UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

RECEIVED
NOV 12 1953

224 New Customhouse
Denver 2, Colorado

November 10, 1953

WSM

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2758 (Tungsten), Contract Idm-E622, Charles M. Taylor, Pima County, Arizona

Enclosed are the original and two copies of "Rescission of Exploration Project Contract by Agreement Before Work is Begun" which we have prepared and executed in conformance with authorization contained in a teletype from the Chairman of the Operating Committee dated November 2, 1953.

Copies of this notice have been given to the operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

W. H. King

W. H. King

Enclosures

DIVISION COPY

RESCISSION OF EXPLORATION PROJECT CONTRACT BY AGREEMENT BEFORE WORK IS BEGUN

It is agreed this 4th day of November, 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government", and Charles M. Taylor, hereinafter called the "Operator", parties to that certain Exploration Project Contract Idm-E622, Docket No. DMEA 2758, dated October 7, 1953, that said contract shall be and is hereby rescinded, revoked, and cancelled as of the date of the contract, before any actions have been taken or costs incurred thereunder, without any obligation whatever, one party to the other, the same as if said contract had never been entered into.

Witness the following signatures as of the day and year first above written.

UNITED STATES OF AMERICA

Charles M. Taylor
Charles M. Taylor
(Operator)

By W H King
W.H. King, Executive Officer
DMEA Field Team, Region IV

November 3, 1953

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division

Subject: Request for authority to rescind contract before work was begun
Docket No. DMEA 2758 - Tungsten
Charles M. Taylor
Scheelite Claims X, X Number 1, and X Number 2
Pima County, Arizona
Contract No. Idm-3622

The subject contract was prepared and executed by Region IV. The exploration project was divided into four parts. Work in each part could be performed concurrently. An outline of the exploration project and estimated costs follow:

The applicant requested exploration assistance in the amount of $37,700.00 to explore his three mining claims for tungsten.

A preliminary examination of the property was made by a geologist of the Geological Survey. The original report, in which the Bureau of Mines did not participate, recommended that the applicant be granted a DMEA loan totaling $37,700.00 to explore adequately at greater depth a mineralized fault zone that had been partly explored and encountered significant amounts of scheelite.

Because the Field Team and the examining geologist were unable to agree upon a method of exploration, the Operating Committee, DMEA, requested a re-examination by a U. S. Bureau of Mines engineer.

The property was re-examined and a joint report by members of the Bureau of Mines and Geological Survey recommended approval of an exploration program to cost approximately $20,400.00. A contract was prepared and executed by the Executive Officer, DMEA Field Team, Region IV.

At the Taylor scheelite prospect a prominent quartz vein occurs in a belt of schist and gneiss about 200 feet wide. The quartz is localized along a fault or shear zone. Coarse grained feldspar is a common constituent of the quartz, and epidote and garnet are prevalent in the schist near the vein. Scheelite occurs as large crystals and masses disseminated in the quartz and as veinlets or irregular masses in brecciated zones.

Scheelite in sufficient quantity to justify exploration is exposed in 3 places at the No. 1 adit, at the Cowboy cut, and at the West adit. The proposed work at these three places and costs are as follows:

150 feet of shaft or winzes	@ $80.00/ft.	$12,000.00
50 feet of raise	@ $32.00/ft.	1,600.00
200 feet of drifting	@ $32.00/ft.	6,400.00
100 tungsten analyses	@ $ 4.00/ft.	400.00
		$20,400.00

Several samples have been collected to demonstrate the nature of the scheelite mineralization, and the analyses are as follows:

No.	Taken by	Description	Percent WO_3
1	J. N. Faick, GS	Ore in dump, West adit	0.21
2	"	Sorted ore from dump of prospect 120 ft. east of West adit.	12.05
3	"	Sorted ore from dump of Cowboy cut	4.85
4	"	Chip sample across 16-inch vein in No. 2 crosscut north	1.05
9	U. S. B. M.	Small dump No. 1 adit	4.20
10	"	Large dump No. 1 adit	2.50
11	"	West face No. 1 crosscut north	0.08
12	"	East face No. 1 crosscut north	0.03
13	"	West face No. 2 crosscut north	0.92
14	"	West face No. 2 crosscut, about 1 to 2 ft. below #13 and #4	5.35

Measured ore reserves total about 42 tons that may contain 2.62 percent WO_3. Minable ore reserves are on the order of a total of 15 tons per foot of vertical depth from the three proposed exploration areas showing the best scheelite concentrations. The grade of this ore will not exceed 1.5 percent WO_3. Scant consideration was given to a minimum mining width in calculating the above reserves.

The Field Team concludes that "A significant discovery is highly improbable but exploration could conceivably encounter a high-grade pocket of sufficient size to constitute a significant discovery."

Because of the slight chance of making a significant discovery, the Field Team recommended that the application for Government assistance, Docket DMEA 2758, be granted and the project approved.

Before work was begun on the project, the Field Team, Region IV, recommended that the contract be reacinded because of ill health of the Operator.

The Iron and Ferro-Alloys Division concurs with this recommendation.

W. S. Martin, Chief
Iron and Ferro-Alloys Division

JHopkins/ls
11/3/53

cc: Docket
Adm. Reading File
Code 400
Oper. Committee
R. W. Geehan, USBM
T. P. Thayer, USGS
Field Team, Reg. 4

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

400

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DMEA

J.Hopkins/HCRubin
2919 4627

1483923.970--Working Fund, DMEA

W. H. King, DMEA Executive Officer, Region 4, Denver, Colorado

Reurtt Docket DMEA-2758, Contract Idm-3622, Charles H. Taylor. You are hereby authorized to execute rescission of contract before work has begun.

George C. Selfridge

G. C. Selfridge, Chairman
Operating Committee

JHoplins/HCRubin/emd
11/2/53

Copy to: Docket
Confirmation
W. S. Martin
Adm. Reading File
Audits Div. B.M.
Adm. R. File
R. W. Gehhan, USBM
T. P. Thayer, USGS
J. L. Hofflund
H. C. Rubin
chron.
pending

SENT
NOV 2 1953
Clerical Service Section

400

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P
Y

DN 235 BUREAU MINES 10/30/53 12:09 AM

C O MITTENDORF

WSM

REFERENCE DOCKET 2758, CONTRACT IDM-E622, CHARLES M. TAYLOR. OPERATOR HAS SUFFERED A SEVERE HEART ATTACK AND DOCTOR HAS ORDERED HIM TO DISCONTINUE MINING ACTIVITIES, THEREFORE BECAUSE OF HIS AGE AND PHYSICAL CONDITION MR. TAYLOR HAS REQUESTED THAT THE CONTRACT BE CANCELLED WITHOUT ANY WORK BEING PERFORMED. PLEASE TELETYPE AUTHORIZATION FOR US TO PREPARE NOTICE OF RESCINDING OF CONTRACT.

W. H. KING

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

Department of the Interior
Defense Minerals Exploration
RECEIVED
Oct 1 - 1953

93

400

224 New Customhouse
Denver 2, Colorado

October 12, 1953

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2758 (Tungsten), Contract Idm-E622, Charles M. Taylor, Pima County, Arizona

Enclosed are four copies of the supplemental examination report on the subject docket. A contract has been prepared and is in effect.

John F. Shaw
John F. Shaw
For W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
10-21-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

September 15, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Examination Report, DMEA Docket 2758 (Tungsten), Charles M. Taylor, Pima County, Arizona.

Enclosed are nine copies of the engineering examination report on the subject docket.

The applicant requested $24,000.00 to explore his three tungsten claims. The Bureau of Mines did not participate in the first examination in which it was recommended that exploration aid in the amount of $37,700.00 be granted.

The engineer examiners recommend that all exploration work be done on scheelite mineralization at a cost of $20,400.00.

We concur in this recommendation.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE

10-21-53
(date)

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 14 1953

MINING DIVISION
REGION IV

September 4, 1953

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Lincoln A. Stewart for Walter R. Storms, Chief, Mining Methods Branch, Mining Div., Region IV

Subject : Final Report, DMEA Docket 2758, C. W. Taylor's Scheelite claims, Old Hat District, Pima County, Ariz.

Enclosed are original and 8 copies of the section on Summary, Conclusions and Recommendations by J. N. Faick of the Geological Survey, and John H. Soule' and Robert Ageton. The separate section on Geology has been submitted by the Geological Survey.

Although the prospects of making a significant discovery seem remote, the pattern of ore deposition is such that exploration might open a sizable deposit. The examiners have recommended a loan of $20,400 and I concur with their recommendation.

Brochure is enclosed.

Lincoln A. Stewart

Lincoln A. Stewart, Mining Engineer
For Walter R. Storms, Chief
Mining Methods Branch
Mining Division, Region IV

CC W. H. King (8(
R. F. Robinson
DMEA-2758
DF

LAStewart:frj

Reviewed by
DMEA OPERATING COMMITTEE
10-21-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
200 New Customhouse
Denver 2, Colorado

September 9, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA 2758, Taylor Scheelite Mine (Tungsten), Pima County, Arizona, Charles M. Taylor, Applicant

Enclosed are 9 copies of the final geologic report by John N. Faick of the U. S. Geological Survey covering the above docket.

It has been recommended that the loan be approved.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

Reviewed by
DMEA OPERATING COMMITTEE
10-21-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P.O. Box 4126, University Station
Tucson 5, Arizona

September 1, 1953

Memorandum

To: A. H. Koschmann, Denver, Colorado

From: Raymond F. Robinson, Tucson, Arizona

Subject: DMEA 2758, Taylor Scheelite Mine (Tungsten), Pima County, Arizona, Charles M. Taylor, Applicant

Enclosed please find the original and eight copies of the final report on the subject docket. An agreement has been reached with the Bureau on plan of exploration for this property, according to instructions received from the Field Team.

The Field Team has, on the basis of previous reports, expressed a desire to explore the scheelite occurrence on this property located in adit number 1. The writer, Mr. Faick, concurs with this. However, if work is warranted on this showing, it is also warranted on two other occurrences in the same shear zone where the area of mineralization is larger and the grade just as good as at the adit number 1 site. Therefore a four part program of exploration is proposed to adequately and logically explore the property.

Mr. Faick believes that there is a reasonable chance to develop "significant" amounts of tungsten as the result of the proposed program and I concur with his observations and conclusions.

Raymond F. Robinson

Raymond F. Robinson
Acting District Supervisor
Arizona - New Mexico

Reviewed by
DMEA OPERATING COMMITTEE

10-21-53
(date)

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 1 - 1953

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-2758, C. M. Taylor's Scheelite Claims X, X Number 1 and X Number 2

Pima County, Arizona

John N. Faick, Geologist
U. S. Geological Survey

John H. Soule', Mining Engineer
Robert W. Ageton, Mining Engineer
U. S. Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
10-21-53
(date)

September 1953

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By John N. Faick[1], John H. Soule'[2], and Robert W. Ageton[2]

On October 23, 1952, C. M. Taylor applied for Government assistance under the Defense Production Act of 1950 to explore a group of scheelite-bearing mining claims that he holds under location. The claims are located in the Old Hat Mining District, Pima County, Ariz., about 22 airmiles or 50 road miles northeast of Tucson, Ariz. Taylor asked assistance for a project estimated to cost $24,000, which was to consist of road building and repair, camp repair, and various types of mine workings.

The prospect was examined on January 30, 1953 by John N. Faick of the Geological Survey, on July 7, 1953 by L. L. Farnham of the Bureau of Mines, on August 10, 1953 by John H. Soule' of the Bureau of Mines and on August 11 and 12, 1953 by John H. Soule' and Robert W. Ageton of the Bureau of Mines. Faick spent several days in the early part of August 1953 mapping the important parts of the area.

The X Claims are in an isolated area and access is not easy. Transportation may be hampered considerably during periods of inclement weather. Generally, good weather is usual at the prospect but considerable cold weather can be expected at the higher altitudes over which the road to the property passes.

1/ Geologist, U. S. Geological Survey
2/ Mining Engineers, Bureau of Mines

Although the prospect was known for many years, reportedly it was in 1942 that the mineral scheelite was noted and since then some work was done on the scheelite occurrences on the property. The only production from the prospect was a reported 800 pounds of cobbed and sorted material that contained 36.1 percent tungsten trioxide.

At the Taylor scheelite prospect a prominent quartz vein occurs in a belt of schist and gneiss about 200 feet wide which strikes easterly and dips southerly from about 45° to 75°. The quartz is localized along a shear or fault zone in the schist and gneiss and is nearly conformable to the banding. To a considerable extent emplacement of the quartz has been by replacement of the host rock.

Coarse-grained feldspar is a fairly common constituent in the quartz, and epidote and garnet are prevalent in the schist near the vein. Scheelite is the only mineral of possible commercial importance. This occurs as large crystals and masses disseminated in the quartz, and as veinlets or irregular masses in brecciated zones. The ore occurs in small but high grade pods, pockets, and shoots. Scheelite in sufficient quantity to justify exploration is exposed in 3 places: at the No. 1 adit, at the Cowboy cut and at the West adit.

Measured ore reserves total about 42 tons of dump and stored material that may contain as much as 2.62 percent tungsten trioxide. Mineable ore reserves are on the order of a total of 15 tons per foot of vertical depth from the 3 areas showing the best scheelite concentrations. The grade of this ore probably will not exceed 1.5 percent tungsten trioxide. Scant consideration was given to a minimum mining width in calculating the above reserves.

A significant discovery is highly improbable but exploration could conceivably encounter a high-grade pocket of sufficient size to constitute a significant discovery. Only because of this is the following project proposed. All proposed headings will start on and follow known zones of scheelite mineralization. The proposed work is to consist of 150 feet of shaft and winzes, 200 feet of drifting and 50 feet of raising. In addition, a maximum of 100 samples are to be analysed.

The maximum total cost of the proposed project is estimated to be $20,400.00 and is detailed as follows:

Estimated Project Costs

150 feet of shaft or winzes at $80 per foot	$12,000.00
50 feet to raise at $32.00 per foot	1,600.00
200 feet of drifting at $32.00 per foot	6,400.00
100 tungsten analyses at $4.00 each	400.00
Total estimated cost	$20,400.00

Because of the slight chance of making a significant discovery, it is recommended that the application for Government assistance, Docket DMEA-2758, be granted and that the above project be approved.

TAYLOR SCHEELITE MINE
(TUNGSTEN)

PIMA COUNTY, ARIZONA
DMEA 2758

Charles M. Taylor, Applicant

by
John N. Faick

Geologist, U. S. Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE

10-21-53
(date)

TAYLOR SCHEELITE MINE

(TUNGSTEN)

PIMA COUNTY, ARIZONA

DMEA 2758

by

John N. Falck
Geologist, U. S. Geological Survey

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ILLUSTRATIONS

Figure 1	LOCATION MAP	See Engineering Report
Figure 2	GEOLOGIC MAP - TAYLOR SCHEELITE AREA	Following Page 1
Figure 3	PLAN AND SECTIONS - TAYLOR SCHEELITE AREA	Following Page 11

INTRODUCTION

The Taylor Scheelite property, formerly known as the Coronado, is the subject of an application to the Defense Minerals Exploration Administration for Government assistance in exploration. The application was submitted by Mr. C. M. Taylor, owner, 336 North Park Avenue, Phone 3-6724, Tucson, Arizona.

