

FIG. 4

GEOLOGIC SKETCH MAP OF THE MOHAWK CLAIMS
J.W. MINK TUNGSTEN PROSPECT
ELKO COUNTY, NEVADA

U. S. G. S.
Item 20

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA-2620, Knowles Bros. Tungsten Claims

(Garnet Tungsten)

Elko County, Nev.

Glenn G. Gentry, Mining Engineer
U. S. Bureau of Mines

R. M. Smith, Geologist
B. C. Laub, Geologist
U. S. Geological Survey

January 27, 1953

Docket No.: DMEA-2820 (tungsten)

Name and address of applicant: L. D. Wilson, Ray E. Summers and
Harold Culp,
John Day, Oregon

Name and location of property: Knowles Bros. Tungsten Claims also
known as Garnet Tungsten Mining Co.,
Mountain City, Elko Co., Nev.

SUMMARY

Pursuant to a letter from Mr. Frank E. Johnson, Chairman, Operating Committee, addressed to Mr. H. C. Miller, Executive Officer, Region III, the Knowles Bros. tungsten mining claims, also known as the Garnet tungsten mine, were examined on October 30 and 31, 1952 by an engineer^{1/} of the Bureau of Mines, Region III and geologists^{2/} of the U. S. Geological Survey.

At the time of the examination no application had been presented to the Defense Minerals Exploration Administration for Government assistance, however, it was believed that such an application was under consideration by the lessees of the property.

The examination, sampling and mapping was done at this time inasmuch as the engineers were in the immediate vicinity and time and money would be saved. The second reason was that it was considered advisable to secure all information possible before the winter storms begin which would probably preclude further surface examination until late in the spring of 1953.

The examining engineers were informed that Messrs. L. D. Wilson, Ray E. Summers and Harold Culp of John Day, Ore., have secured a lease on the Knowles Bros. mining claims. The lease is for a period of 18

^{1/} Glenn G. Gentry,
^{2/} R. M. Smith and D. C. Laub.

years. The three lessees accompanied the engineers during the examination and the night inspection by mineralight.

The lessees have secured the necessary forms and stated they expect to prepare a formal application for Government exploration assistance in the near future.

The lessees tentatively discussed a rather vague exploration of the Western exposure of scheelite bearing tectite by means of an adit 200 feet in length and various crosscuts of undetermined length.

The field team has estimated approximately 14,000 tons of indicated ore and approximately 14,000 tons of inferred ore which has a weighted average of 0.29% WO_3 . There is a reasonable chance that additional exploration will reveal reserves much greater than it is now possible to infer.

The field team recommends a four stage exploration program of drifting, crosscutting, raising and diamond drilling at an estimated cost of approximately \$59,000.00.

In a letter dated Dec. 22, 1952, Mr. Harold Culp has stated that a crosscut has been extended for a distance of 70 feet under the exposure designated as ORE BODY No. 1. This crosscut is reported to have encountered one band of tungsten ore 6 feet in width which is estimated by mineralight to contain approximately 0.50% to 0.60% WO_3 . Mr. Culp further states that "Quite a lot more of the tectite exposure is estimated to contain approximately 0.20% WO_3 ."

The application from L. D. Wilson, Ray E. Summers and Harold Culp, for Government assistance in exploring the Garnet Tungsten

Mining claims (formerly known as the Knowles Bros. property) was received on January 7, 1953.

The exploration program proposed by the applicants has been modified by the field team.

CONCLUSIONS

The scheelite minerals appear to be concentrated in bands of varying widths and were observed over a large area.

Two surface exposures of tectite seem to justify further exploration:

1. The West exposure located near the bottom of the hill and designated as ORE BODY No. 1 on the map (fig. 2).
2. The Southeast exposure located near the top of the hill and designated ORE BODY No. 2 on the map (fig. 2).

The engineers have concluded that the best area to explore would be the No. 1 ore body, for the following reasons:

1. A bulldozer cut has been made by the lessees closely adjacent to the exposure. This cut has exposed a portion of the tectite and would save time and money in preparing another location for the adit or for a crosscut.

The area is accessible by present roads.

2. This location would be much more practical for work during the winter months as snow conditions would probably close the road leading to the No. 2 ore body.
3. Inspection of the two ore bodies by mineralight indicated approximately the same quantity and quality of the scheelite mineralization in the tectite.
4. Considerable new roads would have to be constructed to reach the No. 2 orebody.

RECOMMENDATIONS

The examining engineers recommend that the No. 1 orebody be explored by driving an adit in a southeasterly direction for a length of 150 feet. From suitable locations off this adit, drive two crosscuts in a northeasterly direction for a length of 100 feet each. The longitudinal distance between the two crosscuts to be approximately 100 feet. This exploration is adjacent to the area designated as "Present Workings" (fig. 2).

Additional exploration of the No. 1 orebody is recommended by driving a crosscut in an easterly direction, elevation 7,535 feet, to crosscut the northeast end of the exposure for a distance of 200 feet.

Resume of costs:

Adit - 150 feet @ \$45.00/ft	\$ 6,750.00
Crosscutting - 400 feet @ \$45.00	18,000.00
	<u>\$24,750.00</u>

It is further recommended that the contract be written on a footage or unit basis and that the lessees furnish all necessary equipment and supplies. It is estimated the above work could be completed in 118 working days.

If the above exploration is successful, then a second stage is recommended for the exploration of orebody No. 2, situated at the southeast end of the property (fig. 2). This work is to consist of:

1. Crosscut the northeast end of the exposure at elevation 8,155 feet for a distance of 125 feet.
2. At about the center of the exposure, drift southeast for a distance of 100 feet.

3. At the southeast end of drift, b, crosscut the formation in an easterly and westerly direction for a total distance of 75 feet.

Resume of costs:

Crosscutting - 200 feet @ \$45.00/ft.	\$ 8,000.00
Drifting - 100 feet @ \$45.00/ft.	4,500.00
	<u>\$12,500.00</u>

It is estimated that the above work could be completed in 118 working days.

Total costs: Stage 1	\$24,750.00
Stage 2	12,500.00
	<u>\$37,250.00</u>

Government participation @ 75% = \$28,087.50

In addition to the exploration of Stage 1 and Stage 2, provision should be allowed in order to further explore orebodies No. 1 and 2 and other favorable exposures by means of crosscuts, drifts, raises, winzes or diamond drilling. These phases of exploration would not be undertaken unless Stages No. 1 and 2 were successful and the location of such work would be determined by prior exploration. If the proposed exploratory work is successful in exposing tungsten ore, then provision should be made for:

200 feet of raising @ \$40.00/ft.	\$ 8,000.00
2,000 feet of diamond drilling @ \$600/ft.	\$12,000.00

The location of the additional work, described as above, and the advisability of the exploration, is dependent upon the results obtained from Phase 1 and Phase 2.

The exact lengths of the proposed crosscuts and drifts are estimated as the maximums to be expected. The program should be sufficiently flexible to allow necessary changes as evidenced by rock formations

encountered.

Any such changes, additions, or alterations of the proposed exploration program should be made only after due consideration and mutual agreement between the applicant and representatives of the DMEA.

The applicant could probably utilize the services and equipment of the contractors who are presently engaged in exploring orebody No.1. Sufficient and adequate equipment is on hand (owned by the contractors) to complete the job. Therefore, no additional equipment purchases should be necessary and the construction of additional housing is not required.

The location of the proposed adits should be mutually agreed upon by the applicant and Government prior to starting the work. The location of the various crosscuts should also be determined by the field team after detailed study of the formations developed by the adit levels.

The applicant's consulting engineer should devote his entire time to the project and furnish adequate maps, reports and also take sufficient samples of the ore exposures to assist the field team in further evaluation of the property.

DETAILED COST ESTIMATE

Personnel:

	Per day
1 Mine Engr., Supt. @ \$600.00/mo.	20.00
1 Cook @ \$300.00/mo.	10.00
4 Miners @ \$15.00/ea.	60.00
2 Trammers @ \$14.00/ea.	28.00
2 Outside men (misc. helpers) @ \$13.00 ea. . .	26.00
<u>10</u>	<u>\$144.00</u>
Add 15.2% insurance	21.89
Total labor	<u>\$165.89</u>

Labor @ 7 feet advance per day \$ 23.70/ft.

Drifting and crosscutting - total 825 feet.

6-day week, advance 7 feet per day = 118 days = 4.5 months.

(Note: Allow 1.5 months additional time due to isolation of mine, weather and road conditions).

	Per foot
Supervision, labor, insurance	\$23.70
Powder, caps and fuse	3.65
Timber - wedges	1.00
Compressor supplies	2.00
Steel and bits	2.00
Repairs	1.50
Lubricating oils and greases50
Installing mine track and ties50
Installing air and water lines50
Assaying.43
Transportation (supplies to camp, etc.)	1.50
Monthly rental of equipment	2.53
	<u>\$39.86</u>
Add 13% for delays in progress, rock conditions, increased costs of labor and supplies.	5.17
	<u>\$45.03</u>

Total cost of project \$38,250.00
 Government participation @ 75% 28,687.50

The operator will furnish all equipment.

Compressor	\$ 2,500.00
Drifter drill, column, arm, etc.	750.00
Air and water hoses.	100.00
Water Pressure tank.	50.00
Mine rail, spikes, fish plates, bolts . . .	1,000.00
Air lines	150.00
Water line	90.00
Mine cars	500.00
Truck, 4-wheel drive (2nd hand)	2,000.00
Pick-up truck	1,875.00
Tools	300.00
Building for office and storage, change room	1,500.00
Mucking machine	3,500.00
Battery charging generator	250.00
Vent tube	375.00
Gas engine and blower	500.00
Battery type locomotive	5,000.00
Office equipment	500.00
	<u>\$21,300.00</u>

\$21,300.00 = \$355.00 per month - 6 months = \$2,130 = \$2.52/ft.
 60

GEOLOGY

The rocks in the area are thin-bedded limestone and shale of Paleozoic age that have been intruded by a granodiorite stock. Both the granodiorite and the sedimentary rocks are cut by aplite dikes from 5 to 200 feet wide, and quartz veins as much as 8 inches wide that strike northwest and dip steeply northeast. The limestone and shale have an average strike of N. 50° W. and dip 50°-60° SE.

At some places, near aplite dikes, the limestone has been metamorphosed to tectite and the shale to hornfels. Locally, scheelite has been introduced into the tectite and to a limited extent into some of the quartz veins.

ONE DEPOSITS

The scheelite occurs in two or more layers of tectite that are separated by barren hornfels (fig. 2). Scheelite is distributed along bedding planes, in garnet and epidote seams, and is also disseminated throughout several tectite layers. The tectite is largely covered by slope wash and crops out sporadically along the strike and down the dip.

SAMPLING

Sample No.	Length of sample feet	Percent		Ounces/Ton		Description
		WO ₃	Mo	Au	Ag	
BM-424	16	0.45	0.02	Tr.	Tr.	Chip sample of exposure of tactite 32 feet in width.
BM-425	10	0.37	0.01*	Tr.	Tr.	East bank of bulldozer cut 75 feet north of BM-424.
BM-426	16	0.19	0.01	Tr.	Tr.	Southeast bank of bulldozer cut on west slope of hill.
BM-427	10.6	*0.01	0.01	Tr.	Tr.	North end of east bank of bulldozer cut; wide exposure of tactite.
BM-428	7.0	0.13	0.01*	Tr.	Tr.	East bank of bulldozer cut near center line of proposed adit.
BM-429	7.6	0.42	0.01	Tr.	Tr.	Tactite exposure in bulldozer cut 75 feet east of BM-428.
BM-430	15	0.21	0.01*	Tr.	Tr.	Surface exposure; bold outcrop of tactite and quartz, N.20°E; 100 feet from BM-429.
BM-431	10	0.05	0.01*	Tr.	Tr.	At south end of BM-428.
BM-432	14	0.53	0.03	Tr.	Tr.	Surface exposure at approximate location of portal of proposed adit. N.30°E. - 100 feet from BM-431.
BM-433		0.42	0.02	Tr.	Tr.	General chip sample of surface exposure; 6 feet wide at bottom of hill. N. 60° E. - 150 feet from BM-432.

*Less than.

Inspection by mineralight indicated that the samples secured were representative of the exposures which had been partially cleared for examination.

The bulldozer cuts had been principally made through the loose overburden and all of the cuts were partially caved and filled to the extent that a fully detailed examination was not possible.

No development or exploration had been done on the greater part of the surface exposures and therefore chip sampling was the only method that could be used.

From the size of the exposures, it is considered that the only accurate means of sampling would be by large quantities which could be crushed to a uniform size and an automatic sample secured.

