DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE Idm-E NO._____ DMEA NO. 4794

Application
- [x] Denied
- [ ] Withdrawn

Contract
- [ ] Terminated - Not Certified
- [ ] Terminated - Certified
- [ ] Cancelled
- [ ] Royalty Agreement

The records contained in this file are marked (x) and arranged in this order:

Folder No. 1:

Left Side

- [ ] Royalty Audits
- [ ] Certification of Discovery
- [ ] Closing Letter
- [ ] Cost Audits
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [ ] Contract with all exhibits and annexes
- [x] Owner's Consent to Lien and Subordination Agreement
- [x] Application and attachments

Right Side

- [ ] Project summary (final)
- [ ] Work Completed analysis (final)

All other material filed in chronological order including the following reports if checked:

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Final Field Team Report (Tab)
- [ ] Operator's Final Report (Tab)
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [x] On-site Exam Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No._____: Reports
- [ ] Analysis of Semi-Annual Inspection Reports
- [ ] Project Summary (Interim) by DMEA Engineers

Right Side

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Field Team Interim Reports
- [ ] Operator's Monthly Reports with transmittal, narrative and maps.

Folders No._____: Maps (Use pocket folder or envelope)

Folders No._____: Settlement Sheets

Folders No._____: Drill Logs

Folders No._____: Royalty material

17963

copy

Law Offices
THOMPSON, ROYSTON & MOSS

433 South Spring Street
Los Angeles 13

October Second 1957

ORIGINAL FILE COPY
DMEA
RECEIVED OCT 18 1957
DATE | INITIAL | CODE
10/23 | AB | 130
220

Mr. T. M. Romslo
Mining Engineer
P.O. Box 4097
University Station
Tucson, Arizona

Re: Smith-Royston's Windmill Claims
Cochise County, Arizona
DMEA-4794

Dear Mr. Romslo:

In accordance with our prior correspondence I am outlining briefly the principal reasons which lead us to the conclusions stated in the application respecting the Windmill Claims.

From the beginning we have been acutely aware that this prospect was a wildcat, both from the standpoint that the area was one in which commercial production had not yet been found and also in that the mode of occurrence was an unusual one. Our efforts have been directed towards an accumulation of all of the available data bearing on this occurrence of uranium mineralization in an effort to determine whether it has commercial possibilities. The matters considered seem to fall under three general headings:

(1) Is the mineralization primary or secondary?

(2) Is the geology of the deposit favorable?

(3) Is the site of deposition such as to allow for commercially important quantities of ore?

In the order set forth above our feelings with respect to these questions are as follows:

Reviewed by
DMEA OPERATING COMMITTEE
10-23-57
(date)

I.

Is the Mineralization Primary or Secondary?

Uranium Minerals Present.

The only uranium mineral which has been identified

is uraninite. Both the Atomic Energy Commission and your office has so identified the mineral present, while our own consulting geologist tends to believe the mineral is the pitchblende variety of uraninite. No secondary minerals have yet been identified. Notwithstanding that this mineral is generally primary in origin, I do not believe that this identification can be accepted as more than one indication of origin for two reasons: (1) There is a substantial body of opinion holding that uraninite and even sooty pitchblende can be secondarily deposited; and (2) The very fine-grained nature of mineralization makes it difficult to identify with certainty.

With respect to the first point, it is, therefore, possible that the deposition was secondary in nature. In that event, however, it would normally be expected, at shallow depth at least, that some recognizable secondary minerals would be formed. Spectographic analysis of the material in the zone has shown that there are small but significant quantities present of all of the elements necessary to support such minerals as torbernite, autunite and carnotite. The complete absence of these minerals under the physical conditions present suggests that the probability is a primary origin. The fragments recovered from Drill Hole No. 3 even more strongly suggest this. While those fragments are small they have the botryoidal characteristics of massive pitchblende. In theory it may be possible that even massive pitchblende can form as a secondary mineral. However, I know of no authority for such a statement, and on the contrary, believe that the presence of massive pitchblende in quantity would indicate a primary deposit.

On the other point, minerals such as coffinite are very difficult to distinguish from uraninite when we are dealing with material as fine-grained as this. It is quite possible that at least some of the mineral present may be one of these black secondary minerals. However, for the reasons outlined below under the headings Supergene Enrichment and Radiometric Equilibrium it does not appear likely that such minerals constitute any significant part of the uranium content in the material thus far exposed. On balance, therefore, the nature of the mineralization appears to favor a primary origin.

Alteration Criteria.

The alteration found in the zone was set out in the

application, and, of course, you have had an opportunity to see some indications of it when you inspected those parts of the workings which are not lagged. The alteration, together with the presence of illite, strongly suggests hydrothermal action. Even assuming such action it is, of course, possible that it was disassociated from the deposition of the uranium mineral. The fact remains, however, that this type of alteration is now accepted as being typical of hydrothermal pitchblende deposition. This, plus the fact that the mineralization appears to favor zones of more intense alteration, again tends to indicate a primary hydrothermal origin.

Accessory Mineralization.

As you know, accessory mineralization is exceedingly limited. The presence of significant quantities of sulphides would certainly help in determining origin. Their absence, however, does not in any way rule out a primary origin. The Beaver Lodge area in Canada is a striking example of intense uranium mineralization without any significant accessory sulphides. Also, it is now believed that the uranium mineralization was distinct and prior to deposition of the accessory minerals in some of the great deposits of the world. For example, this is now believed to have been the case at Shinkolobwe. Nonetheless, the majority of primary hydrothermal pitchblende deposits are accompanied by significant quantities of accessory minerals. The lack of them in the Windmill Claims cannot be said to be a favorable sign, but in view of what is said above, neither can it be said to be a decisively unfavorable sign.

Other Uranium Mineralization in the Area.

As you will recall from the aerial photographs of this area, the Windmill Fault is a large and extensive one. It appears to be intersected approximately one mile west of the present workings by another large fault striking almost at right angles to the Windmill Fault. It is very difficult to follow these zones on the surface, but in a number of places they have been located. Several of these locations give indications of uranium mineralization. At one place along the other fault a prospect pit to a depth of approximately fifteen feet was dug. A.E.C. samples of the better portions of the zone thus exposed assayed approximately .2%c. The mineralization is almost identical with that of Windmill except that fluorite was also identified in these samples. In addition there are a considerable number of quartz veins in the area. These generally strike approximately at right angles to the Windmill Fault. Where these veins had been exposed by prospect pits dug at some unknown time in the past, they frequently give indications of uranium mineral-

ization. On close examination this mineralization appears to be erratically distributed along planes of apparent weakness along and in the vein and to be accompanied by hematite stains and traces of fluorite. It seems clear that the uranium was introduced after emplacement of the veins. Where the workings have progressed to any depth below the surface, the material in the veins is generally fresh and relatively unweathered. The fact that the mineralization is scattered erratically through the vein rather than along the edge or in fractures suggests a hydrothermal origin rather than secondary deposition. The strike of these veins, together with the nature of the mineralization, also suggests the possibility that the source of the hydrothermal solutions at depth may have been the Windmill fault zone.

Radiometric Equilibrium.

To summarize very briefly our findings as to equilibrium in the Windmill workings, the ratio of radiometric to chemical results was generally very high near the surface, has tended to decrease with depth and at drift level is generally less than two to one. In better grade areas it sometimes is fairly close to equilibrium. If secondary deposition were the total answer the radiometric ratio could never exceed one. We believe that the subject of radiometric equilibrium is extremely important in assessing the nature of this type of deposit. In determining equilibrium we have sealed the samples to be used and taken readings over a sufficient period of time to allow the accumulation of equilibrium quantities of daughter elements of radon. This is essential if any accurate determination of equilibrium is to be made on material from Windmill. Our work indicates that as much as 80% of the radon content of finely-ground material is disbursed by mere exposure to the atmosphere. Since over 50% of the measurable gamma activity of the uranium suite emanates from those daughter elements and particularly from Bi214, the use of unsealed samples will produce inaccurate results. Necessarily the final readings must be taken after the sample has been sealed for a sufficient period of time to assure that at least approximately equilibrium quantities of Bi214 are present. Essentially absolute equilibrium is not reached for thirty days, but we have found that the increase in readings after approximately ten days is so slight that a ten-day reading is sufficiently accurate for the purpose at hand. By interpolation from a plotted accumulation curve of Bi214, a reasonably accurate result can be reached using readings taken at twenty-four hour intervals for three or four days. If our determinations of equilibrium are correct, they are extremely strong evidence

of a primary hydrothermal origin for this deposit. They further indicate that the areas penetrated thus far have been rather heavily leached. It is, of course, possible to postulate a secondary deposition with subsequent leaching to achieve these radiometric results. Pursuing this approach, however, requires assumptions that the grade of the original secondary deposit was very high indeed. If such a secondary deposit resulted from the erosion of slightly uraniferous granitics, I would not expect it to be high grade. I agree with what I believe is your feeling that instrument results must be interpreted with caution. However, it is also my belief that, used as above outlined for the limited purpose of determining relative equilibrium, they can be a significantly valuable tool in assessing a prospect such as Windmill. Because of its viatl importance I must repeat that the use of sealed samples to permit the accumulation of Bi^{214} is absolutely essential to an accurate determination of equilibrium.

Supergene Enrichment.

As you know, the water seeping into the workings carries a surprisingly high amount of uranium in solution. For the reasons outlined in the application, we believe the uranium content in the water is in the form of uranyl salts. The high uranium content of the water presents the question of whether there has been supergene enrichment of the zone at the drift level. The work on equilibrium discussed above indicates that there has been no substantial deposition of secondary minerals at this level. I suspect that at some point down the dip of the zone such enrichment will occur. It may be that small quantities of some of the black secondary minerals are present in the drifts although we have not as yet identified any such occurrences. The radiometric results indicate that any such enrichment is not substantial. This is supported again by the fact that none of the obvious secondary minerals are present and further supported by the fact that they do not form on the workings where water has evaporated. What does form in such places appear definitely to be the fluorescent uranyl salts. This may well be due to the pH of the water which inhibits the formation of secondary minerals. Our conclusion is that the zone at depths yet attained has been substantially leached rather than enriched.

II

Is the Geology of the Deposit Favorable?

This is, of course, a shear zone in granodiorite. Uranium

mining in the United States has revolved principally around experience on the Colorado plateau. Inasmuch as the bulk of the deposits there are in sedimentary formations, there has been a tendency in this country to confine attention to those formations. This may be sound thinking on the plateau, but I submit that it is not sound thinking in Southern Arizona. Geologists will undoubtedly quarrel for many years to come about the true nature and origin of plateau deposits. Almost all of them, however, seem to agree that the geologic sequence to which those formations have been subjected is of great significance -- particularly in that the beds in question were probably thousands of feet below sea level in a relative horizontal attitude at the time of mineralization. Without going into unnecessary detail, the geology of the plateau is not the geology of Southern Arizona, and the mineralization of the plateau is not likely to be repeated in Southern Arizona. Outside of the Colorado plateau it is probably safe to say that most of the high-grade deposits of the world are in other than sedimentary formations. Large and important deposits are present in granitics (the Beaver Lodge area in Canada is one striking example; Marysvale is another), in metamorphics (Shinkolobwe) and in sedimentaries (Colorado plateau). It is, of course, true that granites typically contain small but significant quantities of uranium. This leads to frequent but very minor accumulations of secondary minerals as fracture coatings and stains. This may sometimes make prospecting rather frustrating. Such occurrences are, however, greatly different than that found on Windmill and in the adjacent area.

In view of the basic geology of the subject and world-wide experience, we believe that the granitic formations of Southern Arizona are as worthy of investigation and exploration as any other formations there present.

III

Is the Site of Deposition Favorable?

Obviously, even a primary hydrothermal pitchblende deposit is not commercial unless the host formation is of such size and permeability as to permit the deposition of a commercially important quantity of ore. I am sure you have seen many uranium prospects where the nature of the formation was such as practically to foredoom the project to failure. In my opinion the Dripping Springs Quartzite formation is a good example of one which had a very slender chance of ever becoming commercially important for this very reason. I have seen an instance in Southern Arizona where the mineralization consists of what is almost certainly a

deposit of massive pitchblende of hydrothermal origin. This deposit, however, is located in a fissure in granite with a maximum width of slightly more than one inch. At Windmill, by way of contrast, the zone is of considerable width and obvious permeability. While it is to be expected that it will narrow and tighten at depth, it is yet reasonable to believe that for a considerable distance it will provide a favorable site for the possible deposition of commercially valuable quantities of ore.

IV.

Conclusions.

Based upon the foregoing and upon the other information contained in the application, we believe that this property is worthy of further exploration. We are well aware of the fact that a great deal is unknown in this field. It is, therefore, very possible that some or all of our conclusions will eventually prove to be erroneous. However, upon the basis of what is now known and what has thus far been done, it would seem that the plain probability is that this deposit is of primary hydrothermal origin, and that exploration to date has penetrated only into a zone of extensive leaching.

We have carried this project thus far entirely by ourselves. We have not spent our money out of any desire to squander it, but rather in the belief at each stage that the indications were favorable enough to justify going forward. It has now reached the point where a decision must be made as to whether the prospect merits extensive exploration at depth or whether it should be abandoned. Granting that everything we believe is true, there is still the very clear possibility that for any one of many reasons the deposit is not commercial. We do not feel able to carry forward the substantial program of exploration which would be required to prove or disprove this property by ourselves. It is for this reason and with the encouragement of the A.E.C. that we filed the subject D.M.E.A. application. It was our understanding that the basic function of D.M.E.A. as outlined in the Defense Production Act of 1950 was to assist in exploration which had a reasonable chance of adding to the strategically important mineral resources of this country. With this in mind the fact that Windmill is different than the plateau deposits should be an important factor in its favor. I do not think it is necessary to elaborate on the importance that would attach to the discovery of a commercially important deposit on this property. In short, if the

tests we have made have been correctly interpreted, and if the data we have accumulated is accurate, we respectfully submit that the pending application is worthy of careful consideration.

With respect to the proposed exploration program itself, we believe it to be the best and most economical method of exploration at deeper depth. If the Bureau of Mines believes some other program would better serve this purpose, we, of course, would be happy to modify it. If the project goes forward our sole objective is to learn as much as possible as economically as possible.

I should like to thank you for your consideration of the matters discussed in this letter. I have attempted to be as brief as possible and would be very glad to amplify any point which requires clarification. Whether you agree or disagree with us, we would very much appreciate your expressing any views or comments which you may have. Thank you again.

Sincerely yours,

(signed) Clifford E. Royston

CER:DP

MF-205
(Combines and supercedes MF-201 and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator _____
Docket No. DMEA- _____
Contract No. Idm-E _____
Contract Date _____

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

RECEIVED AUG 12 1957 D.M.E.A.

To the United States of America:

Referring to that certain land in the County of Cochise State of Arizona, described as follows: 2/

See Annex attached

_____,

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

None

1/ Mining or production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page _____, official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

Dated this 8th day of August, 1957.

