DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

FIELD TEAM, REGION I

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 31 1955

FINAL REPORT

Contract Idm-E531

by

Margaret R. Lickes
Mining Engineer
U. S. Bureau of Mines

Howard B. Nickelson
Geologist
U. S. Geological Survey

BRADLEY MINING COMPANY
425 Crocker Building
San Francisco 4, California

Docket No.:	DMEA-3010
Commodity:	Tungsten
Contract date:	May 26, 1953
Completion date:	October 15, 1953

SPRINGFIELD TUNGSTEN MINE
Yellow Pine Mining District
Valley County, Idaho

Reviewed by
DMEA OPERATING COMMITTEE
2-4-55
(date)

Spokane, Washington

January 1955

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 5 1955

FINAL REPORT

BRADLEY MINING COMPANY
Springfield Tungsten Mine
Yellow Pine Mining District
Valley County, Idaho

Contract Idm-E531

* * * *

INTRODUCTION

This final report describes a surface diamond drilling project for tungsten along the West Fork of Springfield Creek in Valley County, Idaho, conducted by the Bradley Mining Company under Defense Minerals Exploration Administration project contract No. Idm-E531.

Summary

The purpose of the project was to explore what was believed to be a steeply-dipping pyrrhotite-scheelite-bearing quartz vein by means of a maximum of 600 feet of diamond drilling.

Four of the six holes drilled intersected the deposit; only SP-7 encountered significant amounts of scheelite. Sludge assays from 5 feet to 40 feet ranged from 0.09 to 0.33 percent WO_3. Core assays from 5 feet to 20 feet ranged from 0.02 to 0.15 percent WO_3. (Refer to the drill logs of DMEA holes which are included with this report.)

The project drilling failed to discover ore, but information gained by the drilling and surface mapping shows that the deposit in the area drilled has been eroded away except as thin remnants and what is believed to be an irregular trough-shaped portion in the vicinity of the drill station, shown on Sec. A-A' of the enclosed map, which extends down the hill through a point approximately 50 feet east of the water tank. The deposit appears to be striking and dipping similar to the present slope of the hill.

Exploration by diamond drilling for the downward continuation of the deposit along an east-west line about 75 feet north of the water tank would be warranted. (⊗)

⊗ See Wing Agnew's letter to Selfridge of Jan 26, 1955, saying BM does not concur with this conclusion

Recommendations

The project was unsuccessful; therefore, it is recommended that no Certification of Discovery or Development be issued.

An application by the Bradley Mining Company for further exploration by means of a magnetometer survey to aid in the location of additional diamond drill holes was recommended by the Field Team but denied in Washington.

LOCATION AND ACCESSIBILITY

The group of three unpatented mining claims is in sec. 28, T. 17 N., R. 9 E., Boise Meridian, Valley County, Idaho. The claims cover a talus deposit and adjacent territory on the West Fork of Springfield Creek in the primitive area of central Idaho. It is approximately 8 airline miles south of Stibnite, Idaho, and can be reached from Stibnite through Yellow Pine and over Trappers Flat via Old Thunder Mountain road.

The topography is steep and rugged, and the region is sparsely timbered. Altitude of the deposit is about 7,800 feet.

Snowfall is usually heavy, and the property is accessible only during the summer and autumn months. A very rough road, serviceable only during these seasons and only for 4-wheel drive vehicles, traverses Trappers Flat to the property. The summers are mild with little rainfall.

PROPERTY

The property comprising the group of claims included in the exploration project is tabulated below:

Name of Claim	Book No.	Page No.
White Mare	11	423
White Mare No. 1	11	424
White Mare No. 2	11	425

These claims are owned by the Bradley Mining Company which pays the former owners, Mr. and Mrs. Lafe Cox, 1-1/2 percent royalty on all ore extracted and sold. All claims are recorded at the Valley County Courthouse, Cascade, Idaho.

There are no mine workings, but a small gravity mill to treat talus fines is located on the property.

History

The White Mare group of claims was located in 1946 by Mr. and Mrs. Lafe Cox. The Bradley Mining Company secured the property soon afterward under a 1-1/2 percent royalty agreement with the Coxes.

The Bradley Mining Company partially explored the deposit by six diamond drill holes, totaling 814 feet. The company also dug 28 test pits in the talus, which covered an area of 50,000 square feet, to determine the reserve and grade of the minus one-half inch material which would not require crushing in a gravity mill. Pit location and assays of this material are shown on the enclosed map. These determinations proved a reserve of 16,000 tons of material averaging 0.40 percent WO_3.

A DMEA application for diamond drilling was submitted in April 1953, and a contract for 600 feet of diamond drilling was approved on May 26. This contract was completed about the middle of October of the same year.

During the summers of 1953 and 1954, the minus three-eighths inch portion of the talus was treated by gravity separation; namely, trammeling, jigging and tabling. Concentrates from this operation were upgraded at Stibnite by roasting and magnetic separators. The high grade portion of the concentrates were sold to a GSA buying depot.