ORE RESERVES

There are no measured ore reserves at the Knowles property. An indicated reserve of 14,000 tons is exposed in the areas of B-B', C-C', and D-D' (fig. 2) where scheelite-bearing tactite is exposed for 10 feet down dip on the surface, assuming one-fourth of the tactite contains scheelite in minable quantities. An equal amount of ore may be inferred in the block extending an additional 10 feet down dip.

The weighted average of all samples taken was 0.29 percent WO_3 .

Indicated ore -	14,000 tons
Inferred ore -	<u>14,000 tons</u>
Total	- 28,000 tons

DIAMOND DRILL HOLE DATA

The drilling program conducted by the owners was not properly laid out or efficiently executed. The core boxes are not numbered and the log sheets are incomplete. Three cross sections in the most favorable areas are shown in fig. 4 and were reconstructed from the diamond drill hole data. The diamond drill data are as follows:

<u>DD Hole No.</u>	<u>Bearing</u>	<u>Inclination</u>	<u>Depth in feet</u>	<u>Rock Type</u>
1	N. 53° E.	35°	0-17 17-33 33-55	Waste ^{1/} Scheelite-bearing tactite Granite
2	N. 53° E.	60°	0-13 13-38 38-95	Waste Scheelite-bearing tactite Waste
3		90°	0-25 25-49 49-54	Waste Scheelite-bearing tactite Waste
4	S. 53° W.	70°	0-41 41-88	Waste Scheelite-bearing tactite
5	E.	45°	0-57 57-88 88-125	Waste Scheelite-bearing tactite Waste
6	N. 70° E.	45°	0-78 78-90 90-125	Waste Scheelite-bearing tactite Several 2-3 foot leads
7	N. 40° E.	50°	0-64 64-79	Waste Scheelite and waste
8	N. 40° E.	45°	0-142	Granite
9	N. 45° E.	70°	0-180 180-237 237-377 377-387	Waste Scheelite and waste Scheelite-bearing tactite Limestone
10	N. 40° E.	50°	0-113 113-305	Limestone Granite
11	N. 37° E.	50°	0-70 70-85 85-142	Waste Scheelite-bearing tactite Waste
12	N. 50° E.	50°	0-55 55-59 59-65	Waste Altered limestone and granite Scheelite-bearing tactite
13	N. 50° E.	50°	0-43 43-74	Waste Altered lined granite carrying 6 ft. scheelite

<u>DD Hole No.</u>	<u>Bearing</u>	<u>Inclination</u>	<u>Depth in feet</u>	<u>Rock Type</u>
14	N. 40° E.	45°	0-100 100-162	Waste Altered lime and garnet carrying 4 feet scheelite
15	N. 30° E.	45°	0-67 67-117	Waste Altered lime & granite carrying 4 feet scheelite
16		40°	0-17 17-59 59-82	Waste Scheelite-bearing tactite Waste

1/ Tactite, hornfels limestone and granite where not specified.

PROPOSED EXPLORATION

Exploration to date has consisted of diamond drilling and trenching which has not yielded adequate information to delimit the ore blocks. The examining engineer and geologists have proposed a four stage exploratory program. Stage 1 and 2 consists of drifting, crosscutting, raising on orebody No. 1. Stage 3 consists of drifting, crosscutting and raising on orebody No. 2. Stages 1, 2, and 3 would determine the thickness and continuity of the scheelite-bearing tactite and provide access for systematic sampling to establish the average grade of the ore.

Contingent upon the success of stages 1-3, stage 4, consisting of 2,000 feet of diamond drilling down dip and approximately 200 feet of raising on the most favorable beds encountered, would give valuable data on the occurrence and distribution of scheelite at depth.

PROPERTY

The Knowles Brothers together with Price Montrose hold 24 mining claims by right of location. These claims are unsurveyed and are reported to be situated in the Alder Mining District.

Mr. Harold Culp, geologist and supervising engineer for the lessees, states that a survey of the 6 or 7 claims covering the best exposures, will be made and a claim map prepared to accompany the application for Government assistance.

LOCATION

The mining property is adjacent to the Montrose Mining Co. and is approximately 18 miles east of Nevada State Highway No. 43 at Wild Horse, Nev.

HISTORY AND DEVELOPMENT

The Knowles brothers and Montrose have prospected the claims by diamond drilling to a depth of 140 feet. Such drill cores that are available were inspected by mineralight by the examining engineers. While the engineers have no personal knowledge of the location of the drill cores inspected, a considerable amount of the said cores showed various concentrations of scheelite, probably varying from 0.1% to 0.75% WO₃.

The present lessees have prospected at various places by means of large bulldozer cuts the majority of which have failed to reach the objectives and therefore have failed to disclose such information. No production has been made from the property.

APPLICANTS

The lessees have had a very limited experience in any type of mining operations and no experience in mining and milling tungsten ores. Mr. Harold Culp, geologist, and one of the lessees expects to supervise the exploration and operations.

The engineers recommend that actual supervision be placed under a competent mining engineer or geologist who is thoroughly familiar with the development of a tungsten mine and the treatment of such ores.

POWER

There is no transmitted electric power available at the site of the proposed exploration work. However, a high tension power line, owned and in use by the Idaho Power Co., is situated approximately $1\frac{1}{2}$ miles northeast of the mining claims. Electric power could probably be obtained when the scale of operations justified the expense.

For the proposed exploration work, the applicants expect to use machinery powered by Diesel or gasoline motors.

WATER

An adequate quantity of water is presently available from a small stream approximately 1,000 feet from the portal of the proposed adit at orebody No. 1. The water would have to be hauled via truck and barrels to the mine. It is considered probable that sufficient water could be developed from this same source for the operation of a milling plant.

MANPOWER - SUPPLIES

A few experienced miners are presently available at Mountain City, Nev., and a moderate quantity of mining supplies may also be obtained in that town.

HOUSING

There are no facilities on the property to house workmen. The few employees required for the exploration program could be accommodated in an adjacent cabin owned by the Montrose brothers.

CLIMATE - ROAD CONDITIONS

The property is situated in an isolated area with altitudes ranging from 7,200 feet to 8,200 feet above sea level. Severe weather conditions and heavy snows are to be expected from November through March.

The roads are unimproved mountain roads having a heavy gradient. Travel over the road from the mine to Nevada State Highway No. 43 will be difficult during the winter and spring months and at times will be impossible.

It would be advisable to maintain sufficient supplies on hand during the winter months to avoid delays and interruptions in the work and inconvenience to the men.

METALLURGY

The lessees contemplate the construction of a suitable milling plant adjacent to the No. 1 orebody where an adequate mill site is available, or the acquisition of the idle Rio Tinto mill at Mountain City, Nev., presently owned by the Anaconda Copper Co. The use of this mill would require hauling the ore a distance of approximately 24.5 miles over an unimproved road that would be difficult and at times impossible to travel during the winter months.

The Rio Tinto mill is equipped with the following machinery:

Traylor, jaw type, primary crusher, about 18 inches by 24 inches, V belt driven by electric motor. (Looks to be in good condition).

Conveyor belt to steel ore bin. (Belt in poor condition. Bin okay).

Short head Symons cone crusher (4-foot). (Looks to be in good condition).

4- by 6-foot vibrating screen. (Fair condition). (New screens on hand).

Conveyor belt to steel ore bin. (Looks to be in good condition).

Marcy ball mill, size 86; no liner plates in mill. Belt driven by 250-horsepower electric motor. (Looks to be in good condition).

Dorr duplex classifier. (Looks to be in good condition).

- 24 Denver sub "A" flotation cells; iron tank. (Motors and rotors appear okay; the iron tanks are nearly completely worn out and would have to be replaced).
- 8 Fagregren flotation cells. (Same condition as the Denver sub "A" cells).
- 2 Belt and bucket elevators. (Fair condition).
- 1 Oliver filter. (Partially dismantled; would have to be rebuilt or replaced, if used).
- 5 40-foot thickener tanks, steel tank; located outside plant. (Appear to be in good condition).

The main part of the mill building is approximately 50 feet to 60 feet wide by approximately 150 feet in length; steel beam and post construction, covered with corrugated sheets. All in excellent condition. The construction of the separate crushing plant is the same as the main mill building.

The mill is reported to have had a capacity of 500 tons of crude ore per 24 hours and was closed down in 1947.

An adequate supply of water could be obtained from an old mine shaft adjacent to the mill and the Idaho Power Co. maintain a high tension power line to a transformer station adjacent to the mill.

Electric motors which drive all of the mill machinery are in place and reported to be in good condition.

The main bank of transformers have been removed and would have to be replaced. It will also be necessary to install a water pump in the mine and probably a water line from the pump to the mill.

Several buildings, in good repair, are closely adjacent to the mill, for use as warehouse, shops, office, etc.

Employees could probably live in Mountain City, Nev., about 1 1/2 miles from the mill.

To secure maximum use of this mill it would be necessary to accumulate a large stockpile of ore during the summer months in order to compensate for delays and interruptions in hauling ore during the winters.

The lessees plans for the construction of a milling plant or the possible acquisition of the Rio Tinto mill, are only tentative at this time and cannot be completed until tungsten ore of sufficient quantity and grade has been established by exploration and development.

One sample of ore consisting of approximately 500 pounds, obtained by the lessees from the No. 2 orebody and submitted by them for metallurgical testing, has been treated by means of gravity concentration and flotation by the Hydrometallurgical and Ore Dressing Branch of the U. S. Bureau of Mines, Region III. Copies of this test are made a part of this report. The examining engineers were not present when this sample was secured but an inspection by mineral light would indicate that the sample was probably not representative of the exposure.

The advantages of acquiring the Rio Tinto mill (if acquisition is possible) would be principally in the time saved in construction and installation of necessary machinery. The disadvantages presently considered are the excess capacity of the mill, cost of operating such a large plant and the cost of ore haulage.

The advantages of a mill at the mine would principally be in the lower cost treatment of a lower grade ore. However, in the isolated area of the mine, it will be necessary to supply adequate housing for the men and installation of sufficient power and water.