Emilio B. Molina	[Seal]	801 E. 35th Tucson Ariz	[Address]
Mike H. Molina	[Seal]	2807 E Beverly Dr. Tucson Arizona	[Address]
Ed O Messinger	[Seal]	Benson Ariz POBox 17	[Address]
Phillip H. Ellis	[Seal]	Schafer Ave. 1311	[Address]
Hert W. Ellis	[Seal]	433 West Ady St Tucson	[Address]
Merwood B. Owens	[Seal]	PO Box 769 Tucson	[Address]

I, _____ certify that I am the _____ _____ (Secretary, etc.) of the corporation named herein; that _____ _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

Legal Description of Mining Claims

Windmill No. 1 (recorded in Docket 114, Page 616, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 600'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

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DATE	INITIALS	CODE

Said claim is adjoined on the north by the Windmill No. 3 Claim, on the west by the Windmill No. 4 Claim and on the south by the Windmill No. 2 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 2 (recorded in Docket 123, Page 178, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 1,200'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the north by the Windmill No. 1 Claim and on the west by the Windmill No. 4 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 3 (recorded in Docket 123, Page 179, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the west by the Windmill No. 4 Claim and on the south by the Windmill No. 1 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 4 (recorded in Bocket 125, Page 123, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, is located in Section 10, Township 18 S., Range 19 E., G. & S.R.B. & M., and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point N. 21° E. 1,200' from the discovery point (at which this notice is posted), marking the center of the northeast end line of said claim; thence S. 69° E. 300', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which corner a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet , bears S. 69° E. 1,500' and S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 1,500' to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southwest end line of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 300', to the point of beginning.

Said claim is adjoined on the east by the Windmill No. 1, Windmill No. 2 and Windmill No. 3 Claims.

LAW OFFICES
THOMPSON, ROYSTON & MOSS
433 SOUTH SPRING STREET
LOS ANGELES 13, CALIFORNIA
MAdison 6-4387

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DMEA
RECEIVED JUL 22 1957

DATE	INITIALS	CODE

July 19, 1957

The Defense Minerals
Exploration Administration
Department of the Interior
Washington 25, D. C.

Dear Sirs:

Enclosed herewith are four copies of the application pursuant to DMEA order 1, filed on behalf of Smith-Royston Co., whose mailing address is c/o Thompson, Royston & Moss, 433 South Spring Street, Los Angeles 13, California.

Very truly yours,

Clifford E. Royston

Clifford E. Royston

CER:sm

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Form Approved.
Budget Bureau No. 42-R1035.2.

RECEIVED JUL 22 1957 DMEA

APPLICATION FOR AID IN AN EXPLORATION PROJECT, PURSUANT TO DMEA ORDER 1, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

Not to be filled in by applicant

Docket No. 4794
Metal or Mineral Uranium
Date Received 7/22/57
Estimated Cost $55,600.00
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Smith-Royston Co., a joint venture
c/o Thompson, Royston & Moss
433 South Spring Street (List of members of the
Los Angeles 13, California joint venture attached hereto)

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized.

(*c*) If a corporation, add to above statement, titles, names and addresses of officers.

(*d*) If a partnership, add to the above statement the names and addresses of all partners.

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract Four unpatented mining claims, location notices of which are recorded in the office of the County Recorder of Cochise County, Arizona as follows: Windmill No. 1, Doc. 114, page 616; Windmill No. 2, Docket 123, page 178; Windmill No. 3, Doc. 123, page 179; Windmill No. 4, Doc. 125, page 123.

(*b*) State any mine name by which the property is known. "Windmill"

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Purchaser under contract

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. Attached as Exhibit 1

(*e*) If you own the land, describe any liens or encumbrances on it None

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Set forth above

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. See attached supplementary sheets.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades.

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Uranium

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See attached supplementary sheets

(*c*) The work will start within 60 days and be completed within 9 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. Attached

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). See attached supplementary sheets

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)?

(*b*) How do you propose to furnish your share of the costs?

[x] Money [ ] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated July 19, 1957

Smith-Royston Co.
(Applicant)

By Lafayette G. Royston

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

SMITH-ROYSTON CO.,
433 South Spring Street
Los Angeles 13, California

APPLICATION PURSUANT TO D. M. E. A. ORDER 1

SUPPLEMENTARY SHEETS

Item 1. Name of Applicant

SMITH-ROYSTON CO. is a joint venture organized under the laws of the State of Arizona. The names and addresses of the members of this joint venture are as follows:

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DATE	INITIALS	CODE

Robert L. Smith,	c/o W. G. Smith, Inc., 8355 Wilcox Avenue, Bell, California.
Clifford E. Royston,	433 South Spring Street, Los Angeles 13, California
W. G. Smith, Inc.,	8355 Wilcox Avenue, Bell, California.
Robert S. Thompson,	433 South Spring Street, Los Angeles 13, California.
George M. Thompson,	433 South Spring Street, Los Angeles 13, California.
Harry I. Thompson,	702 East Gage Avenue, Los Angeles 1, California.
Conrad J. Moss,	433 South Spring Street, Los Angeles 13, California.
Gordon A. McLean,	618 South Spring Street, Los Angeles 14, California.
Claude A. Clark,	618 South Spring Street, Los Angeles 14, California.

Item 4. Physical Description and History of Property.

LOCATION

The Windmill Mining Claims are located in the Whetstone

Mining District, Cochise County, Arizona, approximately eight miles southwest of the town of Benson, Arizona (Benson Quadrangle) Arizona, USGS, Quadrangle Map N3130-W11000/30). The four claims form a contiguous group located in Section 10, T. 18 South, R. 19 East, G & S R B & M.

ACCESSIBILITY AND AVAILABILITY OF LABOR, WATER AND SUPPLIES.

The claims are reached by following U. S. Highway 80 approximately two miles south of Benson and then taking dirt ranch roads approximately eight miles southwest to the claims. These roads are passable for passenger cars and trucks. Adequate water, labor and supplies are available in Benson. An adequate water supply could probably be developed by wells on the claims, but as yet all water required has been hauled from Benson. The main transcontinental freight line of the Southern Pacific Railroad passes through Benson, from which point ore produced can be shipped.

GENERAL GEOLOGY

The Windmill Claims are on the northern flank of the Whetstone Mountains which rise steeply to elevations in excess of 7,000 feet. The claims are in rolling foothills of this Range at an altitude of approximately 5,000 feet. The northern flank of the Whetstone Mountains appears to have been formed by a sharp uplift. The country rock on the northern flank of this Range is a coarse-grained granodiorite with a grain trending southeast-northwest. The Windmill Claims are located along a fault zone which follows the general southeast-northwest grain of the country rock and approximately parallels the scarp of the mountain range to the south. This fault, termed by applicant the "Windmill Fault", is shown by aerial photography to extend over a distance of several miles. It can also be detected by surface observation at various points but at others its presence is marked by overburden. A considerable amount of movement has clearly occurred along this fault as is shown by the fact that the thickness of the area of extreme gouge is more than 25 feet as measured both at the collar and at the 107 foot level of the exploration shaft.

SURFACE MINERALIZATION

The original locators of these claims discovered anomalous radioactivity in the wash which cuts through the Windmill Fault on Windmill No. 1. A prospect pit dug into the fault zone at this point uncovered uranium mineralization

in the zone assaying as high as .42% U_3O_8 from a two foot channel sample taken across the best part of the bottom of the prospect pit. The uranium mineralization was identified by the U. S. Bureau of Mines, Tucson, Arizona, as fine-grained uraninite. Accessory mineralization consisted primarily of small amounts of hematite. No secondary uranium minerals were found. Upon acquisition of these claims by applicant additional trenches were cut in the wash and the overburden adjacent to the wash was bulldozed so as to expose the surface of the fault zone for a linear distance of approximately one hundred feet. Trenches were cut in the surface thus exposed at intervals and samples were cut. Throughout the length and breadth of the zone thus exposed anomalous radioactivity was encountered (scintillation counter readings .05 MR to .50 MR as against area background of .015 to .02MR). Chemical assays were generally lower than indicated radiometric results. The ratio between radiometric and chemical results varied greatly from place to place indicating that surface water seeping into the zone had caused a considerable amount of leaching which had varied from place to place according to the porosity of the zone.

CORE DRILLING

A series of six diamond drill holes were drilled at locations shown on the topographical maps attached as the first step in attempting to determine the extent and grade of mineralization. Three of the five holes which were successfully completed were probed by or under the supervision of the Atomic Energy Commission. The other two were probed by applicant. In each case core recovery from the zone was practically zero due to the highly crushed state of the material. Probe results were as follows:

Hole No. 1 -	A.E. C. Probe -	eleven feet of mineralization averaging .39% e U_3O_8; applicant's probe - eleven feet averaging .30% e U_3O_8.
Hole No. 2	A. E. C. probe -	seven feet averaging .10% e U_3O_8; applicant's probe - five feet averaging .13% e U_3O_8.
Hole No. 3 -	(Probed under A.E.C. supervision)	eleven feet averaging .20% e U_3O_8.

Hole No. 4 - Applicant's probe - three feet averaging .17% e U_3O_8.

Hole No. 5 - Abandoned by reason of mechanical defects without penetration of zone (an increasing difficulty in removing pipe from this hole as drilling progressed indicated an increasing deviation from the intended course in an unknown direction; although the hole was sunk to a depth which should have penetrated the zone, it is believed that this deviation was such that the zone was never reached.)

Hole No. 6 - Applicant's probe - six feet averaging .14% e U_3O_8.

The lack of uniformity in equilibrium as well as the drastic change in grade of mineralization from foot to foot as disclosed by underground workings demonstrates that no broad conclusions can be drawn from this drilling. The most that can safely and properly be said as a result of this drilling is that the area of mineralization is of considerable extent and to the outer limits of the area delineated by drilling.

As noted there was practically no core recovery from these holes so that chemical verification of radiometric results was not possible. However, among the cuttings washed from the zone in Hole No. 3 were several fragments (ranging in length to one inch and in breadth to one-half inch) which for their size were intensely radioactive. In places these fragments had the botryoidal characteristics of pitchblende. Clearly no reliable conclusions can be drawn from this single limited instance, but it does suggest the possibility that mineralization at depth is more massive than the very fine-grained mineralization thus far encountered in the exploration shaft and drifts. This in turn suggests that the material thus far encountered has been subjected to extensive leaching which will diminish as greater depths are achieved.

SHALLOW DRILLING

In addition to the diamond drill holes a series of shallow (thirty feet) wagon drill holes were sunk along the zone over a distance of two hundred feet. Each of these holes indicated mineralization ranging in thickness from five feet to fifteen feet. At this shallow depth radiometric readings are extremely unreliable due to the extent of leaching and the indicated results ranging as high as .5% e U_3O_8 cannot be taken as meaning more than that the material was of commercial

This suggests that these slips may have been passageways for ascending hydrothermal solutions or, in the alternative, that they have acted as depositional controls. In addition, these slips have apparently acted as impediments to the percolation down dip of ground water since mineralization is uniformly much higher below a slip plane than immediately above it. This is particularly noticeable where the attitude of the slip plane is at approximate right angles to the dip of the zone. The accessibility of material above the slip plane to leaching is plainly much greater and a greater degree of leaching has therefore occurred. The alteration in the zone can be summarized as follows:

Ferrugination -	Hematite and hematite stains are common throughout the zone and are particularly noticeable along the slip planes as can be seen from the underground photographs.
Chloritization -	Throughout the zone the hypical color of the material is a dull, greenish-blue which tends to become somewhat more intense in high-grade areas although no direct connection between color and grade is yet known.
Argillization -	Clay minerals are common through the zone particularly along the slip planes.

The apparent alteration effects above noted are indicative of a hydrothermal pitchblende type of deposition. (See Kerr, Geneva Papers, Vol. 6, page 679).

As work on the shaft and drifts progressed it was noted that an efflorescence formed where water had seeped from the walls and evaporated. The material so formed is a yellowish-green in color, floresces intensely with a bright yellow-green color and is readily soluble in water. When evaporated by heat in an alkaline water it forms an insoluble yellow material which is not florescent and has the physical appearance of sodium diuranate. A spectographic analysis of a sample so treated showed this material to contain 64.5% U. It is believed that the coatings which form on the mine workings are uranyl salts. A water sample taken from water which collected in the sump of the shaft and drifts as a result of rains during the spring of 1957 contained 63.0 parts per million U_3O_8. (Smith-Emery Company). Solids produced by evaporation of a sample

of this water totalled 196 parts per million. These solids spectographically analyzed contain 34.0% U. Other metallic elements were present in small quantities (magnesium 5.5%, iron 3.5%, sodium 1.4%, calcium 5.0%, with others in trace quantities only) which again indicates the uranium in solution is probably in the form of uranyl salts.

The quantity of uranium carried in solution is extremely high (See, for example, Fix, USGS, Geneva Papers, Vol. 6, page 788) and probably indicates a ready susceptibility to leaching coupled with a relatively slow percolation through the zone. It would generally be expected that leaching to the extent indicated would be accompanied by at least some redeposition in the form of secondary minerals. This has not been the case, and apparently the chemical conditions present here are similar to those which prevail in certain parts of the Central City, Colorado, District where it is reported that similar extensive leaching has occurred without the formation of any secondary minerals (Sims and Tooker, USGS, Geneva Papers, Vol. 6, page 265). In that district it is reported that redeposition has occurred in certain instances at greater depths resulting in supergene enrichment of portions of the deposit. Whether this will occur at deeper depths in the Windmill shaft is not known.

At the depth thus far achieved radiometric results continue to vary from chemical assays although within much narrower limits than was the case in surface workings. Readings taken on the material in place are somewhat unreliable for the further reason that radon migration from high grade material tends to distort the apparent grade of adjacent lower grade material. The material in this zone is so thoroughly crushed that samples removed from it lose a substantial part of their radon content merely by exposure to the atmosphere. A typical sample, for example, stored in an open box, gave a net scintillation counter reading of .11 MR. When sealed and stored in order to permit the retention of radon and consequent formation of Bi 214, this sample attained a net reading of .19 MR in twenty days. The rate of accumulation of Bi 214 would indicate that the net count due to elements above radon in the decay series is approximately .08 MR. This in turn indicates that the true ratio of radiometric to chemical U content of this material is about 1.2/1.0. (See Faul, Nuclear Geology, page 138.) This ratio is consistent with leaching at a relatively slow rate over an extended period of time. The high Gamma/U ratios encountered at the surface, typical of weathered outcrops, are indicative of current leaching at a rapid rate. Where leaching has occurred slowly over an extended period of time the decay curve of Ra 226 results in relatively low Gamma/U ratios. In the Windmill shaft this

tendency is intensified by the apparent ease with which radon diffuses through the zone, with the result that samples from higher grade material frequently appear to have a Gamma/U ratio of less than 1.0. The use of sealed samples indicates, however, that true ratios more nearly average 1.2/1.0.