GEOLOGY

There has been no areal geologic mapping in this area. It is probable that the geology of the area is somewhat similar to that of the Stibnite area to the north where there are a number of roof pendants in the Idaho batholith and some major north-striking faults.

The Springfield deposit is in a roof pendant. A block of sedimentary rock, including limestone, has been disrupted and thermally metamorphosed by the intrusion of the Idaho batholith. The resulting tactite and some of the adjacent granite were then pervaded by tungsten-bearing solutions.

Metamorphic rocks of the area include white marble, tactite, and schists. These rocks and the granite have been intruded by aplite and lamprophyre dikes.

The deposit was explored under the assumption that it was a steeply-dipping quartz vein. Subsequent mapping and diamond drilling have shown that the deposit is in a tactite body which forms only a thin skim conformable with the slope of the hill. The original dimensions of the deposit are unknown because a large portion of it appears to have been eroded and now exists as talus on and below the outcrops. The length of the deposit may have been of a magnitude of 400 feet. The greatest remaining thickness, as seen in DDH SP-1, is about 50 feet. Nothing is known about possible down-dip extensions, but they may well exist.

The tactite is composed of carbonate, quartz, silicate minerals, scheelite, pyrrhotite, and minor amounts of other sulfides. The occurrence of pyrrhotite with scheelite offers an opportunity to search for the downward continuation of this body and other tactite bodies in the area by magnetometer. Unfortunately, not all pyrrhotite is accompanied by scheelite. As with most tactite deposits the distribution of tactite is very irregular, as is the distribution of scheelite in the tactite. The scheelite occurs on a few outcrops and was found in only two of the 12 diamond drill holes, but it is widespread throughout the talus. Of considerable interest is the fact that the scheelite-bearing talus has been successfully mined as a placer deposit. It is possible that tactite underlies the talus and such a body may well be exposed during placer operations.

Ore Reserves

Drilling by the Bradley Mining Company before the start of the contract had yielded the following results:

DDH No. 2 assayed 0.34 percent WO_3 between 16 and 46 feet. DDH No. 1 assayed 0.26 percent WO_3 from 5 to 10 feet, 0.33 percent WO_3 from 10 to 15 feet, 0.61 percent WO_3 from 15 to 20 feet. (These results could not be used in calculating reserves.)

No scheelite concentration of ore grade was cut in the DMEA diamond drill holes. One 5-foot sludge sample from DDH No. SP-7 assayed 0.33 percent WO_3 and sludge assays covering 20 consecutive feet in this hole averaged 0.30 percent WO_3, but no core assayed higher than 0.15 percent WO_3.

At the suggestion of the Operating Committee four samples were analyzed for nickel and cobalt with negative results. The same four samples were analyzed for columbium and tantalum on the company's initiative, also with negative results.

During the November 1953 inspection (near the end of that year's placer operation) it was estimated by the examiners that approximately 10,000 tons of oversized material from the placer operation was stockpiled. The 1954 operation would certainly double this amount; thus, 20,000 to 25,000 tons of material is stockpiled that is believed to be the same grade as the minus one-half inch material. This grade estimate is based on a verbal statement by the assistant manager and on lamping of the 1953 stockpile by the field examiners.

THE PROJECT

On April 20, 1953, the Bradley Mining Company applied for a DMEA exploration contract to cover partially the costs of 600 feet of diamond drilling and subsidiary work which were estimated at $5,945.50.

DMEA Contract Idm-E531, dated May 26, 1952, allowed $5,600 to perform the work as proposed in the application, of which the Government's share was $4,200. The Bradley Mining Company, owner, signed a guaranty in order that Mr. and Mrs. Lafe Cox, who receive 1-1/2 percent royalty on the sale of ore, need not be involved.

Diamond drill equipment was moved into the area during the latter part of August 1953, and the drilling of 593 feet of diamond drill hole was completed about the middle of October 1953.

Two amendments to the contract were necessary. Amendment No. 1, dated November 16, 1953, exempted royalty payments from all proceeds from treatment of the talus. The company had not understood that wording of the contract was such as to require royalty payments on production from the entire property including the talus. The talus mining was in progress before the start of the contract, and the DMEA funds for exploration had contributed nothing to its discovery nor to its evaluation. Because there had been a misunderstanding on the part of the company in signing the contract, the Field Team recommended Amendment No. 1 which exempted placer mining from royalty payments.

Amendment No. 2, dated January 13, 1954, changed the contract to an agreed unit cost type of agreement. The original intention had been to subcontract the diamond drilling, but the Bradley Mining Company could not find an independent driller who would accept a contract for the small footage involved in such an inaccessible location.

Logging and sampling results by Mr. Keith Wallace of the Bradley Mining Company accompany this report as part of the Annex.

A total of 593 feet was drilled in six holes at a cost of $3,761.67. The Government's share, which was 75 percent of the total cost, was $2,821.25.