The Taylor Scheelite property is situated in the Old Hat Mining District on the north side of the Catalina Mountains and is located (See Fig. 1) approximately in Sec. 13, T. 11 S., R. 15 E. and is shown on the 1904 edition of the Tucson quadrangle. The property is accessible via dirt roads from Oracle or Summerhaven, Arizona.

GEOLOGY

The geologic map of the Tucson quadrangle [1] shows that the Taylor prospect is situated near the contact between the Oracle granite of possible pre-Cambrian age and the Leatherwood diorite of possible Late Cretaceous or Tertiary

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[1] Moore, B. N., Tolman, C. F., and others, Geology of the Tucson Quadrangle, Unpublished Report: Arizona Bureau of Mines, Plate I, Undated.

age. Between the granite on the north and the diorite on the south is a zone of schist and gneiss (See Fig. 2) which is thought to be a belt of impure metamorphosed sediments. This metamorphic belt, which is about 200 feet wide at the outcrop, strikes nearly east. At the west end of the area mapped, the banding of the schist and gneiss dips about 45 degrees south and at the east end it dips from about 60 to 75 degrees south.

The metamorphic belt consists mostly of biotite, chlorite or sericite schists with many interbanded quartz-feldspar gneisses. In several places there are granular quartzose bands and in one place, in the arroyo below the Cowboy cut, a bed of amphibolite about 2 or 3 feet thick was noted.

A fault or shear zone in this belt of metamorphic rocks, which is approximately conformable to the banding, has localized extensive bodies of vein quartz. Quartz is exposed almost continuously for 1100 feet along the strike in the zone mapped (See Fig. 2). West of this area the zone is offset about 500 feet north by a northerly trending cross fault,[1] but the quartz is known to extend several hundred feet west of the cross fault.

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[1] Data obtained from map by Eldred Wilson.

The quartz veins and masses display considerable variations as to size and shape but most conform closely to the banding of the enclosing metamorphic rocks. Emplacement of the quartz has been to a considerable extent by replacement of the schist, and the wall rocks are strongly silicified in many places. East of the No. 1 shaft the vein is in many places from 8 to 10 feet wide and dips from 65 to 80 degrees south, parallel to the banded wall rocks. Between the No. 1 shaft and the Cowboy cut there is relatively little quartz cropping out, and this tends to form masses, pods and stringer-veins which are conformable to the schist. The No. 1 shaft and adit appear to be on a branch of the main vein or on a separate vein parallel to the main vein. This vein could not be traced at the surface, however it is possible that it might extend westward a couple hundred feet beneath the mine dumps and beneath the debris in the arroyo.

Between the Cowboy ~~and~~ and the West adit is an apparently large mass of quartz. Where data are available this consists of 2 veins separated by a schist parting ranging from one to four feet thick. The veins are nearly conformable to the schist and dip southward from 40 to 60 degrees. The upper or hanging-wall vein is about 4 or 5 feet thick and the lower vein ranges from 4 to 8.5 feet thick. The large

size and peculiar shape of the vein outcrop between the Cowboy cut and the West adit (See Fig. 2) is due to erosion, the vein outcrop practically forms a dip slope.

Continuity of the vein zone near the west end of the area mapped is interrupted by a cross fault which is exposed in the east face of the West adit. The fault strikes N. 16° W. and dips about 68° east. Displacement on the fault cannot be accurately determined, but apparently the west side has faulted down about 50 feet with respect to the east side. Another fault, trending northeastward (See Fig. 2) cuts the main vein zone in this same area but the displacement on it is apparently only a few feet. West of the area mapped another cross fault displaces the vein zone appreciably.

Quartz is the dominant mineral in the vein zone and is variable from glassy to milky white. There are at least two generations of quartz and possibly more. Associated with the quartz are relatively small amounts of feldspar, scheelite, mica, pyrite and chalcopyrite. Epidote and garnet are relatively common alteration products in the wall rocks along the veins. Two generations of scheelite mineralization may also be present as it appears to have formed under two different conditions. Some of it is very coarse-grained and closely associated with coarse feldspar and is older than the garnet and most of the quartz. This type of scheelite may have a pegmatitic origin. Some of the scheelite is

finer grained and tends to be localized in fractures and breccia zones in both the older quartz veins and the schist host rock. In a few places rich concentrations of scheelite occur in or near zones that have been influenced by secondary fracturing or faulting. All of the scheelite fluoresces bluish-white under the ultraviolet light and is thought to be free from impurities.

Scheelite is sufficiently abundant to be of importance in only three areas, although the mineral occurs disseminated in quartz and schistose wall rock throughout a strike distance exceeding 1000 feet in length. The greatest concentrations of scheelite are at the No. 1 adit, at the Cowboy cut, and at the West adit. The ore occurs concentrated in small pockets, pods and sheets, and in places forms small veinlets or fillings in breccia zones.

The richest concentration that has been found forms a small ore shoot that has been explored to a depth of about 50 feet by the No. 1 shaft and adit and by 2 winzes each about 20 feet deep. This ore shoot barely cropped out at the surface but at the adit level, 25 feet below the outcrop, the ore body was found to be about 35 feet long and to have a maximum width of 5 feet.

At the Cowboy cut abundant coarse crystals and masses of scheelite were found disseminated in the quartz vein throughout a strike distance of about 50 feet. Although some high grade specimen material has been obtained from this cut, most of the ore exposed in the cut is relatively low grade as indicated by the low ratio of scheelite to quartz. The applicant reports that an adit (now inaccessible) driven toward the Cowboy cut intersected a northeasterly trending vein of high grade scheelite ore about 8 inches wide. The outcrop at the Cowboy cut appears to have contained more scheelite throughout a larger area than did the outcrop at the No. 1 shaft, therefore appears to be at least as good as the No. 1 shaft area for exploration.

The West adit explored a fault zone that strikes easterly and dips south about 45 degrees, parallel to the banding of the host rock. The brecciated rock along the fault is impregnated with considerable quartz and small amounts of scheelite, the latter occurring as thin stringers or veinlets or as widely scattered grains. This zone is thought to be the western extension of the main vein zone and the change in character is attributed to a cross fault (See Fig. 2) which appears to be pre-mineral.

ORE RESERVES AND GRADE

Several samples have been collected to demonstrate the nature of the scheelite mineralization, and the analysis of these samples is as follows:

No.	Taken By	Description	Percent WO_3
1	Writer	Ore in dump, west adit	0.21
2.	"	Sorted ore from dump of prospect 120 feet east of west adit	12.05
3.	"	Sorted ore from dump of Cowboy cut	4.85
4.	"	Chip sample across 16-inch vein in No. 2 crosscut north	1.05
5.	Applicant	Grab sample of dump at No. 1 adit	3.06
6.	"	200 pound sample of shaft dump	4.65
7.	"	800 pounds of sorted ore from No. 1 winze	36.10
8.	"	Chip sample from No. 1 crosscut north	0.54
9.	U.S.B.M.	Small dump, No. 1 adit	4.20
10.	"	Large dump, No. 1 adit	2.50
11.	"	West face, No. 1 crosscut north	0.08
12.	"	East face, No. 1 crosscut north	0.03
13.	"	West face, No. 2 crosscut north	0.92
14.	"	West face, No. 2 crosscut, about 1 to 2 feet below #13 and #4.	5.35

The ore shoot explored by the No. 1 adit and shaft, [illegible] although poorly exposed at present, has a strike length of about 35 feet and a maximum width of about 5 feet in the adit. The applicant reported that notable scheelite mineralization was found to persist to the bottom of the deepest winze, a depth of 50 feet below the outcrop. This writer estimates the indicated reserves are about 8 tons per foot of depth

and the grade to be about 2½ percent. About 250 tons of ore may remain above the bottom of the winzes and it is possible that the proposed exploration may result in the discovery of an additional 400 tons of ore in this area.

At the Cowboy workings scheelite is disseminated in two quartz veins separated by a schist parting, and the two veins apparently have a combined thickness of about 12 feet. The vein has not been completely crosscut by exploration cuts and the potential has not been established. The grade of ore cannot be determined from presently available data, but it is apparently low grade, however there is no geological reason why ore containing at least one percent WO_3 cannot be obtained from this zone. Sorted ore from the dump contained 4.85 percent WO_3. If the zone is sufficiently well mineralized to be of commercial grade, then about 1000 tons of ore could be made available as a result of driving the proposed adit.

In the area explored by the West adit the scheelite is fairly persistent although inspection with mineral light, and analysis of one sample of dump ore indicates that the ore is relatively low grade, possibly too low to mine. A grab sample of the mineralized material on the dump contained 0.21 percent WO_3. However the area is of interest because of strong fracturing and brecciation by pre-mineral faulting and because it is one of the largest zones having relatively

persistent scheelite mineralization. The extent of ground preparation and mineralization suggest that there is a reasonable opportunity for finding better ore. The proposed exploration at the West adit is intended to explore a mineralized zone about 4 feet thick, and extending about 100 feet along the strike, and about 100 feet down the dip. About 3000 or 4000 tons of lower grade ore, probably containing less than one percent scheelite, may be a reasonable expectancy from this part of the exploration project, and higher grade ores might be found in the faulted and brecciated zones.

JUSTIFICATION FOR EXPLORATION

Justification for exploring the Taylor Scheelite deposit must rest upon the hope of finding minable ore bodies that at present can only be inferred from the geological character of the deposit, as important amounts of measured and indicated ore are not in evidence at present. The mineralized zone is relatively large, the quartz mass being exposed for a distance of about 1000 feet, and throughout a vertical extent in excess of 300 feet and ranges from 4 to 10 feet wide. In places the ground is adequately prepared by pre-mineral faulting. Scheelite is a persistent associate with the quartz and also occurs disseminated in small amounts in the enclosing country rock. Scheelite is abundant at the No. 1 adit, the Cowboy cut and the West adit. The only ore

body of sufficient size and grade to have commercial possibilities at present is the small ore body in the No. 1 adit and shaft. Exploration work on others has not been extensive enough to permit adequate evaluation of their importance. Their surface exposures are as good as that over the shaft. Success of the exploration venture depends upon finding other similar or larger ore bodies. Exploration work on other mineralized outcrops has not been extensive enough to permit adequate evaluation of their importance. Some of the other exposures are as undoubtedly as large and rich as the original outcrop over the shaft.

The relatively coarse grain size and the blue-white fluorescence under the ultraviolet light cause a spectacular display of scheelite on the dumps and in some of the prospect pits when examined at night. It can be argued that the scheelite is disseminated through too much quartz, and that the grade is therefore too low to constitute commercial ore, but this cannot be proved without exploration and adequate sampling.

The magnitude of the objective of this exploration project is difficult to estimate because of the lack of positive data. I would expect this project to result in the discovery and eventual recovery of about 3000 units of WO_3, say 1000 from the No. 1 adit, 600 from the Cowboy zone, and 1400 from the West adit area. I regard this as being a significant amount of tungsten, and well within the requirements

of DMEA. If this project results in the discovery of 3000 units of WO_3, then additional ore will likely be found by private enterprise because there is no geological reason why the ore won't extend to greater depths, or that other ore shoots won't be discovered.

PROPOSED EXPLORATION

It is proposed to explore the Taylor Scheelite prospect with about 480 feet of underground workings at an estimated cost of about $22,000. The work is divided into 4 units (not stages) and is designed to explore 4 different parts of the mineralized zone as shown on Figure 3. The four parts have nearly equal chance of resulting in discovery, and information gained from exploration of any one part will not greatly aid in the exploration of another part. It is proposed that exploration of the 4 parts be conducted nearly simultaneously because of the operating advantages of having multiple working places, and because of the necessity of having a project large enough to be of interest to a sub-contractor with adequate equipment to do the job. The work will have to be done by contract because the applicant is not physically able to supervise it.

The four proposed exploration projects are as follows:

Part 1. The greatest concentration of scheelite found to date occurs in a steeply dipping quartz vein in the No. 1 shaft and No. 1 adit. To explore this ore, it is proposed to sink the winze on the steeply dipping ore an additional 50 feet and to drift 100 feet on the ore at this new level.

Part 2. The ore in the No. 1 adit is not on the main vein but is either a branch of it, or a separate parallel vein, and there is a remote possibility that it could be a fault segment of the main vein. If the vein containing the ore in the adit is a branch of the main vein these probably come together in the arroyo at a point about 70 feet northeast of the shaft. A small amount of scheelite was found in a prospect hole at this point.

It is proposed to explore this scheelite mineralization and the vein structure by crosscutting (See Fig. 3) from the No. 1 adit. About 30 feet of crosscut is required.

Part 3. At the Cowboy cut coarse grained scheelite is found disseminated in 2 quartz veins each several feet thick, and separated by a thin schist parting. In an old adit, now inaccessible, at elevation 6501, the applicant reported high grade ore localized in a fracture zone 6 to 8 inches wide and striking northeasterly.

It is proposed to clean out this adit and to drift (See Fig. 3) along the mineralized zone to a point beneath the east end of the Cowboy cut. Exploration should include crosscuts to test both the hanging and foot wall of the main vein zone. About 75 feet of drifting and 25 feet of crosscutting should be adequate to determine if ore exists in this area and this amount of drifting or crosscutting is therefore recommended.

Part 4. At the west adit, west of a north-trending reverse fault having a displacement of 40 to 50 feet, scheelite has been found in prospect pits at the surface and in the adit. The mineral is localized in a breccia zone that is nearly parallel to the banding of the enclosing schist and gneiss. The thickness of the zone is unknown, but it appears to be about 4 or 5 feet.

It is proposed to explore this zone (See Fig. 3) by driving a raise to the surface from the present adit, a distance of about 50 feet; and to sink 50 feet below the adit. At this new lower level drifts should be driven about 50 feet east and about 50 feet west from the shaft.

This proposed exploration is summarized as follows with distances indicated in feet:

	Winzes	Raises	Drifts	Crosscuts
Part 1	50		100	
Part 2				30
Part 3			75	25
Part 4	50	50	100	

These proposed workings are planned to start in ore or mineralized ground and it is recommended that the operator be required to drive the headings in ore, or to follow the best mineralized zone, or to direct the exploration toward specific objectives selected by DMEA representatives. It is not expected that any part of the project will require the exact footage indicated above; therefore it is suggested that a flexible program be allowed so that the amount of exploration not required in one part may be used in another. These are suggested maximums: winzes 100 feet, and a choice of drifts, crosscuts or raises not to exceed 380 feet.

CONCLUSIONS AND RECOMMENDATIONS

On the north side of the Catalina Mountains scheelite occurs associated with easterly trending fault zones. At the Taylor prospect a prominent quartz vein has been localized along a fault or shear zone in schist, and scheelite is found in the quartz and to a small extent in the schist for a strike distance of slightly in excess of 1000 feet. Scheelite

is present in quantities worthy of exploration in 3 localities, namely the No. 1 adit, the Cowboy cut and at the West adit. At the No. 1 adit a small ore body was proved by exploration to be of sufficient size and grade to have commercial possibilities. The possible extension of this ore at greater depth deserves further exploration. The ore zones at the Cowboy cut and the West adit are inadequately explored but at present appear to be as good as that at the adit. All offer geological possibilities of making worthwhile discoveries and if work is done on one it is warranted on all.

This writer's estimate of the magnitude of the objective of this exploration project is conservatively placed at a possible 3000 units of recoverable WO_3. This is regarded as a significant amount of tungsten; therefore Government participation in the proposed exploration is recommended.

