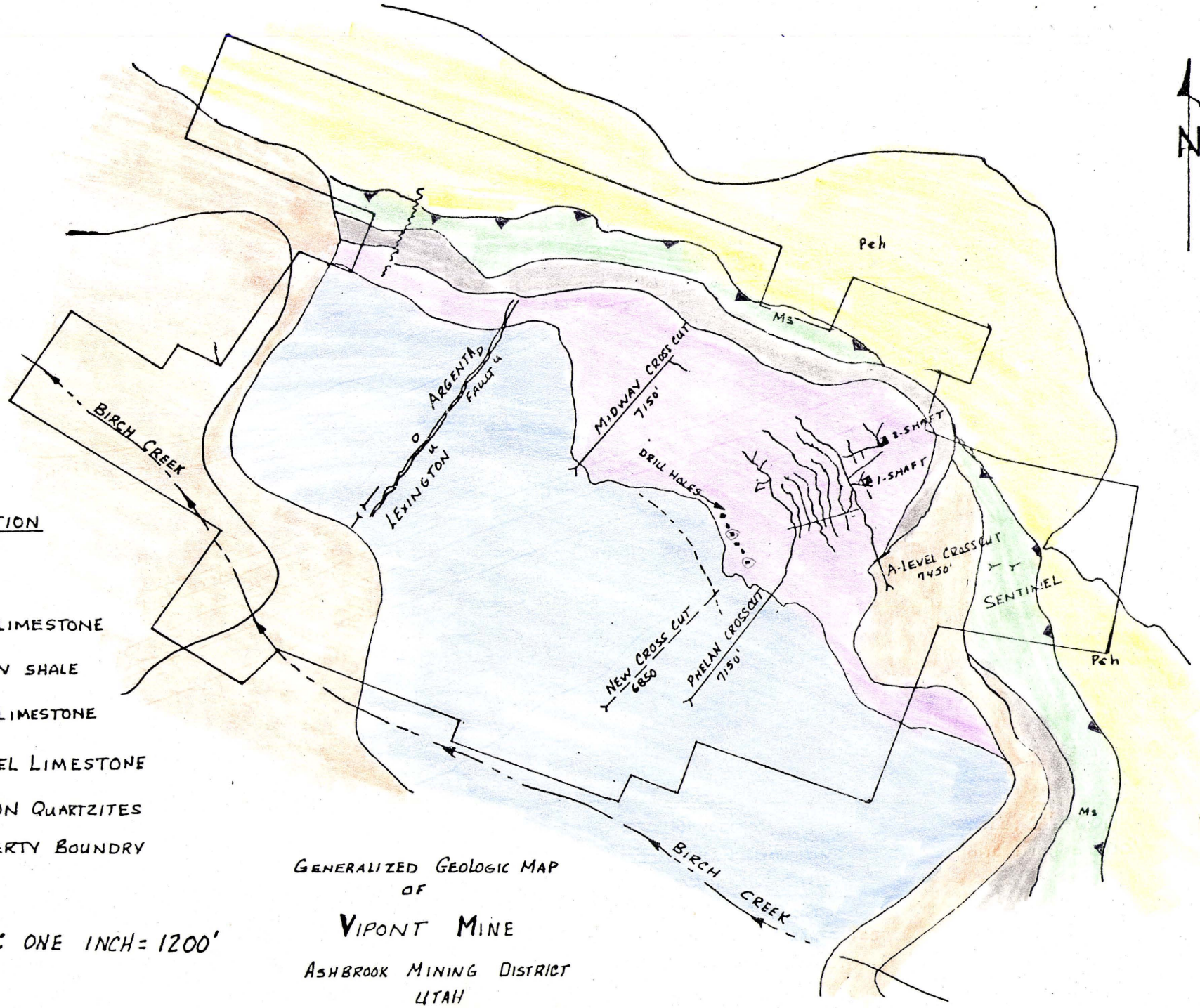
GEOLOGY

The main mineral deposit occurs in the highly fractured and folded Vipont limestone. This limestone, which varies from 30 to 150 feet in thickness, is overlain by an impervious carbonacious soft shale hanging wall (Wardlaw shale). It is underlain by a 100' thick rhyolite porphyry sill which has been intruded between the Vipont and Sentinel limestone. The Sentinel limestone is a highly siliceous light-bedded limestone varying from 30 to 200 feet in thickness. Above the Wardlaw shale is the massive-bedded Phelan limestone, which is from 100 to 400 feet thick. Some good mineralization has been found in both the Phelan and Sentinel limestones.

The four sedimentary beds mentioned above are mid-paleozoic in age. The rhyolite porphyry is Tertiary.