ORE RESERVES

The drifts at the one hundred seven foot level disclose a considerable amount of mineralization of ore grade (which is taken as .2% U_3O_8) which tends to follow the major slip planes within the fault. These slip planes do not bear any consistent attitude toward either the footwall or hanging wall side of the zone but rather have thus far appeared erratically throughout the zone. Selective mining of these areas would be difficult. In addition the highly crushed nature of the zone has indicated the advisability of refraining from creating any more openings near the site of the shaft. No attempt has been made, therefore, to conduct mining operations at this level. A substantial quantity of marginal grade material (.1%-.2% U_3O_8) is disclosed in the drifts, but for the same reason no attempt has been made to mine it.

CONCLUSIONS AS TO MINERALIZATION

The work done to date has been designed to supply information bearing on the origin and nature of the mineralization in order that a realistic appraisal of the potentialities of the property could be reached. Clearly, additional exploratory work is required before any final conclusions can be drawn. In addition, applicant recognizes that much remains to be learned respecting the geology and chemistry of this type of deposition in general. We do believe, however, that present indications are that a properly planned program of additional exploration is quite likely to result in the discovery of ore of commercial grade and quantity. Specifically, upon the basis of the data so far accumulated, the following are submitted as the most likely conclusions which can now be drawn:

1. The mineralization is primary and of hydrothermal origin;

2. Mineralization has ascended along the fault zone and has either tended to follow or to be deposited more richly along slip planes within the zone;

3. The mineralization was relatively intense as disclosed by diffusion, to some extent at least, throughout the zone;

4. The mineral is uraninite with some indications that at depth it may be the more massive pitchblende variety;

5. The mineralized zone, to the extent it has yet

been penetrated, has been subjected to substantial leaching which is tending to diminish with depth;

6. Notwithstanding this leaching and probably due to the ph of the percolating ground water, no secondary mineralization has resulted from this leaching at depths yet attained;

7. The mineralized area is as yet of unknown extent, but its width and thickness indicate that it can be expected to continue to greater depth;

8. The zone in which mineralization has occurred is of such size and extent that it can be expected to continue to considerable depths and to provide a potential host site of deposition sufficient to accommodate an ore body of considerable scope.

It is therefore believed that additional exploration of this property is merited.

Item 5. The Exploration Project.

Applicant desires to continue the exploration of this property by means of the following program:

1. Extend the existing exploration shaft down the dip of the fault zone an additional one hundred feet, from which point drifts would extend along the zone in both directions for an aggregate distance of three hundred feet. This drifting should favor the side where conditions appear more favorable.

2. Extend the exploration shaft from the two hundred seven foot level reached in stage 1 an additional one hundred feet to the three hundred seven foot level, again following the dip of the zone. An additional three hundred feet of drifts would extend from the three hundred seven foot level along the zone in both directions.

The additional exploration outlined above should determine definitively whether a commercial ore body is or is not present.

Item 6 Cost.

If the exploration program set forth in Item 5 is undertaken, it is Applicant's intention to contract the work to Mines Exploration & Development Co., Tucson, Arizona.

Smith-Royston Co.
433 South Spring Street, Los Angeles

This company has done the shafting and drifting heretofore done by Applicant and is thoroughly familiar with conditions to be anticipated. Attached is a statement of costs signed by Leland C. Vought, President, Mines Exploration & Development Co. The cost of shafting will be $114.50 per foot and the cost of timbered drifts will be $54.50 per foot. In reviewing these costs the crushed nature of the ground must be borne in mind. This requires that both shaft and drift be fully timbered in addition to which the back and sides of the shaft must be lagged. In places it will also be necessary to lag drifts. These costs could be substantially reduced by sinking outside the zone and crosscutting into it, but it is felt that the desirability of securing as much information as possible dictates sinking and drifting entirely within the zone. The total cost of each stage of the exploration program above outlined will be $27,800, a total for the project as a whole of $55,600. Miscellaneous additional expenses, such as geological reports, assays, mapping and the like, are not included in this estimate and will be paid for entirely by Applicant. Applicant intends to continue to use as its geological consultant Dr. Thomas C. Clements (Chairman, Department of Geology, University of Southern California) and as its engineer and mining contractor Mr. Leland C. Vought, President, Mines Exploration and Development Co., Tucson, Arizona.

EXHIBITS

The following are attached as Exhibits to this application:

Agreement by which Applicant acquired title;

Geological report (Dr. Thomas C. Clements);

Supplemental geological report (Dr. Clements);

Sample Map No. 1 (Winze and adit);

Sample Map No. 2 (Shaft and first level);

Cost estimate of exploration program;

Topographical map;

Cross section map of shaft and drill holes.

AGREEMENT

THIS AGREEMENT, made and entered into this 16th day of June, 1955 by and between SHERWOOD B. OWENS, P. O. Box 769, Tucson, Arizona, hereinafter called SELLER, and CLIFFORD E. ROYSTON and ROBERT L. SMITH, 433 S. Spring St., Los Angeles 13, California, as BUYERS herein,

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WITNESSETH:

1. LEASE AND OPTION TO PURCHASE

BUYERS, for and in consideration of the sum of Ten ($10.00) Dollars, cash in hand paid, receipt of which is hereby acknowledged, and the covenants herein set forth, are hereby granted by SELLER the exclusive option to purchase, and a lease, with the right to take immediate possession of, to mine and to take ore from, on the terms hereinafter set forth, that certain group of four unpatented mining claims in the Whetstone Mining District in Cochise County, Arizona, location notices of which are recorded in the office of the County Recorder of Cochise County, Arizona, in the Dockets and at the Pages set opposite their names, to-wit:

Name of Claim	Docket	Page
Windmill No. 1	114	616
Windmill No. 2	123	178
Windmill No. 3	123	179
Windmill N . 4	125	123

2. CONSIDERATION

The purchase price of the above described mining claims, in the event BUYERS elect to purchase same, is Five Hundred Sixty-Two Thousand Five Hundred ($562,500.00) Dollars, but said option shall not be considered as exercised until the entire purchase price shall have been paid in full. All cash, ore and/or mill royalty payments made to SELLER shall apply on the purchase price. The entire option price of Five Hundred Sixty-Two Thousand Five Hundred ($562,500.00) Dollars herein provided for shall be paid in full on or before July 1, 1980, and if not so paid, this agreement shall immediately terminate automatically at midnight on July 1, 1980 and BUYERS shall have no further rights hereunder.

3. MANNER OF PAYMENT

A cash payment of Twelve Thousand Five Hundred ($12,500.00) Dollars shall be paid to SELLER on or before June 21, 1955.

A cash payment of Twenty-Five Thousand ($25,000.00) Dollars shall be paid to SELLER on or before September 15, 1955.

A cash payment of Twenty-Five Thousand ($25,000.00) Dollars shall be paid to SELLER on or before March 15, 1956.

The three separate cash payments above listed shall be in addition to any royalty payments which may be made during the intervening period, and failure on the part of

BUYERS to pay any of the cash payments listed on or before said due date as listed shall render this agreement null and void.

As additional rental, SELLER shall be paid as royalty a sum equivalent to fifteen (15%) per cent of the net smelter returns or ore or concentrate buyer returns on all ore of any kind whatsoever produced, saved and marketed from the property with the exception of uranium ores. On all ore produced, saved and marketed as uranium ore the SELLER shall be paid fifteen (15%) per cent of any and all proceeds received by reason of the sale of such uranium ore save and except that no royalty shall be due or payable on any sums received which have been paid, as a hauling charge or rebate, for the hauling of uranium ore from said mining claims.

All royalties shall be remitted by the purchaser of said ore or concentrates directly to the escrow holder hereinafter provided for, who shall pay the sum forthwith to SELLER and others having an interest in said claims, as their interests may appear.

BUYERS agree that SELLER is to receive a minimum yearly royalty payment of Ten Thousand ($10,000.00) Dollars per year beginning September 15, 1955. All royalties paid BUYERS during any yearly period shall be credited upon said Ten Thousand ($10,000.00) Dollars payment; any deficiency in said yearly minimum to be paid within thirty (30) days

from the close of each lease year. It is agreed that royalties paid under this agreement during a given year are not cumulative or carried forward into succeeding years. It is the intent that each year shall run from September 15 to September 15 and each year shall be treated as an individual entity.

4. EXTENT OF OPERATION

BUYERS agree that they will work said group of mining claims for mining purposes at least the minimum amount required for assessment work during the life of this agreement. Any work, whether development or mining, shall be done in a careful and minerlike manner, and shall conform in all respects with the mining laws and regulations of the State of Arizona, BUYERS will promptly pay all bills incurred by them in their mining operations, and upon being supplied with non-liability notices will post and record them as provided for by law.

5. TAXES

BUYERS shall pay when due all taxes which may be levied against said mining claims or the products thereof, or upon any property placed thereon, during the life of this agreement. BUYERS shall not be liable for any income taxes based on the royalty payments set forth herein, or any severance or similar taxes, hereafter imposed.

6. RIGHT TO INSPECT PROPERTIES AND BOOKS.

SELLER has the right at any reasonable time to

inspect any work on said claims, and to examine the records of BUYERS or of their sublessees or assigns, for the purpose of checking compliance with this agreement.

7. LIABILITY FOR COURT ACTIONS.

In the event that any suit or suits shall be brought against SELLER by reason of the mining or allied operations by BUYERS of said mining claims under this agreement, BUYERS agree to save SELLER harmless thereon and to pay for all judgments, damages, or reasonable expenses, attorney's fees, or costs incurred by Seller in connection herewith.

8. MINING DATA

In the event this contract is terminated or forfeited by SELLER or BUYERS named herein shall sell their interest hereunder, BUYERS shall forthwith and thereafter furnish to SELLER a true copy of all surface and/or mine maps, assays, metallurgical drilling and mining tests, made or obtained from said claims during the term hereof.

9. SUBORDINATION AGREEMENT.

In the event BUYERS shall at any time desire to make application for an Exploration Grant, Aid, Development Loan or other from of assistance from the Defense Minerals Administration, or from any other agency of the Government of the United States of America for the purpose of aiding in the development of said mining claims, SELLER hereby consents to said application and agrees to execute a S ubordination Agreement, or any other instruments which said Defense

Minerals Administration or other Governmental Agency may require.

10. REMOVAL OF EQUIPMENT

In the event of abandonment, cancellation or termination of this agreement before the option herein granted is exercised, all machinery and any buildings then on the claims may be removed by BUYERS, provided the removal takes place within ninety (90) days after the abandonment, cancellation or termination of this agreement. All timbers, ladder ways, rails and pipes in the underground workings, and all gallows frames and ore bins placed on said claims shall not be removed but shall remain in place and become the sole and exclusive property of SELLER. The removal of any machinery and buildings by BUYERS shall be done in such manner as not to damage the workings on or in said mining claims. Any of said property which is not removed within ninety (90) days after the abandonment, cancellation or termination hereof shall automatically become the sole and exclusive property of SELLER at the end of said ninety (90) day period.

11. DEED IN ESCROW

Upon execution, SELLER shall deliver into escrow deeds in proper form conveying to BUYERS all of the right, title and interest of SELLER and all of his predecessors in interest, in said mining claims, and shall place the

same in escrow, which said deeds shall be delivered to BUYERS upon the full payment of the purchase price as herein provided. The cost of establishing said escrow shall be borne equally by the parties hereto. When said escrow is opened, BUYERS shall deposit therein a deed back to SELLER covering the above described claims, and the proper instructions shall be given to the escrow holder to deliver said deed to SELLER when and if this agreement shall have been abandoned or terminated or forfeited. Escrow agent shall further be instructed to remit all payments made to the parties having an interest in said claims as they may appear from time to time.

It is agreed that the escrow agent shall be The Southern Arizona Bank & Trust Co., Main Office, Tucson, Arizona, and is so stipulated by the parties hereto.

12. FORFEITURE CLAUSE

In the event BUYERS shall fail to keep or perform any of the covenants, conditions or agreements which BUYERS are obligated to keep or perform hereby, and said default continues for thirty (30) days after written notification mailed to BUYERS of the default then claimed to be existing, then SELLER, at his election, shall have the right to forfeit and terminate this agreement by giving BUYERS notice in writing that same has been forfeited and terminated. After said forfeiture and termination, BUYERS shall have no right, title or interest of any kind whatsoever in and

to said mining claims, or the possession thereof. Any notice herein provided for shall be considered as having been given to BUYERS when an envelope containing said notice shall have been registered and deposited in the United States mail addressed to BUYERS at 433 S. Spring Street, Los Angeles 13, California, and a copy thereof has been delivered to the escrow agent. In the event that BUYERS fail to comply with any of the provisions of this contract, the only remedy of SELLER therefor shall be to forfeit and cancel this agreement, and in the event of such cancellation and forfeiture, SELLER shall retain all sums theretofore paid and shall be entitled to collect all royalties on all ores removed prior to said cancellation and forfeiture as liquidated damages, and BUYERS shall not otherwise be personally liable.

13. RIGHT TO PATENT

So long as BUYERS are not in default hereunder, they shall be entitled to initiate proceedings to secure United States patents for said claims, at their own expense, and SELLER shall cooperate, and secure the cooperation of his predecessors in interest, in said proceedings, to the end that patents may be issued to the owners of the legal title to said claims subject to BUYERS' rights therein.

14. OTHER CONDITIONS

Time is of the essence of this agreement, which

shall be binding upon the heirs, executors,administrators and assigns of all parties hereto. The requirements hereof shall be subject to such interruptions as might arise from strikes, riot, war and Acts of God.

EXECUTED in quadruplicate this 20th day of June, 1955.

SHERWOOD B. OWENS
SELLER

CLIFFORD E. ROYSTON

ROBERT L. SMITH
BUYERS.

STATE OF ARIZONA)
) ss.
County of Pima)

The foregoing instrument was acknowledged before me this 20th day of June, 1955, by SHERWOOD B. OWENS, CLIFFORD E. ROYSTON and ROBERT L. SMITH.

PEARL PRIDEAUX
Notary Public

My commission expires:

8/15/57

THOMAS CLEMENTS
2171 VISTA DEL MAR AVENUE
LOS ANGELES 28, CALIFORNIA

TELEPHONES
HOLLYWOOD 5-3979
RICHMOND 8-3974

CONSULTING
MINING ENGINEER

REPORT ON THE EXAMINATION OF THE WINDMILL GROUP OF URANIUM MINING CLAIMS NEAR BENSON, ARIZONA

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Introduction

The examination on which this report is based was made personally by the undersigned at the request of Mr. Robert Smith and Mr. Clifford E. Royston of Los Angeles, California. Two days, February 18 and 19 were spent in the field making the examination.

Location and Accessibility

The Windmill group of mining claims is located in the Whetstone Mining District, Cochise County, Arizona, approximately ten miles south and west of the town of Benson. The claims lie in Section 10, T18 S, R19 E, G & S R B & M, on the northerly flank of the Whetstone Mountains. No investigation was made of the ownership of the claims.

The area is reached by following U. S. Highway No. 80 approximately two miles south of Benson and then taking a dirt road another eight miles southwesterly to the foothills of the Whetstone Mountains where the claims are located. The first part of the dirt road is graded, but the last part is unimproved. However, it is passable to trucks and ordinary passenger cars.