DMEA-2758, C.M. TAYLOR'S SCHEELITE CLAIMS X, X NUMBER 1 AND X NUMBER 2
PIMA COUNTY, ARIZONA

Engineering Report

By John H. Soule'
Robert W. Ageton
Mining Engineers
U. S. Bureau of Mines

September 1953

DMEA-2758, C. M. TAYLOR'S SCHEELITE CLAIMS X, X NUMBER 1,
X NUMBER 2
PIMA COUNTY, ARIZONA

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INTRODUCTION

On October 23, 1953, C. M. Taylor applied for Government assistance under the Defense Production Act of 1950 to explore a group of mining claims containing scheelite mineralization. The claims are located in the Old Hat Mining District, Pima County, Ariz., about 22 miles airline or 50 miles by road northeast of Tucson, Ariz. Taylor proposed a project that was estimated to cost $24,000 and the work was to have consisted of road building and repair, camp repair and various types of mine workings.

The prospect was examined on January 30, 1953 by John N. Faick of the U. S. Geological Survey. L. L. Farnham of the U. S. Bureau of Mines examined the property on July 7, 1953 and a re-examination of the property was made by John H. Soule' of the Bureau of Mines on August 10, 1953 followed by a continuation of the examination on August 11 and 12, 1953 by John H. Soule' and Robert W. Ageton, both of the Bureau of Mines. John N. Faick of the Geological Survey spent a number of days early in August mapping the important parts of the deposits.

ACKNOWLEDGMENTS

Acknowledgment is made of the material obtained from reports made on C. M. Taylor's X claims by L. L. Farnham of the Bureau of Mines and John N. Faick of the Geological Survey as well as information supplied by C. M. Taylor, the applicant for Government assistance.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The Taylor X claims are located in the NE¼, sec. 13, unsurveyed T. 11 S., R. 15 E. in the Old Hat Mining District, Pima County, Ariz. (see figure 1). The prospect is situated on a north trending spur of the Catalina Mountains and is about 50 miles by road northeast of Tucson, Ariz.

There are 2 routes into the property, one via the Mt. Lemmon road and the other via Oracle, Ariz. The Mt. Lemmon road usually is impassable in the winter. To reach the property, take the Mt. Lemmon road for 39.0 miles from Tucson, turn right at a small sawmill and continue downgrade for 6.5 miles to the camp of the lower Control mine. Turn left or westerly between the 2 tailing dumps for 0.2 miles to a group of houses. The center fork of 3 branches has a single pipe gate which is kept locked and the caretaker, living nearby, has the key. Pass through this gate, take the right fork at 0.25 miles and again take the right fork at the top of the grade marked by a cattleguard, an additional 2.25 miles. Continue down the right fork for 1.2 miles to the camp and the mine workings. The last part of this road is impassable to motor vehicles without 4-wheel drive because of the sharp turns and steep grades.

The alternate route would be to go to Oracle, Ariz., 35.9 miles northeast of Tucson on State Route 77, thence southerly on the Mt. Lemmon road for 21.6 miles to the camp at the Control mine. From here on, follow the directions given above.

AUGUST 1953

DMEA 2758

FIGURE 1. - LOCATION MAP, TAYLOR SCHEELITE MINE
PIMA COUNTY, ARIZONA

Taylor's X claims are situated at an altitude of approximately 6,000 feet in topography of high relief. Steep,rugged slopes are common and although it is less rugged on the west end of the property, the hillsides remain steep.

The average annual precipitation is about 20 inches and nearly half of this falls in the winter months of November through March. About 12 inches of snow falls during this time but none remains on the ground for more than a few days at a time. However, the road between the prospect and the Control mine is routed over a high pass and snow in the higher altitudes may hamper transportation for somewhat longer periods of time than just a few days. Nearly 40 percent of the annual precipitation falls as summer thunder showers during July, August, and September.

There are no permanent streams in the area, but water is available from a shallow well at the camp as well as in the winzes in the No. 1 Adit workings. The water in the winzes is due to seepage and there is no evidence that flash flood waters ever entered these workings. The watershed area draining into the creek above these workings does not exceed 12 acres.

Summer temperatures rarely exceed 100 degrees at this altitude and freezing winter temperatures usually are not prolonged. In general the year around climate is excellent.

Vegetation is abundant although much of the area at the prospect recently was burned over. Scrub oak and mountain cedar are the predominant trees and range grasses abound. Catclaw and various species of cacti are present. There is no timber suitable for mining purposes on the claims but such timber exists in nearby areas, some of which are difficult of access. This timber mainly is ponderosa pine which does not last very long in mine openings.

Skilled mine labor may be difficult to obtain and retain in such isolated places. Unskilled labor reportedly is available and is confined to older men who may have difficulty in obtaining employment elsewhere. Their efficiency is relatively low.

Living accommodations are primitive and consist of 3 shacks or tent houses. They are adequate for a small crew. All supplies and services must be obtained elsewhere, preferably at Tucson where major and minor mining supplies, services and equipment are available.

HISTORY AND PRODUCTION

Little is known of the early history of Taylor's X claims. The workings are located on the U. S. Geological Survey Tucson quadrangle sheet dated 1905. Presumably this early work was done for metals other than tungsten which reportedly was first noted in 1942. No production other than 800 pounds of cobbed and sorted ore that contained 36.1 percent of tungsten trioxide was shipped from the property.

OWNERSHIP AND EXTENT

The Taylor scheelite prospect consists of 3 unpatented lode mining claims. The 3 claims now are held by location by C. M. Taylor of Tucson, Ariz. The claims are claim X, Claim X Number 1, and claim X Number 2. Taylor states that the claims are free of any liens or encumbrances. One location notice was seen in which a T. S. Sanford made a location in October 1950.

DESCRIPTION OF THE DEPOSITS

By John N. Faick

At the Taylor Scheelite prospect a prominent quartz vein occurs in a belt of schist and gneiss about 200 feet wide and which strikes easterly and dips southerly from about 45° to 75°. The quartz is localized along a shear or fault zone in the schist and gneiss and is nearly conformable to the banding. To a considerable extent emplacement of the quartz has been by replacement of the host rock.

Coarse-grained feldspar is a fairly common constituent in the quartz, and epidote and garnet are prevalent in the schist near the vein. Scheelite is the only mineral possible commercial importance. This occurs as large crystals and masses disseminated in the quartz, and as veinlets or irregular masses in brecciated zones. The ore occurs in small but high-grade pods, pockets, and shoots. Scheelite in sufficient quantity to justify exploration is exposed in 3 places: at the No. 1 adit, at the Cowboy cut and at the West adit.

MINEABLE ORE RESERVES

Measured ore reserves are confined to dump material already mined. Two dumps at the portal of No. 1 adit (see figures 2 and 3) were measured and sampled. Also included is ore reportedly broken and left in the bottom of No. 1 winze in the above adit workings. The following tabulation summarizes the measured ore reserves:

Measured Ore Reserves

Location	Tons	Percent WO_3
Small dump by track	3	4.20
Large dump by portal	27	2.50
Reported ore in winze No. 1	12	2.50 Rep't.
Total and average	42	2.62

Minable reserves in place in the adit workings were calculated on the basis of channel sampling where the ultra-violet lamp showed the presence of scheelite. No. 1 winze, where a high-grade pocket was mined, was not sampled because of water but the walls were inspected with the ultra-violet lamp. The inspection and sampling showed a narrow irregular vein averaging slightly over 1.2 feet in horizontal width with a maximum length of 25 feet and with an assumed bulge to 5 feet as reported in the winze. The 25-foot length is a maximum as is shown by sampling at the west end and by an inspection of No. 2 winze where no scheelite mineralization was noted. The assumed bulge in winze No. 1 reportedly was mined to a depth of about 20 feet below the adit level. This high grade pocket did not extend to the surface according to reports. The bulge is assumed to be elliptical

in horizontal section with dimensions of 10 feet along the strike and a width of 5 feet. Based on the above data, we may compute reserves on the order of 1.5 tons per foot of vertical depth from the surface to the bottom of winze No. 1 and then adding and assuming a continuity of the bulge downward, an additional 3.7 tons or a total of 5.2 tons per foot of vertical depth from the winze downward. A minimum mining width was not considered in the above computations.

Four samples (see figure 3) were taken in the No. 1 adit by the Bureau of Mines engineers and one previously was taken by the examiner for the Geological Survey. Two of the Bureau of Mines samples were taken in the first crosscut to the north in the adit. These contained 0.08 and 0.03 percent tungsten trioxide and this material cannot be considered minable. The 2 samples from the second crosscut to the north contained 0.92 and 5.35 percent tungsten trioxide. These samples were taken about a foot apart, thus showing the extreme spotty nature of the mineralization. The sample taken from the same location by the geologist contained 1.05 percent tungsten trioxide. An arithmetical average of the 3 samples without making a correction for the obviously erratic high-grade sample was 2.66 percent tungsten trioxide. This grade estimate seems to check with the previously reported average of 2.5 percent WO_3.

No other samples were taken by the engineers of the Bureau of Mines on other exposures tested with the ultra-violet lamp. The Cowboy cut (see figure 2), about 250 feet west of No. 1 adit contained an area of

mineralization comparable to that in the adit. However, the scheelite was more disseminated, although small high-grade concentrations were noted. The estimated grade of scheelite mineralization at this locality may be as high as 1 percent tungsten trioxide. Minable reserves, if any, would be only a few tons per foot of vertical depth. About 600 feet west of the No. 1 adit workings is the west adit as shown in figure 2. Here scheelite occurs in a narrow zone, averaging less than a foot in width and containing an estimated 0.5 percent tungsten trioxide. No minable reserves are believed to exist in this area. Other areas were examined with the ultra-violet lamp and none of them contained sufficient scheelite mineralization to be of further interest.

In recapitulation, there are about 42 tons of measured ore containing about 2.62 percent tungsten trioxide and supposedly minable reserves from 3 localities that aggregate no more than 15 tons per foot of vertical depth and that contain an estimated tungsten trioxide content of less than 1.5 percent.

PRESENT STATUS

Considerable work has been done on the Taylor scheelite prospect. Approximately 300 feet of drifting or crosscutting was done in 4 or 5 adits, about 25 feet of shaft was sunk in addition to 40 feet in 2 winzes. There are other small pits and test holes. Most of the work was concentrated on the most interesting exposure of scheelite, the No. 1 adit area. Here a 105-foot adit connected with the 25-foot shaft and the 2 winzes were driven from this adit. These workings are shown on figure 3. Taylor recently constructed a 1.2-mile jeep road into the property at a reported cost of approximately $2,500. The lower part

of this road contains some sharp curves and steep grades and is passable only to vehicles with 4-wheel drive. This road should suffice for the small amount of exploration proposed but would not serve if production were planned. No mining work is being done on the property at the present time.

The lack of nearby markets for the mineral products from the mine, the high transportation costs of materials to the mine and of ore out to markets and the availability of relatively inefficient labor are only a few of the factors that would make the prospect unattractive as a mining venture. It is doubtful if, assuming modest ore reserves, ore averaging 1 percent tungsten trioxide could be mined at a profit.

PROJECT PROPOSALS WITH COSTS

A significant amount of scheelite does not exist in the present mineralized exposures on Taylor's X claims and it is doubtful if any section would present a greatly different picture with depth. However, it must be admitted that there is a very slim chance that exploration could encounter a pocket of ore of such richness and size that a significant discovery would be made. Although of the opinion that the application for Government assistance should be denied because of the improbability of making a significant discovery, the "long shot" chance of making such a discovery is the basis for the following exploratory project. It is strongly emphasized that all exploratory work must follow known mineralized zones because of the irregularity and pockety nature of the deposits.

There are 3 areas in which the proposed work should be done as they are the best exposures of mineralization and contain the meager ore reserves. These are the No. 1 adit area, the Cowboy cut area and the West adit area. These are shown on figure 2. The work would consist of sinking No. 1 winze in the No. 1 adit area for 50 feet below its present bottom and 67 feet of drifting from this winze extension. A 50-foot shaft with 67 feet of drifting would constitute the work at the Cowboy cut, Fifty feet of raise followed by 50 feet of winze with 66 feet of drift from the winze would constitute the work at the west adit. All work, being in mineralized zones should be sampled and the samples assayed.

Details of the proposals are as follows. At the No. 1 adit, the winze No. 1 is to be sunk on the mineralization to its end or for 50 feet whichever occurs first. Should the mineralization continue for the 50 feet, and the exposure is encouraging, some drifting will be done. As none of the known mineralized zones had a strike length in excess of 50 feet, it seems that a maximum of 67 feet of drifting from near the bottom of the winze should be more than ample. As in the winze, the drift will be driven in one or both directions along the strike of the mineralization, following said mineralization to its end or for 67 feet, whichever occurs first.

A similar program is planned for the Cowboy cut area. Here a shaft will be started on a well mineralized area and will follow the mineralization downward to its termination or for 50 feet, whichever occurs first. Should the shaft be continued for 50 feet and the mineralization is encouraging, then drifting would be done from near the

bottom of the shaft in either or both directions following the mineralization to its end or for a total of 67 feet, whichever occurs first. Although an adit has been suggested to reach a depth of about 50 feet below the Cowboy cut, this cannot be recommended because there is no assurance that the mineralization extends to that depth. An adit with a raise to the surface might be cheaper than a shaft with drifts. The great advantage of knowing exactly where the mineralization is by following it would be far more satisfactory than possibly having to do additional work in the hopes of locating mineralization that may not extend to that depth or may have deviated considerably from the target area sought with an adit.

Exploration in the West adit (see figure 2) will consist of a raise on the best mineralized zone from the adit to the surface or for 50 feet. Should the results be encouraging, a winze could be sunk beneath the raise, following the mineralization to its end or for 50 feet. If encouraging mineralization were found in the winze, then drifting could be done on one or both directions along the strike of the mineralization, following the mineralization to its end or for 66 feet whichever occurs first.

It may seem rather abrupt to stop the sinking of any heading when the scheelite mineralization terminates, but such termination of the ore would only prove the vertical discontinuity of the mineralized zones. This would lessen the already meager ore reserves. There would be little point in sinking an unknown depth to find another mineralized pod whose

location likewise is unknown. The lateral discontinuity of the mineralized zones is a demonstrated fact and should the same characteristic prevail vertically, the prospect becomes still more unattractive as a possible scene of a significant discovery.

It may be that one or 2 of the headings, whether it be sinking or drifting, would be stopped because of the reaching the end of the mineralization, while in another the mineralization might prove to be continuous. In such cases, the remaining unexpended work from the stopped headings should be applied to extend mineralized headings of the same type to the end of the mineralization or to the limit of the remaining footage.

There is no reason why work on all 3 areas cannot be done concurrently and that sampling should be done as the work progresses. In the interests of evaluation of the prospect at the end of the project, it is mandatory that the workings be completely sampled. The use of the ultraviolet lamp would be a good guide in determining the directions of the of the headings but its use in estimating the grade of the mineralization is too undependable for this purpose. This is the reason for the insistence upon competent sampling and attendant assaying. An estimated maximum 100 samples would be required if the maximum project work was completed. Should the mineralized face show scheelite across its width, well-taken muck samples should suffice, but for narrower widths, channel samples should be taken at regular intervals consistent with

good sampling practice. The above is mentioned because often there seems to be too much reliance placed on the visual and usually erroneous estimation of the grade of scheelite mineralization.