The sedimentary beds were overthrust into the area from the southwest by the Roberts Mountain Thrust Fault, and rest unconformably upon the tilted schistos and micacious quartzites of pre-Cambrian age. The whole structure forms part of a large geosyncline or trough plunging to the southwest at about 20 degrees.

About a mile southwest of the Vipont Mine, an acidic stock of Tertiary age arises from the geosyncline or trough. The porphyry sill that is intruded below the Vipont limestone is an off-shoot from this acidic stock. (See Fig. 1 & 2)



GENERALIZED GEOLOGIC MAP
OF
VIPONT MINE
ASHBROOK MINING DISTRICT
UTAH

SCALE: ONE INCH = 1200'

7FM

Fig. 1

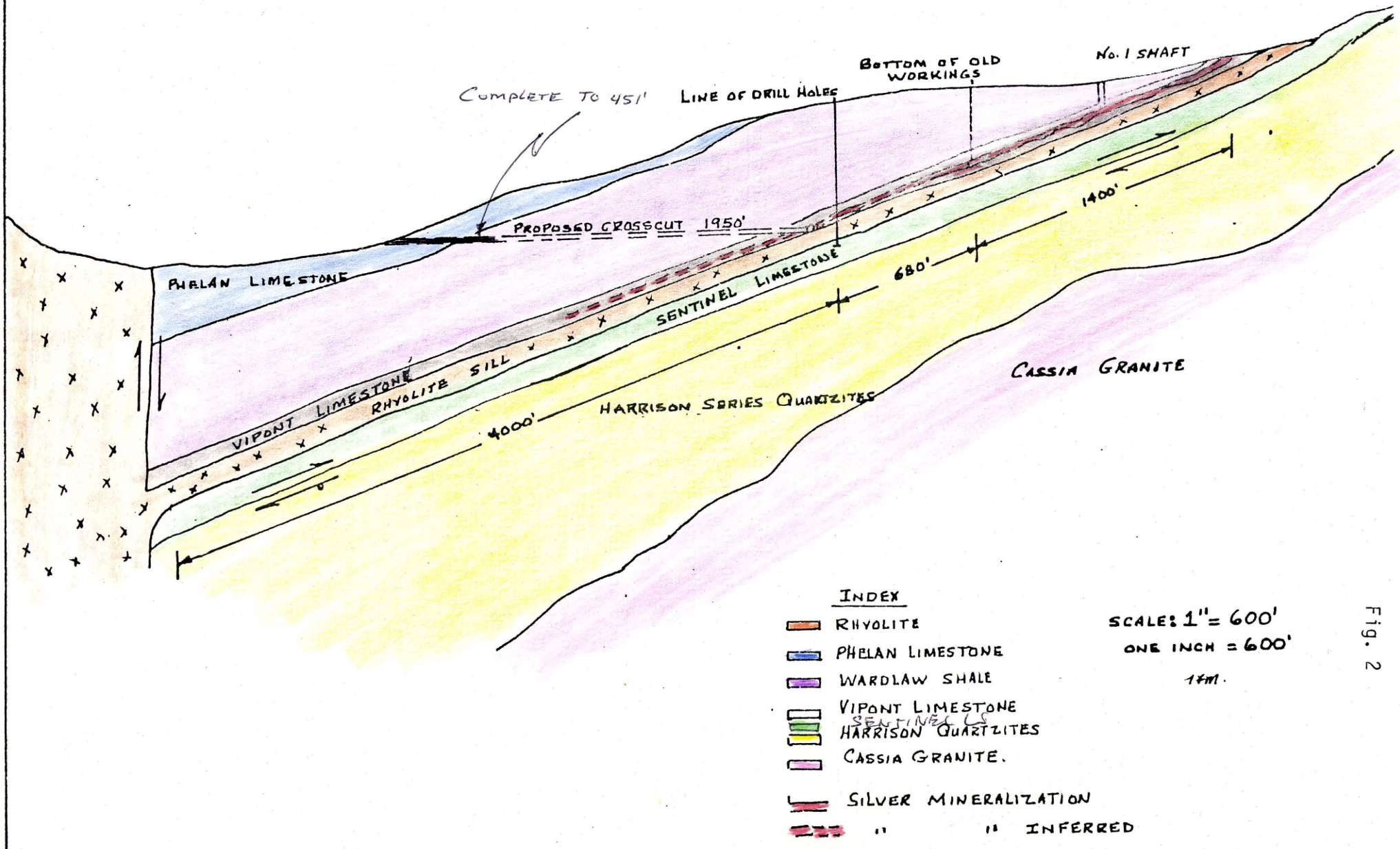

COMPLETE TO 451'
LINE OF DRILL HOLES
BOTTOM OF OLD WORKINGS
No. 1 SHAFT
PROPOSED CROSSCUT 1950'
PHELAN LIMESTONE
VIPONT LIMESTONE
RHYOLITE SILL
SENTINEL LIMESTONE
1400'
680'
4000'
HARRISON SERIES QUARTZITES
CASSIA GRANITE
INDEX
RHYOLITE
PHELAN LIMESTONE
WARDLAW SHALE
VIPONT LIMESTONE
SENTINEL LS
HARRISON QUARTZITES
CASSIA GRANITE.
SILVER MINERALIZATION
" " INFERRED
SCALE: 1" = 600'
ONE INCH = 600'
1fm.