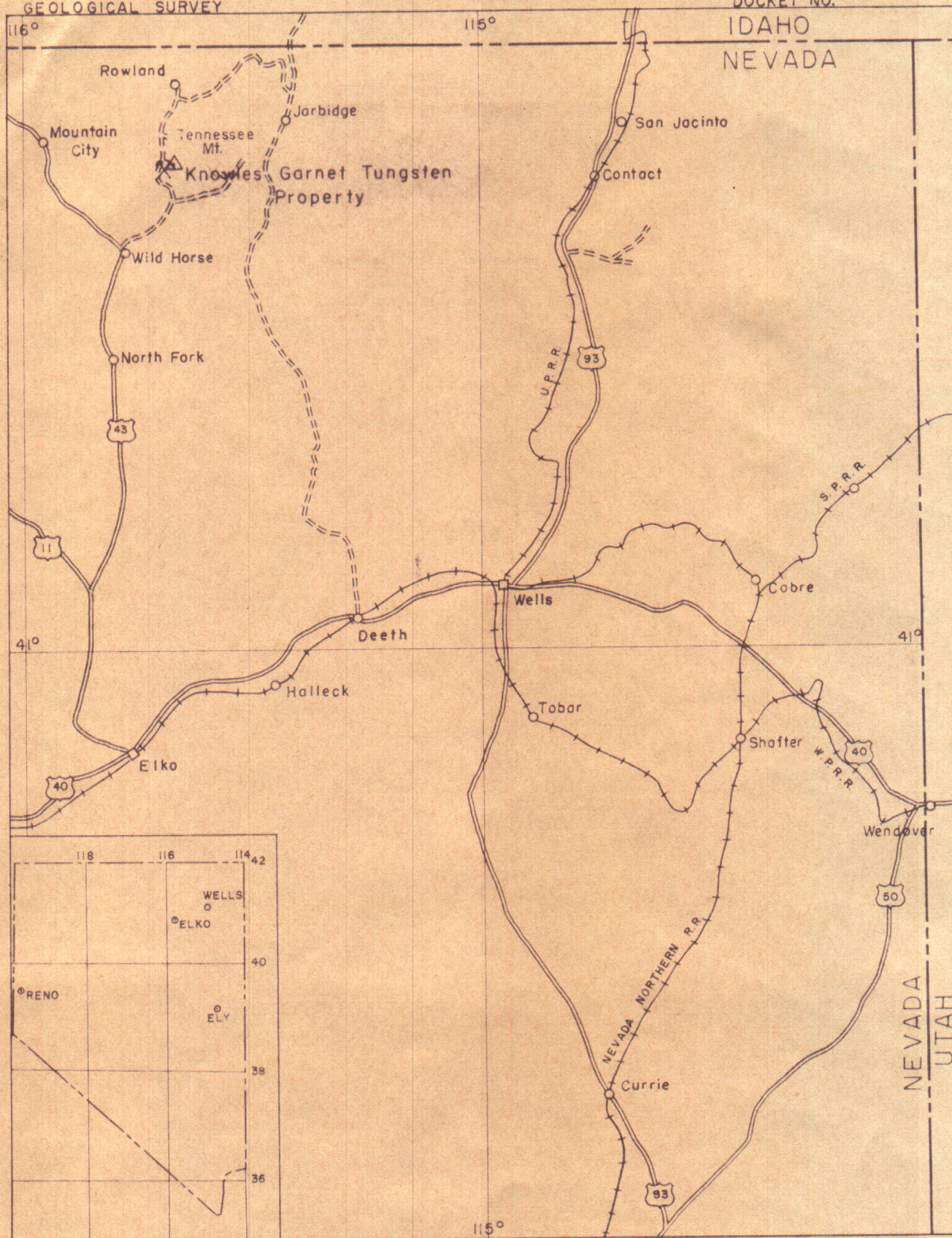


FIG. 1

INDEX MAP OF NEVADA

0 10 20 30 40 Miles

Scale 1:1,000,000

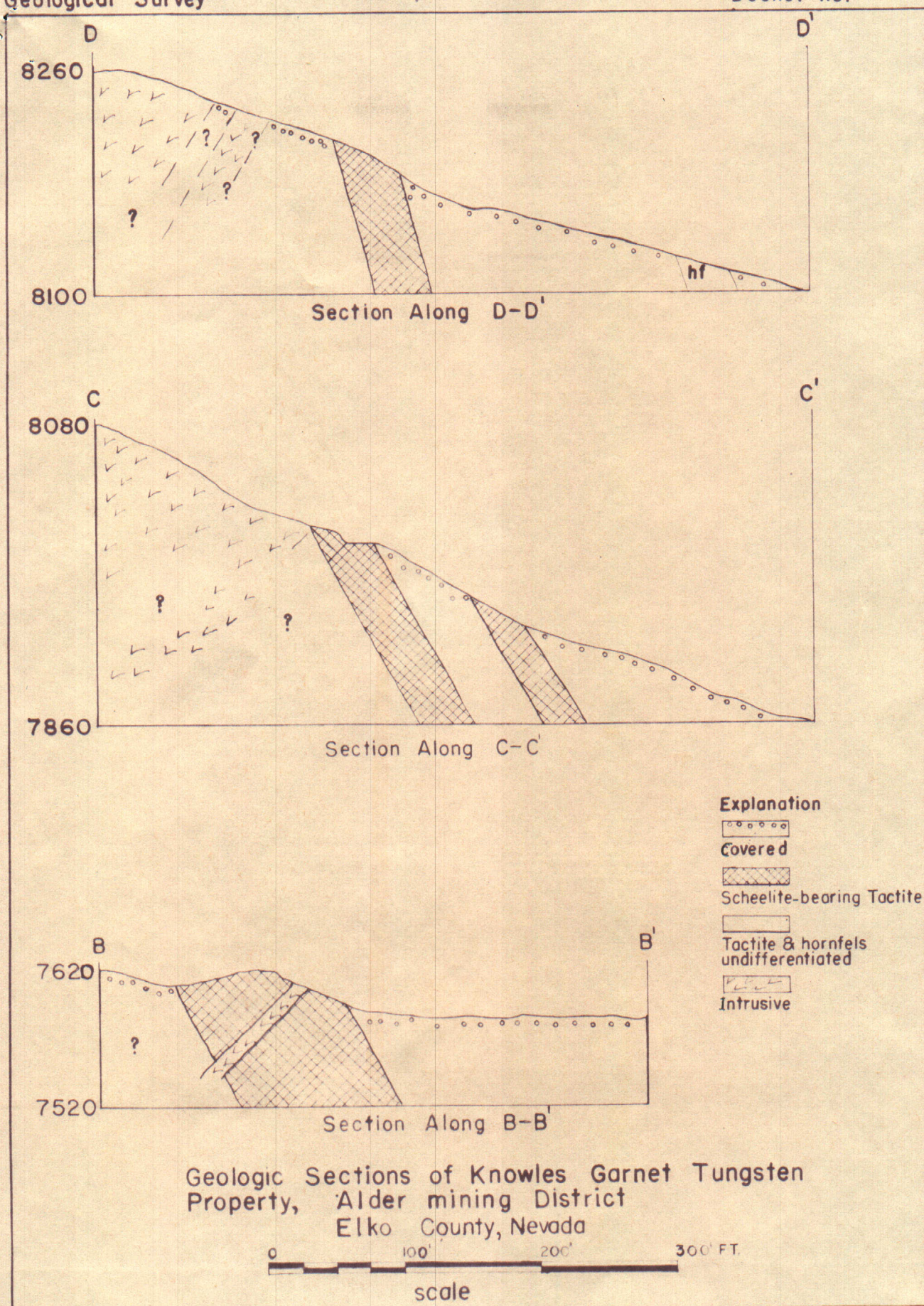


fig. 3

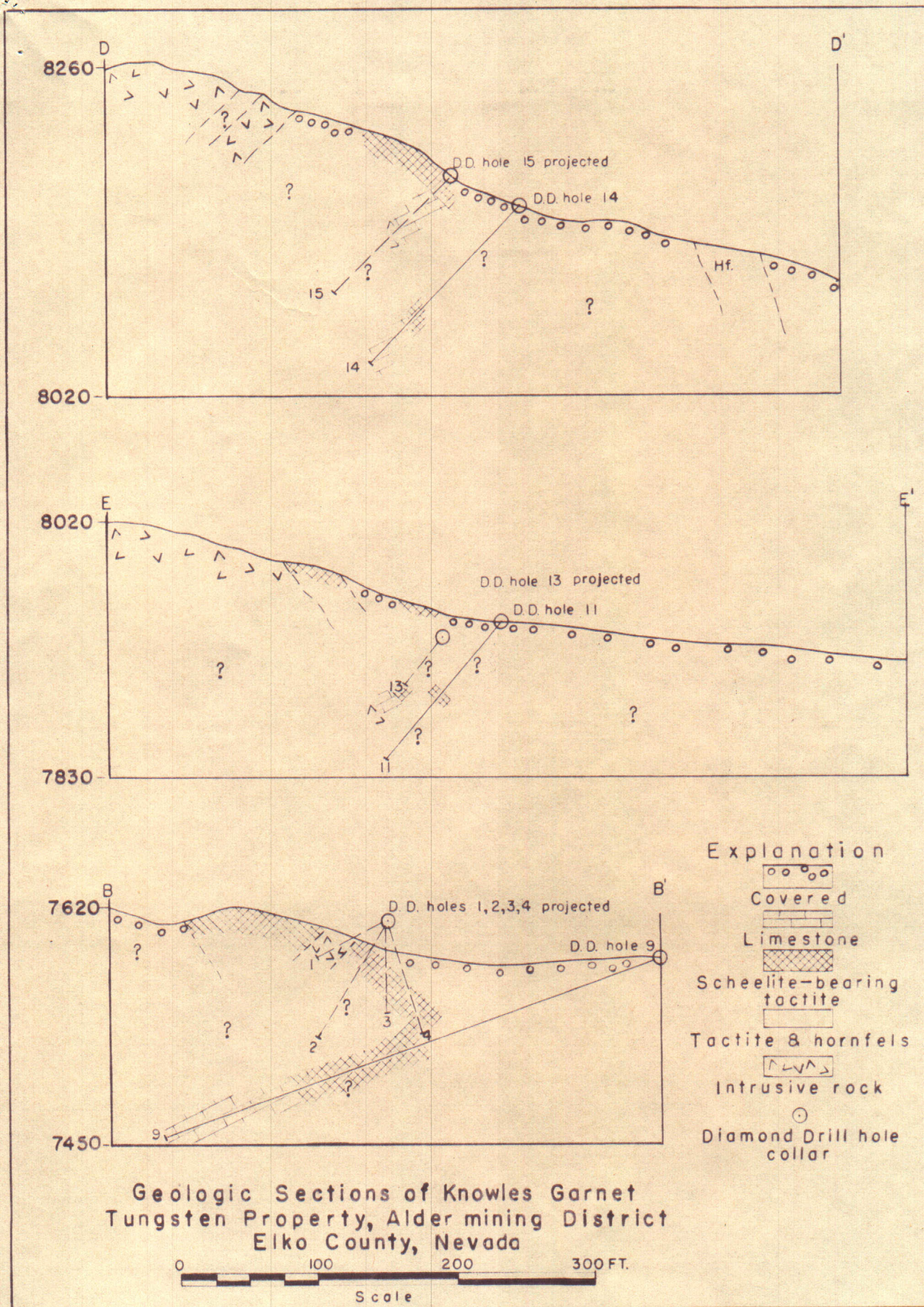


Fig. 4

sections from Diamond Drill hole Data
Geology R.M. Smith & D. C. Laub

(COPY)

Figure 5.

October 22, 1952

Re-O-2.62 - Garnet Tungsten Ore, Mountain City, Nevada
(Ray Summers, Box 425, John Day, Oregon) Mining Branch

This sample was received through the Mining Branch for concentration tests in connection with a proposed field project.

The ore carried about 1.4 percent WO_3 as scheelite. The gangue minerals were garnet, hornblende, quartz, and calcite. The scheelite occurred in part in fairly coarse grained form and also in fine-grained disseminated particles. Optimum liberation required grinding to minus 150-mesh, but considerable scheelite was liberated after crushing to minus 10-mesh.

Gravity concentration tests were made on ore crushed to minus 10-mesh and hydraulically classified, using the laboratory Wilfley table. Some low-grade concentrates were produced with considerable middlings, and sand tailings. The coarser middlings were reground to minus 35-mesh, reclassified and concentrated on the table to produce more low-grade concentrates, and good tailings. The secondary slimes were combined with the primary slimes and tabled, but results were not satisfactory.

The combined table concentrates were sized by screening and treated on the high-intensity magnetic separator. A recovery of 50 percent on the original ore was obtained from the plus 150-mesh portion in a product carrying 57.39 percent WO_3 .

Detailed data of the gravity concentration and magnetic separation are shown in the following tables:

Gravity concentration on Wilfley table

Product	Weight, percent	WO_3 , percent	Distribution of WO_3 , percent
Sand concentrates	12.52	8.60	82.75
Sand tailings	64.46	.07	3.45
Slime concentrates	.90	5.35	3.62
Slime middlings	5.52	.73	3.25
Slime tailings	16.20	.57	6.93
Total slimes	23.62	.80	13.80
Composite	100.00	1.35	100.00

Magnetic separation of sand concentrates

Product	Weight, percent	WO ₃ , percent	Distribution of WO ₃ , percent
+ 150-mesh	1.16	57.39	50.06
Magnetic	6.78	.32	1.63
- 150-mesh			
Nonmagnetic	1.02	22.87	17.51
Magnetic	3.56	5.07	15.55
Composite	12.52	8.80	62.75

The minus 150-mesh material did not yield satisfactory nonmagnetic concentrates.

The sand table tailings, amounting to 64.46 percent of the original weight and carrying .07 percent WO₃, representing 3.45 percent loss, could be discarded. The slimes and magnetic separation products other than the plus 150-mesh nonmagnetic concentrates would require regrinding of the plus 150-mesh portions to minus 150-mesh and treatment by flotation. This flotation feed would amount to about 36 percent of the original ore, and would carry 1.3 percent WO₃, representing 46.5 percent of the original tungsten content of the ore.

Flotation tests

Several flotation tests were made on the ore, at minus 100-mesh and minus 150-mesh grinds. The lowest rougher tailings obtained at the coarser grind were 0.13 percent WO₃, while at minus 150-mesh, tailings running 0.04 could be made.

By cleaning the rougher concentrates in three stages, final concentrates carrying 31 percent WO₃ were made. Gross recovery was about 98 percent of which the cleaner concentrates represented 80 percent while 17 percent remained in the cleaner tailings for retreatment. These cleaner tailings amounted to 16 percent of the original weight of ore, and under suitable plant operating conditions would probably yield most of their tungsten contents in final concentrates of satisfactory grade.

The reagents used for flotation were in pounds per ton of ore:

Soda ash,	1.0	- for conditioning
Quebracho,	0.1	- for conditioning
Quebracho,	0.05	- in cleaning
Oleic acid,	0.25	- as collector
Aerosol OTS,	0.05	- for modifying oleic acid
B-23,	0.25	- as frother

Detailed data of the flotation were:

Flotation Test 3, minus 150-mesh grind			
Product	Weight, percent	WO ₃ , percent	Percent Distribution of WO ₃
Cleaner concentrates	3.90	31.05	80.70
Combined cleaner tailings	16.15	1.58	17.03
Rougher tailings	79.95	.04	2.27
Composite	100.00	1.60	100.00

The gravity and magnetic separation concentrates which carried 57.39 percent WO₃ also contained 1.25 percent Mo.