Climate and Vegetation

The claims are in the warm desert region of southern Arizona, with a rainfall averaging approximately 10 inches annually. There is a fair brush cover, largely scrub oak, individual shrubs being six to ten feet in height. That the area once supported a fair growth of trees in the higher areas is indicated by the presence of numerous stumps left by lumbering operations. Today there are no trees available for use as mine timbers.

Water Supply

At present the water needed for mining operations is hauled in by tank truck from Benson. If milling is contemplated in the future it will be necessary to develop a water supply k nearer at hand. A windmill furnished water for cattle in the immediate vicinity of the property in question, and it is possible that this source could be developed to a greater extent, with permission of the landowner. Pipes in the canyon above the claims suggest a spring upstream from which water was for-

merly brought to the cattle troughs. Development of this and other springs in the Whetstone Mountains is a second possible water source.

Geology

The country rock of the area is a gray to pink coarse-grained granodiorite consisting of abundant quartz, orthoclase, and oligoclase as major or essential minerals. The most abundant minor mineral is biotite. The feldspars are fresh and unweathered, but the biotite shows some alteration to chlorite. Accessory minerals are conspicuous by their absence.

Dikes of diorite or of diabase cut the granodiorite here and there, although none was observed in the immediate vicinity of the Windmill claims. Quartzite boulders mantle the ridges southwest of the workings, but no quartzite was found in place.

The topographic map of the area (Benson Quadrangle) shows that the Whetstone Mountains have a distinct radial drainage. However, in the part of the area north of the mountains there is a marked northwest-southeast grain to the country. This is shown on the aerial photographs of the area, as well as in the field.

The radial drainage is a geomorphic feature developed, as the result of uplift, on a cover of more or less homogeneous rocks now stripped from the area in question. The northwest-southeast grain is an older structural trend on which the drainage pattern has been superimposed.

The Windmill claims are located along a fault zone which follows the general grain of the area. The fault zone strikes N55°W on the average, and dips approximately 55°NE. It can be followed on the surface by topography and to a certain extent by the outcropping of crushed material. However, the latter is not continuous, suggesting that the fault swells and pinches within relatively short distances. However, on the Windmill No. 1 claim it shows a thickness of several feet, and a comparable thickness is indicated at several places both to the northwest and to the southeast.

The low angle of dip of the fault suggests a thrust, and this is borne out by the exposures underground. Thick gouge seams have been developed within the crushed zone, and rolls and squeezes are everywhere apparent. The attitudes of these slips within the main zone are quite variable. All these features are evidence of shear under great pressure.

Mineralization

The original location of the Windmill Claim No. 1 was based on Geiger counter readings, and all development work has been governed by similar means, both in drill holes and in underground workings. No sulphide minerals have been observed, with the exception of minute pyrite crystals in a tiny vug, and doubtful irridiscent tarnished surfaces that suggest pea-

cock copper (bornite), which, however, cannot be confirmed by blowpipe tests.

A sooty, black mineral occurs as a thin film on surfaces of minerals in samples showing fair readings on the Geiger counter, and assays of material from the mine show the presence of uranium. This suggests that the black mineral is pitchblende, which suggestion is strengthened by the fact that it gives a borax bead which is faintly yellow in the oxidizing flame and becomes faintly greenish in the reducing flame. A somewhat more massive, botryoidal black mineral recovered from a diamond drill core, and much more strongly suggesting pitchblende, gives an amethystine borax bead, which is indicative of manganese. The black, sooty mineral may possibly be davidite, but it is the opinion of the writer that it is the pitchblende variety of uraninite. The more massive black mineral may also be pitchblende mixed with manganese oxide.

In places underground where the Geiger counter gave promising readings, the ultraviolet light showed spots of blue-gray fluorescence. No particular mineral could be recognized as causing this. A sample from this same area showed one spot that fluoresced bright green. This was traced to a greenish film, which might be autunite.

The almost complete absence of the brightly colored secondary uranium minerals indicates primary mineralization by hydrothermal solutions. Apparently mineralization was selective, although the controls are not discernible thus far. It can be anticipated that mineralization will continue both along the strike and down the dip in places becoming richer, in others dropping below commercial grade. Only as development proceeds can the pattern be determined.

Development

The Windmill No. 1 is being developed by an inclined shaft at an angle of 45°, which had an incline depth of 106 feet at the time the examination was made. This essentially follows the fault, giving good exposures of the mineralized zone.

At the bottom of the shaft drifts have been started both northwesterly and southeasterly along the fault zone. Ore showings in the shaft approximately 20 feet from the bottom, and in the faces of both drifts give promise of an orebody that should be exposed as development work progresses.

Approximately 90 feet to the northwest of the inclined shaft a 35-foot tunnel has been driven N76°W into the hillside. At the end of the tunnel a winze has been sunk to a depth of 18 feet, cutting the fault zone. A sample from five and a half feet above the bottom of the winze and approximately four feet above the footwall gives a good reading on the counter.

Cuts have been made with a bulldozer at several places on the surface, exposing the crushed zone. Samples collected from these by the writer gave no indication of mineralization. Several holes have been drilled, and these are said in some cases to have given good readings where they intersected the fault zone.

Conclusions and Recommendations

On the basis of the above observations the following conclusions have been reached by the writer:

(1) Mineralization follows the crushed zone of a large thrust fault.

(2) Mineralization is in the form of a thin film of what appears to be sooty pitchblende deposited on the surfaces of fragments of quartz and feldspar crushed by the fault action, and thus is post faulting.

(3) Mineralization is primary and is hydrothermal, probably mesothermal, or formed at intermediate depths by moderately hot solutions rising from below.

(4) Little oxidation is indicated. The almost complete lack of accessory minerals such as pyrite or other sulphides that normally serve as indicators makes it impossible to state definitely whether or not secondary alteration has occurred. It is the opinion of the writer that it has not, since the tell--tale highly colored secondary uranium minerals are not present.

(5) Since commercial grade uranium ore has been encountered at several places underground, and it is concluded that a commercial orebody is present. The grade probably will not increase greatly with depth, but should hold fairly constant. However, lean portions also are indicated, both along the strike and down dip.

The development work done so far has been well planned, giving a maximum of information for the footage of openings driven. The following recommendations are made for further work:

(1) That development work be continued along the plan already established; that is, following the crushed zone with the underground workings, extending the present drivts at least a hundred feet out on either side of the shaft.

(2) That the incline be sunk another hundred feet down the fault zone, and that a second level be established at that depth by drifting in both directions along the crushed zone to distances of at least 100 feet from the shaft. This will expose any possible orebodies on either side of the shaft on three sides, and at the same time should produce some tonnage or ore.

(3) That careful sampling be done in all the exposed workings and that the samples be analyzed by an assayer competent in uranium determinations. This will give an accurate idea of the values present, on the basis of which it can be determined whether it is worth while to expand mining operations to full scale or if the property should be abandoned.

Respectfully submitted,

/s/ Thomas Clements

Thomas Clements, E.M., Ph.D.

March 12, 1956

THOMAS CLEMENTS
2171 Vista Del Mar Avenue
Los Angeles 28, Calif.

Telephones
HOllywood 5-3979
RIchmond 8-3974

Consulting
Mining Engineer
and Geologist

A FURTHER REPORT ON THE WINDMILL AND ASSOCIATED MINING CLAIMS IN THE WHETSTONE MINING DISTRICT, NEAR BENSON, ARIZONA

Introduction

In February, 1956, at the request of Mr. Robert L. Smith and Mr. Clifford E. Royston of Los Angeles, California, the undersigned spent two days making an examination of the Windmill group of uranium mining claims near Benson, Arizona. Additional time was spent in the laboratory studying samples from the area, and as a result of the field work and laboratory studies certain conclusions were drawn and recommendations made.

In July, 1956, three additional days were spent in the field, July 13, 14, and 15, making further examination of the underground workings on the Windmill No. 1, and investigating the associated Fair Chance, Extension, and Water Hole claims. The present report supplements the report made after the first examination, and is based on the results of the two examinations.

Development on the Windmill Claims

At the time of the February examination the Windmill property had been opened by an inclined shaft to a depth of 106 feet on the incline, and by a 35-foot tunnel ending in an 18-foot winze. These were on Windmill No. 1 claim. In addition, numerous drill holes had been put down, the cores from many of these being still available for inspection.

As a result of the examination, the writer recommended that drifts be driven to distances of at least 100 feet along the crushed zone on both sides of the shaft at the first level; that the shaft be sunk an additional 100 feet on the incline, staying within the mineralized zone; that drifts also be driven from the second level thus established at least 100 feet on either side of the shaft.

Underground work that was done between the two examinations was the driving of a drift along the crushed zone to the southeast for a distance of approximately 50 feet, and another to the northwest approximately 40 feet. An inclined raise was started in a southwesterly direction near the end of the northwesterly drift. This has caved badly, and the caving has extended into the drift as well, almost completely blocking it.

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Results of Sampling

A sample was cut across four feet of the face of the southeasterly drift (Windmill No. 12). A weighed portion of this showed a net 0.12 % radioactive material on the scintillation counter. This is not greatly different from results obtained at the start

of two test holes in the face of this drift; 9E and 9ET, which showed 0.17 % and 0.18 % respectively (information furnished by R. L. Smith).

A grab sample was taken from the westerly wall of the now-caved raise in the northwesterly drift above the cross slip along which caving occurred. The ground here was so heavy that it was unsafe to cut a channel sample. The grab sample (Windmill No. 13) shows a net of 0.60 % U_3O_8 radiometrically. This is considerably higher than the results obtained from the start of two drill holes: 5T and 6T, drilled from near the position from which the grab sample was taken. Readings from both of these, furnished by Mr. Smith, calculate to 0.21 % U_3O_8.

Another grab sample (Windmill No. 14) was taken near the top of the face in the northwesterly drift. This was the only part accessible, because of the filling of the end of the drift by caved material. The sample shows 0.07 % U_3O_8 net, which is close to the figure of 0.09 % obtained at the beginning of the drill hole No. 7. However, drill hole No. 8, which was started on the other side of the face, and is now inaccessible, began in material that ran 0.27 % U_3O_8 radiometrically (figures on both drill holes furnished by Mr. Smith).

The hanging wall at the bottom of the shaft has a yellowish-green coating that fluoresces bright yellowish green, and apparently has been deposited by water seeping over the surface of the rock since the shaft was sunk. The mineral fits the description of schroeckingerite, $NaCa_3(UO_2)(CO_3)(SO_4)F \cdot 10H_2O$, but a sample taken from the hanging wall (Windmill No. 15) showed no radioactivity, although most of the fragments showed surface fluorescence.

On the top surface, near the collar of the shaft, where shipping ore had been stockpiled, the ground was wet from recent rain on the first day of the examination. However, it dried out on the second day, and as it dried a greenish efflorescence developed. A sample of the green-coated material was taken (Windmill No. 16) and later examined in the laboratory. The green coating fluoresced a bright yellowish green, whihh, together with its color and its obvious solubility in water, again suggests schroeckingerite. This sample showed approximately 0.09 % U_3O_8.

Structural Trends in the Crushed Zone

Observations were made in both drifts on some of the many slips that have been exposed as the work has progressed. Although the crushed zone as a whole strikes in general N55°W and dips 55° NE, as recorded in the earlier report, individual slip planes within the zone vary widely. In the northwesterly drift, what appears to be the main slip varies from N80°W to N65°W, and the dip ranges from 58°NE to 45°NE. The cross slip along which the raise was started, and on which the caving has developed, strikes N5°W and dips 50° easterly.

In the easterly drift the main slip strikes N52°W with a dip of 55°NE, which is quite close to the attitude as determined on the surface. Fifteen feet back from the face another slip branches off from the main one; this fault strikes N35°W and dipts 58°NE. A large slip plane in a small cross-cut off this drift strikes N45°W

and dips 45°NE. All the slips have gouge seams, usually from one to six inches thick.

Other Claims Investigated

In addition to examination of the underground workings, other claims in the area under the same ownership or control were investigated. These were in particular the Extension Group, Fair Chance Group, and Water Hole No. 1, all lying west and northwest of the Windmill Group. The Extension claims are largely in Section 4, the Fair Chance in Section 9, and the Water Hole in Section 8, all in T18S, R19E, G. & S. R. B & M (Windmill claims are in Section 10 of the same township and range.)

Some very strong and persistent quartz veins cross a number of these claims at an angle to the general trend of the Windmill Fault and are in part cut off by the latter. Their strike varies from N68°E to N48°E, and the dip from 60°NW to vertical. These veins have been prospected in times past for gold, and several shafts have been dug on them. None of the veins gives any appreciable indication of uranium mineralization on the scintillation counter. An iron-stained quartz outcrop on Water Hole No. 1 was sampled and assayed, but showed only 0.01 ounce of gold and 0.32 ounce of silver per ton.

On the Fair Chance No. 1 a large crushed zone in the granite strikes N40°E and dips 84°NW. This gives readings on the scintillation counter considerably above background, and in the discovery pit in this crushed zone very encouraging readings were obtained, As the result of the recent rains the pit had contained a foot or two of water in the bottom, which, however, had disappeared, leaving a muddy bottom. In addition, it had left a yellowish-green coating all around the walls at the bottom of the pit. This was sampled (Fair Chance No. 1) and proved to fluoresce a bright yellowish green, suggesting again the water-soluble mineral schroeckingerite. The sample showed a net of 0.14 % U_3O_8 with the counter.

On the Water Hole No. 1 another well--defined crushed zone strikes N65°E with an estimated dip of 60°NW. This also gives readings on the counter considerably above background, some places in particular being worthy of further investigation.

Conclusions and Recommendations

On the basis of the two examinations, the undersigned has drawn the following conclusions, and makes certain recommendations which in turn follow the conclusions:

(1) The Windmill Mining Claims still show definite promise of becoming commercial uranium producers. The additional underground exploratory work that has been done since the first examination has in no way indicated a lessening of values, although it has shown more of the complexity of the faulting involved.

(2) The lack of secondary uranium minerals in the fault zone probably is because reducing conditions prevail, at least in the upper portion. What causes the reducing condition is unknown, although possibly it is organic solutions derived from plant roots which permeate the surface part of the crushed zone. The formation of the coating of water-soluble schroeckeringite on the wall of the station at the first level, and on the ground near the shaft after

the rain (in both cases under oxidizing conditions) tends to strengthen this hypothesis.

(3) Readings on the scintillation counter considerably above background along crushed zones on other claims in the area, as well as the presence of schroeckingerite in the discovery pit on one of these after the rain indicate that the uranium mineralization is not locallized on the Windmill claims, but is rather widespread in the area.

The following recommendations, therefore, are made at this time:

(1) That the shaft be sunk at least another hundred feet on the incline, continuing to follow the crushed zone, as recommended in the February report.

(2) That drifts be driven along the crushed zone at the second level for distances of at least 100 feet on either side of the shaft, also as recommended in the earlier report. Timbering will be necessary to keep the workings open, since the ground is heavy in the crushed zone.