Fig. 2

Stratigraphy

The formations of interest are the pre-Cambrian and the Harrison series quartzite, which Peterson says is 1000' thick; the Sentinel limestone, which is 50-100' thick; the Vipont limestone, the host rock of ore, which is 40-150' thick; the Wardlaw, which is from 400-600' thick; and the Phelan limestone with thickness of about 600'. Between the Sentinel limestone and the Vipont limestone is a rhyolite sill about 100' thick. Holes V1, V2, and V3 indicate the presence of another sill about 100' thick up in the Wardlaw shale.

Pre-Cambrian

Harrison series quartzite is composed of two members, the lower member 400-600' thick composed of fractured and contorted limestone (with mica and marble) interbedded with slates and quartzite. The upper member has a lower portion 500-1000' thick of massive white-to-pink schistose, vitreous quartzite and upper section of light gray contorted and fractured limestone and marble.

Paleozoic

The Sentinel formation is also divided into two members: the lower one, 100' of white to tan sucrose quartzite and the upper one 50-100' of light gray, medium-grained crystalline, thin-bedded limestone, usually broken with many limestone stringers.

The Vipont limestone is 50-100' of fine-grained crystalline blue-gray limestone, locally containing numerous small calcite stringers.

The Wardlaw shale is 600' of black to gray, thin-to-massive bedded pyritic carbonaceous shale, locally containing lenses of gray, dolomitic limestone.

The Phelan limestone, 1000-1500' thick, is a coarse-to-finely crystalline, light blue-gray, massive-bedded limestone, locally cherty.

Igneous Rocks

The igneous rocks of the district can be divided into two groups: the granites and pegmatites of the Cassia batholith, and the later rhyolite porphyries.

The intrusive rocks later than the Cassia batholith are locally referred to two groups; those belonging to the lower or coarse-grained porphyry, and those

belonging to the upper or fine-grained porphyry. Of these, the lower porphyry sill is the most extensive, and crops out in a wide belt almost completely encircling the district. The upper porphyry occurs mainly as small pipes or dikes cutting across the bedding planes of the Wardlaw shale and Vipont limestone, though locally it assumes a sill-like form. Lithologically, the lower porphyry is a fine-grained, even-textured rock, containing phenocrysts of quartz and feldspars from 5 mm. to 15 mm. in diameter. It is usually light gray, but often possesses a distinct greenish hue. The upper porphyry is a light gray to grayish tan, fine-grained rock, containing phenocysts of quartz and feldspars from 2 mm. to 5 mm. in diameter. The phenocrysts of quartz are predominantly larger than those of the feldspars. Except for textural differences, the two rocks are similar, the primary minerals of both including andesine, quartz, and sanidine, with minor amounts of magnetite and apatite.

Structural Geology

The most prominent structure within the district is a broad, spool-like syncline which plunges at a low angle to the south. Except for the complicated structures within the pre-Cambrian rocks, all other major structural features in the district are superimposed on this structure. The district is situated in the north end of the fold. The length of the fold is not known, though it is apparent that it extends several miles beyond the southern limits of the district. Prior to extensive displacement by north-south and east-west normal faults, the fold appears to have been approximately symmetrical with the steepest dips on the flanks about 20 degrees. The fold is not simple, but is complicated by the presence of numerous major and minor crenulations, the largest of which have a roughly radial relation with respect to the major fold. These crenulations have played a very important part in the localization and distribution of the ore deposits of the district. Further complications in the general outline of the fold have been introduced by the warping associated with two periods of magmatic intrusion.

Though on a large scale, faulting within the district is not complicated and is confined mainly to several large normal faults. These faults may have played an important part in the distribution of the intrusive associated with the ore deposits, but no evidence was observed that would indicate that they

directly influenced the distribution of the deposits themselves. The faults all appear to belong to approximately the same period of deformation and antedate both the late intrusives and the ore deposits. It is assumed from physiographic evidence, from which the age of the late intrusives can be roughly estimated, that those faults belong to a period of deformation closely following the Laramide revolution, when compressive forces had ceased, and tensional forces prevailed. It is clear that these faults are much older than the late "Basin-Range" faulting. Faults of similar age have been described by Anderson in eastern Cassia County, Idaho, and are attributed to deformation closely following the Laramide revolution. The information of the major fold of the district appears to have been concurrent with Laramide disturbances. (Peterson)

Wardlaw mentions that the ore-bearing limestone (Vipont limestone) is cut by numerous faults and slips striking usually northeast and southwest. The best ore zones have been found at the intersection of these faults with the Vipont limestone and in no particular horizon; some very good bunches of ore were found on the foot wall contact of the rhyolite; others just as good were under the shale hanging wall.