An elaborate installation of equipment and surface plant is unnecessary for the proposed project. In fact, much of the proposed work could be done with wheelbarrow and windlass because of the shallow depths of the shafts and the short trams in the drifts. The camp, primitive thought it may be, would serve for the duration of the project. The same applies to the road into the property. After bringing in and removing the necessary heavy equipment, other supplies could be brought in by jeep. The heavy equipment could be brought in by crawler tractor and removed in the same manner. This could be done far more cheaply than by rebuilding or rerouting parts of the present road.

In estimating the costs of the proposed project, only essentials were considered as warranted and the excavations would be of minimum section. The drifts would be 5 by 7 feet, the raise would be 6 by 4 feet and the shaft and winzes would be 7 by 5 feet in section. Judging by present workings, a minimum amount of timber would be necessary. A little water may be encountered but it is believed the quantity would not hamper operations. A large flow of water would not be expected in such a location and at such shallow depths. There seems to be a balance of factors that tend to increase costs with those that would tend to reduce them. The relatively small size and number of the workings and

their shallow depth are the factors tending to reduce costs while the inefficiency of the labor, and the isolation of the prospect are factors contributing toward higher costs.

The following costs were agreeable to the applicant and were deemed reasonable for the situation as it exists. These costs apply to a short form type of contract and are all inclusive. The shaft sinking and winzing is estimated to cost $80.00 per foot, the drifting $32.00 per foot and the raising $32.00 per foot. The following table summarizes estimated costs:

Estimated Project Costs

Item	Unit Cost, Per Foot	Total Cost
150 feet of shaft or winze	$80.00	$12,000.00
200 feet of drifting	32.00	6,400.00
50 feet of raise	32.00	1,600.00
100 assays	4.00	400.00
	Total	$20,400.00

Of the above total costs, 75 percent or $15,300.00 would be borne by the Government and the remaining 25 percent or $5,100.00 would be borne by the applicant. The applicant states that he has the necessary cash with which to carry out his share of the exploration costs. The applicant intends to subcontract the driving of the various headings. By diligent prosecution of the work, the project should be completed in much less than 10 months.

CONCLUSIONS

The following conclusions were derived from an examination of Taylor's X claims:

1. The tungsten mineral scheelite occurs in quartz veins. The occurrences are small, irregular, and the mineralization is spotty. Some small patches of relatively high-grade scheelite occur.

2. Measured ore reserves total about 42 tons of material containing about 2.62 percent tungsten trioxide. This is all mined material in dumps and in No. 1 winze in No. 1 adit. Minable ore reserves, ignoring a minimum mining width, total about 15 tons per foot of vertical depth in 3 localities and average less than 1.5 percent tungsten trioxide. Only 800 pounds of cobbed and sorted ore reportedly was shipped from the property. This ore contained 36.1 percent tungsten trioxide according to reports.

3. The amount of scheelite noted in all exposures is not considered significant. A downward continuation of these known exposures with no change in size of deposits nor tenor of the ore would result in a discovery that could not be termed significant. Vertical discontinuity comparable to the lateral known discontinuity would further destroy the potentialities of the property. This vertical discontinuity is possible and probable. However, in following known ore exposures downward there is a very slight chance that an exceptionally rich and larger sized pocket of ore might be encountered which could be termed a significant discovery. It is only on this last premise that exploration could be justified and so is recommended.

4. It is mandatory that known ore exposures be followed in exploration as the small size and irregular nature of the deposits are such that they easily could be missed if work was started outside of a mineralized zone and progressed toward a target area. Should the tungsten mineralization terminate, the exploratory heading should be stopped.

5. In order to propery evaluate the potentialities of the prospect after exploration is completed, careful and thorough sampling throughout the work is necessary. This means that the supervision must be competent. It is believed that the applicant may have the necessary competency but his advanced years and ill health may keep him from supervising the work. Nothing is known of the competency of the subcontractor the applicant has in mind to do the proposed work.

6. All equipment and supplies necessary for the project are available through rental, possession or purchase. Skilled labor for key posts may be available but the available unskilled labor is believed to be inefficient.

7. The property is isolated and winter snows could hinder transportation for days and possibly weeks at a time unless the high pass between the prospect and Control mine is maintained.

RECOMMENDATIONS

Although it seems that a significant discovery is highly improbable and that the application for Government assistance should be denied, there may be a slight chance that exploration would encounter a scheelite

ore body of such richness and size that a significant discovery would be made, and upon this basis the following exploratory project is recommended:

Following is a description of the work.

Sink the No. 1 winze in the No. 1 adit workings from its present bottom and following the scheelite mineralization to its end or for 50 feet whichever occurs first. The winze should be 7 by 5 feet in section. Should the scheelite mineralization continue for 50 feet, then drive a 5 by 7-foot drift in either or from both directions from near the bottom of the winze, following the scheelite mineralization to its end or for a total length of 67 feet, whichever occurs first.

Sink a 7 by 5-foot shaft from the best exposure of scheelite mineralization in the Cowboy cut, following the scheelite mineralization to its end or 50 feet, whichever occurs first. Should the mineralization continue for 50 feet, then drive a 5- by 7-foot drift from near the bottom of the shaft, in either or both directions, following the scheelite mineralization to its end or for a total of 67 feet, whichever occurs first.

Drive a 4- by 6-foot raise in the West adit from a point about 45 feet from the portal, following the scheelite mineralization to its end, to the surface or for 50 feet, whichever occurs first. Should the scheelite mineralization prove continuous and encouraging in the raise, than sink a 7- by 5-foot winze from the adit and beneath the raise,

following the scheelite mineralization to its end or for 50 feet, whichever occurs first. Should this mineralization continue for 50 feet, then drive a 5- by 7-foot drift in either or both directions, from near the bottom of the winze, following the scheelite mineralization to its end or for 66 feet, whichever occurs first.

Should any of the winzes or shaft reach the end of the scheelite mineralization before reaching the allotted footage, the remaining footage would be used to deepen either or both winzes or shaft if the scheelite mineralization is continuous to the end of their allotted footage. Should both winzes and the shaft reach the end of the scheelite mineralization before reaching the allotted footage, no further sinking is justified. Should any of the drifts reach the end of the scheelite mineralization before reaching the allotted footage the remaining footage would be applied to extend any other drifts that showed a continuity of scheelite mineralization. The total depth of winzes and shaft should not exceed 150 feet, the total amount of drifting should not exceed 200 feet and the total raising should not exceed 50 feet.

In order that a proper evaluation of the prospect may be made at the end of the exploratory work and because all work will be done on scheelite mineralization, adequate samples must be taken. The sample interval should never exceed 5 feet throughout the work.

The estimated cost of the project is tabulated as follows:

Estimated Costs of Project

Item	Unit Cost, Per Foot	Total Cost
150 feet of 7 by 5-foot winze or shaft	$80.00	$12,000.00
200 feet of 5 by 7-foot drift	32.00	6,400.00
50 feet of 4 by 6-foot raise	32.00	1,600.00
100 tungsten analyses	4.00	400.00
	Total cost of project	$20,400.00
Government participation at 75 percent		$15,300.00

The time necessary to complete the above work should not exceed 10 months.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

Department of the Interior
Defense Minerals Administration
RECEIVED
OCT 1 3 1953

224 New Customhouse
Denver 2, Colorado

October 9, 1953

Registered Mail

Memorandum

To: C. C. Mittendorf, Administrator
Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2758, Contract Idm-E622 (Tungsten), Charles M. Taylor, Pima County, Arizona

Enclosed are the original and two copies of Contract Idm-E622.

Copies of this contract have been given to the Operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

W. H. King

W. H. King

Enclosures

WHK:LA

cc: [illegible]
[illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

402

copy to ~~Docket~~

224 New Customhouse
Denver 2, Colorado

September 15, 1953.

WSM

Memorandum

To: Administrator, Defense Minerals Exploration Administration, Attention: 200

From: Field Team, Region IV

Subject: Supplement to Examination Report, DMEA Docket 2758 (Tungsten), Charles M. Taylor, Pima County, Arizona.

In accordance with your suggestions as set forth in your letter of June 16, 1953 on the subject docket a re-examination of the property has been made. Exploration work estimated to cost $20,560.00 has been approved by us and a contract is being prepared.

Four copies of the supplement to the final report will be forwarded you when the contract is executed.

Two copies of Form 3b are attached.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

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UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

224 New Customhouse
Denver 2, Colorado

August 25, 1953

Memorandum

To: Chairman, Operating Committee
Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2758 (Tungsten), Charles M. Taylor, Pima County, Arizona

Reference is made to your letter dated August 20, 1953 regarding the status of Docket No. DMEA 2758.

This docket was erroneously reported as covering asbestos. The commodity is tungsten.

The final report was forwarded to the Washington Office on June 2, 1953. We received a letter from the Chairman of the Operating Committee requesting additional information, and we believed it advisable to reexamine the property. It has been reexamined and reports are now being prepared.

W. H. King

W. H. King

400

402

AUG 20 1953

Mr. W. I. King, Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA 2758 - Tungsten
Charles M. Taylor
Taylor Scheelite mine
Pima County, Arizona

Dear Mr. King:

Reference is made to the subject docket and our letter of June 16, 1953, asking for additional data from the Field Team.

Please advise us of the present status of this case, inasmuch as we note that Region IV monthly reports for June and July indicate Docket No. DMEA 2758 covers asbestos and is pending in this office.

Sincerely yours,

W. S. Martin

ACTING Chairman, Operating Committee

APPROVED:

C. H. Johnson

Member, Bureau of Mines

Dwl

Member, Geological Survey

cc: DOCKET
~~FM, REG. IV~~
ADM. RD. FILE
OPER. COMM.
CODE 400
MARY MILLER, USGS
R.W.GEEHAN, USBM

FARutledge/ls
8/17/53

JUN 1 6 1953

Mr. W. H. King, Executive Officer
DMEA Field Team, Region IV
224 Mear Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA 2758 - Tungsten
Charles H. Taylor
Taylor Scheelite Mine
Pima County, Arizona

Dear Mr. King:

This will acknowledge receipt of your letter dated June 2, 1953, transmitting four copies of the final report on Docket No. DMEA 2758 by John H. Faick, Geologist, U. S. Geological Survey.

We note that the Field Team does not approve of the exploration program recommended by the examining team which proposed a 160 ft. cross-cut to the footwall of the mineralized shear zone followed by a drift on this zone for about 590 feet and then an inclined raise on the plane of the vein to connect with the No. 1 winze below the upper adit. The chief reason for disapproval being the possibility that the shear zone either does not extend to the depth of the proposed cross-cut level, or, if it does continue to this depth, it may be intersected in a particular section which might be difficult to recognize in the cross-cut.

We favor an exploration program that is designed to proceed from the known to the unknown as expressed by the old slogan - - "stay with the ore." We, therefore, believe that your alternate proposal to sink 50 feet in the No. 1 winze in the adit and if mineralization and strength of the shear zone is persistent continue sinking an additional 50 feet has considerable merit, both practically and financially. At this depth exploration for concealed shoots on the shear zone can then be carried on by drifting on the shear zone. We believe that you should also consider drifting on the present adit level to encounter the probable downward extension of the elongated body of quartz shown on the surface. In drifting toward the east the height of the ground explored will increase along with the advance of the drift.

We also believe that one of the prime requisites of an exploration program is safety of both property and personnel. Safety of operations in your proposal has been questioned by the suggestion that a flash flood might cause damage to a shaft at your proposed location. We believe, therefore, that an engineer of the U. S. Bureau of Mines should make an examination, giving attention to the foregoing suggestions. Your engineer should make a serious effort to arrange with the applicant a program for a project which is feasible from the point of view of both parties. In this case where we have such divergence of views, what we apparently need chiefly, is more information.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

APPROVED:

J. H. Hedges

Member, Bureau of Mines

A. R. Kinkel, Jr.

Member, Geological Survey

JHopkins:foc
6-15-53

cc: Docket
Code 400
FT. REG. IV
Administrator's Reading File
Operating Committee
R. W. Gechan, USBM
D. M. Lemmon, USGS

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

400

COPY

224 New Customhouse
Denver 2, Colorado

June 2, 1953.

Memorandum

To: Chairman of the Operating Committee, DMEA

From: DMEA Field Team, Region IV

Subject: Docket DMEA-2758 (Tungsten), Charles M. Taylor, Pima County, Arizona

Enclosed are four copies of the final report on Docket DMEA-2758, prepared by John N. Faick, Geologist, U. S. Geological Survey. The examining geologist recommends that a crosscut adit be driven an estimated 160 feet to the footwall of the mineralized shear zone, that a drift be driven along the shear zone for a distance of about 590 feet, then drive an incline raise in the plane of the vein to connect with the No. 1 winze below the upper adit. It is also proposed to explore for concealed ore shoots along the shear zone by a maximum of 1000 feet of drilling, and crosscut or raise about 235 feet to explore any of the ore showings that might be encountered by the drift or drill holes. The estimated cost of this exploration is $37,700.00.

The Field Team does not approve of the recommended exploration program. The mineralization occurs in a shear zone between pre-Cambrian granite and the Leatherwood diorite. There is no assurance that tungsten mineralization will continue downward to the depth of the proposed exploration. It is also probable that the mineralized section of the shear zone would be difficult to identify in the crosscut.

We believe that the proper approach to this problem would be to sink the winze on the mineralized zone. We recommend a program that would provide for 50 feet of sinking, with an additional 50 feet to be authorized if the mineralization proves persistent. Drifting a distance of 200 feet along the mineralized zone would be considered after part or all of the sinking had been completed. The location of the drifting would depend upon the mineralization and must be acceptable to the DMEA representative. Such a program would explore the deposit more economically, even though the unit cost of sinking is more than drifting. The winze sinking should not cost more than $70.00 a foot, and the drifting could be done for approximately $31.00 a foot, or a total cost of $7,000.00 for sinking and $6,200.00 for drifting.

Reviewed by
DMEA OPERATING COMMITTEE

6-10-53
(date)

The program recommended by the Field Team will permit appraisal of the deposit as work progresses.

The project proposed by the examining geologist will not permit appraisal of the project until the work is completed.

The transmittal letter from the Acting District Supervisor of the Geological Survey, Arizona-New Mexico, to the Field Team states: "The site for shaft sinking at the present winze is in and near the bottom of a steep gully which receives large volumes of water in the form of flash floods during storms (this slope is indicated by Profile Figure 3 of Report)." An examination of Figure 3 shows that the adit leading to the winze is approximately 50 feet above the bottom of a broad sloping valley, that extends for a distance of 600 feet from the adit. We have no knowledge of the slope on the opposite side of the valley, however, we cannot conceive of a flash flood filling a valley over 600 feet wide to a depth of 50 feet.

It is recognized that tungsten mineralization in this type of deposit may not be persistent, therefore, the Field Team recommends that the applicant be contacted to determine if he is agreeable to entering into an exploration project contract consisting of 50 feet of shaft sinking with an additional 50 feet to be authorized if the mineralization proves persistant, and 200 feet or more of drifting on the mineralized zone. If it is agreeable to the applicant we recommend that a contract be prepared on this basis.

s/ W. H. KING
W. H. King

s/ A. H. KOSCHMANN
A. H. Koschmann

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P.O.Box 4126, University Station
Tucson 5, Arizona

May 21, 1953

Memorandum

To: Field Team, Region IV, Denver, Colorado
Through: A. H. Koschmann

From: Raymond F. Robinson, Tucson, Arizona

Subject: Docket DMEA-2758 (Tungsten), Charles M. Taylor, Pima County, Arizona

Enclosed are the copies of the original report by John Faick on the Chas. Taylor scheelite property, DMEA Docket 2758, which you requested by telegram 5/20/53.