(3) That the drifts on the first level be cleaned and timbered sufficiently to support them, and that they be continued out to at least 100 feet from the shaft, again as recommended in the previous report. No auxiliary workings, such as raises or winzes, should be started closer to the shaft than the 100 feet mentioned, in order that the shaft may have adequate support.

(4) Careful sampling should be done as the shaft is being sunk and the drifts are being driven, so that even if they have to be lagged there will be complete knowledge of the values encountered. All rock of ore grade should be segregated for shipment as soon as sufficient has accumulated.

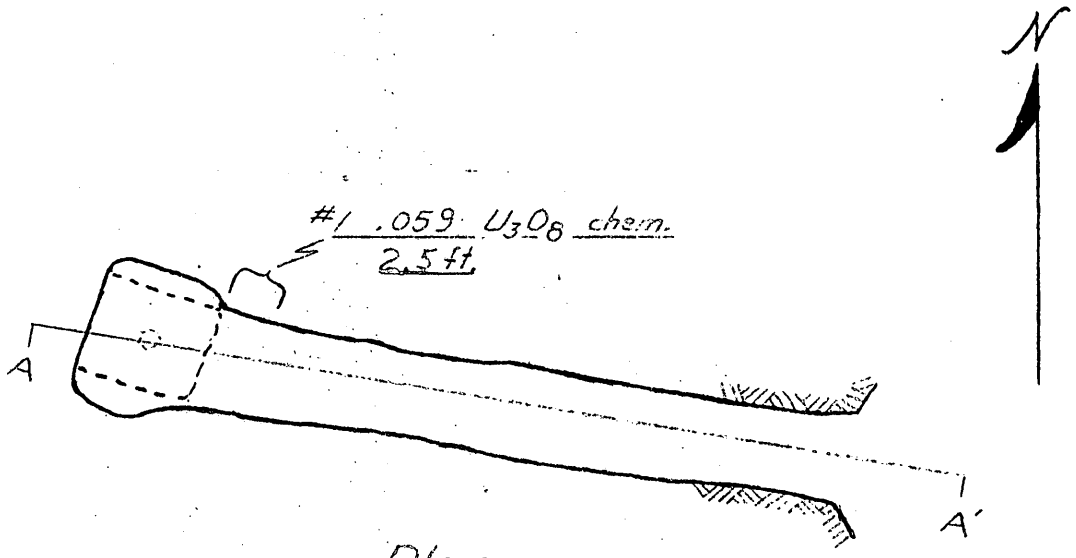
(5) On the basis of the information obtained from the additional openings a careful analysis of the situation should be made in order to determine whether further expenditure is justified or not.

(6) No work should be done on the other claims (excepting assessment work) until it has been proven whether or not the Windmill claims contain a commercial orebody.

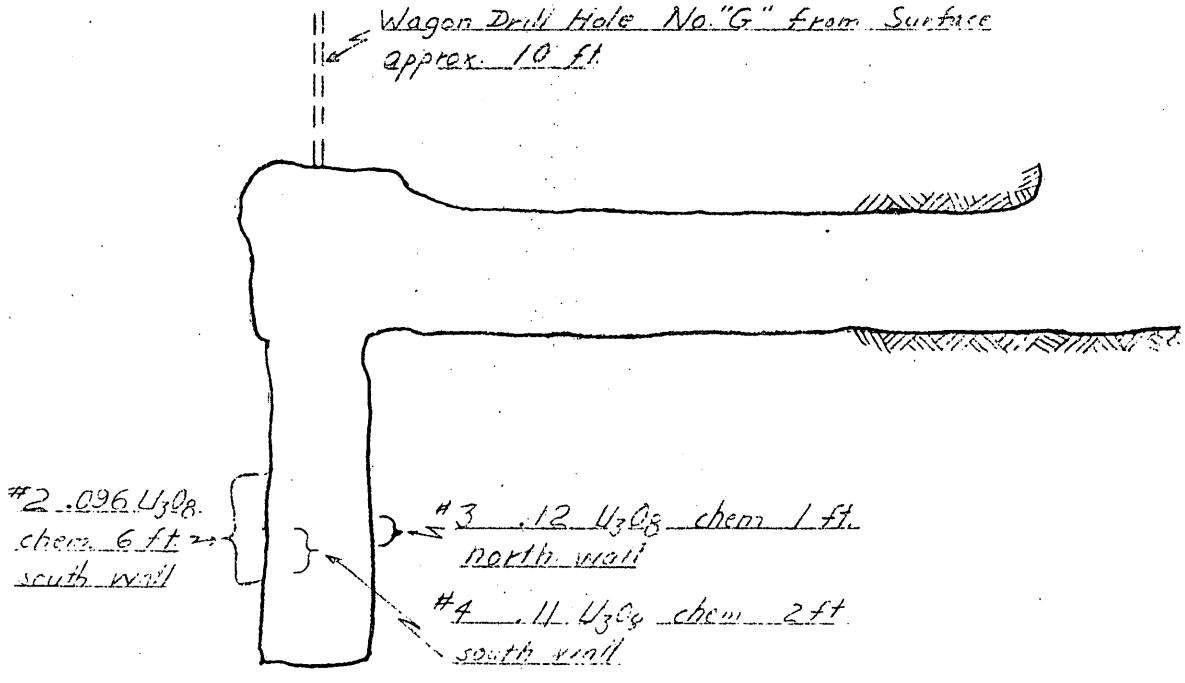
Respectfully submitted,

Thomas Clements, E.M., Ph.D.

August 8, 1956.



Plan



Sec. A-A'

Windmill No. 1
Sample Map No. 1
WINZE & ADIT

Scale 1 inch = 10 feet
4/1/57 L.C.V.

ADIT AND WINZE SAMPLES

Sample	# 1	Bulk sample taken from adit covering a distance of 31' to 33.5' from portal. Chemical 0.059% U_3O_8.
"	# 2	Six foot vertical chanel cut on south wall of winze starting at 6 ft from collar to 12 ft. from collar. Chemical 0.096% U_3O_8
"	# 3	AEC Sample No. A3766B taken aproximately 11ft. from collar of winze along north wall for a distance of 1 ft. 0.12% U_3O_8
"	# 4	AEC Sample No. A3766A taken approximately 11 ft. from collar of winze along south wall for a distance of 2 ft. 0.11% U_3O_8

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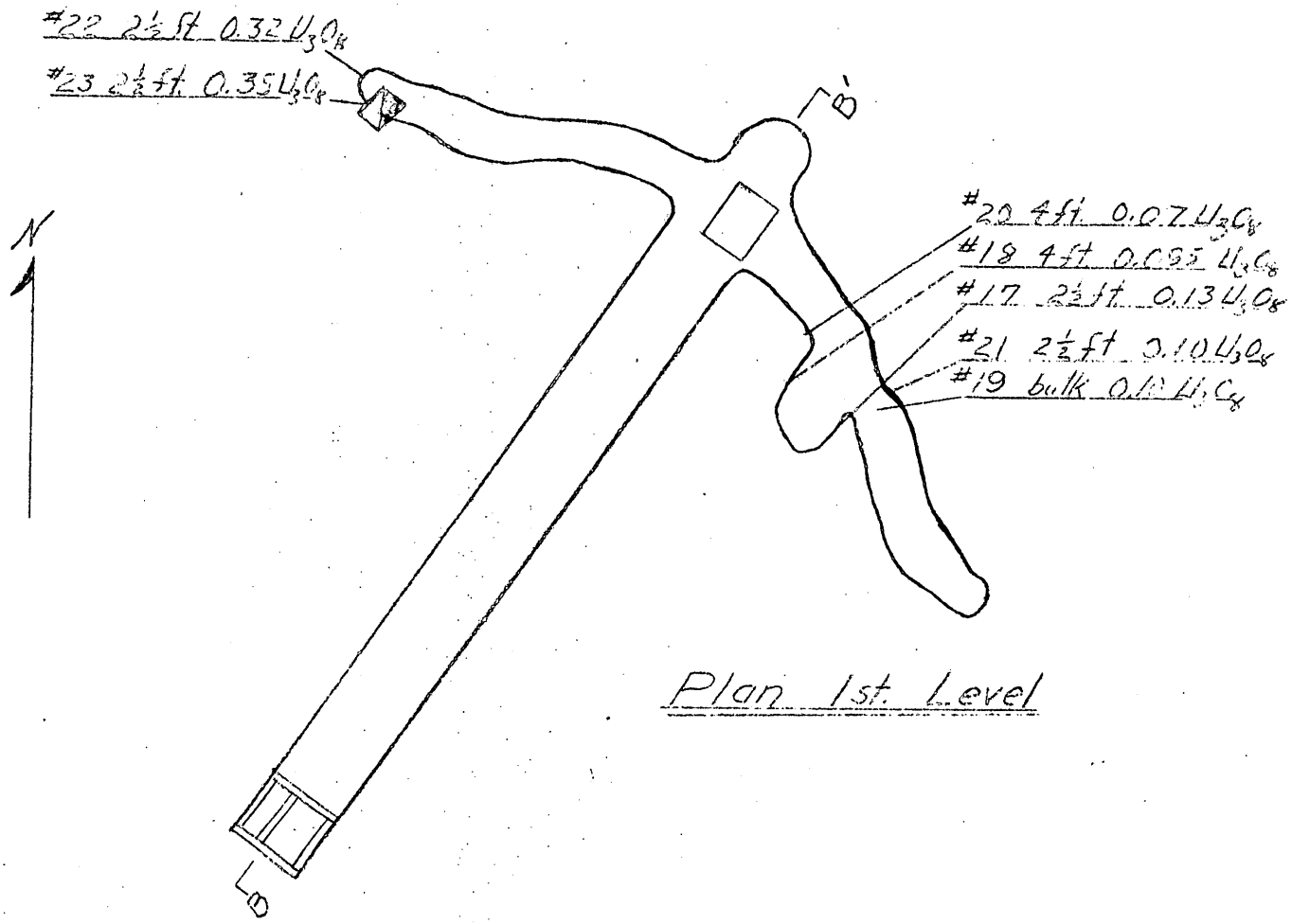

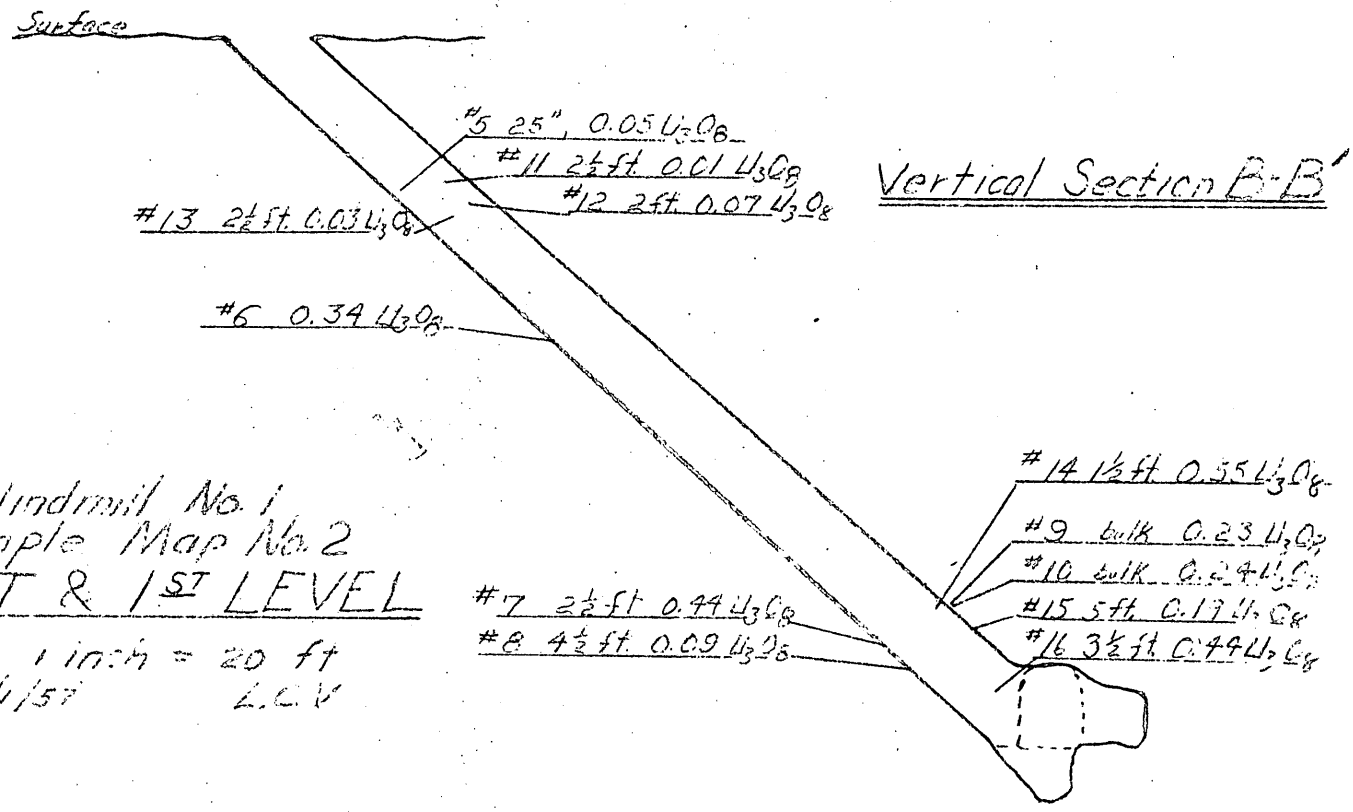

Windmill No. 1
Sample Map No. 2
SHAFT & 1ST LEVEL
Scale 1 inch = 20 ft
4/1/57 L.C.V

SHAFT SAMPLES

Sample # 5 (W3A)25" channel taken at rt. angle to footwall from west wall-cut crossed footwall. Located 39" below 3rd set. Chem. .05 U_3O_8. Hawley & Hawley

" # 6 (8F) Taken across footwall below 8th set. 0.34 U_3O_8 chem. Hawley & Hawley

" # 7 (17SW) West Wall, three feet below 17th. set. 2½' channel 4" wide 0.44 U_3O_8 Chem. 0.45 e. Hawley & Hawley.

" # 8 (18FW) Taken from the bottom of shaft while sinking 1 foot below 18th set. 4½ ft vertical chanel 2 ft. from west wall. 0.09 U_3O_8 chem., 0.05 e, Hawley & Hawley.

" # 9 (SPA) Skipload of approximately 3/4 ton from midway between 17th. and 18th sets. 0.23 U_3O_8 chem. Hawley & Hawley

" #10 (SPB) similar skipload as sample #9 from between the 17th and 18th sets. 0.24 U_3O_8 chem. Hawley & Hawley.

" #11 (A-3771-A) 2½ ft. channel from west wall of shaft 20 feet below collar. 0.01 U_3O_8 Chem. 0.08 e AEC.

" #12 (A-3771-B) 2 ft. shannel cut on west wall 24 ft. from shaft collar. 0.07 U_3O_8 chem, o.13 e AEC

" #13 (A-3771-C) 2½ ft. channel cut on east wall 24 ft from shaft collar. 0.03 U_3O_8 e. AEC

" #14 (A-3774-A) 1½ ft channel cut on east wall 88 ft. from shaft collar. 0.55 U_3O_8 chem., 0.46 e ,AEC.