The Report of Review, dated May 3, 1954, and the operator's final report, received June 28, 1954, have been accepted as satisfactory and the final settlement has been made.

Exploitation Possibilities

Assays of the samples of both the company's previous diamond drilling and the DMEA diamond drilling showed tungsten, as scheelite, insufficient to classify as ore. Four assays for cobalt, nickel, columbium, and tantalum were negative.

Talus beneficiation was carried on during the summer months in 1952 and 1953. The mill consists of a three-eighths inch mesh trommel screen, jig cells, and a Wilfley table. It handled 60 to 75 tons per day, and made an average of 1,100 pounds of concentrate averaging 10 to 20 percent WO_3. This concentrate was sent to the Bradley mill at Stibnite for further beneficiation.

Summary of Factual Data

The accepted costs and items upon which they were based are as follows:

Items	Accepted Costs
Diamond drilling - 593 feet at $5.25/ft.	$3,172.55
Move-in allowance	179.41
Geological consultant at $50/day, plus $15/day expenses - 2 days	130.00
Engineer at $20/day - 10 days	200.00
Core boxes	37.71
Sampling and analysis	42.00
Total accepted costs	$3,761.67
Government's share at 75 percent	$2,821.25

Because the contract was on a unit cost basis there was no jointly-owned equipment or supplies to be disposed of.

Discussion of Conclusions

The contract was easily administered, and the detailed information presented to the Government by the Bradley Mining Company greatly aided in the interpretation of results obtained by this small drilling project.

Although the drilling results were disappointing, the considerable amount of tungsten recovered from the talus suggests that the grade of the deposit before erosion may have been appreciably higher than that of the remnant of the orebody remaining in place.

Although some scheelite is in granite, it may be said that the best geologic guide to exploration of the general area is the occurrence of metamorphic rock inclusions (roof pendants) in the granite. These inclusions crop out on hill tops, and tactite bodies can be expected to be associated with them. Of particular value, in this immediate area, is the association of pyrrhotite with scheelite in the tactite bodies.

Because pyrrhotite is ferromagnetic, pyrrhotite-bearing bodies should be easily identified, even though considerable overburden, by magnetometer surveys.

It is possible that unrecognized tactite bodies are in the area. The ground underlying the talus deposit at depth would be the most logical place to explore first.

Enclosures (2)

Distribution:
DMEA (4)
USBM (5)
USGS (SRO)
Docket
Nickelson

COORDINATES: 8,390.2 E
7,963.2 S

ELEVATION: 7,708.4

SATURNFIELD MINE
Bradley Mining Co.

DIAMOND DRILL HOLE NO. 61-7

BEARING: S 50° 15' W

INCLINATION: Minus 45°

Footage	Mineralogy	% Recovery	% WO3 Sludge	% WO3 Core	Size Core
0 - 5	Altered granite with fine-grained sulfides to 3', aplite with fine-grained sulfides to 5'	50	No sludge		BX
5 - 10	aplite with fine-grained sulfides to 8', heavy sulfides in quartz (75% mainly pyrrhotite), some scheelite to 10'	50	" "	0.05	"
10 - 15	Heavy sulfides (75% mainly pyrrhotite) in quartz. Some scheelite	85	0.09	0.02	BX
15 - 20	Heavy sulfides (75% mainly pyrrhotite) in quartz. Some scheelite to 18'; altered granite to 20'	55	0.18	0.15	"
20 - 25	Marble (pure white calcite) to 21'; white quartz to 22'; altered granite to 25'	20	0.29	Tr	"
25 - 30	Altered granite. Some fine-grained sulfides	20	0.31	0.01	"
30 - 35	Aplite, some altered granite. Some fine-grained sulfides	75	0.33		"
35 - 40	Aplite. Some fine-grained sulfides	80	0.28		"
40 - 45	Aplite, minor altered granite to 43'. Fine-grained schistose granite to 45'	65	Tr		"
45 - 50	Fine-grained schistose granite, some aplite	35	Nil		"
50 - 55	" " " "	55	Nil		"
55 - 60	Aplite to 57'; fine-grained schistose granite to 60'	85	Nil		"
60 - 65	Fine-grained schistose granite to 63'; aplite to 65'	35	Nil		"
65 - 70	Aplite	50	Nil		"
70 - 75	Fine-grained schistose granite	35	Nil		"
75 - 80	Aplite	70	Nil		"
80 - 85	"	40	Nil		"
85 - 90	Aplite, some essentially fresh granite	70	Nil		"
90 - 95	Aplite with abundant muscovite (sericite)	65	Nil		"
95 -100	" " " " "	100	Nil		"
100-105	" " " " " Some schistose granite 103 to 105'	65	Nil		"
105-110	Schistose granite	75	Tr		"
110-115	" "	100	Nil		"
115-120	" "	100	Nil		"
120-125	" " , some aplite	60	Nil		"

Footage	Mineralogy	% Recovery	% WO_3 Sludge	% WO_3 Core	Size Core
125-130	Schistose granite, some aplite	60	Tr		AX
130-135	" " " "	55	Nil		"
135-140	" " " "	60	Nil		"
140-145	" " " "	65	Nil		"
145-150	" " " "	40	Nil		"

End of hole at 150 feet

Note: Trace and Nil values of WO_3 determined by lamping; numerical values determined by ~~lamping~~ assay. All core and sludges lamped.