Structural features within the Vipont limestone, though not clearly discernable in all cases, appear to have been the most important factors in localizing the ore deposits. The workings of the mine are along the northeastern flank of the synclinal fold forming the major structure of the district. Reflection of this fold is seen in the outline of the main levels of the mine. These main levels correspond in general to the contact between the Vipont limestone and the lower porphyry.

The Sentinel limestone beneath the rhyolite sill and above the pre-Cambrian Harrison series quartzites could be a good structural trap for ore deposition. Thayer Lindsley (Ventures Ltd.), who found the extensive ore bodies at the Ruby Hill property near Eureka, Nevada, felt this was a prime target for a major ore body. I share this opinion, and feel it is similar to the Burgin Mine in the Tintic District, Utah.

Ore Deposits

The deposits contain essentially silver and gold with accessory amounts of lead, zinc and copper and possibly valuable amounts of bismuth, cadimum and germanium. They are replacement deposits in limestone. They lie in the Vipont limestone between the underlying rhyolite sill and the impervious overlying Wardlaw shale. Structural features within the limestone appear to be the most important factors localizing the ore deposits according to Peterson. These deposits are found in a synclinal fold in the sedimentaries. The host limestone, the Vipont, has crenulations or minor anticlinal-syclinal folds imposed upon the major syncline. Ore is found in "runs" or the anticlinal portion of these crenulations. These crenulations, according to Peterson, show great variation in size, shape and continuity. Much secondary calcite is found in the crenulations also. Some of the stopes were large in size, several hundred feet long by 80' wide. Stope widths averaged 8' thick or more; some up to 22'.

Ore Minerals

The hypogene or primary minerals, according to Peterson, include rhodocrosite, sericite, quartz, pyrite, arsenopyrite, gold, sphalerite, chalcopyrite, argyrodite, tennantite, pearceite, and unidentified minerals, and galena. The silver mineral, pyrargyrite ($Ag\ Sb\ S_3$) is the principal primary silver mineral.

Quartz is the most important introduced gangue mineral. There are two types; a clear phase and a dark phase. It is thought that there is a gradual gradation from the clear to the dark, dependent upon the age of the quartz.

Arsenopyrite and pyrite are present. Pyrite is the more important of the two.

Chalcopyrite is present, but rarely recognized in the hand speciman.

The hypogene minerals have been modified by supergene solutions, or oxidation has converted the primary sulphide minerals to secondary minerals. The minerals which have been recognized as alteration products, again according to Peterson, are argentite, covelite, chalcocite, cerussite and possibly native silver. Peterson says argentite (Ag_2S) is the most important mineral in the enriched zone and economically is the most important. It is often found associated with wire silver. Next to argentite, native silver is the most important ore of silver.

Ore Minerals

Major Ore Minerals	Minor Ore Minerals	Other Minerals
Native Silver	Argyrodite	Sericite
Argentite	Sphalerite	Quartz
Pyrargyrite	Chalcopyrite	Pyrite
Gold	Galena	Limonite
	Covelite	Hematite
	Cerussite	Calcite
	Malachite	
	Azurite	
	Cuprite	
	Native Copper	
	Arsenopyrite	
	Orpimant	
	Realgar	
	Pearceite	

Mineralization

Peterson says there were three phases of mineralization; the first (1) a period when rhodocrosite was formed to the exclusion of all other minerals; (2) a period in which the dominant minerals formed included quartz, pyrite, arsenopyrite, sphalerite, and minor amounts of chalcopyrite; and (3) a period in which galena and the sulphosalts of silver predominate over all other minerals. Economically, the last phase was the most important, although the second phase appears to have produced the gold values in the ores.

Tenor of Ore

The average tenor of mill ore was 20 oz. of silver/ton or better and 0.055 oz. Au/ton. High-grade shipments ran from 100 oz/ton to several thousand ozs/ton. Seven hundred tons were shipped that averaged 384 oz/ton.

Peterson took two hundred composite analyses, each composed of ten grab-samples from freshly blasted high-grade ore at different localities throughout the mine. These show an average silver content of 27.06 fine ounces, and an average gold content of 0.078 ounce per ton. Individual orebodies have been known to carry as much as 10,000 ounces of silver and 4 to 5 ounces of gold per ton.