" #15 (A-3774-B) 5 ft. channel cut on east wall of shaft 93 feet from collar. 0.19 U_3O_8 chem, 0.15 e., AEC.

" #16 (A-3774-C) 3½ ft. channel cut on east wall 98 ft from shaft collar. 0.44 U_3O_8 chem. 0.32 e., AEC.

chem = chemical U_3O_8 assay
e =-equivalent U_3O_8, based on natural radioactivity of the sample as compared to the radioactivity of a standard uranium source in equilibrium.

SAMPLES 1st LEVEL (110 ft.)

Sample # 17 (288554) 2½ ft. channel on east wall of east drift as shown 0.13 U_3O_8 chem. Hawley & Hawley.

" # 18 (288555) 4 ft. channel on west wall of east drift as shown. 0.095 U_3O_8 chem. Hawley & Hawley

" # 19 (288556) 3/4 ton skip sample from slab round on east drift as shown. 0.10 U_3O_8 Chem. Hawley & Hawley.

" # 20 (A-3774-D) 4 ft. channel cut on west wall of east drift as shown. 0.07 U_3O_8 chem. 0.06 e., AEC

" # 21 (A-3774-E) 2½ ft channel cut on eastermost wall of east drift as shown 0.10 U_3O_8 chem. 0.09 e., AEC

" # 22 (A-3777) 2 ft. channel from face of west drift 39 ft. from station. 0.32 U_3O_8 chem. 0.24 e., AEC

" # 23 (A-3778) 2½ ft channel along west wall of raise in west drift about 10 ft. from floor of drift. 0.35 U_3O_8 chem., 0.30 e AEC

COST ESTIMATE FOR SINKING ADDITIONAL 100FT. IN SHAFT
ON WINDMILL CLAIMS NEAR BENSON, ARIZONA
AND DRIFTING 300 FEET.

ESTIMATED TIME 106 days
(43 days Sinking Shaft & 63 days Drifting)

DESCRIPTION	COST OF SHAFT PER FT. TIMBERED.(LAGGED ON BACK & SIDES)	COST OF 5'x7' DRIFT PER FT. UNTIMBERED	COST OF 5'x7' DRIFT PER FT. TIMBERED
Supervision	$ 9.50	$ 5.55	$ 6.75
Labor-Miners&Timbermen	40.00	9.00	14.00
Labor-Hoistman&Framer	12.00	3.50	4.00
EQUIPMENT RENTALS			
Hoist @ $180.00/mo			
210CFM Compressor@$290.00/mo			
Headframe&Skip @ $48.00/mo			
2 Ore Cars@ $20.00ea/mo			
2 Jackhammers w/legs@$67.00ea			
3 House Trailers@ $30.00ea mo			
Small Tools @ $50.00/mo			
Mucking Machine@ $ 300.00/mo			
Total Rentals $1,132.00/mo	15.30	9.30	10.00
Moblilzation & Demobilization	2.00		
Transportation on Job $ 200.00/mo	2.63	1.58	1.58
SUPPLIES EXPENDABLE			
Powder,Caps,Fuse	2.50	1.50	1.50
Drill Steel & Bits	.80	.60	.60
Gasoline etc.	2.50	1.25	1.25
SUPPLIES OTHER			
2" Air Line	.43	.43	.43
1" Water Line	.18	.18	.18
16#Track w/hardware	1.00	1.00	1.00
Fittings	.25	.25	.25
TIMBER			
Shaft Set $65.00	13.00		
Drift Set $40.00			8.00
Hanging Bolts & Nuts	2.00		
Total.....	$ 104.09	$ 34.14	$ 49.54
Contingencies.....	10.41	3.41	4.96
Total Estimated Cost....	$ 114.50	$ 37.55	$ 54.50

Submitted by:

MINES EXPLORATION & DEVELOPMENT CO.
2000 South Freeway
Tucson, Arizona

Leland C. Vought
President

. S. Government Messenger Envelope

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~~Mail & Files DMEA~~ ~~4450, Int.~~	RUN / STOP		RUN / STOP
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MF-205
(Combines and supercedes MF-201 and MF-203)
June 1956

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Contract No. Idm-E _____
Contract Date _____

CONSENT TO LIEN
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SUBORDINATION AGREEMENT 1/

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To the United States of America:

Referring to that certain land in the County of Cochise State of Arizona, described as follows: 2/

See Annex attached

_____,

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

None

1/ Mining or production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page _____, official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

Dated this 8th day of August, 1957.

Emilio B. Molina	[Seal]	801 E. 35th Tucson Arizona	[Address]
Mike H. Molina	[Seal]	2807 E Beverly Dr Tucson Arizona	[Address]
Ed Ohmenger	[Seal]	Benson Ariz Rt. Box 517	[Address]
Shelby St Clair	[Seal]	1311 West Schafer Dr.	[Address]
Kent Wells	[Seal]	433 West Roy St. Tucson	[Address]
Merwood B. Owens	[Seal]	PO Box 769 Tucson	[Address]

I, _____ certify that I am the _____ (Secretary, etc.) of the corporation named herein; that _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

Legal Description of Mining Claims

Windmill No. 1 (recorded in Docket 114, Page 616, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 600'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

EXTRA COPY
D M E A
RECEIVED AUG 12 1957

DATE	INITIALS	CODE

Said claim is adjoined on the north by the Windmill No. 3 Claim, on the west by the Windmill No. 4 Claim and on the south by the Windmill No. 2 Claim.

DMEA FORM 6 REFERENCE SLIP

REV. 12-56 DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO:	INITIALS	DATE
1. Catherine Curtin, 4450		11/19
2.		
3.		
4.		
5.		
FROM:		

FOR: Check items for action desired

____ Action ____ Reply for signature of _____

____ Approval ____ Investigate ____ Surname

____ Comment ____ Recommendations ____ Signature

____ Conference ____ Rewrite X File

____ Instructions ____ Your information

REMARKS:

DMEA-4794 SmitR-Royston Company

Catherine, the extra copies of Consent to Lien and Subordination Agreement attached apply to the above application, which is being denied. The original Consent has been placed in the docket, and I suggest that these copies be held with the file

Legal Description of Mining Claims (con't)

Windmill No. 2 (recorded in Docket 123, Page 178, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 1,200'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the north by the Windmill No. 1 Claim and on the west by the Windmill No. 4 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 3 (recorded in Docket 123, Page 179, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69o E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the west by the Windmill No. 4 Claim and on the south by the Windmill No. 1 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 4 (recorded in Bocket 125, Page 123, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, is located in Section 10, Township 18 S., Range 19 E., G. & S.R.B. & M., and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point N. 21° E. 1,200' from the discovery point (at which this notice is posted), marking the center of the northeast end line of said claim; thence S. 69° E. 300', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which corner a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet , bears S. 69° E. 1,500' and S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 1,500' to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southwest end line of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 300', to the point of beginning.

Said claim is adjoined on the east by the Windmill No. 1, Windmill No. 2 and Windmill No. 3 Claims.

MF-205
(Combines and supercedes MF-201 and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator _____
Docket No. DMEA- _____
Contract No. Idm-E _____
Contract Date _____

RECEIVED AUG 12 1957 D.M.E.A.

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

To the United States of America:

Referring to that certain land in the County of Cochise, State of Arizona, described as follows: 2/

See Annex attached

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

None

1/ Mining or production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page _____, official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

Dated this 8th day of August, 1957.

Emilio B. Molina	[Seal]	801 E. 3rd Tucson Ariz	[Address]
Mike H. Molina	[Seal]	2802 E. Beverly Dr. Tucson Arizona	[Address]
E. J. Thrasher	[Seal]	Benson Ariz P.O. Box 717	[Address]
Shelly H. Ow	[Seal]	1311 West Schafuch	[Address]
Newt Wells	[Seal]	438 West Alley St Tucson	[Address]
Therwood L. Owens	[Seal]	P.O. Box 769 Tucson	[Address]

I, _____ certify that I am the _____ _____ (Secretary, etc.) of the corporation named herein; that _____ _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

Legal Description of Mining Claims

Windmill No. 1 (recorded in Docket 114, Page 616, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 600'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

EXTRA COPY
D M E A
RECEIVED AUG 12 1957

DATE	INITIALS	CODE

Said claim is adjoined on the north by the Windmill No. 3 Claim, on the west by the Windmill No. 4 Claim and on the south by the Windmill No. 2 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 2 (recorded in Docket 123, Page 178, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 1,200'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the north by the Windmill No. 1 Claim and on the west by the Windmill No. 4 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 3 (recorded in Docket 123, Page 179, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the west by the Windmill No. 4 Claim and on the south by the Windmill No. 1 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 4 (recorded in Docket 125, Page 123, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, is located in Section 10, Township 18 S., Range 19 E., G. & S.R.B. & M., and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point N. 21° E. 1,200' from the discovery point (at which this notice is posted), marking the center of the northeast end line of said claim; thence S. 69° E. 300', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which corner a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 69° E. 1,500' and S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 1,500' to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southwest end line of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 300', to the point of beginning.

Said claim is adjoined on the east by the Windmill No. 1, Windmill No. 2 and Windmill No. 3 Claims.

MF-205
(Combines and supercedes MF-201 and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator_____
Docket No. DMEA-_____
Contract No. Idm-E_____
Contract Date_____

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

RECEIVED
AUG 12 1957
D.M.E.A.

To the United States of America:

Referring to that certain land in the County of _____, State of _____, described as follows: 2/

_____

_____

_____

_____,

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

_____

_____

_____

1/ Mining or production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page _____, official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

Dated this 8th day of [illegible], 195__.

Emilio B. Molina	[Seal]	801 E. 35th Tucson Ariz	[Address]
Mike H. Molina	[Seal]	2802 E. Broadway Dr. Tucson, Ariz.	[Address]
Ed Johnson	[Seal]	Benson Ariz. PO Box 17	[Address]
Phillip H. Ow	[Seal]	1311 West Schafer	[Address]
Neut Wells	[Seal]	433 West Ady 8 Tucson	[Address]
Sherwood B. Owens	[Seal]	PO Box 769 Tucson	[Address]

I, _____ certify that I am the _____ _____ (Secretary, etc.) of the corporation named herein; that _____ _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

Legal Description of Mining Claims

Windmill No. 1 (recorded in Docket 114, Page 616, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 5 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 600'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

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RECEIVED OCT 12 1957

DATE	[illegible]	CODE

Said claim is adjoined on the north by the Windmill No. 3 Claim, on the west by the Windmill No. 4 Claim and on the south by the Windmill No. 2 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 2 (recorded in Docket 123, Page 178, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 1,200'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the north by the Windmill No. 1 Claim and on the west by the Windmill No. 4 Claim.

EXTRA COPY
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RECEIVED AUG 12 1957
DATE | INITIALS | CODE

Legal Description of Mining Claims (con't)

Windmill No. 3 (recorded in Docket 123, Page 179, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the west by the Windmill No. 4 Claim and on the south by the Windmill No. 1 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 4 (recorded in Bocket 125, Page 123, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, is located in Section 10, Township 18 S., Range 19 E., G. & S.R.B. & M., and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point N. 21° E. 1,200' from the discovery point (at which this notice is posted), marking the center of the northeast end line of said claim; thence S. 69° E. 300', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which corner a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 69° E. 1,500' and S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 1,500' to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southwest end line of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 300', to the point of beginning.

Said claim is adjoined on the east by the Windmill No. 1, Windmill No. 2 and Windmill No. 3 Claims.

MF-205
(Combines and supercedes MF-201 and MF-203)
June 1956

For Government's Use Only
EXPLORATION PROJECT CONTRACT
Operator_____
Docket No. DMEA-_____
Contract No. Idm-E_____
Contract Date_____

CONSENT TO LIEN
and
SUBORDINATION AGREEMENT 1/

RECEIVED AUG 12 1957 D.M.E.A.

To the United States of America:

Referring to that certain land in the County of _____, State of _____, described as follows: 2/

_____

_____

_____

_____,

which is the subject of a proposed exploration project contract, hereinafter called the "contract," with the United States of America, hereinafter called the "Government;" in consideration of the contract and as an inducement to the Government to enter into it, the undersigned hereby--

1. Undertakes and agrees that property in which the Government may acquire an interest or equity under the contract may be dismantled, severed from the land, and removed, as may be provided in the contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned;

2. Grants to the Government a lien upon all of the undersigned's right, title, and interest in the land and upon any production of minerals therefrom, to secure the payment to the Government of a percentage royalty on production as may be provided for by the Contract;

3. Subordinates the undersigned's right, title, claim, or interest in or against the land and in any production therefrom to the rights of the Government under the contract with respect to royalty on production and liens to secure same;

4. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none." Do not leave lines blank.)

_____

_____

_____

1/ Mining or production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page _____, official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: None (State "None" or "See Annex No.____")

Dated this 8th day of August, 1952.

Emilio B. Molina	[Seal]	801 E. 35th Tucson Ariz	[Address]
Mel G. Molina	[Seal]	2407 E. Beverly Dr	[Address] TUCSON ARIZ.
Ed Omesga	[Seal]	Ariz Cty PO Box 57	[Address]
Shelby St Don	[Seal]	1311 West Schufeldt	[Address]
Newt Wells	[Seal]	433 West Ady St Tucson	[Address]
Sherwood B. Owens	[Seal]	PO Box 768, Tucson	[Address]

I, _____ certify that I am the _____ (Secretary, etc.) of the corporation named herein; that _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

Legal Description of Mining Claims

Windmill No. 1 (recorded in Docket 114, Page 616, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 600'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

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D M E A
RECEIVED AUG 12 1957

DATE	INITIALS	CODE

Said claim is adjoined on the north by the Windmill No. 3 Claim, on the west by the Windmill No. 4 Claim and on the south by the Windmill No. 2 claim.

Legal Description of Mining Claims (con't)

Windmill No. 2 (recorded in Docket 123, Page 178, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which the northeast corner of the Windmill No. 3 Claim bears N. 21° E. 1,200'. A certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200' from the said northeast corner of the Windmill No. 3 Claim. Said bench mark is situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M. Thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the north by the Windmill No. 1 Claim and on the west by the Windmill No. 4 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 3 (recorded in Docket 123, Page 179, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point 500' N. 69° W. from the discovery point (at which this notice is posted), marking the center of the northwest end line of said claim; thence N. 21° E. 300', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southeast end line of said claim; thence S. 21° W. 300', to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 1,500', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 300', to the point of beginning.

Said claim is adjoined on the west by the Windmill No. 4 Claim and on the South by the Windmill No. 1 Claim.