DIAMOND DRILL HOLE NO. SI-7

Driller's Notes

Date Start: 8/24/53 Driller: Manning

Finish: 9/4/53 Helper: Barnell

Footage	Remarks
0 - 10	Hole deflected, cemented and redrilled.
10 - 16½	Iron and quartz. Black sludge.
16½-30	Aplite. Milky sludge.
30 - 45	" " " Very hard.
45 - 50	Aplite with garnet. Softer. Blue and red sludge.
50 - 55	Aplite with garnet. Harder. Milky blue sludge.
55 - 65	" " " Bluish grey sludge.
65 - 70	Fresh granite. Milky sludge.
70 - 75	Aplite and garnet. Grey sludge.
75 - 85	Aplite and fresh granite. Milky sludge.
85 -100	Fresh granite, lots of mica. Fairly soft. Milky sludge.
100-105	Aplite, not much mica. Milky sludge.
105-120	Aplite and granite with greenish stain. Some mica. Medium hard. Greyish sludge.
120-125	Fresh granite and aplite. Grey sludge.
125-135	Fresh granite and aplite with seams of gouge. Milky blue-grey sludge.
135-139	Aplite with a few seams of yellow iron. Hard and brittle. Milky grey sludge.
139-144½	Aplite with garnet and pyrite. Some mica. Milky reddish-grey sludge.
144½-150	Aplite with garnet. Softer. No pyrite. Milky reddish-grey sludge.

End of hole

SPRINGFIELD MINE
Bradley Mining Co.

DIAMOND DRILL HOLE NO. SP-8

COORDINATES: 8,414.6 N
7,934.6 E

ELEVATION: 7,773.9

BEARING: S 44° 14' W

INCLINATION: Minus 25°

Footage	Mineralogy	% Recovery	% WO_3 Sludge	% WO_3 Core	Size Core
0 - 5	Severely weathered & altered granitic rock with sulfides	40	No sludge		BX
5 - 10	" " " " " " " "	40	" "		"
10 - 15	" " " " " " " " to 11', heavy sulfides (75%, mainly pyrrhotite) in quartz to 15'. Occasional very minor specks of scheelite from 11 to 33'	100	" "		"
15 - 20	Heavy sulfides (75%, mainly pyrrhotite) in quartz	65	Nil		AX
20 - 25	" " " " " " "	90	Nil		"
25 - 30	" " " " " " "	100	Nil		"
30 - 35	" " (50% " " " " to 33', altered granite with sulfides to 35'	90	0.01		"
35 - 40	Aplite and altered granite	75	Tr		"
40 - 45	" " " "	45	Tr		"
45 - 50	" " " " to 47', fresh granite and aplite to 50'	95	Nil		"
50 - 55	Fresh fine-grained granite	100	Nil		"
55 - 60	" " " "	100	Nil		"
60 - 65	" " " " to 63', aplite to 65	45	Nil		"
65 - 70	Aplite to 69', altered granite to 70'	50	Nil		"
70 - 75	Altered granite to 71', aplite with abundant muscovite (sericite?) to 75'	55	Nil		"
75 - 80	Aplite with abundant muscovite (sericite?). Minor granite	75	Nil		"
80 - 85	" " " " "	15	Nil		"
85 - 90	" " " " "	50	Nil		"
90 - 95	Aplite.	30	Nil		"
95 -100	Schistose granite, some aplite	35	Nil		"
100-105	Schistose granite.	100	Nil		"
105-110	" "	35	Tr		"
110-115	" "	75	Tr		"
115-120	Aplite, some altered granite	35	Nil		"
120-125	Aplite and fresh granite	30	Nil		"
125-130	" " " "	30	Nil		"
130-135	" " " "	60	Nil		"
135-138	" " " "	70	Nil		"

End of hole at 138 feet.

Note: All assays are sludge assays. Trace and Nil values of WO_3 determined by lamping. All core and sludges lamped.

DIAMOND DRILL HOLE NO. SP-8

Driller's Notes

Date Start: 9/5/53 Driller: Manning

Finish: 9/9/53 Helper: Barkell

Footage	Remarks
0 - 10	Broken granite. Lost water - no sludge recovery
10 - 15	Heavy sulfides and quartz. No sludge recovery
15 - 35	Sulfides and quartz. Black sludge.
35 - 48	Aplite, very little mineralization. White sludge.
48 - 85	Aplite and fresh granite. White sludge. Lost water at 72½ ft. Ground up the core from 80 to 85 ft.
85 - 95	Aplite, fresh granite & quartz. Milky sludge.
95 -100	Aplite, fresh granite and quartz. Milky grey sludge.
100-115	Schist and aplite, with garnet. Grey sludge.
115-120	Aplite and gouge. Grey sludge.
120-130	Aplite, fresh granite and gouge. Grey sludge. Hit water seam at 122 ft.
130-136	Aplite and fresh granite. Grey sludge.
	End of hole

DEPARTMENT OF THE INTERIOR
Administration
JAN 3 1 1953

SPRINGFIELD MINE

Bradley Mining Co.