PAST ORE PRODUCTION FROM THE VIPONT MINE

The data listed herein for the Vipont Mine was obtained from mineral resources publications of the U.S.G.S., the Department of Commerce and the Bureau fo Mines.

Year	Gold-ounces	Silver-ounces
1899-1917	71	31,099
1918	93	20,669
1919	---	------
1920	1,025	524,473
1921	1,332	716,809
1922	2,976	1,043,636
1923-8/23	1,966	775,198
1924	-----Not Known----------	
1925	47	11,463
1926-1935	----Little or no Production------	
1935-1942	1,000	300,000
1978-1984	50	80,000
TOTALS	8,352 ozs. Gold	3,503,470 ozs. Silver

Total tons produced was in excess of 170,000.

Production averaged approximately 100,000 ozs. of silver per month in 1923. See Fig. 3 for production March, 1923.

RECENT EXPLORATION

After T. F. Miller obtained a lease on the property, he employed Mr. C. W. Thomas, geological consultant, to assist him in mapping the area and assessing possible mineral structure. This was done during the late summer and fall of 1965.

Mr. Miller then submitted a proposal to the Office of Minerals Exploration (O.M.E.)--U.S.G.S.--asking for financial assistance in conducting exploratory diamond drilling in the area.

Mr. Miller and the Office of Minerals Exploration entered into an exploration contract June 22, 1966, relating to the exploration for silver and other valuable minerals on the Vipont group of claims. Mr. Miller received the largest O.M.E. program for an individual in 1966.

Work on the exploration contract was commenced July 24, 1966 and completed November 23, 1967, at a total cost of $61,493.63. Of this amount, the O.M.E. paid $46,120.10 and Bannock Silver Mining Company paid $15,373.40.

VIPONT SILVER MINING COMPANY

PRODUCTION SHEET FOR THE MONTH OF MARCH, 1923

DATE March	Wet Tons	% Moisture	Dry T. Milled	Heads	Oz. to Mill	Ratio of Conc.	Tons of conc.	Tons Tails	Assay Tails	Oz. silver in tails
1	74.6	3.4	72	23.9	1720.8	11.7	6.16	65.84	1.7	111.93
2	136.2	3.8	131	27.5	3602.5	10.2	12.85	118.15	1.6	189.04
3	148.5	4.3	142	21.1	2996.2	13.2	10.76	131.24	1.6	209.98
4	152.3	3.5	147	24.8	3645.6	10.8	13.62	133.38	1.3	173.39
5	164.2	3.2	159	21.8	3466.2	12.0	13.25	145.75	1.6	233.20
6	176.3	3.6	170	22.5	3825.0	11.3	15.05	154.95	1.4	216.93
7	152.6	3.0	148	22.2	3285.6	11.3	13.10	134.90	1.7	229.33
8	165.3	3.8	159	21.1	3354.9	12.0	13.25	145.75	1.5	218.63
9	154.2	3.4	149	22.7	3382.3	11.8	12.63	136.37	1.7	231.83
10	172.1	3.0	167	21.4	3573.8	13.2	12.65	154.35	1.8	277.83
11	225.6	3.8	217	20.4	4426.8	13.0	16.69	200.31	1.6	320.50
12	224.0	3.6	216	20.4	4406.4	12.7	17.01	198.99	1.9	378.08
13	95.0	3.3	92	18.4	1692.8	14.3	6.44	85.56	2.7	231.01
14	88.3	3.7	85	22.6	1921.0	11.7	7.27	77.73	2.4	186.55
15	81.2	3.8	78	24.0	1872.0	10.9	7.16	70.84	1.9	134.60
16	175.1	4.1	168	20.2	3393.6	13.5	12.45	155.55	2.7	419.99
17	160.3	3.9	154	22.0	3388.0	12.8	12.03	141.97	2.4	340.73
18	185.3	4.0	178	17.6	3132.8	16.0	11.13	166.87	1.9	317.05
19	214.7	4.1	206	19.2	3955.2	14.2	14.51	191.49	1.8	344.68
20	195.4	3.8	188	20.0	3760.0	12.8	14.69	173.31	2.5	433.28
21	176.2	4.1	169	20.3	3430.7	14.1	11.99	157.01	2.6	408.23
22	216.3	4.3	207	17.7	3663.9	17.8	11.63	195.37	2.4	468.89
23	210.3	4.0	202	17.4	3514.8	17.6	11.48	190.52	2.2	419.14
24	226.5	4.2	217	22.2	4817.4	13.0	16.69	200.31	2.8	560.87
25	223.0	4.0	214	19.5	4173.0	15.9	13.46	200.54	3.3	661.78
26	189.3	4.9	180	22.8	4104.0	11.1	16.22	163.78	2.9	474.96
27	88.4	3.8	85	21.6	1836.0	12.4	6.86	78.14	2.8	218.79
28	156.2	4.0	150	21.8	3270.0	13.4	11.20	138.80	2.9	402.52
29	173.3	4.2	166	24.9	4133.4	11.7	14.19	151.81	2.7	400.89
30	161.3	5.2	153	26.1	3993.3	10.5	14.58	138.42	2.6	359.89
31	167.8	5.3	159	26.7	4245.3	11.1	14.33	144.67	2.9	419.54
	5129.8	3.934	4928	21.506	105,983.3	12.789	385.33	4542.67	2.202	10003.06
					110,003.06					
					95,980.24					