Legal Description of Mining Claims (con't)

Windmill No. 4 (recorded in Bocket 125, Page 123, Official Records of Cochise County, Arizona) is situated and located in the Whetstone Mining District, Cochise County, State of Arizona, about 8 miles southwest of Benson, Arizona, is located in Section 10, Township 18 S., Range 19 E., G. & S.R.B. & M., and is described as follows:

> Beginning at a substantial post projecting 4 feet above the ground at a point N. 21° E. 1,200' from the discovery point (at which this notice is posted), marking the center of the northeast end line of said claim; thence S. 69° E. 300', to a substantial post projecting 4 feet above the ground, marking the northeast corner of said claim, from which corner a certain United States Geological Survey bench mark, marking an elevation of 5,333 feet, bears S. 69° E. 1,500' and S. 67° E. 2,200', said bench mark being situated in Section 11, Township 18 S., Range 19 E., G. & S.R.B. & M.; thence S. 21° W. 1,500' to a substantial post projecting 4 feet above the ground, marking the southeast corner of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the center of the southwest end line of said claim; thence N. 69° W. 300', to a substantial post projecting 4 feet above the ground, marking the southwest corner of said claim; thence N. 21° E. 1,500', to a substantial post projecting 4 feet above the ground, marking the northwest corner of said claim; thence S. 69° E. 300', to the point of beginning.

Said claim is adjoined on the east by the Windmill No. 1, Windmill No. 2 and Windmill No. 3 Claims.

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Date	Surname	Code
11/19	Knouse	700
"	Ellis	700
11/21	Selfridge	130
"	Osmer	110
"	Rutherford	198
		220
		225
11/20	Lamb	130
11/29	Hogaard	130

NOV 21 1957

Mr. Clifford E. Royston
Smith-Royston Co., a joint venture
c/o Thompson, Royston & Moss
433 South Spring Street
Los Angeles 13, California

Re: Docket No. DMEA-4794 (Uranium)
Windmill Claims
Cochise County, Arizona

Dear Mr. Royston:

Your application for aid in an exploration project and other information available to us in Washington concerning the above-named property have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all our information, although noting some uranium mineralization on your property, indicates that the probability of disclosing significant ore reserves is not sufficiently promising to justify Government participation. We regret to advise you that, under these circumstances, your application for exploration assistance is denied.

We wish to thank you for your interest in the Defense Minerals Exploration Program and for bringing your property to our attention.

Sincerely yours,

C. O. Mittendorf

Administrator

FLKnouse/gla
11-19-57
cc to: Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224
FLKnouse
DMEA Field Team, Region III (2)

8623

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Hwoyce Ellis

November 19, 1957

Summary of Proposed Project

Object: Denial of application for exploration aid.

Commodity: Uranium

Docket No.: DMEA-4794

Applicant: Smith-Royston Company, a joint venture
c/o Thompson, Royston & Moss
433 South Spring Street
Los Angeles 13, California

Property: Consists of four contiguous unpatented lode mining claims in sec. 10, T. 18 S., R. 19 E., G. & S. R. B. & M., Cochise County, Arizona, as follows: Windmill Nos. 1, 2, 3, and 4.

Property Rights: In a Lease and Option to Purchase, dated June 16, 1955, between Sherwood B. Owens (seller) and Clifford E. Royston and Robert L. Smith (buyers), the Applicant's property rights are set forth.

Application date: July 9, 1957

Amount of application: $55,600.00

Received in Washington: July 22, 1957
Referred to Region III: July 26, 1957
Property examined: August 27, 1957
Field Team report received in Division: October 24, 1957

Work Proposed: Consists of a two-stage program to test a mineralized fault zone in granodiorite below a 90-foot drift from the bottom of a 107-foot deep inclined shaft. Stage I consists of deepening the shaft 100 feet and drifting along the fault zone 300 feet. Stage II consists of deepening the shaft an additional 100 feet and drifting 300 feet along the fault zone.

Estimated Cost:

Stage I

100 feet shaft @ $114.50/ft.	$11,450.00	
300 feet drifting @ $54.50/ft.	16,350.00	
Estimated Cost Stage I		$27,800.00

Stage II

100 feet shaft @ $114.50/ft.	$11,450.00	
300 feet drifting @ $54.50/ft.	16,350.00	
Estimated Cost Stage II		$27,800.00
Total Estimated Cost of the Project		$55,600.00
Government Participation @ 75%		$41,700.00

Field Team report, dated October 1957, W. L. Emerick, USGS, and T. M. Romslo, USBM

The property is in the foothills on the northern slope of Whetstone Mountains. Granodiorite forms the country rock in the vicinity of the mining claims concerned. Veins of white quartz, ranging in thickness from less than an inch to several feet, occur in the granodiorite. Outcrops of a diabase intrusion are exposed in the area. The claims were located to cover a radioactive shear zone in the granodiorite.

The mineralized shear zone has a general N. 55° W. strike and dips 45° to 55° northwest. On the surface, the shear zone is obscured along the strike by debris.

The mineralized shear zone has been explored by the inclined Windmill shaft No. 1 to an inclined depth of 107 feet, a 90-foot drift (about 45 feet along the zone on both sides) from the bottom of the shaft, a 38-foot adit and short winze, located about 90 feet northwest from the shaft, and also by ten or more wagon drill holes and six diamond drill holes from the surface.

From the shaft and drift there was produced and shipped 16 tons of ore that averaged 0.13% U_3O_8. AEC examiners estimated an ore reserve of 600 tons in the Windmill shaft and drift averaging 0.3% U_3O_8 in three small blocks. Field evidence shows that one-third of the rock in the reserve blocks had been mined by workings resulting in the production described above. On this basis, the remaining ore reserves should yield about 50 tons of similar grade ore.

In a limited area near the Windmill shaft, the shear zone attains a width of 40 feet but appears to narrow markedly within a short distance along the strike. Underground the shear zone is exposed as a mesh of parallel, branching, and crosscutting slips and fractures enclosing crushed and altered lenses of granodiorite. The slips and fractures carry a clay gouge ranging in thickness from a fraction of an inch to 3 inches.

Mineralization appears to be confined to the clay gouge along major fractures in the shear zone. Material of highest radioactivity is associated with iron along the slips and fractures. Uranium mineralization appeared to be erratic and not present in significant amounts in the shear zone. Microscopic examination of samples taken from the highest radioactive material shows it contains altered coarse-grained granitic rock composed of oligoclase, quartz, microcline, chlorite, muscovite, calcite, clay, biotite, and small amounts of pyrite, hematite, manganese oxides, zircon and apatite. The uranium occurs as sooty stains tentatively identified as uraninite.

No core was recovered from the diamond drill holes and probing readings obtained could not be checked chemically. Sampling by Applicant in the adit and winze showed no unusual grades of radioactive material. The examiners sampled mineralized fractures registering most favorably on the Geiger counter in relation to surrounding rock. Three samples assayed as follows:

Channel width	% U_3O_8	% cU_3O_8
1.4'	0.11	0.19
1.5'	0.11	0.11
3.5	0.1	-

Anomalous radioactivity appears to be confined to a small portion of the shear zone erratically distributed as film of sooty uraninite on the clay gouge of slips and fractures. Exploration to date has failed to indicate the presence of significant amounts of ore grade material.

Because significant amounts of minable ore are not believed expectable with additional exploration, it is recommended that the application be denied.

Commodity Members' Comments:

USBM - James Paone, dated October 25, 1957:

Agrees with the Field Team.

USGS - W. P. Williams, dated November 15, 1957:

"I agree with the advice of the field examiners for denial of the application. There are too many unfavorable features about the property to make DMEA participation in exploration appropriate at this time."

Division of Rare and Miscellaneous Metals, F. L. Knouse, November 17, 1957

The Field Team and examiners conclude that the probability of making a significant discovery of uranium on the property is not promising. I concur with their conclusions and recommend denial of the application.

Conclusion:

A review of all our information relating to the proposed project indicates that the probability of making a significant discovery of uranium on the property is not sufficiently promising to justify Government participation. Therefore, the application should be denied.

Ernest Wm. Ellis

Ernest Wm. Ellis, Director
Division of Rare and
Miscellaneous Metals

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

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DATE		CODE
11-18	C	220
11-20	~~FLK~~	700
	Complete	

November 15, 1957

Memorandum

To: E. W. Ellis, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of Field Examination Report, DMEA 4794 (uranium), Smith-Royston Company, Windmill Claims, Cochise Co., Ariz.

The examining team do not believe that conditions on the applicant's property are favorable for important uranium ore deposits. They found only minor amounts of uranium minerals associated with a shear zone in granite. Although the shear zone has a good width of about 40 feet at one place, the shear appears to narrow in width strike-wise in both directions. The enclosing rock, away from the shear zone is mostly barren. Mineralization in the shear zone is erratically distributed.

A total of only about 16 tons of rock averaging 0.13 percent U_3O_8 has been selectively mined from the existing shafts and drifts. The AEC believes that the radioactivity is confined to the immediate discovery area. Furthermore, they also believe the uranium minerals are too scattered to make a shipping grade ore. None of the samples taken by the examining team gave a commercial grade return.

I agree with the advice of the field examiners for denial of the application. There are too many unfavorable features about the property to make DMEA participation in exploration appropriate at this time.

W. P. Williams

W. P. Williams

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DATE	INITIALS	CODE
10/25	C	220
10/25	K	700

[illegible]

[illegible]
[illegible]
[illegible]
[illegible]

Date October 25, 1957

File number, Lo. 4794
[illegible]
Commodity Uranium
Name of applicant Smith-Royston Company
Name of property Windmill Claims
Location of property Cochise County, Arizona
Estimated cost of project $55,600.00

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee
From: James Paone, Bureau of Mines Member
Uranium Commodity Committee

Subject: Review of Field Team Report
(Application, place, year, footage, etc.)

1. Date of report document: Oct. '57 2. Date received by reviewer: 10/22/57

3. Is [illegible] to this property [illegible] to reviewer: Yes [ ] No [ ]

4. Prior reports on nearby properties known to reviewer: Yes [ ] No [ ]

5. Information available on past production: Yes [ ] No [ ]

6. Other pertinent factors known to reviewer: Yes [ ] No [ ]

7. Explain item marked yes above:

8. Factors meriting special consideration:
a. Location [ ]
b. Quantity [ ]
c. Evidence of mineralization [ ]
d. Geology [ ]
e. Proposed exploration method [ ]
f. Alternate exploration method [ ]
g. Costs [ ]
h. [ ]

9. Action advised:
a. Obtain information from applicant [ ]
b. Refer to Field Team [ ]
c. Denial [x]
d. Agree with Field Team [x]
i. Consult with Mr. _____ at _____ AEC office
j. Disagree with Field Team [ ]
k. Suggest alternate plan [ ]
l. Request another examination [ ]
m. Approval [ ]

10. Remarks: (Use back of page if necessary)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

224 New Customhouse
Denver 2, Colorado

October 15, 1957

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DMEA
RECEIVED OCT 18 1957

DATE	INITIALS	CODE
10/18	B	220
10/23	2B	130
10/24	C	220
10/24	FLR	700

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: DMEA Docket 4794 (Uranium) Smith-Royston Company (Windmill Claims) Cochise County, Arizona

Enclosed are the original and two copies of a Joint Examination Report on the subject property.

The examiners found minor amounts of uranium associated with a shear zone in granite but they conclude that exploration will not result in the discovery of significant uranium reserves.

Accordingly, they recommend, and we concur, that the application for exploration assistance be denied.

One copy of a letter dated October 2, 1957, from Clifford E. Royston is enclosed for filing with your copy of the application.

E. N. Harshman

E. N. Harshman
Acting Executive Officer

ON-SITE EXAM

Reviewed by
DMEA OPERATING COMMITTEE
10-23-57
(date)

MINERAL DEPOSITS
DMEA
RECEIVED
OCT 14 1957

GEOLOGICAL SURVEY
DENVER, COLORADO

Box 4126 University Station
Tucson, Arizona

October 10, 1957

Memorandum

To: Executive Officer, DMEA Field Team Region III

From: T. M. Romslo
W. L. Emerick

Through: E. N. Harshman

Subject: Docket No. DMEA-4794 (Uranium),
Smith-Royston Company (Windmill claims),
Cochise County, Arizona.
Joint Field Examination Report.

TRANSMITTED
OCT 15 1957

Enclosed are the original and nine copies of a joint field examination report on the above subject property, recommending denial of the application.

Also enclosed is the Routing Control Sheet for the Bureau of Mines copy of the application. The Survey copy of the application is being sent under separate cover to Mr. Harshman's office.

Three copies of a letter from Clifford E. Royston to T. M. Romslo, dated October 2, 1957, containing supplemental information as mentioned in the introduction to our report, are also enclosed.

OFFICE FILE COPY
DMEA
RECEIVED OCT 18 1957

DATE	INITIALS	CODE
10/23	[illegible]	130
		220

Enclosures

cc: W. H. King (9)
E. N. Harshman
DMEA/TUC
W. L. Emerick

Original signed by
T. M. Romslo

T. M. Romslo, Mining Engineer
U. S. Bureau of Mines

W L Emerick

W. L. Emerick, Geologist
U. S. Geological Survey

DMEA
DEPARTMENT OF THE INTERIOR
OCT 14 1957
REGION III
DENVER, COLORADO

Reviewed by
DMEA OPERATING COMMITTEE

10-23-57
(date)

FOR UNITED STATES GOVERNMENT USE ONLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

TRANSMITTED
OCT 15 1957

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA-4794 (Uranium), Smith-Royston Company

(Windmill Claims)

Cochise County, Arizona

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 18 1957

DATE	[illegible]	CODE
10/23	JB	130
		220

W. L. Emerick, Geologist
U. S. Geological Survey

T. M. Romslo, Mining Engineer
U. S. Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE

10-23-57
(date)

October 1957

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The Windmill claims in Cochise County, Arizona were examined by the Defense Minerals Exploration Administration in connection with an application by the Smith-Royston Co. for aid in exploration for uranium. The examination was carried out under docket DMEA-4794.

The Windmill claims were originally located shortly after uranium was discovered on the property in December 1954. Since then, major operations on the property have been confined to work carried out by the applicant from June 1955 to January 1957. The work mainly consisted of sinking a 107-foot inclined shaft, drifting 90 feet from the bottom of the shaft, driving a 38-foot adit and drilling 6 diamond drill holes and about 10 wagon-drill holes. A total of about 16 tons of ore averaging 0.13 percent U_3O_8 was selectively mined from the shaft and drifts. It was shipped to the recently closed AEC buying depot at Cutter, Arizona.

The applicant's proposed explorations comprised a 2-stage project in which the work of each stage involved deepening the shaft 100 feet and drifting 300 feet from the bottom of the shaft.

The radioactivity on the Windmill No. 1 claim is confined to a shear zone in granodiorite trending about N 55° W, and dipping between 45° and 50° northeast. The shear zone attains a width of about 40 feet in the immediate vicinity of a shaft but appears to

narrow in width strikewise in both directions from the shaft area. Underground the shear zone is exposed as a mesh of parallel, branching and crosscutting slips and fractures enclosing crushed and altered lenses of granodiorite. The slips and fractures carry a clay gouge.

Mineralization appears to be erratic, insignificant in amount and confined to the stronger gouge-filled fractures, and the enclosing rock is essentially barren. The uranium mineral has been tentatively identified as uraninite occurring as a sooty stain or film on the clay-gouge surfaces.