DIAMOND DRILL HOLE NO. SP-9

COORDINATES: 8,415.4 E
7,936.1 N

ELEVATION: 7,773.0

BEARING: S 44° 14' W

INCLINATION: Minus 60°

Footage	Mineralogy	% Recovery	% WO3 Sludge	% WO3 Core	Size Core
0 - 5	Intensely altered and weathered granitic rock with tactite mineralization and sulfides. Some scheelite.	30	Tr sludge 0.02		BX
5 - 10	Intensely altered and weathered granitic rock with tactite mineralization and sulfides. Some scheelite.	35	" "	0.05	"
10 - 15	Altered granitic rock, tactite mineralization, quartz. Rather heavy sulfides 10 - 13'.	45	0.01		AX
15 - 20	Altered granitic rock, tactite mineralization, quartz. Some sulfides.	20	0.01		"
20 - 25	Altered granitic rock, tactite mineralization. Fewer sulfides. Speck of scheelite at 25'	20	Tr		"
25 - 30	White marble (calcite) to 27', fine-grained tactite mineralization to 30'	35	Tr		"
30 - 35	Fine-grained tactite mineralization to 32', rather fresh aplite and granite to 35'	80	0.01		"
35 - 40	Predominantly fresh granite and aplite	70	0.06		

End of Hole at 40 feet

Note: Trace and Nil values of WO3 determined by lamping; numerical values determined by assay. All core and sludges lamped.

DIAMOND DRILL HOLE NO. SF-9

Driller's Notes

Date Start: 9/10/53

Finish: 9/11/53

Driller: Hanning

Helper: Barkell

Footage	Remarks
0 - 10	Quartz and altered granite. No sludge recovery.
10 - 15	Quartz and iron. Very broken and soft. Black and grey sludge.
15 - 20	Altered granite, some iron. Grey sludge.
20 - 25	Altered granite, some iron. Milky sludge.
25 - 31	Quartz and altered granite. Lots of garnet and gouge.
31 - 40	Aplite and fresh granite. Much harder. Milky grey sludge.
	End of hole

COORDINATES: 6,231.0 N
6,018.6 E

ELEVATION: 7,793.2

SPRINGFIELD MINE
Bradley Mining Co.

DIAMOND DRILL HOLE NO. SP-10

BEARING: S 50° W

INCLINATION: Minus 30°

Footage	Mineralogy	Recovery	% WO_3 Sludge	Size Core
0 - 5	Completely altered granite	45	No Sludge	NX
5 - 10	" " "	45	" "	"
10 - 15	" " " and aplite	80	Nil	BX
15 - 20	" " " " " to 17½'; heavy sulfides 17½ to 20'; small specks of scheelite in core from 16 to 20'			
20 - 25	Heavy sulfides to 22'; altered granite to 25'. Minor specks of scheelite	80	0.04	"
25 - 30	Altered fine-grained granite and aplite	45	0.10	NX
30 - 35	Aplite, some fine-grained granite	30	Nil	"
35 - 40	" " " " "	40	Nil	"
40 - 45	Fine-grained granite, schistose in places	45	Nil	"
45 - 50	Schistose granite. Some aplite.	50	Nil	"
50 - 55	Fresh granite, occasionally schistose character	80	Nil	"
55 - 60	Fresh granite and aplite. Schistose 56-57'	70	Nil	"
60 - 65	Fresh granite	75	Nil	"
65 - 70	" " and aplite	65	Nil	"
70 - 75	" " " "	40	Nil	"
75 - 80	" "	20	Nil	"
80 - 85	Dark colored granite, metamorphosed	20	Nil	"
85 - 90	Fresh granite and aplite	45	Nil	"
90 - 95	Schist to 93'; fresh granite to 95'	55	Nil	"
95 -100	Fresh granite	60	Nil	"
		70	Nil	"

End of hole at 100 feet

Note: All assays are sludge assays. Trace and Nil values of WO_3 determined by lamping. All core and sludges lamped.