The flotation concentrates which carried 31.05 percent WO₃, carried 0.30 percent Mo.

Molybdenum was present as the mineral powellite, which also contains tungsten. No molybdenite was noted in the ore.

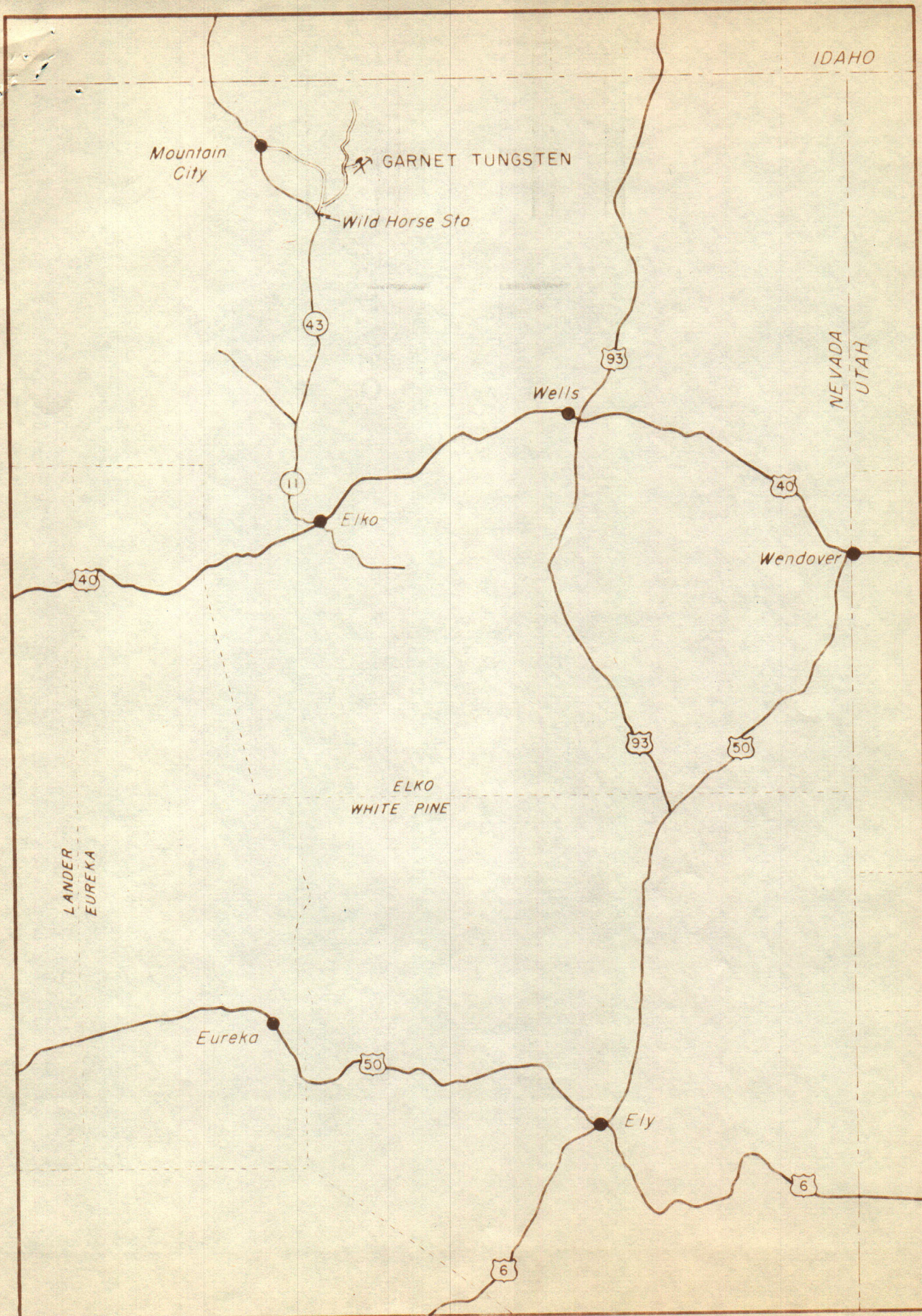
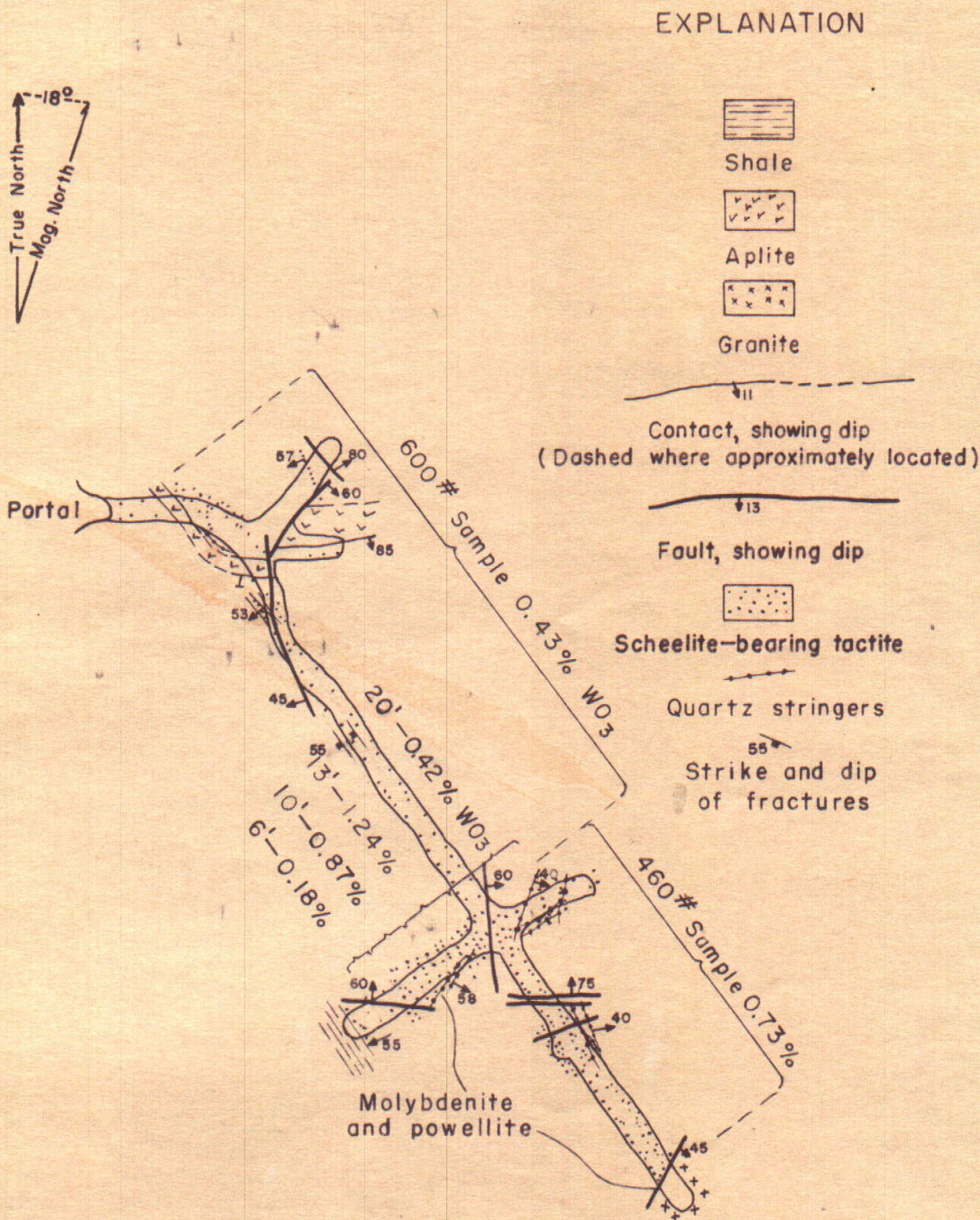


Figure 1-Location map, Garnet tungsten deposit, Elko County, Nevada



GEOLOGIC MAP OF THE UPPER ADIT
NO. 1 ORE BODY, GARNET TUNGSTEN MINE
ELKO COUNTY, NEVADA

diamond drill holes on Knowles-Montrose property

No 2 Setup.

DDH # 5.

Drilled at 45 degrees. Trace of scheelite at 58 ft. Hole 125 ft. deep. No. good.

No. 1 Setup. (4 holes)

DDH # 1.

Drilled at 35 degrees. 17 ft. to scheelite. 16 ft. of scheelite. Hole 55 ft. deep ending in felsite or altered granite.

DDH # 2.

Drilled at 60 degrees. 13 ft. to scheelite. 25 ft. of scheelite. Hole 95 ft. deep.

DDH # 3.

Drilled at 90 degrees. 25 ft. to scheelite. 24 ft. of scheelite. Hole 54 ft. deep.

DDH # 4.

Drilled at 110 degrees. 41 ft. to scheelite. 47 ft. of scheelite. Pulled out of hole while still in good ore. This core if taken at right angles to the deposit would be approximately 25 ft. thick.

No. 3 Setup.

DDH # 6.

Hole drilled at 45 degrees. 78 ft. to scheelite. 8 ft. of scheelite. One 4 ft. and several 2 to 3 ft. leads between the 8 ft. lead and end of hole at 125 ft.

No. 4 Setup.

DDH # 7.

Hole drilled at 50 degrees. 64 ft. to scheelite. approximately 40 ft. of the 79 ft. too soft to core. Last 39 ft. poor core recovery but exposed 3 fairly good leads 2 to 4 ft. thick. Scheelite came up with cuttings through out most of the 79 ft.

No 5 Setup.

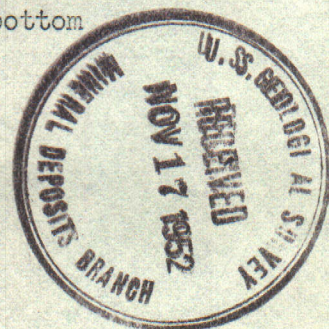
DDH # 8.

Hole drilled at 45 degrees. Drilled to 142 ft. No sign of scheelite. Granite horse protruded through contact deposit here to a point about 250 ft. below a general line of contact.

No. 6 Setup.

DDH # 9.

Hole drilled at 70 degrees. 180 ft. to scheelite. About 4 leads 3 to 4 ft. wide with waste 3 to 8 ft. between. Then a 6 ft. lead of scheelite with about 6 ft. of waste, at this point a lead of scheelite 40 ft. wide occurred which was 50 ft. at angle drilled, a right angle crosscut would be about 40 ft. After going this 40 ft. of scheelite the drill entered lime again, in which the drill was pulled out because of more urgent drilling farther up the mountain before the freeze up. This hole should carry more scheelite beyond the lime. The drill passed thru 110 ft. of lime to bottom of hole at 387 ft.



No. 7 Setup.

DDH # 10.

Drilled at 50 degrees. 113 ft. of lime to granite. Granite continued to bottom of hole 305 ft. No sign of scheelite. This hole is on south edge of above mentioned granite horse.

No. 8 Setup.

DDH # 11.

Hole drilled at 50 degrees. 70 ft. to scheelite. 15 ft. of scheelite. Hole 142 ft. to bottom.

No. 9 Setup.

DDH # 12.

Hole drilled at 50 degrees. 35 ft. to scheelite. 24 ft. of altered lime and granite carrying 6 ft. of fair grade of scheelite.

No. 10 Setup.

DDH # 13.

Hole drilled at 50 degrees. 43 ft. to scheelite. 31 ft. altered lime and granite carrying 6 ft. fair grade scheelite.

No 11 Setup.

DDH # 14.

Drilled at 45 degrees. 100 ft. to altered lime and garnet carrying one lead of 4 ft. of poor scheelite. Hole 162 ft. deep.

No. 12 Setup.

DDH # 15

Drilled at 45 degrees. 67 ft. altered lime and granite carrying one 4 ft lead of scheelite low grade. Hole 117 ft. deep.

No. 13 Setup.

DDH # 16

Drilled at 40 degrees. 17 ft to scheelite. 42 ft of scheelite. hole 82 ft. deep.

ROUGH DRAFT

2239
(43)
Item 20

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Mr. J. W. Mink, 560 Ninth St., Elko, Nevada, Docket DMEA 2239 (Tungsten) applied November 15, 195⁷ to the Defense Minerals Exploration Administration for government participation in a \$60,065 exploration program to be done on the Mohawk claims, Alder mining district, Elko County, Nevada.

In his application, Mr. Mink proposed a program of geologic mapping, trenching, and diamond drilling.

The best scheelite exposures are on the Pittsburg Silver No. 2 claim, where a few spotty occurrences in the outcrops contain as much as 0.11 percent WO_3 , but no work has been done to determine the extent and continuity of the mineralized zone below the surface. As the grade of ore exposed in the outcrops is too low to be commercial, no estimate of ore reserves has been made.