Fig. 3

The final geological report was submitted to the O.M.E. November 1, 1968. In this report, Mr. Miller estimated that at least 90,000 tons of probable ore had been indicated because of drilling under the program. On April 28, 1969, the O.M.E. certified that mineral or metal production may be possible as a result of the exploration work.

Vipont Area

This is the immediate main area of interest as it lies below the productive old workings. The proposed 1950 foot adit will be driven in below the mineralization encountered in drill holes V-3 and V-6. Six holes were drilled in this area, with positive mineral intersections in two holes (V-3 and V-6), and significant mineralization in three holes. One hole was considered a loss because the core recovery in the host limestone was too low for geological evaluation. It is believed that mineralization both to the east and west of this area hold good potential as well as the large unexplored area below the drill holes toward the stock.

Assay Results	Hole V-3 1.3 feet of:	Hole V-6 3.2 feet of:
Gold	.50 oz/ton	.06 oz/ton
Silver	13.50 oz/ton	16.40 oz/ton
Copper	.65 oz/ton	.15 oz/ton
Lead	4.00 %/ton	2.60 %/ton
Zinc	1.80 %/ton	3.60 %/ton

ESTIMATE OF ORE RESERVES AND ORE RESERVE POSSIBILITIES

Vipont Ore Shoot

The recent drilling in the Vipont ore shoot indicates that there exists another 135,000 tons of ore which contain an estimated 2,200,000 ozs. silver and 6,000 ozs. of gold.

$111/ton @ 300 Au 6 Ag

The upper portion of the Vipont ore shoot was mined down-dip for a slope distance of 1400' and averaged 600' wide. The total tonnage mined from this area was approximately 170,000 averaging 20 oz. Ag and 0.06 oz. Au.

In my O.M.E. report, indicated reserves are 90,000 tons of 20 oz. ore in the area from the drill holes to the bottom of the old workings. This estimate was made based on a past recovery of 12,857 tons per 100 feet mined down-dip. The grade and

continuity were fairly even over the 1400' The ore body is basically a manto orebody of Mesothermal temperature. To this tonnage I would add another 50% at the present higher price to include 45,000 tons of 8 oz. grade, for a total of 135,000 ton containing 2,200,000 ozs. of Ag and 6,000 oz. Au.

At present prices for silver and gold it is estimated that a fairly substantial tonnage of ore can be mined from the old Vipont workings, from the A-level above and from the Phelan level to the A-level. It is estimated that from 600,000 to 750,000 ozs. of silver plus substantial gold remains to be mined in this area. From A-level to surface, including Sentinel (open pit--Marston & Marston) 11,379,175 ozs. remain. From Phelan level to A-level, 500,000 ounces.

In addition, I believe the open pit could be expanded to include approximately 20,000,000 ounces of silver.

My basis for this was that mill heads were kept at 20 ozs/ton and very little ore was mined under 10-12 ozs. Also, the Spencer brothers, during the depression, mined approximately 6,000 tons that averaged 53 oz/ton. This ore was screened on the A-level and Phelan dumps, where there exists 50,000 tons averaging nearly 3.2 oz. and 32,000 tons averaging 3.9 ozs. respectively. The previous operators did not have a way to treat the oxide ore.

Wm. R. Wade estimates that the Vipont oreshoot, between the bottom of the old mine and the igneous stock (approximately 4700'), is a manto-type oreshoot and contains 13,000,000 ozs. of silver. He adds that this is a geologic assumption and has to be proven by drilling and mine development, but reasonable assumption based on past experience with manto type ore bodies.

Vipont Ore Shoot Summary

Sulphide Ore Probable	Ag	Au
By drilling	2,200,000	6,000
Old workings	500,000	1,500
	2,700,000	7,500
Possible	10,800,000	27,000

Oxide Ore (See Open Pit Area below)

Midway Ore Shoot

According to F. A. Wardlaw, former mine superintendent, there was a shoot of good ore in the east Midway drift about 800' west of the Phelan Tunnel (drift), which assayed 100 oz/ton and was 3' thick. They did ship some ore from the Midway prior to its caving sometime after 1903.

Vipont Silver Mining Co. never did reopen the Midway once they commenced mining in 1919.