DIAMOND DRILL HOLE NO. SP-10

Driller's Notes

Date Start: 9/26/53 Driller: Manning

Finish: 9/29/53 Helper: Barkell

Footage	Remarks
0 - 10	Slightly altered granite. No sludge recovery.
10 - 15	" " " Milky sludge.
15 - 20	Altered granite, with sulfides. Sludge varied from milky to blue and black.
20 - 25	Scattered sulfides. Soft and broken. Blue-black to white sludge.
25 - 30	Altered granite and aplite, some sulfides. Very soft. Heavy sludge - grey and milky brown.
30 - 33½	Aplite, soft. Milky grey sludge.
33½-39	Soft aplite and fresh granite. Grey sludge.
39 - 44	Medium hard schist and aplite. Sludge varied in color from blue-grey to milky white.
44 - 50	Harder schist and aplite. Sludge varied from blue-grey to milky brown.
50 - 54½	Schist and fresh granite. Milky blue-grey sludge.
54½- 65	Schist, fresh granite, and aplite. Milky sludge.
65 - 75	Softer fresh granite and aplite. Some mica. Milky sludge.
75 - 80	Fresh granite and aplite. Soft and broken. Milky sludge.
80 - 85	Schistose granite, some garnet. Soft and broken. Reddish blue-grey sludge.
85 - 90	Fresh granite and aplite, with some mica flakes. Medium hard. Milky sludge.
90 - 94	Fresh granite, schist and aplite. Reddish blue-grey and milky sludge.
94 -100	Aplite and schist. Harder. Reddish blue-grey sludge.

End of hole

COORDINATES: 6,291.7 E
6,096.5 N
ELEVATION: 7,732.3

SHINGOFIELD MINE
Bradley Mining Co.

DIAMOND DRILL HOLE NO. SF-11

BEARING: S 50° W
INCLINATION: Minus 29
Page 1

Footage	Mineralogy	% Recovery	% P_2O_5 Sludge	Size Core
0 - 5	Overburden -- no core	0	No sludge	NX
5 - 10	Weathered granite	40	" "	"
10 - 15	Fresh granite	45	0.11	NX
15 - 20	" "	60	Tr	"
20 - 25	" "	75	Nil	NX
25 - 30	" " to 21'; Basic dike (lamprophyre?) 21-25'	75	Nil	"
30 - 35	Basic dike (lamprophyre?) to 29'. Fresh granite 29-30'	50	Nil	"
35 - 40	Fresh granite to 34'. Aplite 34 to 35'	25	Nil	"
40 - 45	Aplite	12	Nil	"
45 - 50	Aplite to 49'. Basic dike (lamprophyre?) 49 to 50'	55	Nil	"
50 - 55	Basic dike (lamprophyre?)	100	Nil	"
55 - 60	" " " to 56'. Fresh aplite 56 to 60'	65	Nil	"
60- 65	" " "	80	Nil	"
65 - 70	" " " to 66'. Aplite 66 to 70'	40	Nil	"
70 - 75	Aplite	20	Nil	"
75 - 80	Alternating aplite and schist. Schist at 80'	30	Nil	"

End of hole at 80 feet

Note: Trace and Nil values of WO_3 determined by lamping. Numerical values determined by assay. All core and sludges lamped.

DIAMOND DRILL HOLE NO. 51-11

Driller's Notes

Date Start: 10/1/53 Driller: Manning

Finish: 10/3/53 Helper: Harnell

Footage	Remarks
0 - 5	Overburden. No core, no sludge.
5 - 10	Granite. No sludge.
10 - 20	Granite. Milky grey sludge.
20 - 21	Aplite and gouge. Grey and blue sludge.
21 - 29	Dike and gouge streaks. Very hard. Blue sludge.
29 - 34½	Medium hard fresh granite and aplite. Milky sludge.
34½-40	Hard aplite. Milky sludge.
40 - 49	Soft and broken aplite. White sludge.
49 - 56	Dike and gouge. Blue sludge. Hit water at 50 feet.
56 - 60	Aplite. White sludge.
60 - 66	Dike. Blue sludge.
66 - 75	Very soft and broken aplite. White sludge.
75 - 80	Soft and broken aplite and schist. Sludge varied from white to grey.

End of hole

COORDINATES: 8,463.3 N
8,158.4 E
ELEVATION: 7,654.3

SPRINGFIELD MINE
Bradley Mining Co.

DIAMOND DRILL HOLE NO. SP-12

BEARING: S 49° W
INCLINATION: Minus 30°
Page 1

Footage	Mineralogy	% Recovery	% WO3 Sludge	Size Core
0 - 5	Chips and fragments of weathered granite, some sulfides. Probably overburden.	3	Nil	BX
5 - 10	Chips and fragments of weathered granite, some sulfides. Probably overburden.	10	"	AX
10 - 15	Chips and fragments of weathered granite and schist. Probably overburden.	8	"	"
15 - 20	Chips and fragments of weathered granite to 19'. Basic dike (lamprophyre?) 19-20'. Not possible to determine where bedrock was entered	12	"	"
20 - 25	Basic dike (lamprophyre?)	35	"	"
25 - 30	" " " to 26'. Aplite and fresh granite to 30'	55	"	"
30 - 35	Essentially fresh fine-grained granite to 34½'. Basic dike 34½ to 35	55	"	"
35 - 40	Basic dike (lamprophyre?) to 38'. Fresh granite 38-40'	35	"	"
40 - 45	Aplitic granite, fresh	75	"	"
45 - 50	" " "	80	"	"
50 - 55	" " "	50	"	"
55 - 60	" " " to 56'. Basic dike (lamprophyre?) 56 to 60'	50	"	"
60 - 65	Basic dike (lamprophyre?) to 62'. Fresh aplitic granite 62 to 65'	70	"	"
65 - 70	Fresh aplitic granite	35	"	"
70 - 75	" " "	40	"	"
75 - 80	Fresh granite and schistose granite	40	"	"
80 - 85	Fresh aplitic granite to 83'. Schistose granite to 85'	60	"	"