Restating the applicant's and field examiner's viewpoint, a shear zone about 600 feet in length is deserving of exploration for tungsten ore. There is a reasonable opportunity according to geologic evidence, of finding tungsten ore shoots in at least three separate areas along the shear zone. Only 160 feet of crosscutting in barren rock will be necessary to reach the shear zone to drift at a horizon which varies from 120 to 175 feet below the outcrops.

The applicant has been in to see us and the field team's suggestion of shaft sinking, etc. was discussed. Mr. Taylor does not wish to accept this suggestion because it is inadequate and not a realistic solution to his needs. In addition to the valid objections of the examining team to the sinking program already advanced, another point should be made. The site for shaft sinking at the present winze is in and near the bottom of a steep gully which receives large volumes of water in the form of flash floods during storms (this slope is indicated by profile figure 3 of report). In addition to this hazard, any shaft sinking here will require pumping which is additional, uncontemplated expense in the form of equipment and power. The original program is not endangered by flash floods or burdened with unnecessary expenditures.

Raymond F. Robinson

Raymond F. Robinson
Acting District Supervisor
Arizona-New Mexico

Reviewed by
DMEA OPERATING COMMITTEE
6-10-53
(date)

Enclosures 10

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P.O.Box 4186, University Station
Tucson 5, Arizona

April 22, 1953

Memorandum

To: Field Team, Region IV, Denver, Colorado
Through: A. H. Koschmann

From: Raymond F. Robinson, Tucson, Arizona

Subject: Final Report, DMEA Docket 2758 (Tungsten, Charles M. Zayler, Pima County, Arizona

Enclosed are the original and eight copies of the final report by John N. Faick of the U. S. Geological Survey on the subject docket. The U. S. Bureau of Mines did not participate and will submit no report.

The examiner feels that the principle structure on this prospect has a reasonable chance of containing considerable tonnages of tungsten ore which may average about 2% WO_3. He feels the applicant should be granted a DMEA loan totalling $37,700 to adequately explore the objective.

The applicant recently informed us that his access road would be completed this week and he would then be ready to go to work as soon as the loan is granted. He asked that we grant him speedy action in this matter.

I concur with the conclusions and recommendations of this report. The brochure is enclosed.

Raymond F. Robinson
Acting District Supervisor
Arizona-New Mexico

Enclosures 10

Reviewed by
DMEA OPERATING COMMITTEE
6-10-53
(date)

TAYLOR SCHEELITE MINE
CHARLES M. TAYLOR, APPLICANT
PIMA COUNTY, ARIZONA
DMEA 2758

TUCSON

Geology

By
John H. Faick
Geologist, U. S. Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
6-10-53
(date)

TAYLOR SCHEELITE MINE
CHARLES M. TAYLOR, APPLICANT
PIMA COUNTY, ARIZONA
DMEA 2750

TUNGSTEN

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SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

On the north side of the Catalina Mountains scheelite occurs in easterly trending fault zones. The Taylor mine partly explored one of these mineralized faults and encountered significant amounts of scheelite in an ore shoot having a strike length of about 35 feet and a maximum width of about 5 feet. The ore shoot has been explored to a depth of about 50 feet below the surface and the probable extension of it to greater depths should be explored. Other areas along the mineralized fault zone contain sufficient scheelite and other evidence of mineralization to justify further exploration with a reasonable expectation of finding significant amounts of tungsten ore.

It is concluded that Government participation in the applicant's proposed exploration program is justified for the following reasons:

1. One ore shoot that is partly developed, and that should be explored at greater depth, is estimated to contain about 1500 tons of ore containing 0.5% WO_3.

2. Scheelite exposed at the surface in other parts of the mineralized fault zone may indicate the presence of other ore shoots.

3. The proposed exploration program is feasible from an engineering and geological aspect.

4. Geological conditions are favorable for the possible discovery of significant reserves of tungsten ore.

It is recommended that Government participation in the proposed exploration of the Taylor Scheelite Mine be approved because of the geological possibilities of discovering significant reserves of tungsten ore.

INTRODUCTION

The Taylor Scheelite property, formerly known as the Coronado Mine, is the subject of an application to the Defense Minerals Exploration Administration for Government assistance in exploration, as authorized by the Defense Production Act of 1950, as amended. The application was submitted by Mr. C. M. Taylor, owner, 336 North Park Avenue, Tucson, Arizona, and is docketed as DMEA 2758. The property was examined January 30, 1953, by John H. Faick, U. S. Geological Survey.

ACKNOWLEDGMENTS

The property was shown to this writer by the applicant, who also provided transportation from Tucson, Arizona, the last 1½ miles being traversed on horseback. Thanks are due to Mr. Taylor whose generous consideration served to expedite this examination in every way possible.

Geological maps of the property were made by Eldred Wilson[1] in 1943 and these were used freely in the examination. An open file report[2] provided general information of the geology of a nearby area.

LOCATION

The Taylor Scheelite property is situated in the Old Hat Mining District on the north side of the Catalina Mountains at an altitude of about 6000 feet. It is located (Fig. 1) approximately in Sec. 13, T. 11 S., R. 15 E. and the prospect is shown on the 1904 edition of the Tucson quadrangle.

The road log from Tucson to the prospect via Oracle is as follows:

1/ Geologist, Arizona Bureau of Mines.

2/ Peterson, Nels P. and Creasey, S. C., Some Copper Deposits in the Old Hat Mining District, Pima County, Arizona, Open File Report, 1943.

DMEA 2758

FIGURE 1. - LOCATION MAP, TAYLOR SCHEELITE MINE
PIMA COUNTY, ARIZONA

Tucson, Arizona		0.0
Oracle Junction	(Turn right)	22.4
Oracle	(Turn right)	33.6
Road Junction	(Turn right)	49.8
Control Mine	(Turn right)	55.8
Dan's Saddle		58.3
Hartman Mine	(End of road)	58.7
Taylor Mine	(By trail)	60.2

The road is paved to Oracle, Arizona, and is graded gravel to the Control Mine, thence is unimproved access road to the Hartman Mine. The remaining 1½ miles is a trail nagotiable only on foot or by horseback. The applicant plans to build a jeep road from Dan's Saddle to the mine and this will reduce the distance by a couple of miles. This jeep road, estimated to cost about $2500, is to be built at the expense of the applicant within the next couple of months.

PROPERTY AND OWNERSHIP

The property consists of 3 unpatented mining claims located along a prominent mineralized shear zone. The claims are fully owned by Mr. C. M. Taylor who acquired them about 1942 and who states that the property is free from liens and encumbrances. The claims are recorded in Tucson, Arizona at the office of the Pima County Recorder. The claims are named and recorded as follows:

Claim X	Docket Book 287 at page 585
Claim X No. 1	" " " " 586
Claim X No. 2	" " " " 587

HISTORY AND PRODUCTION

Little is known of the history of the Taylor scheelite prospect. It was probably first discovered about 1900 when prospectors were attracted to the Catalina Mountains by discoveries of copper, lead, silver, and gold, but the scheelite was not recognized until about 1942.

Prior to July, 1943 the ground had been prospected by pits, cuts, shallow shafts and short adits. At a later date a 110 foot adit was driven to connect with a 23 foot shaft from the surface, and two winzes about 20 feet deep were sunk below the adit.

A small amount of tungsten ore was found by this exploration but no commercial production has resulted from it. The only known production was made in 1948 when one lot of 800 pounds of hand-sorted ore containing 36.10 percent WO_3 was shipped by the applicant.

GEOLOGY

The geologic mapping of the Tucson Quadrangle[3/] shows that the Taylor prospect is situated near the contact between the Oracle granite of pre-Cambrian age and the Leatherwood diorite of possible Late Cretaceous or Tertiary age. Associated with the contact zone but diverging from it on the west, and apparently lying from 50 to 250 feet south of it, is an important shear zone that is evident in the outcrop and in several prospects. The contact and shear zones at the Taylor scheelite prospect have been mapped in considerable detail[4/]; however, many important features are undoubtedly concealed beneath a mantle of detritus.

3/ Moore, B. N., Tolman, C. F. and others, Geology of the Tucson Quadrangle, Unpublished Report: Arizona Bureau of Mines, Plate I, Undated.

4/ Wilson, E. D., Op. cit.

The shear zone (Fig. 2), the position of which is shown on the map by several quartz outcrops, strikes nearly east and appears to dip from 60 to 70 degrees south. It is from 20 to 100 feet wide and nearly 2000 feet long. The west end of it is apparently displaced northward about 400 feet by a northwesterly trending fault. East of this fault the shear zone has been mapped for a distance of about 1100 feet.

The material in the shear zone consists of brecciated diorite with a few scattered blocks of metamorphic rocks thought to be remnants of impure limestone. The breccia along the shear zone has been impregnated and cemented by milky white quartz which has replaced and silicified the rock fragments to a considerable extent.

In a few places the quartz forms very large irregular masses and vein-like deposits. The largest mass of quartz is about 300 feet long and from 30 to 100 feet wide at the surface. The Cowboy cut (Fig. 2) prospected this mass where it contains scheelite. A vein-like deposit of quartz extends eastward from the present mine workings for a distance of about 200 feet. It is about 10 feet wide, as exposed at the surface.

Associated with the quartz are small amounts of scheelite, pyrite, galena, and traces of oxidized copper minerals. Very small amounts of garnet and epidote were observed and limonite, occurring as an alteration product of pyrite, is present in a few places.

The scheelite is relatively coarse and occurs in small crystals and masses ranging in size from about 1/16 inch to about 1 inch across with a relatively high proportion of the larger sizes. The mineral is relatively free from impurities as revealed by the bluish white fluorescence when examined with the ultraviolet light. The scheelite is disseminated in quartz and also occurs in small rich vein-like concentrations in the fracture zones in quartz.

The richest concentration that has been found forms a small ore shoot that has been partly explored and developed (Fig. 3) by a shaft 23 feet deep, by an adit 110 feet long and by 2 winzes, each about 20 feet deep. It has been explored to a depth of about 50 feet below the surface. The ore shoot, which plunges steeply toward the southwest, apparently is localized near the intersection of the north trending fractures and the shear zone.

This is the only ore shoot where the concentration of scheelite is known to be great enough to be of commercial importance; however, it is possible that areas containing appreciable amounts of disseminated scheelite may also contain other minable ore shoots.

ORE RESERVES AND GRADE

The scheelite deposits have been sampled in many places but the applicant reports that reliable samples are available only on the ore shoot explored by the adit and shaft workings. In the shaft and adit an ore shoot having a strike length of about 35 feet and a maximum width of about 5 feet is partly explored. Samples from this ore are as follows:

No.	Description	Percent WO_3
1.	Shaft dump, grab sample	3.06
2.	Shaft dump, 200 lb sample	4.65
3.	Channel sample, first crosscut	0.54
4.	800 lbs of sorted ore, No. 1 Winze	36.10
5.	Chip sample, crosscut at No. 2 Winze	1.05

Samples 1 to 4 were taken by the applicant and No. 5 was taken by this writer. Additional sampling was prevented by inaccessibility of the mine workings; however, inspection reveals that the ore near the center of the ore shoot is exceptionally good grade. The margins of the ore shoot

are gradational into nearly barren quartz and the grade of ore, if mined, will be determined by assay limits. The highest grade ore discovered is at the No. 1 winze sunk below the adit.

Based on available assays and examination of the accessible mine workings with an ultraviolet light this writer estimates that the ore shoot presently exposed contains between 2 and 3 percent WO_3. The ore reserves in this shoot are estimated at 8 tons per vertical foot of depth. Actual reserves are estimated as follows:

Tons	Class	Location
170	Measured	Between the adit and surface.
70	Indicated	Between the adit and bottom of winze.
1260	Inferred	Between the winze and a proposed adit 175 feet below 100 level.
1500	Total	

These reserves are very small, but are of interest because of the relatively high content of scheelite. If an average grade of 2½ percent WO_3 is accepted and mill recovery is estimated at 60 percent, then about 45,000 pounds of scheelite will be obtained from this ore shoot. There is a reasonable possibility that exploration will encounter other scheelite ore bodies, thus greatly increasing the available reserves.

JUSTIFICATION OF EXPLORATION

Scheelite exposed at the surface near the Cowboy cut indicates that another ore body may be present in this area, and this possibility can easily be explored by a new adit. A few tens of feet east of the Cowboy cut is a zone of altered diorite which is stained with iron and traces of copper. Although scheelite was not observed at this locality it merits exploration

because scheelite is found associated with iron and copper at other places along the shear zone. About 350 feet east of the present mine workings and about 200 feet higher is a locality in which scheelite is reported to be associated with massive sulfides. This locality was not visited because it is beyond the area of proposed exploration.

Scheelite at present is being explored at the Morning Star Mine (Fig. 1) and is reported in small amounts at the Control, Corregidor, Dailey and Geesman Mines in the Old Hat District. Occurrences at some of these properties show that many of the easterly trending fault zones in the district have localized the scheelite mineralization, and where mineralized are worthy of exploration. The Taylor prospect is situated on one of the easterly trending faults that was mineralized with scheelite, therefore additional exploration of it is justified for the purpose of seeking important amounts of tungsten ore. E. D. Wilson, who examined the deposit for the Arizona Bureau of Mines, is also of the opinion that additional exploration of the prospect is justified.

PROPOSED EXPLORATION

The applicant's original exploration proposal was to build an access road to the property and to drive a 500-foot adit at a depth of 40 feet below the present adit. The total cost was estimated at $24,000. Upon examination of the property this writer objected to the location of the proposed adit because it was too near to proved ore to be accepted as exploration. It was suggested that one of three things could be done to advantage. The present adit could be advanced to explore beneath the mineralized area near the east end of the mineralized shear zone, or a winze could be deepened and a level driven about 100 feet below the present adit,

or a new adit could be driven at a greater depth. Following this examination the applicant obtained the services of a consulting engineer to survey an access jeep road to the property and to determine if driving of a new adit at greater depth would be practical.

Data from the survey indicates that it is feasible to drive a new adit along the shear zone at a depth of about 175 feet below the present adit. This adit, if supplemented by a raise connection with the present adit and additional raising or crosscutting and test hole drilling, will effectively explore an important part of the mineralized shear zone.

In consideration of the advantages of this alternate method of exploring the deposit the applicant requested that the alternate method be substituted for his original proposals. The applicant will build the access road at his own expense, therefore this item is removed from the proposal.

The revised exploration proposal (Fig. 3) includes 5 stages as follows:

1. Drive a crosscut adit, estimated length 160 feet, to the footwall of the mineralized shear zone from a location to be selected near the spring (see Fig. 2 and Fig. 3).

2. Extend this adit, which should be about 5 x 7 feet in size, along the vein zone as a drift for a distance of about 590 feet. This writer believes the drift should be placed near the north side or footwall side of the vein zone, because of practical considerations in crosscutting and test drilling from it.

3. Drive an inclined raise about 4 x 8 feet in size, in the plane of the vein from the new adit to connect with the No. 1 winze below the upper adit. If the ore shoot exposed in the upper adit can be located in

the new adit, then the raise should be driven in the ore if it is feasible to do so. This raise will be about 165 feet long.