It would take 800' to 900' of drifting to get to there from the west end of the Phelan Tunnel.

This potential ore shoot can be outlined by drilling and underground development from the new tunnel and extending the Phelan tunnel, once that area is open.

It is my opinion that this Midway ore shoot is a parallel one to the Vipont ore shoot and holds the potential of many million ozs. of silver. The good outcrop assays, Midway workings, drill holes, and promising structure point to this.

Sentinel

F.A. Wardlaw also says in the upper Sentinel limestone area, they shipped 20 tons of 100 oz. silver and recommended running a 500' cross-cut to pick up this extension at depth. There is some extremely high silver-gold ore in the Sentinel dumps.

It is believed and supported by good evidence that the Sentinel limestone holds good possibilities for a major orebody at depth. This limestone, as previously mentioned, lies underneath the rhyolite sill and above the thrust plane.

Major blind deposits have been found in nearly identical areas in the Burgin Mine at Eureka, Utah, and the Ruby Hill, Eureka, Nevada. I am very familiar with both of these properties.

Lexinton-Argenta

The first production of ore from the district was from the Lexington-Argenta fault vein system. This fault, a near vertical north-south trending fault, has some excellent mineralization in it. Future exploration and development should prove rewarding in this area, where a total of 3.5' of ore grade material was intersected with Hole G-2 in the Phelan limestone. Further drilling and drifting is definitely merited

here. This area is 4000' west of the Vipont ore shoot, but can be tested at depth from the new 6850' cross-cut drift. A recent sample across a 3.5' vein in the upper workings ran 28.8 oz. Ag and .016 oz. Au.

Dolly Clark Vein

The Dolly Clark vein trending north and south and approximately 3 to 4' wide, assayed 23.4 ozs Ag, 0.055 ozs Au, and 13.8% Pb-Zn across 3.0'. This vein is fairly strong, and merits more exploration on it.

Open Pit Area

As previously mentioned, Marston and Marston did extensive testing and sampling in this area, in the upper Vipont ore shoot above the A-level, and the adjoining Sentinel workings. Their estimates were as follows:

		Assay Troy ozs/ton		Total Troy ozs.	
Open Pit	Tons	Silver	Gold	Silver	Gold
Oxide Ore					
Proven	1,505,659	4.424	0.01	6,661,226	15,056
Prabable	1,066,148	2.524	--	2,690,749	
Possible	205,600	9.860	--	2,027,200	
	2,777,407			11,379,175	

The above tonnage is contained in an ore shoot 800' wide by 1000' long by 25' to 70' thick. In addition to the above, there remains to be tested a zone nearly 2000' long west and northwest of this zone in the Vipont and Midway area. Outcrop and pit assays go from 1 oz. to 50 oz. or better per ton.

I believe with extensive drilling and sampling in this area, the tonnage and ounces of silver can nearly be doubled to nearly 20,000,000 ozs. of silver and 50,000 ozs. of gold. This ore would be treated by cyanide heap leaching.

OLD MINE WORKINGS

The original mine workings were two vertical shafts designated Shafts No. I and No. 2. The first is 100' deep and the second 190' deep. No. 1 shaft has a collar elevation of 7670'. The 'K' level was driven from the bottom of this shaft. The No. 2 shaft collar is at 7600' and the A-level tunnel was driven to intersect the bottom of that

shaft. The A-level tunnel is 870' to the first ore intersection. From the A-level, a winze, A-94, was driven on line to the Phelan tunnel, about 560'. The Phelan tunnel, like the A-level tunnel, was driven north-easterly to intersect a south-westerly dipping ore shoot. This tunnel is 2200' long and was driven on line to intersect the A-94 winze, which is in the rhyolite most of the way. On the Phelan level, two winzes were sunk in ore below that level, the P-39 and P-41 winzes. These two winzes seem to intersect each other down dip. These are the principal means of access. Ore was extracted from sub-levels, of which there were four above the A-level and five between the A-level and the Phelan tunnel.

There is another tunnel on the property, the Midway, which is 2600' north-westerly from the Phelan portal and on the same elevation as the Phelan. This tunnel is 1580' long, 1200' to the ore structure, with 450' of drifting north-east on the structure. About 800' of drifting would connect this tunnel with the face of the Phelan tunnel.

Another group of tunnels, the Sentinel, lie 1100' north-easterly from the A-level tunnel. Wardlaw reported that 20 tons of 100 oz. ore was shipped from these workings.

There are also several crosscuts into the nearly vertical dipping Lexington-Argenta vein system. Most of these crosscuts are relatively short with the longest proably 150'.

DEVELOPMENT AND EXPLORATION

Recent Status

In 1977, United Silver Mines rebuilt seven miles of road up Little Birch Creek, constructed a large shop 80' X 50', and a modern dry. A complete heap-leaching plant was built to leach the old tailings and dumps.