End of hole at 85 feet

Note: Nil values of WO_3 determined by lamping. All core and sludges lamped.

DIAMOND DRILL HOLE NO. DF-12

Driller's Notes

Date Start: 10/4/53 Driller: Manning

Finish: 10/6/53 Helper: Barkell

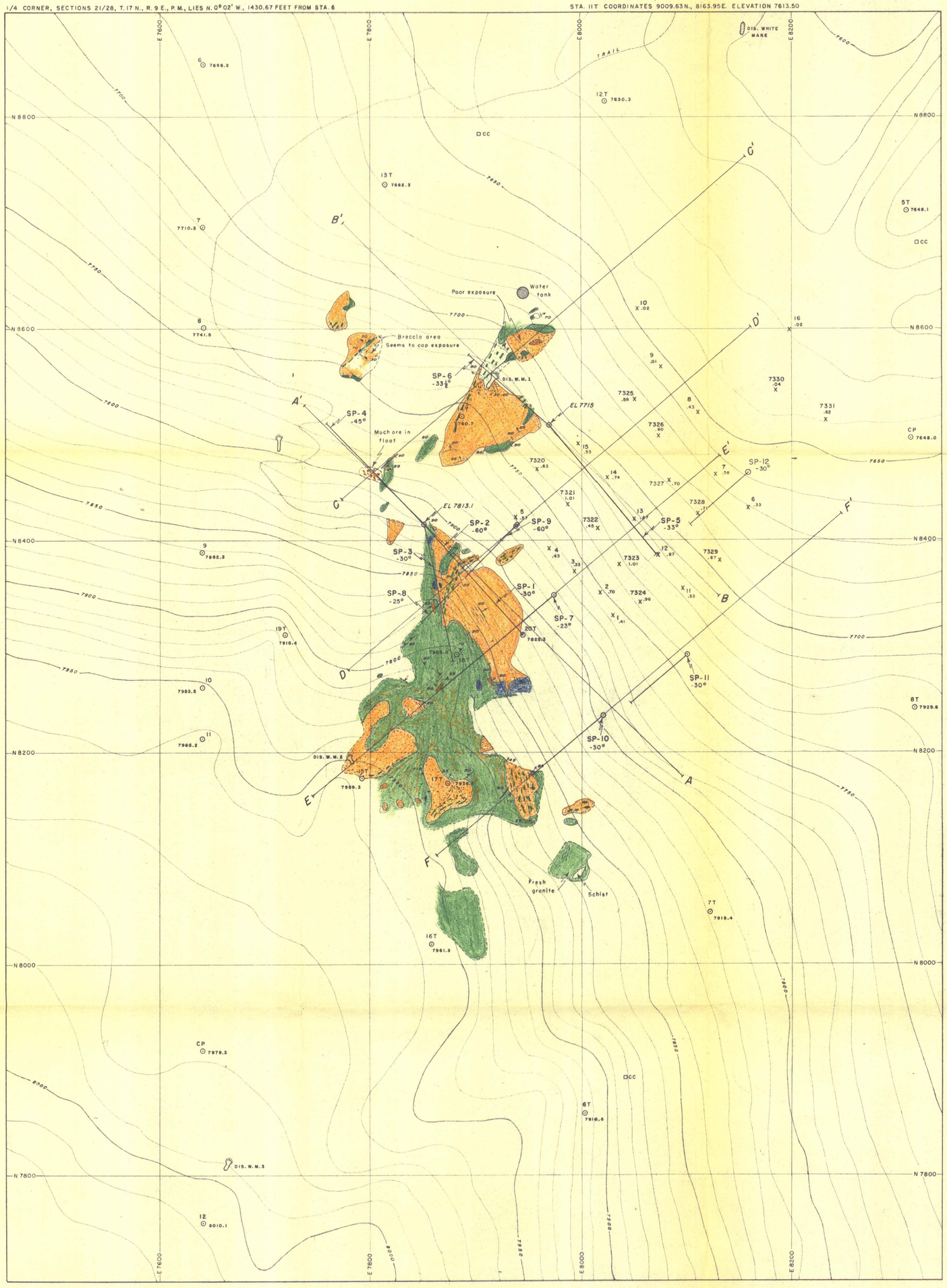
Footage	Remarks
0 - 10	No core. Could not tell if bedrock or not. Very soft and decomposed.
10 - 15	Same as above. Sludge was grey, with a yellowish-brown cast. Cemented 6 foot of hole.
15 - 19½	Very soft and broken. Yellowish-grey sludge.
19½ - 25	Dike and gouge. Yellowish-grey sludge.
25 - 28	Dike and aplite. Grey and milky sludge.
28 - 30	Aplite. Milky sludge.
30 - 34½	Aplite, fresh granite, and dike. Milky to blue sludge.
34½ - 40	Dike and fresh granite. Blue to milky sludge.
40 - 43½	Aplite with gouge. Milky sludge.
43½ - 46	Much harder aplite. Milky sludge.
46 - 49	Hard and broken aplite. Milky sludge.
49 - 56	Very hard aplite. Milky sludge.
56 - 61½	Dike. Blue sludge.
61½ - 62	Aplite. Milky sludge.
62 - 80	Aplite and fresh granite. Milky sludge.
80 - 85	Aplite, fresh granite, and schist. Sludge varied from milky to grey.