4. Test hole drilling (see Fig. 3), using the new adit as a base, is requested in order to explore the vein for concealed ore shoots along the shear zone. A maximum of 1000 feet of drilling is proposed and it is suggested that if this is not all required on the new adit, that a few holes be drilled from the upper adit, or other accessible workings. This drilling can be accomplished by tungsten carbide bits and jointed steel used with a standard drifter. Sites for drilling should be selected by the applicant with DMEA approval. Maximum length of holes should be about 60 feet.

5. It is suggested that about 235 feet of miscellaneous crosscuts or raises be allowed for exploring any of the ore showings that might be encountered by the drift or drill holes. The decision to drift or raise, and the location of the workings should be decided by the applicant and approved by DMEA engineers. It is anticipated that a crosscut and a raise may be required to explore the disseminated scheelite at the Cowboy cut, and it is hoped that drifting and drilling will locate other zones worthy of intensive exploration.

The length of the crosscut adit and the amount of optional raising and crosscutting cannot be exactly determined in advance of driving, therefore interpretation of the distances given should be rather liberal. It is suggested that if less than the stated footage is required to complete any part of the project, then an equal amount of driving should be allowed for some other part. The 1150 feet total of adits, crosscuts, and raises is a reasonable, allowable maximum and this amount of exploration should be adequate to find any ore bodies that might be present in the zone to be explored. No provision is made to sinking below the new adit. All of the

above stages should be completed in order to satisfactorily explore the deposit.

The applicant proposes to have the work done by contract and believes he can get it done for about $32.00 per foot for headings and $1.00 per foot for test hole drilling. If the actual costs exceed his estimated cost, the applicant will pay the difference. The applicant prefers to do the work on a short form contract in order to simplify administration of the project.

ESTIMATED COST OF THE PROPOSED PROJECT

Estimated Exploration Costs

It is expected that 4 men will be required on the project, one of these will be a miner-foreman and the other 3 will be miners or muckers. Accounting services may be allowed on a participating basis for the time required to complete the project, but the applicant's services in directing the project should be at his own expense. Assuming the rate of progress in the adit, raises, and crosscuts will average 3 feet per shift, then the cost of the project will be about as shown below. These costs were estimated by this writer with the assistance of M. L. L. Farnham, Engineer, U. S. Bureau of Mines. These costs are acceptable to the applicant who has expressed a willingness to accept a short form contract at $32.00 per foot for drifts, crosscuts and raises and $1.00 per foot for test hole drilling. This cost of $32.00 per foot should include cost of accounting, sampling, and assaying, preparation of the site for the adit, and bulkheading the old shaft, etc.

BMSA estimates of costs are as follows:

Labor	Cost per shift	Cost per foot
Miner-foreman @ $1.90 per hour	$15.20	
3 miners or muckers averaging $1.50 per hr.	36.00	
Overtime for 48 hour work week	4.27	
Average wages per day	55.47	
Compensation insurance @ 10 percent	5.54	
Unemployment insurance @ 3 percent	1.66	
F.I.A.C. @ 1.5 percent	.83	
Estimated total cost of labor	63.50	$21.17

Supplies and materials	Cost per Foot	
Power	2.75	
Explosives	3.00	
Bits and steel	1.25	
Track	1.00	
Pipe	1.00	
Timber: At portal of adit 35 ft. @ $7.00 = $245.00 In raise 165 ft. @ $.50 per ft. = $247.50 $492.50		
$492.50 ÷ 1150 ft. of drift, raises and crosscuts is	0.43	
Miscellaneous items including carbide, first aid supplies, small tools, grease, etc.	0.40	
Total cost of supplies and materials per foot		$9.33
Total cost per foot exclusive of sampling, assaying, and accounting		$31.00

It is estimated that the drifts and raises will be driven at the rate of 3 feet per day on a single shift basis and that the test hole drilling will be accomplished at the rate of about 25 feet per day. Then

1150 ÷ 3 = 383 working days required to complete headings
1000 ÷ 25 = 40 working days required for test hole drilling.

If it is assumed that there are 25 working days per month,

then 383 + 40 ÷ 25 = 17 months required to complete project.

It is possible that a few days may be saved by drilling test holes concurrently with driving of the headings when possible. However, some time will be lost in timbering, building of a chute for the proposed raise, and building a bulkhead over the present shaft. It is probable that the amount of time saved on part of the project will be lost on some other part, therefore 17 months is thought to be a reasonable estimate of the time required to complete the project.

The applicant originally requested $100 per month to hire an accountant to keep records on the project, but this appeared excessive, therefore it was suggested that $50.00 per month would be enough, and the applicant agreed to this lower figure.

In addition to the above costs it is proposed that $200 be allowed for sampling and assaying. It should be noted that the cost of timber for the raise ($1.50 per ft.) is distributed to the cost of the whole project, therefore tends to reduce the cost of the raise and to increase the cost of the drift.

SUMMARY OF EXPLORATION COSTS

The items and costs of the proposed exploration are summarized as follows:

Adits		
160 ft. crosscut adit to shear zone		
590 ft. drift adit along shear zone		
750 ft. adit @ $31.00 per foot	=	$23,250.00
Raises		
165 ft. inclined raise from adit to No. 1 winze @ $31.00 per foot	=	5,115.00
Optional Raises and Crosscuts		
235 ft. raises and crosscuts to explore ore showings found by drilling or drifting, @ $31.00 per foot	=	7,285.00
Drilling		
1000 ft. of test hole drilling @ $1.00 per foot	=	1,000.00
Sampling and Assaying	=	200.00
Supervision	=	850.00
17 months at $50.00		
TOTAL COST		$37,700.00

CONCLUSIONS

In an extensive area on the north side of the Catalina Mountains scheelite is closely associated with easterly trending fault zones. Commercial tungsten ore has been produced from the Maudina and Morning Star Mines and small amounts of scheelite are reported to be present in the Control, Corregidor, Bailey and Cessman Mines. The Taylor Mine is situated on one of the easterly trending faults that contains scheelite. The relatively wide distribution of the scheelite and the fact that some of it has been produced commercially supports the conclusion that additional exploration is justified.

At the Taylor prospect scheelite is associated with stringers, veins, and large masses of quartz in a prominent easterly trending shear zone. Scheelite in minor amounts is present at the surface along the shear zone throughout a distance of at least 1100 feet but is abundant only at the Cowboy cut and in a small ore shoot exposed in an adit. At the Cowboy cut surface trenching has exposed low grade vein material containing abundant coarse scheelite crystals. In the present adit is a small ore shoot containing about 2½ percent of tungsten. The downward extension of this ore body is estimated to contain about 8 tons of ore per foot of depth or about 1260 tons of inferred ore between the bottom of the winze and the proposed new adit. About 1500 tons of ore containing about 2½ percent WO_3 are thought to be present in this ore shoot and it is estimated that about 45,000 pounds of scheelite concentrate could be recovered from the ore shoot. The possible extension of the scheelite exposed at the Cowboy cut and the ore shoot exposed by the upper adit are, in this writer's opinion, suitable objectives for exploration with Government participation. A few tens of feet east of the Cowboy cut is a zone of iron stained and altered diabasic rock containing small amounts of quartz and traces of copper, and this zone is also thought to be worthy of exploration.

It is proposed to explore the Taylor prospect by driving a 160 foot crosscut adit to the mineralized shear zone and then to drive a 590 foot drift along it. A raise connection to the present adit is provided to explore the known ore shoot between the two adits.

To supplement exploration by the drift and raise, about 1000 feet of long hole drilling from the adit is provided to explore the shear zone

for concealed ore bodies. To explore any ore that might be discovered by the drift or drill holes an additional 235 feet of crosscuts and raises is provided, the location of these to be selected by the applicant with DMEA approval. The estimated cost of the project is $37,700 and the Government share is to be about $28,275. It is estimated that 17 months will be required to complete the project.

If ore is discovered, it is expected to be in small minable shoots containing good values of relatively pure scheelite. No unusual problems of mining, recovery, or marketing are anticipated; however, it will be necessary to sell the ore to custom buyers or to build a mill at the property to recover the concentrate. The proposed exploration project is feasible from an engineering and geological aspect and may reasonably be expected to result in the discovery of significant amounts of ore.

In an effort to assure repayment of the Government loan, all of the ore zone extending east from the spring, and about as shown on Figure 3, should be subordinated. Although the mineralized area exposed in the prospects about 250 feet east of the present shaft is not to be explored by the proposed work, it is conceivable that ore shoots underlying this area may extend into or connect with ore bodies in the zone to be explored with DMEA assistance and would therefore be subject to Government lien. Unless other ore shoots are discovered it is unlikely that the Government's share of the cost, estimated at $28,275, will be repaid because the royalty payments from the known ore shoot will probably not exceed $5,000.

RECOMMENDATIONS

It is recommended that the revised proposals for Government aid in exploration of the Taylor scheelite prospect be approved because of the known presence of a small body of minable grade ore, which should be explored at greater depth, and because geological conditions indicate that other similar ore shoots may be discovered, which, in the aggregate, would amount to significant quantities of ore.

DMEA 2758, Adm E 662

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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DOCKET NO. DMEA 2758

COMMODITY Tungsten

MF-200 (A)
(February 1952)

Contract Idm-E622

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]
(Short Form)

IT IS AGREED this 7th day of October, 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] Charles M. Taylor
P. O. Box 1710
Tucson, Arizona

and as set forth in Annex I attached hereto and made a part hereof.

hereinafter called the "Operator," as follows:

ARTICLE 1. *Authority for contract.*—This agreement is entered into under the authority of the Defense Production Act of 1950, as amended, pursuant to DMEA Order 1 entitled "Government Aid in Defense Exploration Projects."

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of Arizona, County of Pima, described as follows:[3] 3 unpatented lode mining claims recorded in the County Clerk and Recorder's Office of Pima County: Claim X-Docket Book 287, Page 525
Claim X-Number 1-Docket Book 287, Page 526
Claim X-Number 2-Docket Book 287, Page 527

the Operator represents and undertakes:[4]

(*a*) That the Operator is the owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:

None

~~(*b*) That the Operator is a lessee, in possession and entitled to possession, and the owner's consent to lease is attached.~~

The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof.

ARTICLE 3. *Exploration project.*—The Operator, within 60 (Sixty) days from the date of this contract shall commence work on a project of exploration for[5] Tungsten

in or upon the described land; and shall bring the project to completion within a period of one year from the date of this contract. The work to be performed is more fully described in Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, are made a part of this contract. The Government will contribute to the cost of this work as hereafter provided. The work shall be performed by the Operator or by independent contractor or contractors efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for workmen's compensation and employers' liability insurance, with suitable and adequate equipment, materials, and labor, to bring the project to completion within the time fixed. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

ARTICLE 4. *Costs of the project.*—The agreed, estimated costs of performing the work, expressed in terms of units of work to be performed (per foot of drifting, per foot of drilling, per cubic yard of material to be moved, etc.) are set forth in Exhibit "A," attached hereto. The Government will pay seventy-five (75) percent of these agreed, estimated costs, as they accrue, for units of work actually performed that conform with the description or specifications for the work set forth in this contract, in an aggregate total amount not in excess of $15,420.00, which is 75 percent of $20,560.00, the agreed, estimated total cost of the project in which the Government will participate: *Provided,* That until the Operator's final report and final accounting have been rendered to the Government and any final check or auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract. The Government may, as it sees fit, make payments direct to the Operator's independent contractors, if any, for the account of the Operator, rather than to the Operator.

ARTICLE 5. *Reports, accounts, audits.*—(*a*) *Progress reports.* The Operator shall provide the Government with monthly reports of units of work performed under the contract, in quintuplicate (five copies), upon forms provided by the Government. These progress reports shall be certified by the Operator, and shall constitute both the Operator's invoice of units of work performed on the project during the period covered by the report and his voucher for repayment by the Government, unless the Government requires the use of a standard voucher form with invoice attached. Progress reports shall include surface and/or underground engineering-geological maps or sketches showing the progress of the exploration, with assay-reports on samples taken concurrently with the advance in mineralized ground.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property, particularly excluding any land or interest therein to which the Government's lien is not to attach or the production from which is not to be subject to the Government's percentage royalty.
[4] Strike out the provision not applicable.
[5] Name of mineral or minerals.

(*b*) *Final report.*—Upon completion of the exploration work or termination of the contract the Operator shall provide the Government with an adequate geological and engineering report, in quintuplicate (five copies), including an estimate of ore reserves resulting from the exploration work.

(*c*) *Compliance with requirements.*—If, in the opinion of the Government, any of the Operator's reports are insufficient or incomplete, the Government may procure the making or completion of such reports and attachments as an expense of the exploration work; and the Government may withhold approval and payment of any vouchers depending upon insufficient or incomplete reports.

(*d*) *Accounts and audits.*—The Operator shall keep suitable records and accounts of the units of work performed, which the Government may inspect and audit at any time. The Government may at any time require a check of the work performed and an audit of the Operator's records and accounts, by a certified public accountant or otherwise, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract. Upon the completion of the project or termination of the contract the Operator shall render a final account and statement of work performed to accompany his final report.

ARTICLE 6. *Repayment by Operator.*—(*a*) If, at any time, the Government considers that a discovery or a development from which production may be made has resulted from the exploration work, the Government, at any time not later than 6 months after the Operator has rendered the required final report and final account, may so certify in writing to the Operator. The certification shall describe broadly or indicate the nature of the discovery or development. In the event of such certification, any minerals mined or produced from the land described in Article 2 within 10 years from the date of this contract, including any mined or produced before the certification, shall be subject to a percentage royalty which the Operator or his successor in interest shall pay to the Government, upon the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production, in whatever form disposed of, including ore, concentrates, or metal, until the total amount contributed by the Government, without interest, is fully repaid, or said 10 years have elapsed, whichever occurs first, as follows: **See Annex I, substituted for that part of 6(a) preceding the colon.**

(1) One and one-half (1½) percent of any such net amounts not in excess of eight dollars ($8.00) per ton.

(2) One and one-half (1½) percent of any such net amounts, plus one-half (½) percent of such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such net amounts.

(For instance: The percentage royalty on a net amount of five dollars ($5.00) per ton, would be one and one-half (1½) percent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) percent.)

(*b*) As here used, "net smelter returns," "net concentrator returns," and "other net amounts realized from the sale or other disposition," mean gross revenue from sales, or if not sold, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be the gross income from mining operations for percentage depletion purposes in income-tax determination.

(*c*) To secure the payment of its percentage royalty, the Government shall have and is hereby granted a lien upon the land described in Article 2 and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(*d*) This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

ARTICLE 7. *Assignment, transfer, or loss of Operator's interest.*—Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder. The Operator shall not make any voluntary nor permit any involuntary transfer or conveyance of the Operator's rights in the land described in Article 2, without making suitable provision for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof; *Provided*, that mere failure by the Operator to maintain the Operator's rights in the land, without any consideration running to the Operator other than relief from the cost of maintaining such rights (as by surrender of a leasehold, failure to perform assessment work, or failure to exercise an option), coupled with complete abandonment by the Operator of all interest in or operations on the land for a period of 10 years from the date of this contract, shall not constitute such a transfer or conveyance. Should the Operator make or permit any transfer or conveyance in violation of this provision, the Operator shall be and remain liable for payment to the Government of the same amounts, at the same times, as would have been paid under the terms of the percentage royalty on production. If for any reason the net smelter returns, net concentrator returns, or other net amounts realized from the sale or other disposition of such production are not available as a means of measuring the amount of the Operator's liability, the amount thereof shall be estimated as well as may be, and in the event of dispute as to such estimates, the determination thereof by the Administrator of Defense Minerals Exploration Administration or by his successor shall be final and binding upon the Operator.