The possibilities of making a significant discovery ⁴ are poor, and it is recommended that the application be denied. ^{is Tungsten}

part 1st 9T 28 Summary - Conclusions in hand.
5/21

INTRODUCTION

The Mohawk Group of Mining Claims and the surface exposures thereon were examined on June 26 and 27, 1952 by an engineer ^{1/} of the Bureau of Mines of Region III and geologists ^{2/} of the U. S. Geological Survey.

^{1/} Glenn G. Gentry

^{2/} R. M. Smith and Mendell M. Bell

Especial attention was devoted to the one area on the Pittsburg No. 2 claim which the applicant considered as offering the best opportunity for exploration work. Mr. John W. Mink accompanied the engineer and geologists during the examination.

LOCATION

The nine mining claims are reported as the Mohawk Group, and according to recent survey by Mr. ^{W.}Settlemyer, Elko, Nevada, ~~the claims~~ ^{located} are situated in sections 5, 6, 7, and 8, T. 45 N., R. 56 E., MDB and M.

The claims ^{may be} ~~are~~ reached from Elko, Nevada by travelling northward via Nevada State Highway 43 for a distance of 66.3 miles over an all weather road, thence in a northeasterly direction, via an unimproved road for a distance of 17.4 miles. From this point the distance to the mine is approximately one mile east over a very rough ^{, steep} road, ~~having a heavy grade.~~

stet During the examination this portion of the road was impassable for any motor vehicle except a 6 wheel drive truck.

Ownership

The mining claims are held by location by J. W. Mink, who reports that all assessment work has been done and property recorded.

Water

stet Adequate water could be supplied ^{either by pumping or hauling} from Tennessee Creek for almost any size operations, and the applicant states that he has applied to the office of the Nevada State Engineer for an adequate Water right. ~~To provide water for the mining operations where the applicant proposes to explore, it would be necessary to either haul the water or install a pump and pipeline from the creek.~~

Power

The Idaho Power Company's 65,000 volt electric power line crosses the applicant's mining claims near the southern end of the Pittsburg Silver No. 2 claim. However, ^{see high} ~~do~~ to the cost of electric power installations, all prospecting in the past has been done with machines having either diesel or gasoline engines.

Labor

It is believed that a number of experienced miners could be obtained in Mountain City, Nevada as nearly all of the mines there have been closed down.

Mine Development

One shallow Bulldozer trench (75' long X 3' deep X 10' wide) was made by the applicant about one year ago across a small exposure of tactite near the center of the Pittsburg No. 1 claim.

Another Bulldozer cut has been made across an exposure on the south side of Tennessee Creek on the Pittsburg No. 2 claim. The possible mineralized areas observed in the bulldozer cuts are of limited widths. ^{Samples taken} The following samples ~~yielded the following assays for tungsten~~ represent the grade of the tungsten:

Nos. 269, 270 and 271.

B.M. 272 - Sample width 13 ft. about 100 ft. above samples 270 and 271. ^(fig. 2)

West face of the exposure. Heavy tactite with some garnet.

<u>% WO₃</u>	<u>Oz. Au/T</u>
0.11	Trace

B.M. 273 - Sample width 31 ft.

Tactite, granite, quartz exposure about 75 ft. above samples 270 and 271.

The exposure samples is partially covered with top soil.

<u>% WO₃</u>	<u>Oz./Au/T</u>
less than 0.01	Trace

B. M. 274- Sample width 5.3 ft.

Location - N. 20° W - 32 ft. from sample 272.

<u>% WO₃</u>	<u>Oz. Au/T</u>
0.07	Trace

B.M. 275 - Sample width 7 ft. Exposure on north face of hill.

Considerable quartz mixed with epidote here.

Location - N 20° E - 25 ft. from sample 273.

<u>% WO₃</u>	<u>Oz. Au/T</u>
0.01	Trace

B.M. 276 - Sample width 7 ft. north side of Tennessee Creek and about 75 ft. above creek bed. East face of small open cut and on H W side of quartz stringers.

<u>% WO₃</u>	<u>Oz. Au/T</u>
less than 0.01	Trace

B.M. 277 - Sample width 6 inches. Narrow band of tactite and quartz showing garnet crystals.

Location - N 60° W - 100 ft. from sample 276

<u>% WO₃</u>	<u>Oz. Au/T</u>
less than 0.01	Trace

Additional samples were taken on the Mohawk claim and other claims in locations where the applicant stated that he had observed scheelite.

B.M. 278 - Sample width 3.4 ft. - Taken on the Mohawk claim and N 85° W - 300 feet from the Mohawk shaft. Total width of the tactite exposure is not known as it is covered with soil.

<u>% WO₃</u>	<u>Oz. Au/T</u>
0.01	Trace

B.M. 279 - Sample width 9 1/2 inches. Mohawk claim and S. 45° E from east side center line of claim. Very small exposure of white quartz.

<u>% WO₃</u>	<u>Oz Au/T</u>
0.01	0.01

B.M. 280 - Sample width 4.3 ft. Taken on the Mohawk No. 2 claim. South side of hill and north of E-W gulch. Small tactite exposure.

<u>% WO₃</u>	<u>Oz. Au/T</u>
less than 0.01	Trace

B.M. 281 - Sample width 3.5 ft. Taken on the Mohawk No. 3 claim and 300 ft. east of sample 280. Small exposure of tactite.

<u>% WO₃</u>	<u>Oz. Au/T</u>
less than 0.01	Trace

All sampling was done during daylight hours and prior to the inspection by mineralight at night.

On page 2, item 16, the applicant states that the property was explored by a shaft 55 ft. in depth and by a crosscut and drift totaling 460 feet in length, driven for gold and silver. However, the examining engineers found the shaft had caved in at about 10 feet below the collar and the portal of an adit, reported to connect with the shaft, was also closed by a cave in. Therefore, it was impossible to examine any underground workings.

No production of tungsten ore has been made from this group of mining claims and the applicant appears to have only vague ideas as to where and how his proposed exploration work would be done.

Climate and Topography

The mining claims are situated in rough country and at an elevation of approximately 7000 ft. above sea level. During the period from December through March severe storms could be expected and a heavy snowfall probably occurs during these months. From an economical viewpoint, these conditions indicate expensive and difficult mining operations during the winter months. No buildings of any type are available on the property or in the immediate area.

Applicant's experience

Mr. Mink resides, during the summer months, on a small ranch property owned by his wife and located approximately 7 miles west of the Mohawk claims. During these summer months he is engaged part of the time in road construction and other types of construction work by the ranchers in the area and in prospecting and in relocating various mining claims that have been abandoned.

His mining experience seems to have been confined to several of the small mines located in the immediate area adjacent to his ranch and he has had a very limited experience in mining tungsten deposits. Any work contemplated on the Mohawk Group of claims, should therefore be done under the supervision of a thoroughly experienced tungsten operator.

GEOLOGY

The rocks in the area are limestone and shale of Paleozoic age which are intruded by a granodiorite stock ^{fig. 2} and partly ^{covered} ~~overlain~~ by a rhyolite flow of Tertiary age. Near the granodiorite contact the sedimentary rocks are also intruded by dikes ranging in composition from alaskite to diorite. ^{the granodiorite is fine grained} Near the dikes the sedimentary rocks are partly metamorphosed to tactite; scheelite is associated with the tactite.

The limestone is thin-bedded and shaly; it is interbedded with shales and calcareous shales. No TP ←

stet [The granodiorite is medium grained and forms a large stock (fig. 2).]
TP Adjacent to the granodiorite the sedimentary rocks are cut by granitic dikes and sills as much as 200 feet thick which are commonly siliceous but range in composition from alaskite to diorite. The granitic and sedimentary rocks are cut by quartz stringers, aplite dikes, and pegmatite dikes as much as six inches wide. ~~which occupy joint planes in all attitudes~~ The limestone beds adjacent to the granitic rocks are metamorphosed to tactite ^{stet} layers, and the shale beds are metamorphosed to hornfels.

~~In the area of the claims~~ ^{the sedimentary rocks form a syncline:} on the Pittsburg silver No. 2 claim (fig. 3), ~~they~~ strike N. 20° W. and dip 60° - 80° W.; on the Mohawk claims (fig. 4) they strike northwest and dip 20° - 60° northeast.

something is fouled up here on structure (How can it be a syncline?)

slut

On the Pittsburgh Silver No. 1 claim (fig. 2) the sedimentary rocks are partly covered by the southeast edge of an extensive rhyolite flow several hundred feet thick.

ORE DEPOSITS

The mineralized bodies are irregular concentrations of scheelite in parallel tactite layers which range from a fraction of an inch to six feet in width, and are separated by layers of barren tactite and hornfels. The mineralized bodies extend along the strike of the tactite layers for distances up to 10 feet; ~~as~~ they have not been explored below the outcrops. ~~their depths are not known.~~

of scheelite are

The best exposures ~~are~~ on the Pittsburgh Silver No. 2 claim. ~~between~~ (samples BM270 and BM272 (fig. 3)). Here a tactite layer 6 feet wide contains scheelite in ~~seams~~ *joint planes cracks* and, locally, disseminated throughout the layer in concentrations up to 0.11 percent WO_3 . Another parallel layer 5 feet wide contains as much as 0.01 percent WO_3 and is exposed at the site of sample BM271 50 feet east of the 6-foot layer. The intervening 50 feet for the most part is covered by alluvium but the outcrops were found to contain ~~local concentrations of~~ *spotty sparse* scheelite *- bearing material containing* up to 0.01 percent WO_3 (sample BM275).

ORE RESERVES

There are no ore reserves on the Mohawk, Pittsburgh Silver, and Homestake claims.

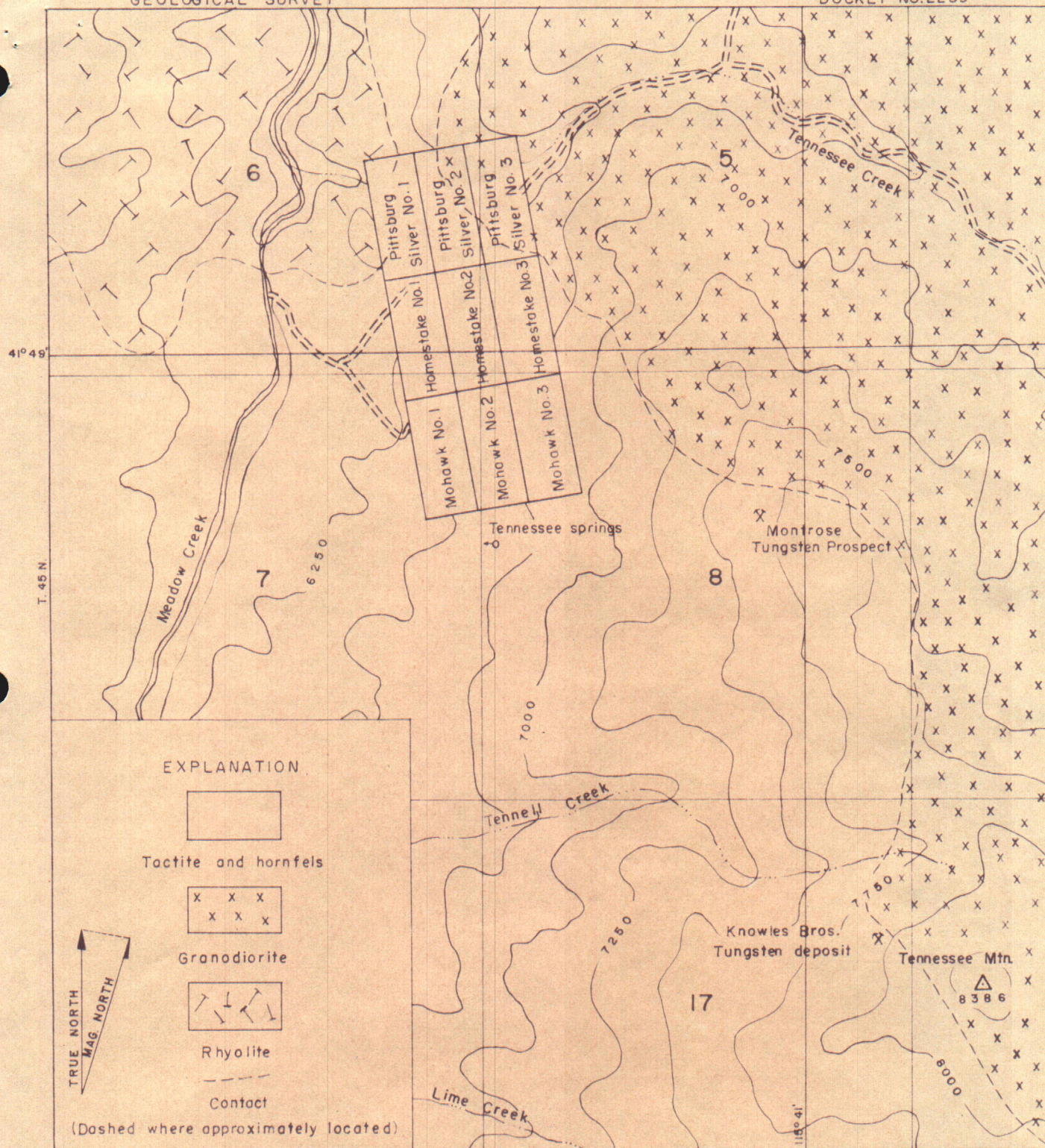
PROPOSED EXPLORATION

The applicant has no definite plan of exploration but has proposed a \$60,065 program of geologic mapping, trenching, and diamond drilling.