End of hole

1/4 CORNER, SECTIONS 21/28, T.17 N., R. 9 E., P.M., LIES N. 0° 02' W., 1430.67 FEET FROM STA. 6

STA. 11T COORDINATES 9009.63 N., 8163.95 E. ELEVATION 7613.50

DOCKET DMEA 3010



Elevation of station 11T by aneroid from Pistol Rock

Control survey: E. C. De Moss
Topography: Russ Wood

Traverse station elevation at nail ⊙ 7654.3
Claim corner □ CC

EXPLANATION

Granitic rocks — aplite, granite

Iron-stained gossan area

Iron-stained granitic rocks

Marble or limestone

X 0/27 — Pit, showing number and percentage WO_3 assay

⊙ 7T 7819.4 — Survey station, showing number and elevation

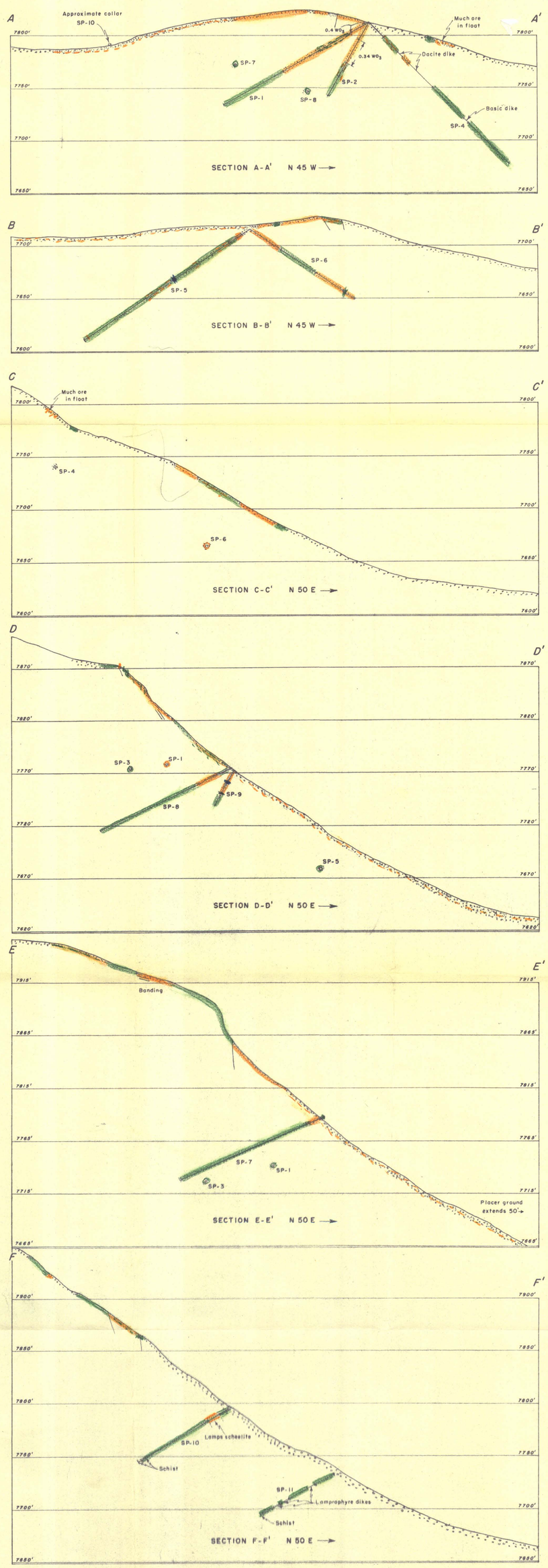
SP-9 -60° — Diamond drill hole, showing number and inclination

Geology and drill data, 1953

GEOLOGIC MAP OF THE SPRINGFIELD MINE

VALLEY COUNTY, IDAHO

BRADLEY MINING COMPANY

50 0 50 100 FEET

Contour interval 10 feet