ARTICLE 8. *Termination and completion.*—The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if, in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worth while discovery and in the opinion of the Government further operations are not justified.

ARTICLE 9. *Changes and added provisions* .....

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

Charles M Taylor
(Operator)

By W. H. King
W. H. King, Executive Officer
DMEA Field Team, Region IV,

By .....

I, , certify that I am the secretary of the corporation named as Operator herein; that , who signed this contract on behalf of the Operator, was then of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—66329-1

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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ANNEX I

The following provisions are in lieu of all of paragraph (a) of Article 6 which precedes the colon:

If the Government considers that a discovery or development from which production may be made has resulted from the exploration work, the Government, at any time not later than six months after a sufficient, complete, final report and final account referred to in the contract has been rendered, may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development. The Operator, or his successor in interest, shall pay to the Government a royalty on all minerals mined or produced from the land described in Article 2, as follows: (1) Regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification of discovery or development, or until the total net amount contributed by the Government, without interest, is fully repaid, whichever occurs first, unless the Government waives its right to a royalty; or (2) if the Government makes a certification of discovery or development, for a period of ten years from the date of the contract, or until the total net amount contributed by the Government, without interest, is fully repaid, whichever occurs first. Said royalty shall be a percentage of the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production (including any bonuses), in whatever form disposed of, including ore, concentrates, or metal, as follows:

BMRA 2758

EXHIBIT A

Description of the Work

The project is divided into four parts. Work may be performed on these parts concurrently. They are as follows and the location of the proposed work is shown on the attached map, Figure 3, which is made a part of Exhibit A.

Part 1. Sink the No. 1 winze 7 by 5 feet in section in the No. 1 adit workings from the present bottom following the scheelite mineralization to its end or for 50 feet, whichever occurs first. If, in the opinion of the BMRA representative, sufficient mineralization continues to the bottom of the winze, a maximum of 100 feet of drifting will be authorized from the bottom of the winze in one or both directions along the strike of the mineralization, following said mineralization to its end or for 100 feet, whichever occurs first.

Part 2. From a point near the present breast of the No. 1 adit, 30 feet of crosscut will be driven in a northerly direction to intersect the parallel vein or fault segment of the main vein.

Part 3. Rehabilitate the adit, at elevation 6501, at the Operator's expense. Drift 75 feet on the vein in an easterly direction to a point beneath the east end of the Cowboy cut. A maximum of 25 feet of crosscutting is allowable at points approved by the BMRA representative to explore both the hanging and foot wall of the main vein zone.

Part 4. Drive a 4 by 6 foot raise in the West adit from a point about 45 feet from the portal following the scheelite mineralization to its end, or 50 feet, whichever occurs first. At a point in the West adit approved by the BMRA representative, a 7 by 5 foot winze will be sunk following the scheelite mineralization to its end or for 50 feet, whichever occurs first. If, in the opinion of the BMRA representative, the mineralization warrants additional exploration, a 5 by 7 foot drift will be driven from near the bottom of the winze in either or both directions following the scheelite mineralization to its end or for 100 feet, whichever occurs first.

In all the above work, except crosscutting, samples will be taken at least every five feet.

Estimated Costs of the Project

100 feet of 7 by 5 foot winze at $80.00 per foot	$ 8,000.00
50 feet of 4 by 6 foot raise at $32.00 per foot	1,600.00
275 feet of 5 by 7 foot drift at $32.00 per foot	8,800.00
55 feet of 5 by 7 feet crosscut at $32.00 per foot	1,760.00
100 tungsten analyses at $4.00	400.00
Total Estimated Cost	$20,560.00
Government Participation at 75%	$15,420.00

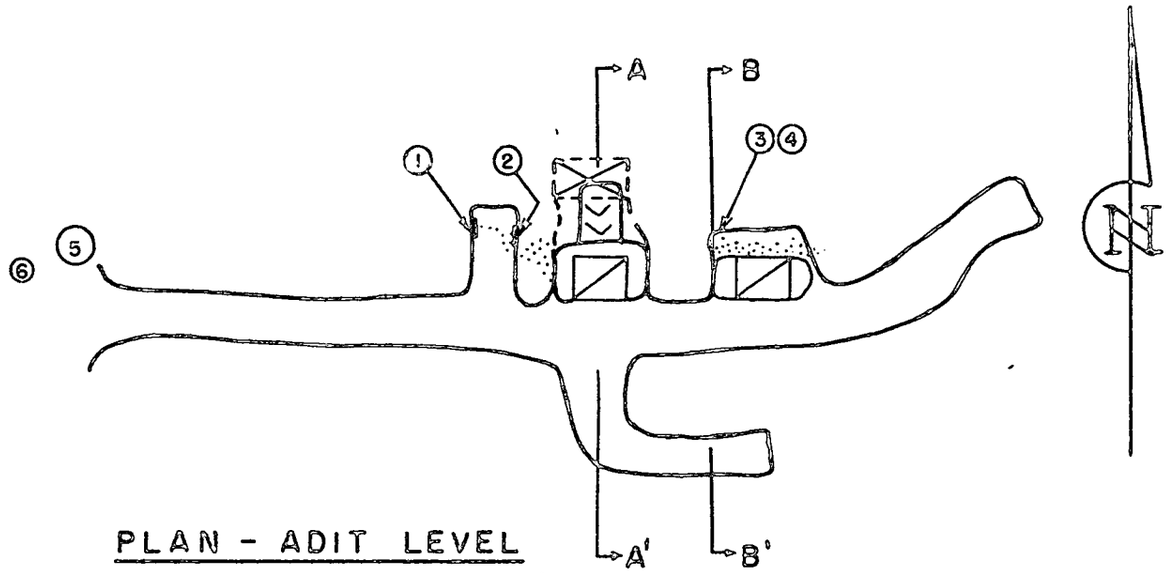
The above unit costs include supervision, timbering, and any and all other costs incurred in the completion of the work.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE ELECTRIC POWER ADMINISTRATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

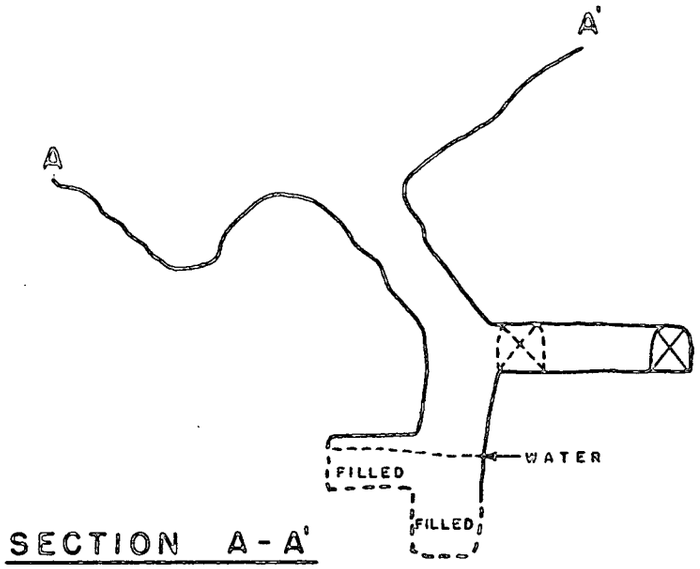
UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE ELECTRIC POWER ADMINISTRATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS



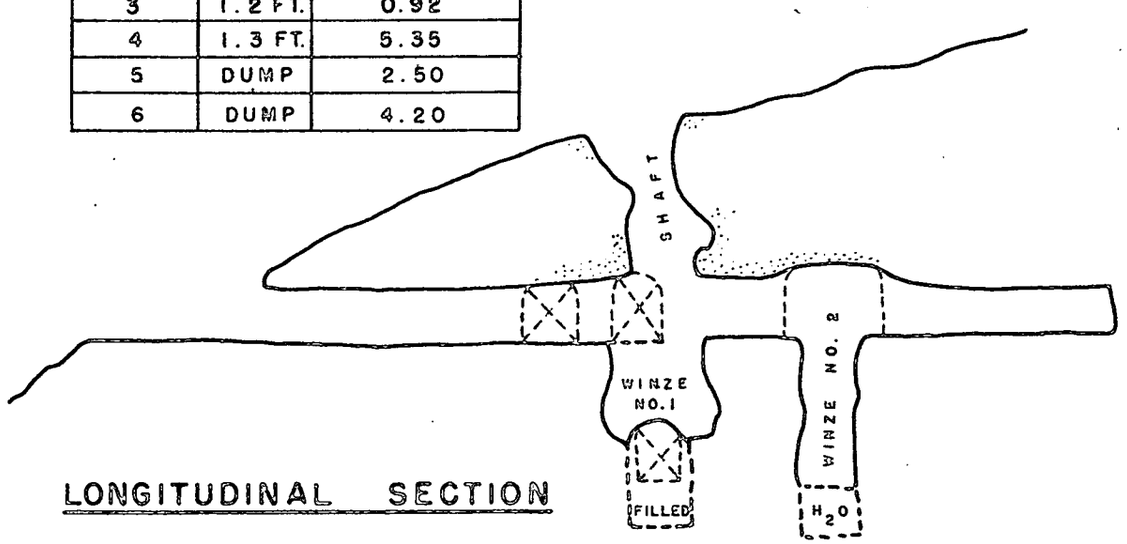
PLAN - ADIT LEVEL

APPRECIABLE SCHEELITE MINERALIZATION

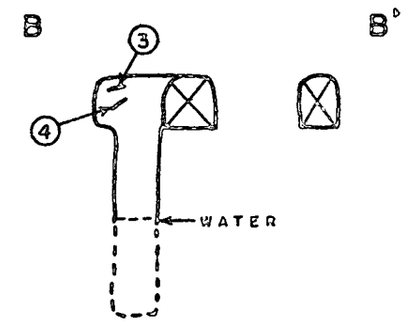


SECTION A - A'

SAMPLE	WIDTH	WO_3 PERCENT
1	1.2 FT	0.08
2	1.0 FT.	0.03
3	1.2 FT.	0.92
4	1.3 FT.	5.35
5	DUMP	2.50
6	DUMP	4.20



LONGITUDINAL SECTION



SECTION B - B'