The amount requested by the applicant is excessive and the grade of material exposed is too low to justify government participation.

CONCLUSIONS AND RECOMMENDATIONS

As the grade of material exposed on the Mohawk and Pittsburg silver claims is too low grade to be commercial, no ore reserves ^{can be inferred} have been estimated. The possibilities of making a significant discovery are poor and it is ^{therefore} recommended that the application be denied.



BASE FROM MAP FURNISHED BY APPLICANT
AND FROM U.S.G.S. ROWLAND QUADRANGLE

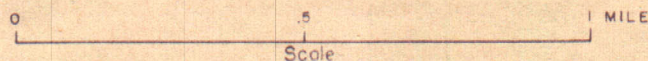
R. 56 E. M.D.M.

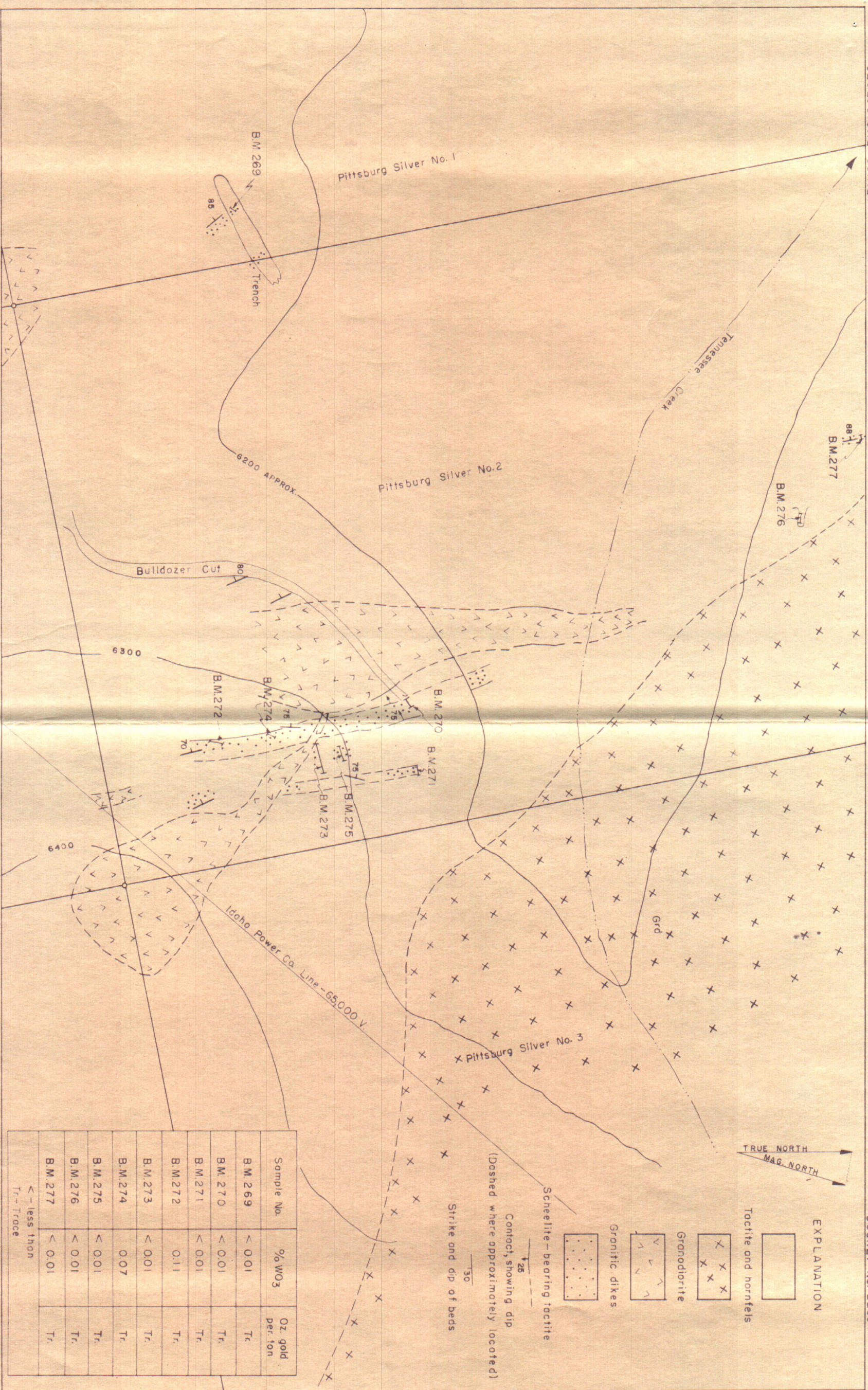
GEOLOGY BY M.M.BELL & R.M. SMITH

FIG. 2

GEOLOGIC SKETCH MAP OF THE J.W. MINK TUNGSTEN PROSPECT

ELKO COUNTY, NEVADA





Sample No.	% WO ₃	Oz. gold per ton
B.M. 269	< 0.01	Tr.
B.M. 270	< 0.01	Tr.
B.M. 271	< 0.01	Tr.
B.M. 272	0.11	Tr.
B.M. 273	< 0.01	Tr.
B.M. 274	0.07	Tr.
B.M. 275	< 0.01	Tr.
B.M. 276	< 0.01	Tr.
B.M. 277	< 0.01	Tr.
< - less than Tr. - Trace		

GEOLOGY BY R.M. SMITH AND M.M. BELL

FIG. 3 GEOLOGIC SKETCH MAP OF THE PITTSBURG SILVER CLAIMS

J.W. MINK TUNGSTEN PROSPECT

ELKO COUNTY, NEVADA

Scale 0 100 200 FEET

(43)

Item 20

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA-2239, Mohawk Group of Mining Claims

Elko County, Nev.

- Tungsten -

Glenn G. Gentry, Mining Engineer
U. S. Bureau of Mines

Roscoe M. Smith, geologist
U. S. Geological Survey

Mendell M. Bell, geologist
U. S. Geological Survey

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Climate and Topography	6
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Ore Deposits	7
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Proposed Exploration	8
Conclusions and Recommendations	8

ILLUSTRATIONS

- Figure 1. Index map of Nevada
- Figure 2. Geologic sketch map of the J. W. Mink Tungsten Prospect.
- Figure 3. Geologic sketch map of the Pittsburg Silver Claims.
- Figure 4. Geologic sketch map of the Mohawk Claims.
- Photographs

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

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The possibility of making a significant discovery of tungsten is poor, and it is recommended that the application be denied.

INTRODUCTION

The Mohawk Group of Mining Claims and the surface exposures thereon were examined on June 26 and 27, 1952 by an engineer ^{1/} of the Bureau of Mines of Region III and geologists ^{2/} of the U. S. Geological Survey. Especial attention was devoted to the one area on the Pittsburg No. 2 claim which the applicant

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The mining claims are held by location by J. W. Mink, who reports that all assessment work has been done and property recorded.

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Adequate water could be supplied from Tennessee Creek for almost any size operation and the applicant states that he has applied to the office of the Nevada State Engineer for an adequate Water right. To provide water for the mining operations where the applicant proposes to explore, it would be necessary to either haul the water or install a pump and pipeline from the creek.

POWER

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MINE DEVELOPMENT

One shallow Bulldozer trench (75' long X 3' deep X 10' wide) was made by the applicant about one year ago across a small exposure of tectite near the center of the Pittsburg No. 1 claim.

Another Bulldozer cut has been made across an exposure on the south side of Tennessee Creek on the Pittsburg No. 2 claim. The possible mineralized areas observed in the bulldozer cuts are of limited widths. The following samples represent the grade of the tungsten:

Nos. 269, 270 and 271.

B.M. 272 - Sample width 13 ft. about 100 ft. above samples 270 and 271.

West face of the exposure. Heavy taectite with some garnet.

% WO₃ Oz. Au/T

0.11 Trace

B.M. 273 - Sample width 31 ft. Taectite, granite, quartz exposure about 75 ft. above samples 270 and 271.

The exposure sample is partially covered with top soil.

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B.M. 274 - Sample width 5.3 ft.

Location - N. 20° W. - 32 ft. from sample 272.

% WO₃ Oz. Au/T

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B.M. 275 - Sample width 7 ft. Exposure on north face of hill.

Considerable quartz mixed with epidote here.

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B.M. 277 - Sample width 6 inches. Narrow band of taectite and quartz showing garnet crystals.

Location - N. 60° W. - 100 ft. from sample 276.

% WO₃ Oz. Au/T

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Additional samples were taken on the Mohawk claim and other claims in locations where the applicant stated that he had observed scheelite.

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B.M. 280 - Sample width 4.3 ft. Taken on the Mohawk No. 2 claim. South side of hill and north of E-W gulch. Small exposure of tactite.

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B.M. 281 - Sample width 3.5 ft. Taken on the Mohawk No. 3 claim and 300 ft. east of sample 280. Small exposure of tactite.

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All sampling was done during daylight hours and prior to the inspection by mineralight at night.

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No production of tungsten ore has been made from this group of mining claims and the applicant appears to have only vague ideas as to where and how his proposed exploration work would be done.

CLIMATE AND TOPOGRAPHY

The mining claims are situated in rough country and at an elevation of approximately 7,000 ft. above sea level. During the period from December through March severe storms could be expected and a heavy snowfall probably occurs during these months. From an economical viewpoint, these conditions indicate expensive and difficult mining operations during the winter months. No buildings of any type are available on the property.

APPLICANT'S EXPERIENCE

Mr. Mink resides, during the summer months, on a small ranch property owned by his wife and located approximately 7 miles west of the Mohawk claims. During these summer months he is engaged part of the time in road construction and other types of construction work by the ranchers in the area and in prospecting and in relocating various mining claims that have been abandoned.

His mining experience seems to have been confined to several of the small mines located in the immediate area adjacent to his ranch and he has had a very limited experience in mining tungsten deposits. Any work contemplated on the Mohawk Group of claims, should therefore be done under the supervision of a thoroughly experienced tungsten operator.

GEOLOGY

The rocks in the area are limestone and shale of Paleozoic age which are intruded by a granodiorite stock and partly covered by a rhyolite flow of Tertiary age. Near the granodiorite contact the sedimentary rocks are also

intruded by dikes ranging in composition from alaskite to diorite. Near the dikes the sedimentary rocks are partly metamorphosed to tactite; scheelite is associated with the tactite.

The limestone is thin-bedded and shaly; it is interbedded with shales and calcareous shales. On the Pittsburgh silver No. 2 claim (fig. 3), the sedimentary rocks strike N. 20° W. and dip 60°-80° W.; on the Mohawk claims (fig. 4) they strike northwest and dip 20°-60° northeast.

The granodiorite is medium grained and forms a large stock (fig. 2). Adjacent to the granodiorite the sedimentary rocks are cut by granitic dikes and sills as much as 200 feet thick which are commonly siliceous but range in composition from alaskite to diorite. The granitic and sedimentary rocks are cut by quartz stringers, aplite dikes, and pegmatite dikes as much as six inches wide. The limestone beds adjacent to the granitic rocks are metamorphosed to tactite layers, and the shale beds are metamorphosed to hornfels.

On the Pittsburgh Silver No. 1 claim (fig. 2) the sedimentary rocks are partly covered by the southeast edge of an extensive rhyolite flow several hundred feet thick.

ORE DEPOSITS

The mineralized bodies are irregular concentrations of scheelite in parallel tactite layers which range from a fraction of an inch to six feet in width, and are separated by layers of barren tactite and hornfels. The mineralized bodies extend along the strike of the tactite layers for distances up to 10 feet; they have not been explored below the outcrops.