In February, 1978, a new 1900'--10'X 10' timbered cross-cut was started and driven 451'. Good progress was made in this tunnel on a one shift basis. The tunnel was stopped when United's major source of funding became unable to advance money needed to complete the work.

The A-level tunnel was rehabilitated in 1981 by Marston & Marston. This was done by blasting the cross-cut 2' deeper and taking 3' off the right rib. A new ST2D Wagner LHD was used. Cost of this rehabilitation was approximately $250,000.

A new road was constructed from the bottom to the A-level at this time also.

Proposed

Complete the new tunnel by driving it another 1450'. This tunnel will intersect the Vipont limestone 200' below the drill holes and is in line with V-5 drill hole.

Once this is completed, the drift on this level will be run both ways and a 900' raise will be driven to the Phelan to intersect the P-39, P-41 winze area. Extensive drilling should be done from this drift.

This raise will be begun from the 6800' drift and will be run in line of V-6 hole and towards P-39 and P-41 winze, which were sunk below the Phelan level in excellent ore.

This area should be totally explored and developed for ore prior to mining. Considerable tonnage of good ore should be developed in this area.

Extensive sampling and drilling should accompany this first phase development.

Develop the oxide open pit and prepare for heap leaching.

MINING METHODS AND COSTS

The mine will be developed using trackless mining equipment. A good portion of the mining will be done with this same equipment. The trackless equipment can run drifts inclined and declined and operate quite effectively at 15° slopes. Some of the smaller ore shoots will be mined using the conventional slusher-tugger method.

Overall mining costs, not including milling, are estimated to be $40.00 per ton. The overall total costs per ton are estimated to be $68.00 a ton. The mining cost per ounce should not exceed $3.00/oz. when the heads are maintained at 15 oz/ton or better.

MILLING COSTS

The Vipont Silver Mining Company had a good 250 ton per day flotation mill, which enabled them to attain a recovery of 90% in 1923. Their ratio of concentration was 12:1 or better. Mr. William R. Wade believes that with new chemicals, recovery can be raised to 95% plus.

Estimates on milling costs run from $10.00 to $15.00 per ton, with recoveries of 95% to 97%, with a ratio of concentration of 20: 1. This is based on costs and experience obtained while employed at Sunshine Mining Company, and others, and visitations to several flotation mills of the above size mentioned. Also, in order to obtain this, the tailings could be cyanided.

The concentrate could be cyanided and a high grade silver precipitate produced. This could be smelted into silver bullion containing 98% plus silver. It could be refined at Johnson Mathy Ltd. in Salt Lake or Handy and Harmon in Los Angeles on a toll basis at a nominal cost.

In order to produce 2,000,000 ounces a year from the various sulphide zones, at least a 500 ton a day flotation mill would need to be built.

As mentioned above, overall costs including all direct and indirect costs, should not exceed $4 to $4.50 an ounce, with the gold getting a free ride.

MINING AND HEAP LEACHING

Total costs for strip mining and heap leaching the oxide ore should not exceed $4.00 an ounce, depending on volume and recovery. The gold would be free.

I would propose heap leaching at least 350,000 tons a year of 4.0 oz. grade, with an expected recovery of 70-75%.

Large leach pads can be constructed less than ½ mile from the pit. The ore would be crushed, agglomerated, and stacked approximately 25' high and leached.

Total recovery would be approximately 1,000,000 ozs. of silver and 2500 ozs. of gold a year.

Tests on recovery done by the Mountain States Engineering, Tucson, Arizona, and others showed lab recoveries at nearly 80% or better.

The leaching season would be limited to not more than six months, but mining could go on for at least 10 months or more, depending upon the weather.

Power

Power can be obtained from two sources: Raft River Rural Electric Cooperative, Malta, Idaho, and Idaho Power Company in Oakley. The best and cheapest power can be obtained from Raft River. A new line seven miles long starting at a point south of the mine would have to be constructed.

This resulted in the determination of two broad divisions of ore:

(A) Oxide Ores

Cyanide Leachable

Located above "A" Level and in outcroppings.

(B) Sulphide Ores

Require concentration - Tailings leachable. Located below "A" Level and down slope.

These two divisions were further divided into proven, probable and possible ore with the following results.

	Tons	Assay Troy Ounces/Ton SILVER	GOLD	Total Troy Ounces SILVER	GOLD
OXIDE ORE					
Proven	1,505,659	4.424	0.01	6,661,226	15,056
Probable	1,066,148	2.524	-	2,690,749	
Possible	205,600	9.860	-	2,027,200	
SULPHIDE ORE					
Probable	164,176	14.324		2,351,657	
Possible	94,027	9.339		878,118	