0 10 20 40
SCALE - FEET

DMEA 2758

AUGUST 1953

FIGURE 3. - ADIT LEVEL AND SECTIONS

TAYLOR SCHEELITE PROSPECT OLD HAT MINING DISTRICT PIMA COUNTY, ARIZONA

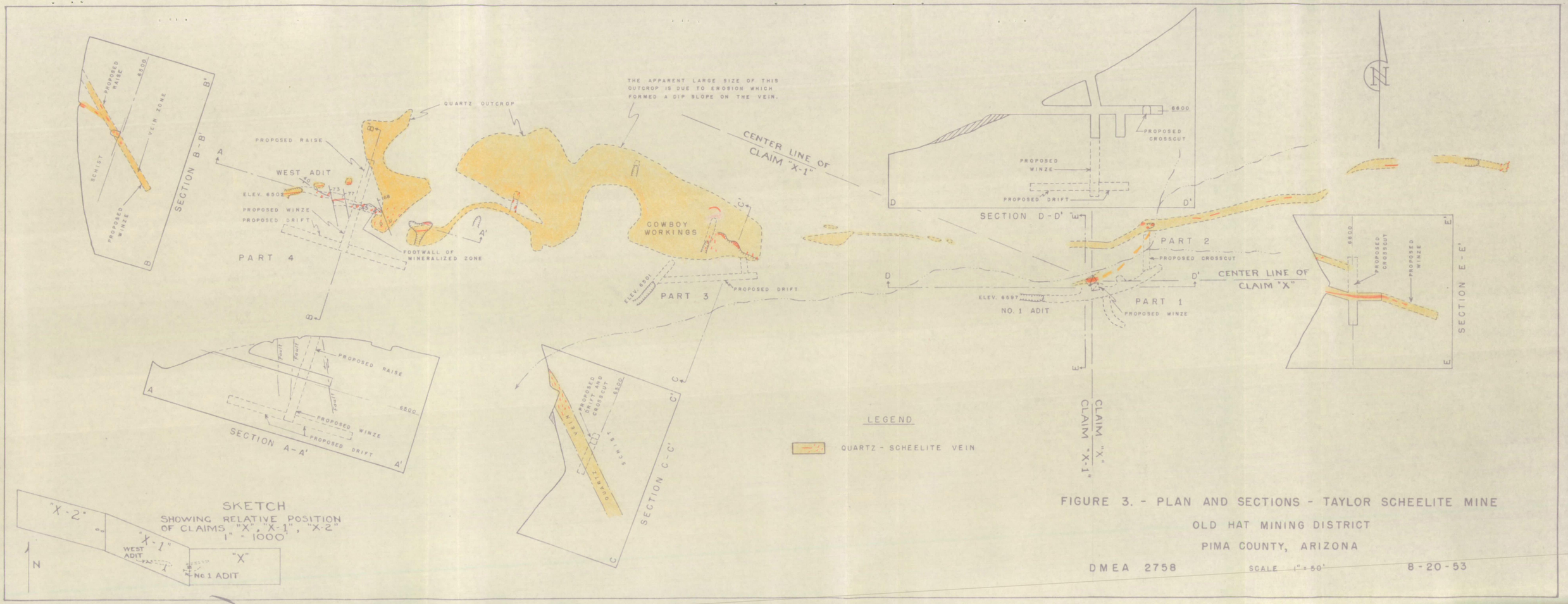


FIGURE 3. - PLAN AND SECTIONS - TAYLOR SCHEELITE MINE

OLD HAT MINING DISTRICT

PIMA COUNTY, ARIZONA

DMEA 2758 SCALE 1" = 50' 8-20-53

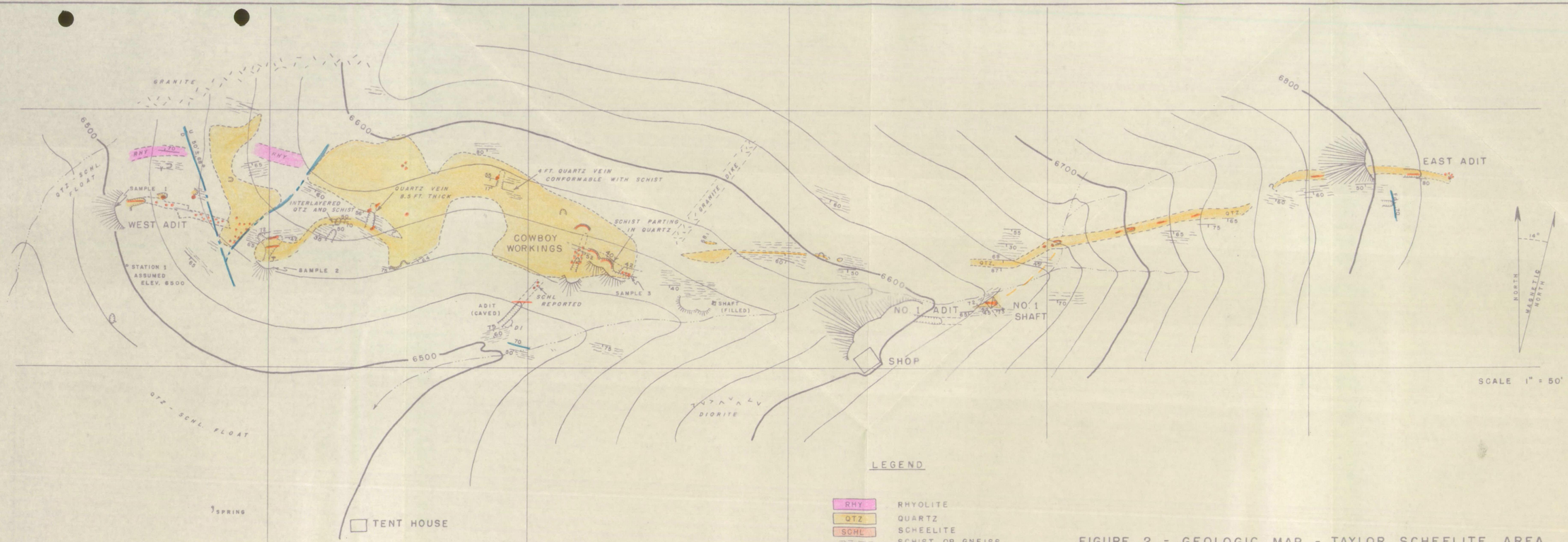


FIGURE 2. - GEOLOGIC MAP - TAYLOR SCHEELITE AREA

OLD HAT MINING DISTRICT

PIMA COUNTY, ARIZONA

DMEA 2758

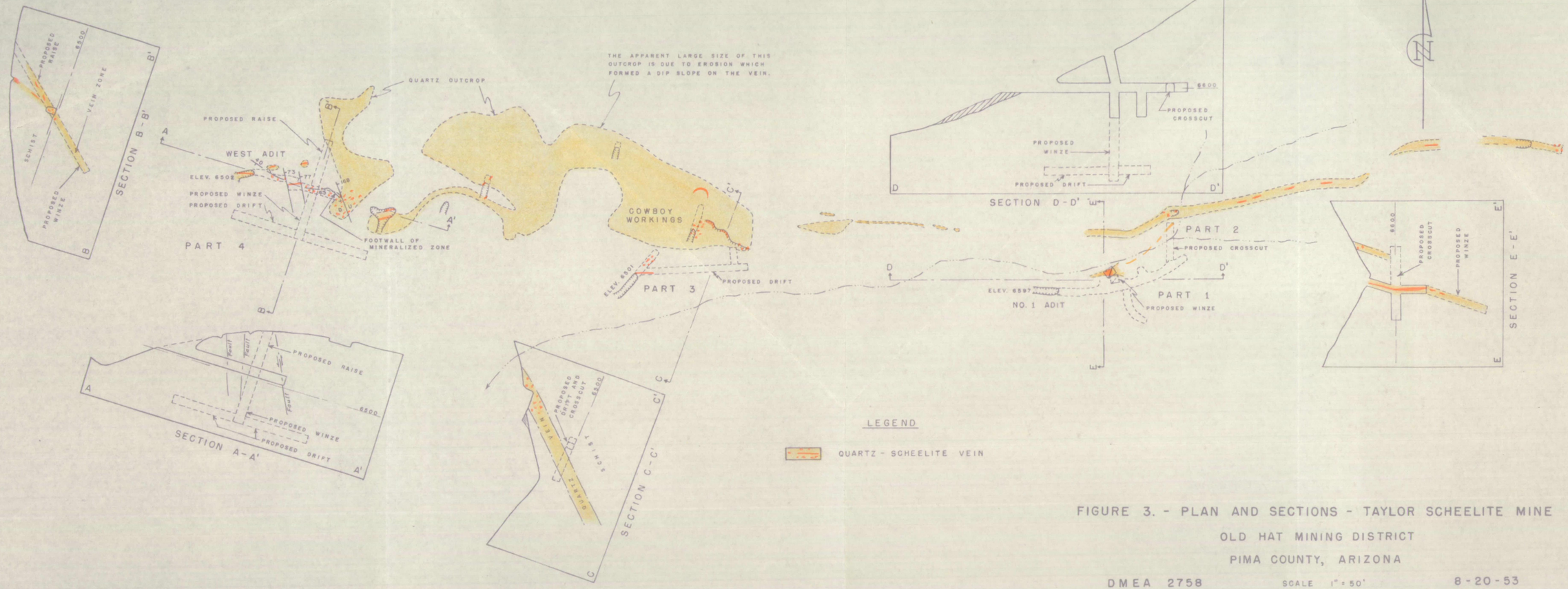
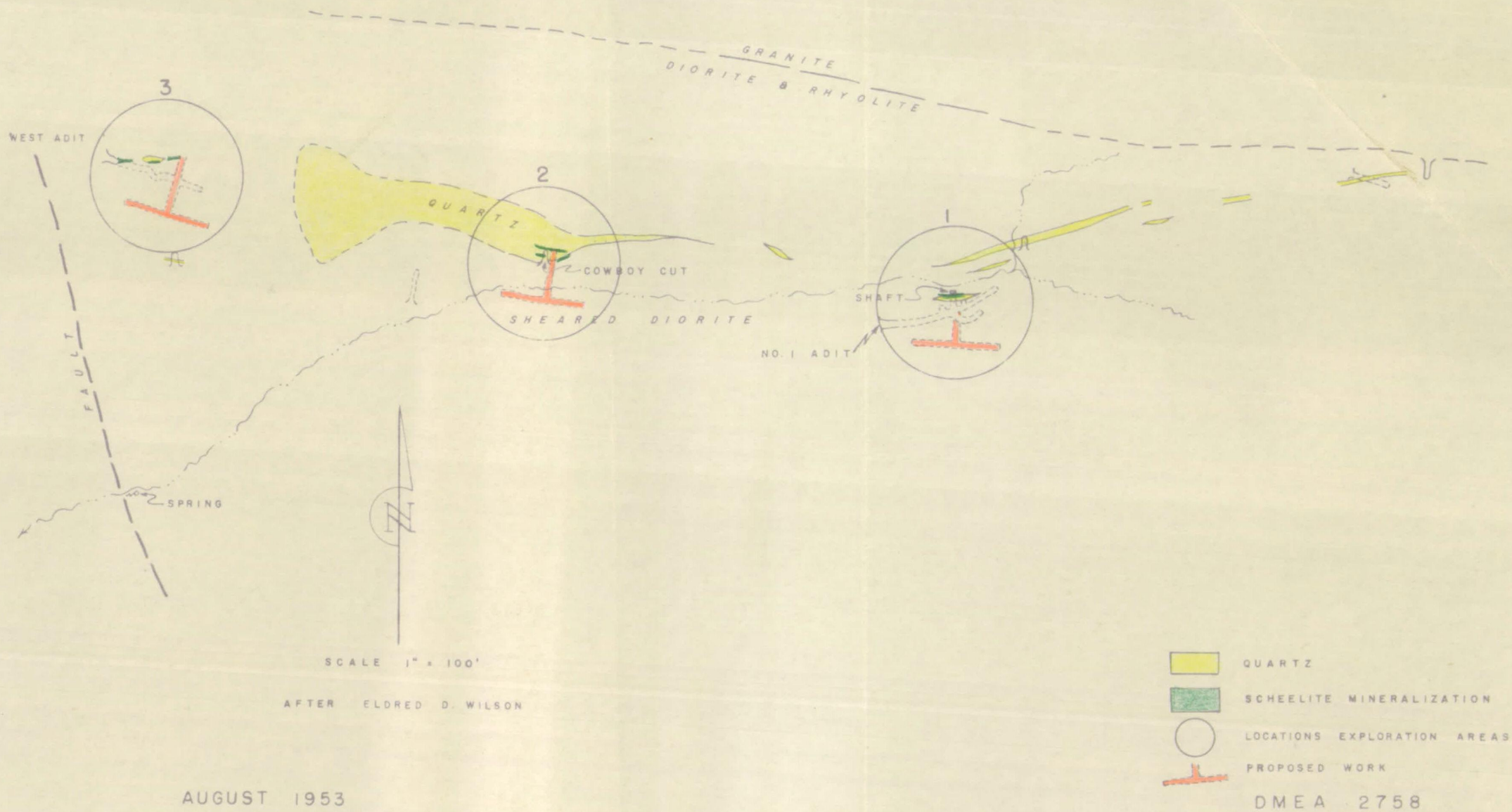


FIGURE 3. - PLAN AND SECTIONS - TAYLOR SCHEELITE MINE

OLD HAT MINING DISTRICT

PIMA COUNTY, ARIZONA

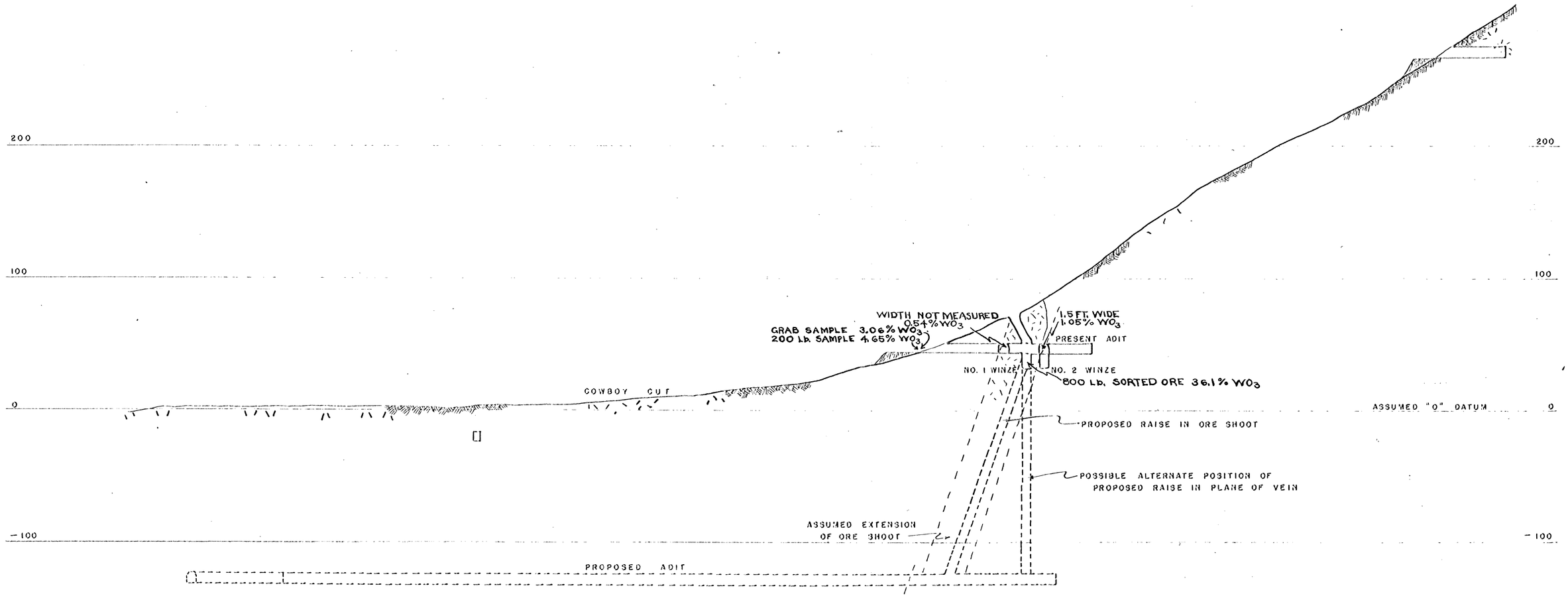
DMEA 2758 SCALE 1" = 50' 8-20-53



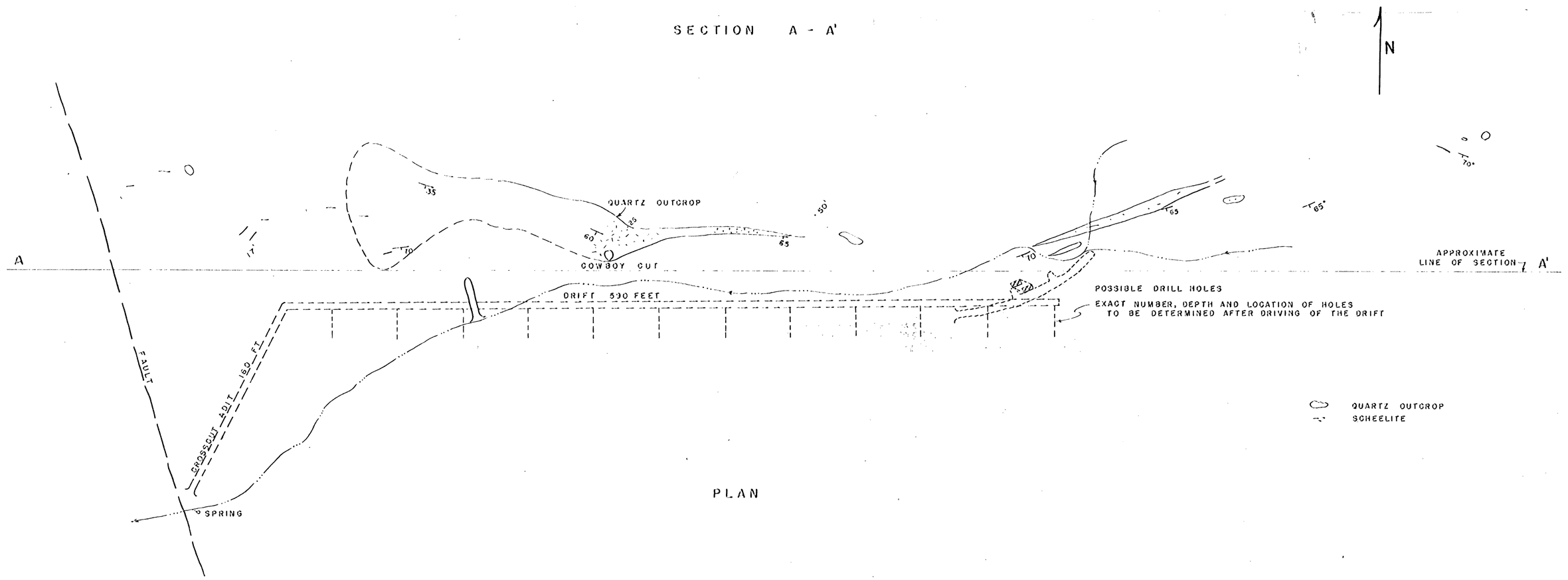
AUGUST 1953

FIGURE 2.- SURFACE MAP, TAYLOR SCHEELITE PROSPECT

OLD HAT MINING DISTRICT PIMA COUNTY, ARIZONA



SECTION A - A'



PLAN

FIGURE 3, - PLAN AND SECTION
TAYLOR SCHEELITE MINE
SHOWING PROPOSED EXPLORATION

SCALE 1" = 50'

DMEA 2758 3-31-53

FIGURE 2. - GEOLOGIC MAP, TAYLOR SCHEELITE AREA

OLD HAT MINING DISTRICT

PIMA COUNTY, ARIZONA

TRACED FROM MAP BY ELDRED D. WILSON

SCALE 1" = 50'