The best exposures of scheelite are on the Pittsburgh Silver No. 2 claim (samples BM 270 and BM 272 - fig. 3). Here a tactite layer 6 feet wide contains scheelite in joint cracks and, locally, disseminated throughout the layer in

concentrations up to 0.11 percent WO_3 . Another parallel layer 5 feet wide contains as much as 0.01 percent WO_3 and is exposed at the site of sample BM271 50 feet east of the 6-foot layer. The intervening 50 feet for the most part is covered by alluvium but the outcrops were found to contain sparse scheelite-bearing material containing up to 0.01 percent WO_3 (sample BM275).

ORE RESERVES

There are no ore reserves on the Mohawk, Pittsburg Silver, and Homestake claims.

PROPOSED EXPLORATION

The applicant has no definite plan of exploration but has proposed a \$60,065 program of geologic mapping, trenching, and diamond drilling.

The amount requested by the applicant is excessive and the grade of material exposed is too low to justify government participation.

CONCLUSIONS AND RECOMMENDATIONS

As the grade of material exposed on the Mohawk and Pittsburg Silver claims is too low grade to be commercial, no ore reserves can be inferred. The possibility of making a significant discovery of tungsten is poor and it is recommended, therefore, that the application be denied.

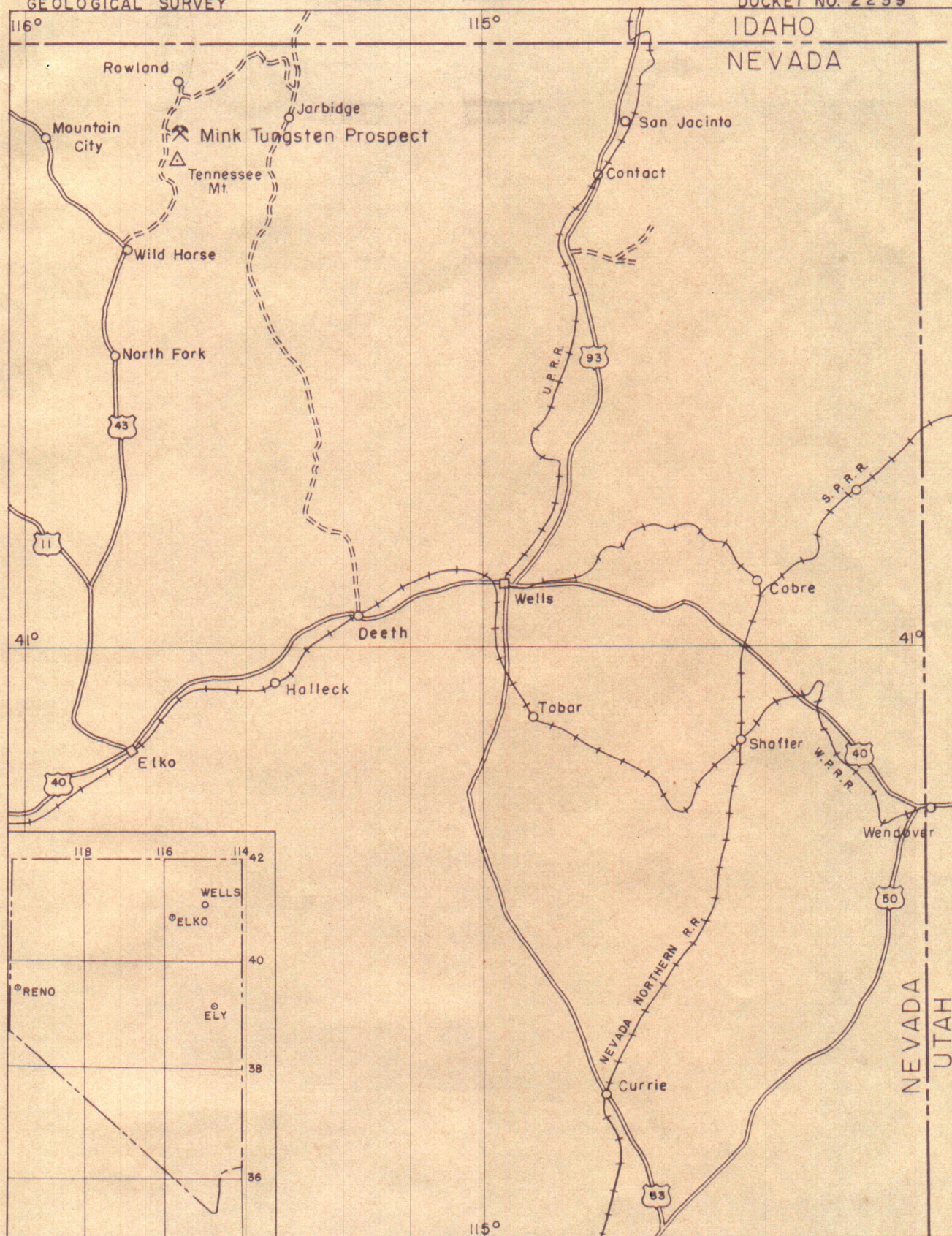


FIG. 1

INDEX MAP OF NEVADA

0 10 20 30 40 Miles

Scale 1:1,000,000

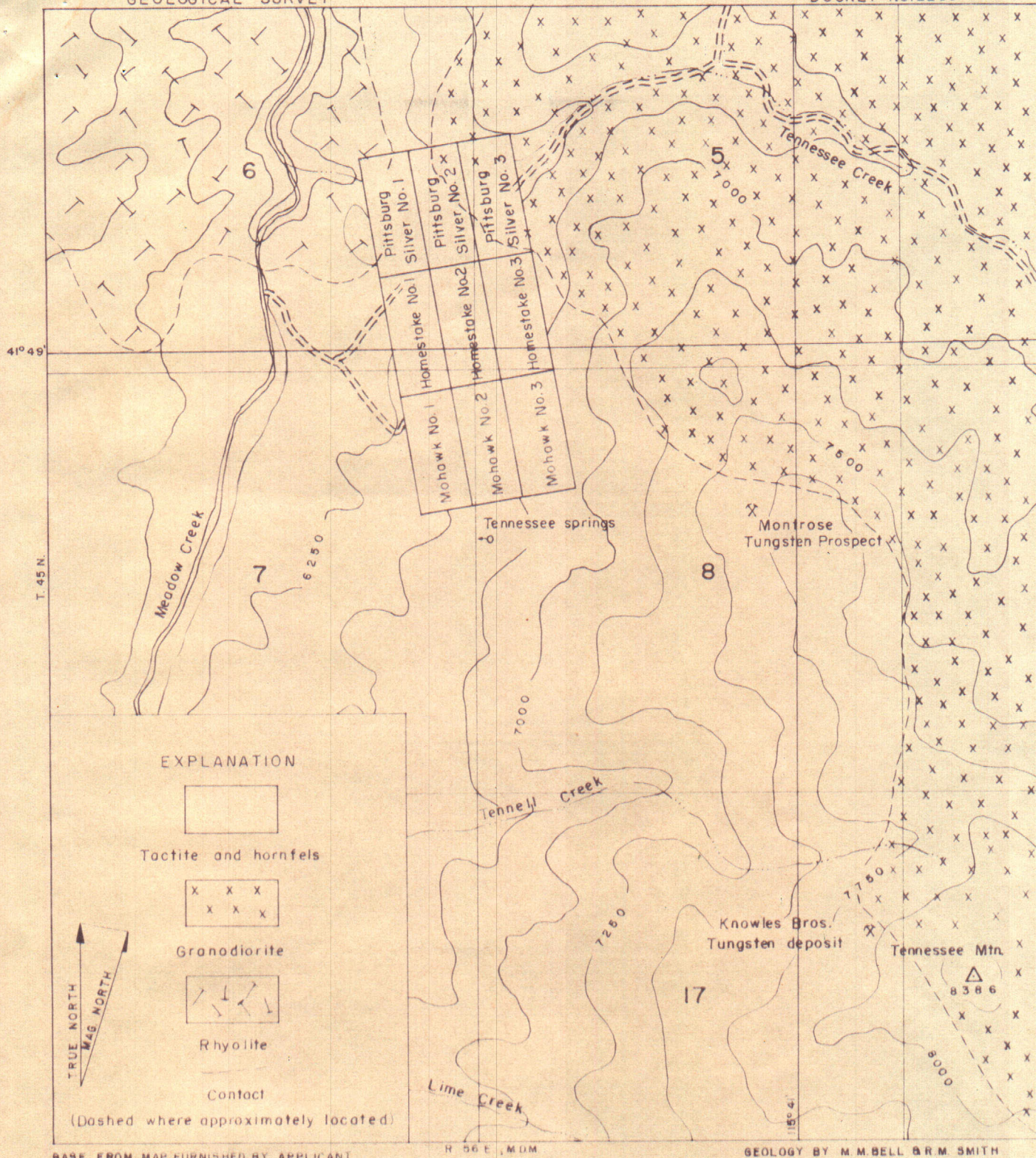
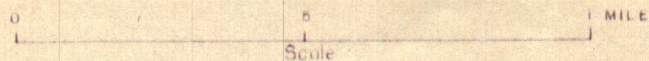


FIG. 2

GEOLOGIC SKETCH MAP OF THE J.W. MINK TUNGSTEN PROSPECT

ELKO COUNTY, NEVADA



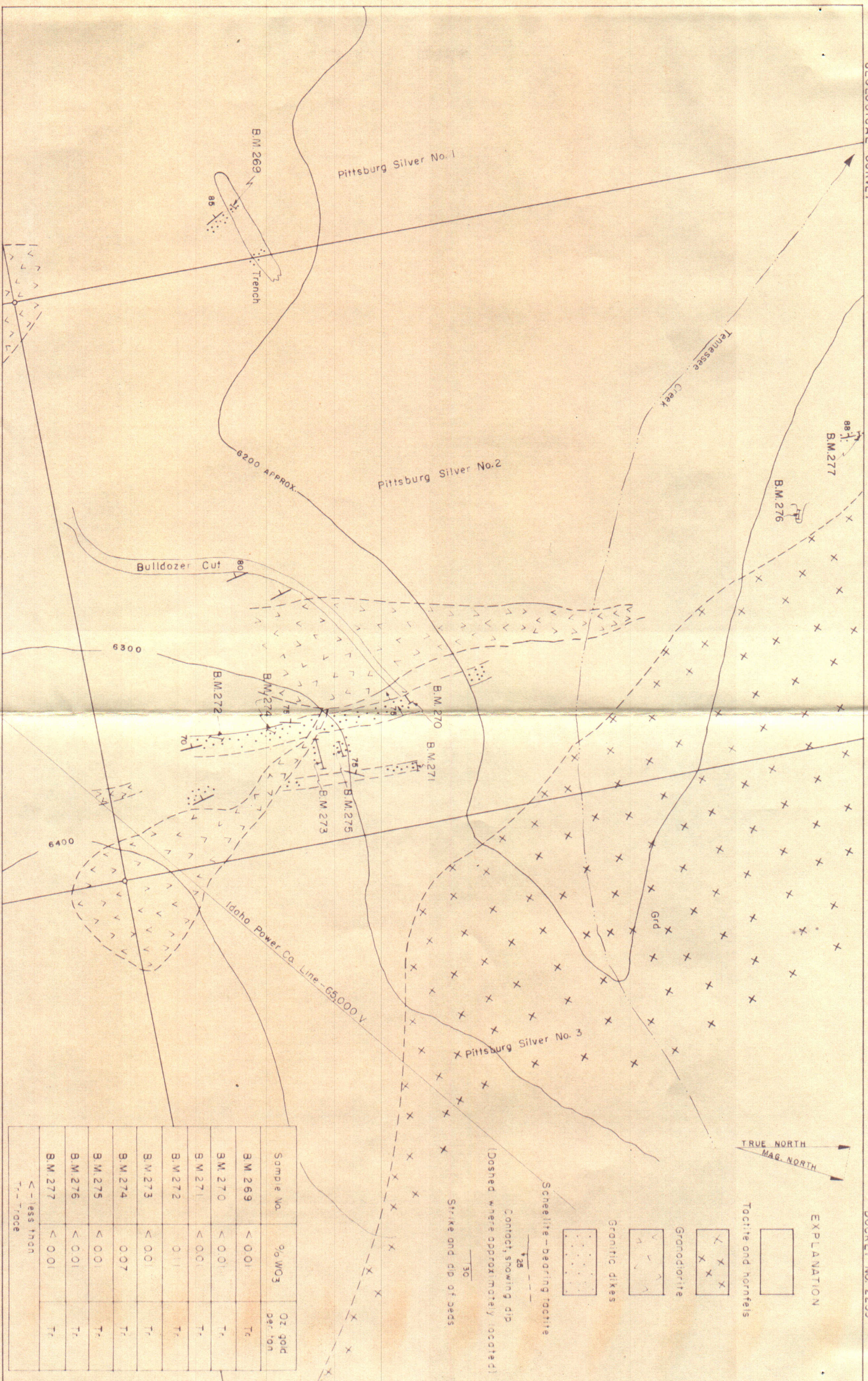


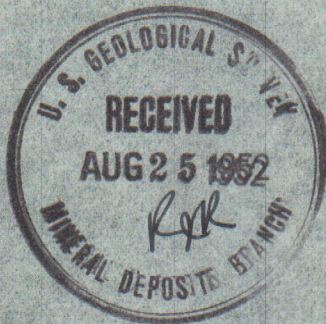
FIG. 3

GEOLOGIC SKETCH MAP OF THE PITTSBURG SILVER CLAIMS

J. W. MINK TUNGSTEN PROSPECT

ELKO COUNTY, NEVADA

Scale 0 100 200 FEET



22394
M...

August 21, 1952

Memorandum

To: H. C. Miller, Regional Director, Region III
From: Chief, Mining Division, Region III
Subject: Docket DMEA-2239X (Tungsten) - Mohawk Group,
John W. Mink, Elko County, Nevada

Enclosed are five copies of a report on the Mohawk Group of mining claims by Glenn G. Gentry, mining engineer of the Bureau of Mines of Region III and Roscoe M. Smith and Mendell M. Bell, geologists of the U. S. Geological Survey of Salt Lake City, Utah.

According to the examining team, the mineralized bodies are irregular concentrations of scheelite in parallel tactite layers which range from a fraction of an inch to six feet in width, and are separated by layers of barren tactite and hornfels. The mineralized bodies extend along the strike of the tactite layers for distances up to 10 feet; they have not been explored below the outcrops.

The best scheelite exposures are on the Pittsburg Silver No. 2 claim, where a few spotty occurrences in the outcrops contain as much as 0.11 percent WO_3 , but no work has been done to determine the extent and continuity of the mineralized zones below the surface. As the grade of ore exposed in the outcrops is too low to be commercial, no estimate of ore reserves has been made.

The possibility of making a significant discovery of tungsten is poor, and it is recommended that the application be denied. I concur with the recommendations of the engineer and geologists. The docket and correspondence relating to it are returned herewith.

A. C. Johnson

Encls.

cc: Ralph J. Roberts, Salt Lake City, Utah (USGS)
Files

U 595.

B.M. 269 - Sample width 31 inches. Pittsburg No. 1 claim.

Small exposure in shallow bulldozer cut. East
bank of the cut.

<u>% WO₃</u>	<u>Oz. Au/T</u>
less than 0.01	Trace

B.M. 270 - Sample width 5.8 feet. Pittsburg No. 2 claim.

Granite-epidote-limestone exposure. Southeast
side of Tennessee Creek and about 100 feet above
the creek.

<u>% WO₃</u>	<u>Oz. Au/T</u>
less than 0.01	Trace

B.M. 271 - Sample width 4.6 feet. Pittsburg No. 2 claim.

Exposure 73 feet from B.M. 270 and at same elevation.

<u>% WO₃</u>	<u>Oz. Au/T</u>
less than 0.01	Trace

Hydrometallurgical & Ore-Dressing Branch
Box D, University Station

Region III

July 16, 1952

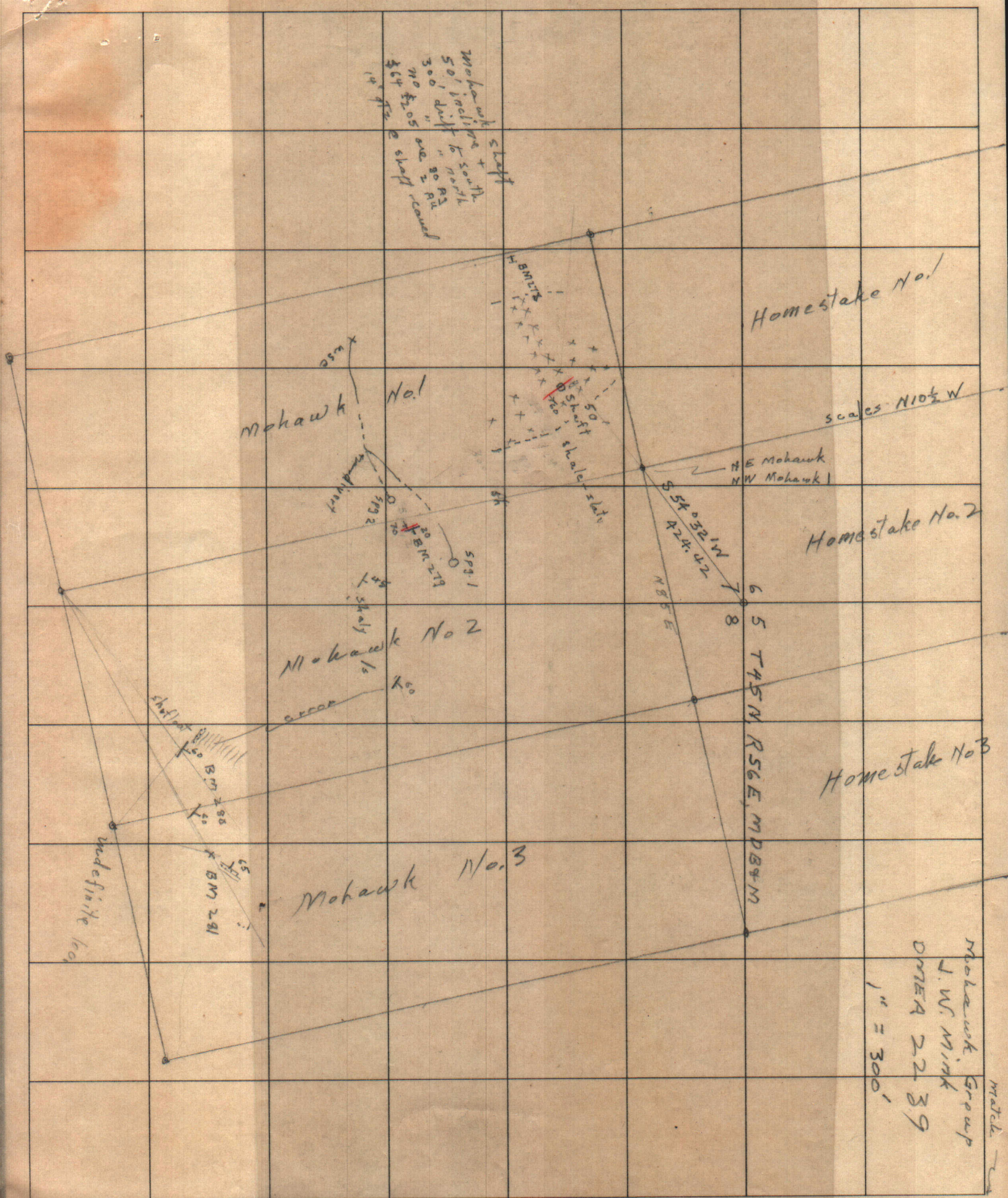
Mr. Glenn C. Gentry
U. S. Bureau of Mines
P. O. Box 1551
Reno, Nevada

Project No. Gentry

Samples from J. W. Mink Tungsten Property
DMEA # 2239

<u>Sample No.</u>	<u>WO₃,%</u>	<u>Oz Au/T</u>
269	*0.01	Trace
270	*0.01	Trace
271	*0.01	Trace
272	0.11	Trace
273	*0.01	Trace
274	0.07	Trace
275	*0.01	Trace
276	*0.01	Trace
277	*0.01	Trace
278	*0.01	Trace
279	0.01	0.01
280	*0.01	Trace
281	*0.01	Trace

cc: A. C. Johnson ✓



Pittsburg silver No. 1

Pittsburg silver No. 2

Pittsburg silver No. 3

Top
water
No. 1

Tennessee

Creek

Divert

65

J. W. Mink claims
Elko County Nevada
DMA 2239

1" = 300'

Surveyed June 1952
by Bill Settlemyer
Co. Eng. Elko Co.

Match 2



Figure 1-Contour map showing tactite outcrops and drill holes, Garnet tungsten property, Elko County, Nevada

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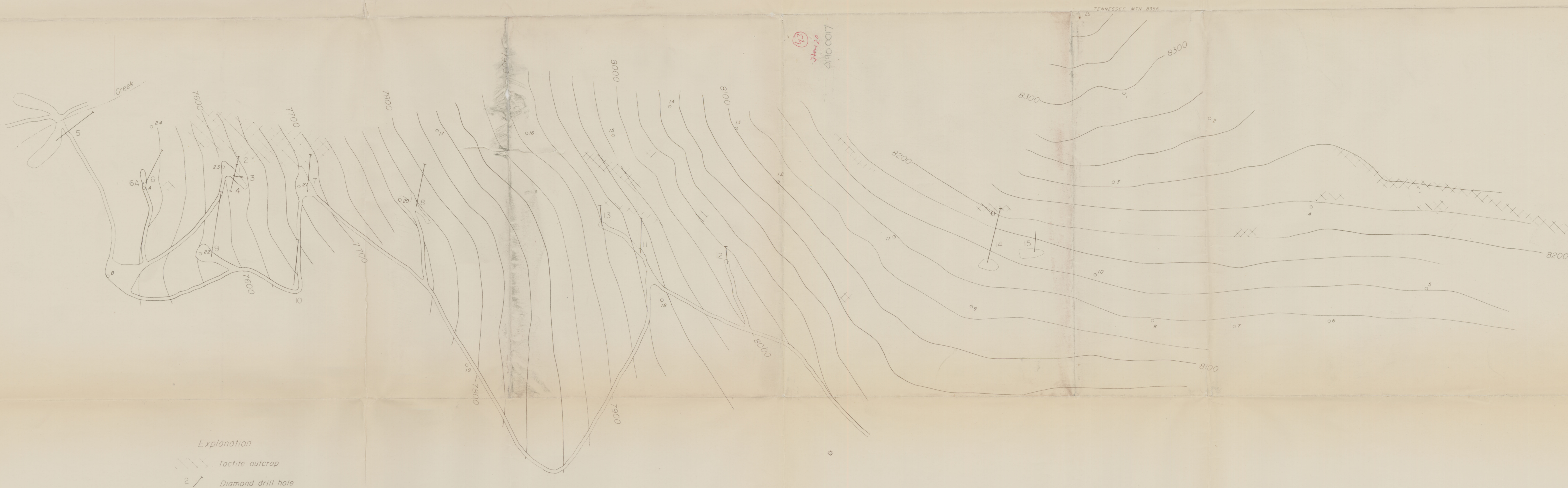
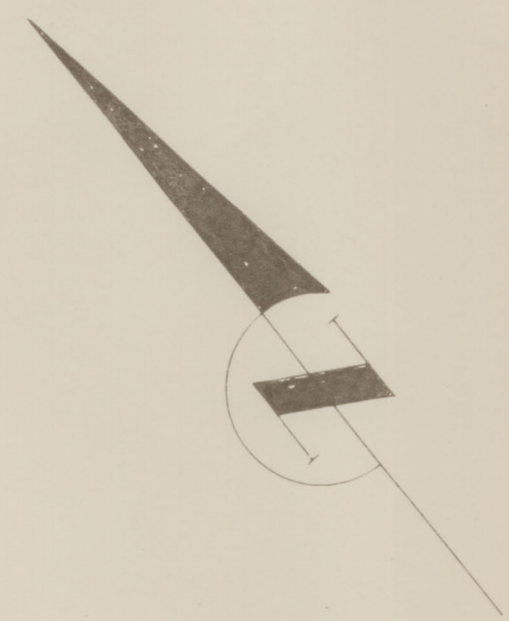


Figure 1-Contour map showing tactite outcrops and drill holes, Garnet tungsten property, Elko County, Nevada

01900017



EXPLANATION

COVERED
SCHEELITE BEARING TACTITE
TACTITE & HORNFELS UNDIFFERENTIATED
INTRUSIVE
TRENCH
CONTACT (DASHED WHERE APPROX. LOCATED)

STRIKE & DIP OF BEDS
DIAMOND DRILL HOLE
CLAIM CORNER
ROAD
PROPOSED UNDERGROUND WORKINGS

SAMPLE NO.	WIDTH IN FT.	%WO ₃
B.M. 424	32.0	0.45
B.M. 425	10.0	0.37
B.M. 426	16.0	0.19
B.M. 427	10.6	0.01
B.M. 428	7.0	0.13
B.M. 429	7.8	0.42
B.M. 430	15.0	0.21
B.M. 431	10.0	0.05
B.M. 432	14.0	0.53
B.M. 433	6.0	0.42

GEOLOGIC SKETCH MAP OF KNOWLES GARNET TUNGSTEN PROSPECT, ALDER MINING DISTRICT, ELKO COUNTY, NEVADA
CONTOUR INTERVAL 20 FEET