Indicated reserves of 600 tons of ore averaging 0.3 percent U_3O_8, and inferred reserves of 600 tons of ore averaging 0.3 percent U_3O_8 were estimated by the AEC. The field examiners estimate that the indicated ore reserves before mining probably do not exceed 50 tons of ore containing 0.13 percent U_3O_8. Inferred reserves are confined to a depth extension and inasmuch as the degree and extent of mineralization cannot be expected to increase with depth the inferred ore reserves are also insignificant. All reserves would have to be selectively mined in heavy ground.

Because significant amounts of minable ore are not believed expectable with additional exploration, it is recommended that the application be denied.

DMEA-4794 (URANIUM), SMITH-ROYSTON COMPANY
(WINDMILL CLAIMS)
COCHISE COUNTY, ARIZONA

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Conclusions and recommendation	12

ILLUSTRATIONS

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INTRODUCTION

The Smith-Royston Co. applied to the Defense Minerals Exploration Administration for aid in exploration for uranium on the Windmill claims, Cochise County, Arizona. The application was received and given docket No. DMEA-4794, July 22, 1957. It was reviewed by the Division of Rare and Miscellaneous Metal and referred to the Field Team, Region III for an examination of the property and for recommendations. At the same time the administrator requested the applicant to furnish maps showing the locations of the claims, the workings on the property and the proposed work. The Field Team received the maps August 12, 1957.

The applicant proposed that a mineralized fault zone in granodiorite be tested below short drifts from the bottom of an existing 107-foot deep shaft. The initial work of a proposed 2-stage project involved deepening the shaft 100 feet and then drifting 300 feet. Stage 2, involving the same type and amount of work, would be carried out only if justified by the findings of the initial work. Cost of the 2-stage project was estimated at $55,600.00.

The field examination was made August 27, 1957, by T. M. Romslo, mining engineer, U. S. Bureau of Mines, and W. L. Emerick, geologist, U. S. Geological Survey. They were accompanied by Clifford E. Royston and Robert L. Smith, members of the Smith-Royston Co.

At the request of the applicant, completion of the field examination report was delayed pending receipt on October 4, 1957 and consideration of supplemental information. The supplemental information has been made a part of the application.

ACKNOWLEDGMENTS

Sincere thanks are due Mr. W. R. Ashwill, Chief, Phoenix Sub-office, Atomic Energy Commission, for making AEC maps and information on the Windmill Group available to the field examiners.

LOCATION AND ACCESSIBILITY

The Windmill claims are about 8 air-miles southwest of Benson in sec. 10, T. 18 S., R. 19 E. (undivided), Cochise County, Arizona (fig. 1). Benson is a small town about 48 miles southeast of Tucson, Arizona. It is situated on U. S. Highway 80, State Highway 86, and the Southern Pacific Railroad.

The claims may be reached from the junction of the Highways at the eastern edge of Benson by traveling 2.5 miles south on U. S. Highway 80 and thence 6.6 miles on a winding graded dirt road that ends at the ranch buildings of the Boquilla Cattle Co. A road that enters the graded road from the south at 2.1 miles from the highway should be avoided. At the ranch buildings, pass through the gate, turn abruptly to the right and follow a winding unimproved road for 1.6 miles to the mine workings and a nearby windmill and corral.

PHYSICAL FEATURES AND CLIMATE

The Windmill claims are at the northern foot of the Whetstone Mountains, a north-south trending range that rises to a maximum altitude of 7,684 feet at Apache Peak. They are of an average altitude of about 5,000 feet in an area of gently rolling hills.

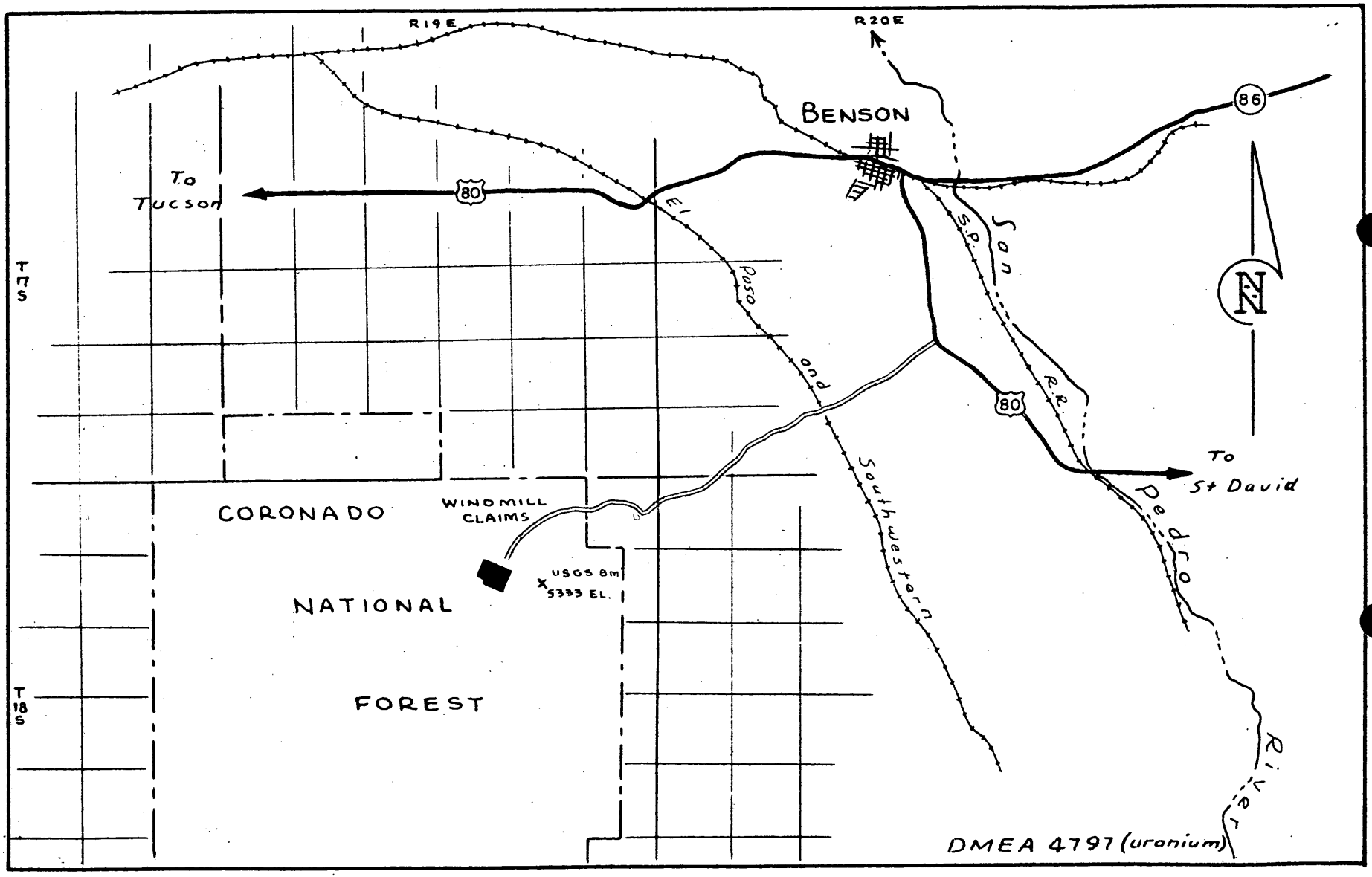

Fig.-1-Location map, Smith-Royston Co.
Cochise County, Arizona

Vegetation is largely confined to forage grasses and a light growth of scrub oak trees and mesquite scrubs.

Summers are hot and winters are mild. Precipitation averages about 10 inches annually. It mainly occurs as heavy rainstorms in the summer and light falls of rain and snow in the winter.

Drainage is northwesterly to the San Pedro River.

HISTORY AND PRODUCTION

Windmill claim No. 1 was located by Edward Ohnesorgen, Benson, Arizona, and Mike Molina and Emilio Molina, of Tucson, Arizona, in December 1954, shortly after they noted the presence of uranium on the property. Windmill claims Nos. 2, 3, and 4 were individually located during the period October 30, 1954 to April 18, 1955.

Except for discovery work, activity on the Windmill claims has been confined to operations carried out intermittently by the Smith-Royston Co. from June 1955 to January 1957. During this period Lee Voight, a contractor, drove a 38-foot adit, sunk a 107-foot inclined shaft, did 90 feet of drifting from the bottom of the shaft, and ran a 20-foot raise. Other work performed was confined to the drilling of test holes. Drilling from the surface comprised 6 diamond drill holes and about 10 wagon drill holes. Underground drilling consisted of numerous short holes into the walls of the drifts.

An approximate total of 16 tons of ore averaging 0.13 percent U_3O_8 has been produced from the property. It was mined from the shaft and drifts and was trucked to the recently closed AEC buying depot, Cutter, Arizona.

EXTENT AND OWNERSHIP OF THE PROPERTY

The applicant's property comprises a group of 4 unpatented lode mining claims, Windmill Nos. 1 to 4 (fig. 2).

According to Mr. Royston, the 3 original locators of the claims, together with Phillip Don, Tucson, Arizona, conveyed their interest in the claims to Newt Wells, Tucson, Arizona. Mr. Wells in turn conveyed the claims to Sherwood B. Owens by agreement dated May 18, 1955. Mr. Owens then conveyed the claims to the Smith-Royston Co. by the agreement of June 16, 1955, that is a part of the application.

Smith-Royston Co. is a joint venture organized under the laws of Arizona. Members of the company are: Robert L. Smith and W. G. Smith, both of 8355 Wilcox Ave., Bell, Calif.; Clifford E. Royston, George M. Thompson, Robert S. Thompson, and Conrad J. Moss, all of 433 South Spring St., Los Angeles 13, Calif.; Gordon A. McLean and Claude A. Clark, both of 618 South Spring St., Los Angeles 14, Calif.; and Harry I. Thompson, 702 E. Gage Ave., Los Angeles 1, Calif.

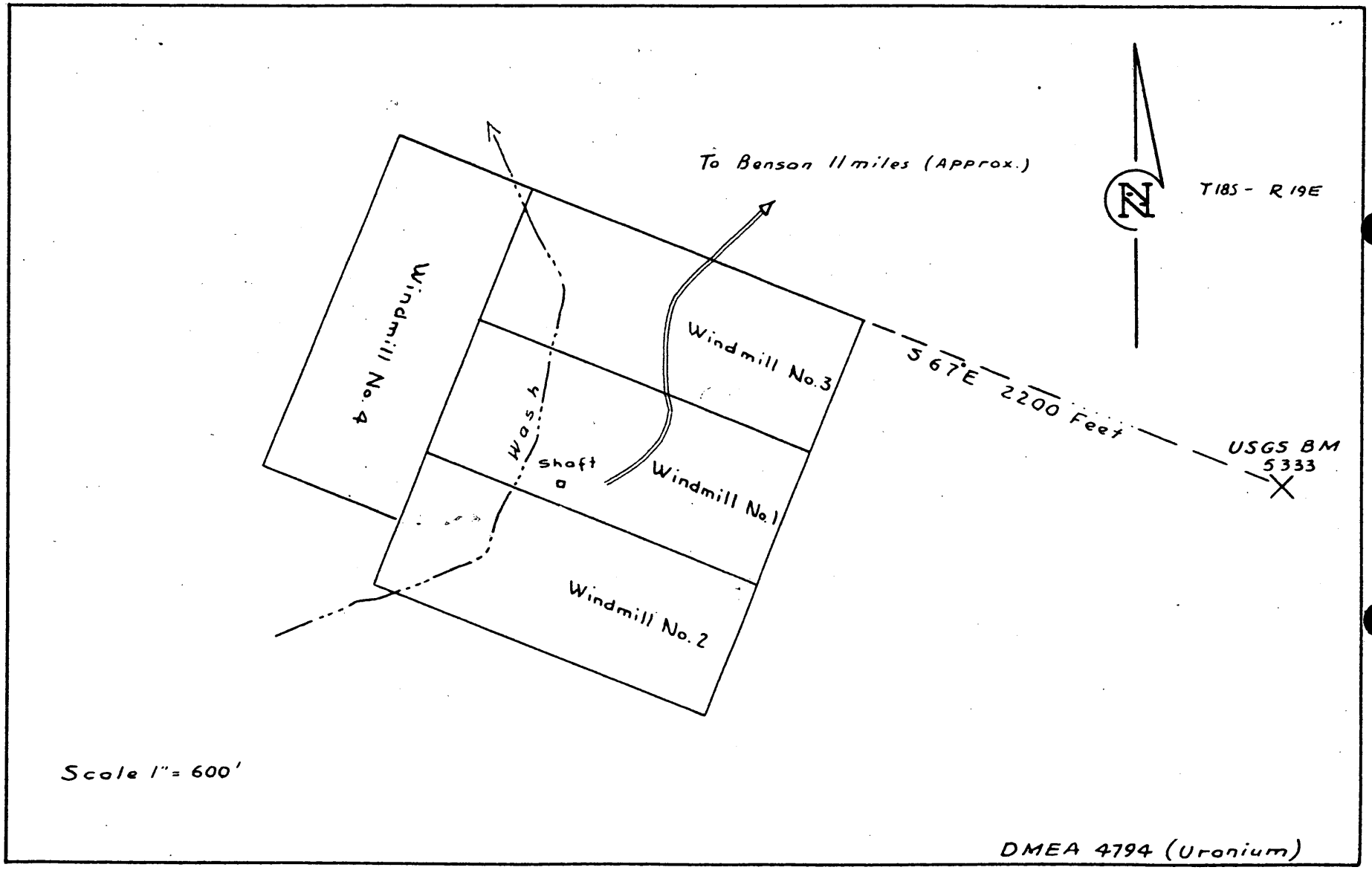

Fig. - 2 - Claim map, Smith- Royston Co.
Cochise County, Arizona

PRESENT STATUS

There has been no activity on the Windmill claims since January 1957.

Equipment and buildings on the property comprise a 315 CFM compressor, owned by Lee Voight, and the applicant's 15-foot high headframe installed at the inclined shaft.

The principal workings comprise the adit, inclined shaft, drifts and drill holes of figures 3, 4, and 5. Installed in the shaft are skid-rails, ventilation pipe of 10-inch diameter, ladders, and air and water pipe lines of 1-1/2-inch and 1-inch diameters, respectively.

Water from recent heavy rainfalls has entered the adit and made it inaccessible. The shaft and drifts are accessible. They are in heavy ground that requires the installed timber sets.

GEOLOGY

The Windmill Group of claims lie in the foothills on the northern slope of the Whetstone Mountains. Granodiorite forms the country rock of the northern slope of the mountain and the Windmill Group of claims were located to cover a radioactive shear zone in the granodiorite. Veins of white quartz ranging in thickness from less than an inch to several feet occur in the granodiorite. Outcrops of a diabase intrusion are exposed in the area.

The shear zone in the granodiorite has a general trend of about N. 55° W. and dips between 45° and 50° to the northeast. Surface debris obscures any certain tracing of the shear zone for any distance

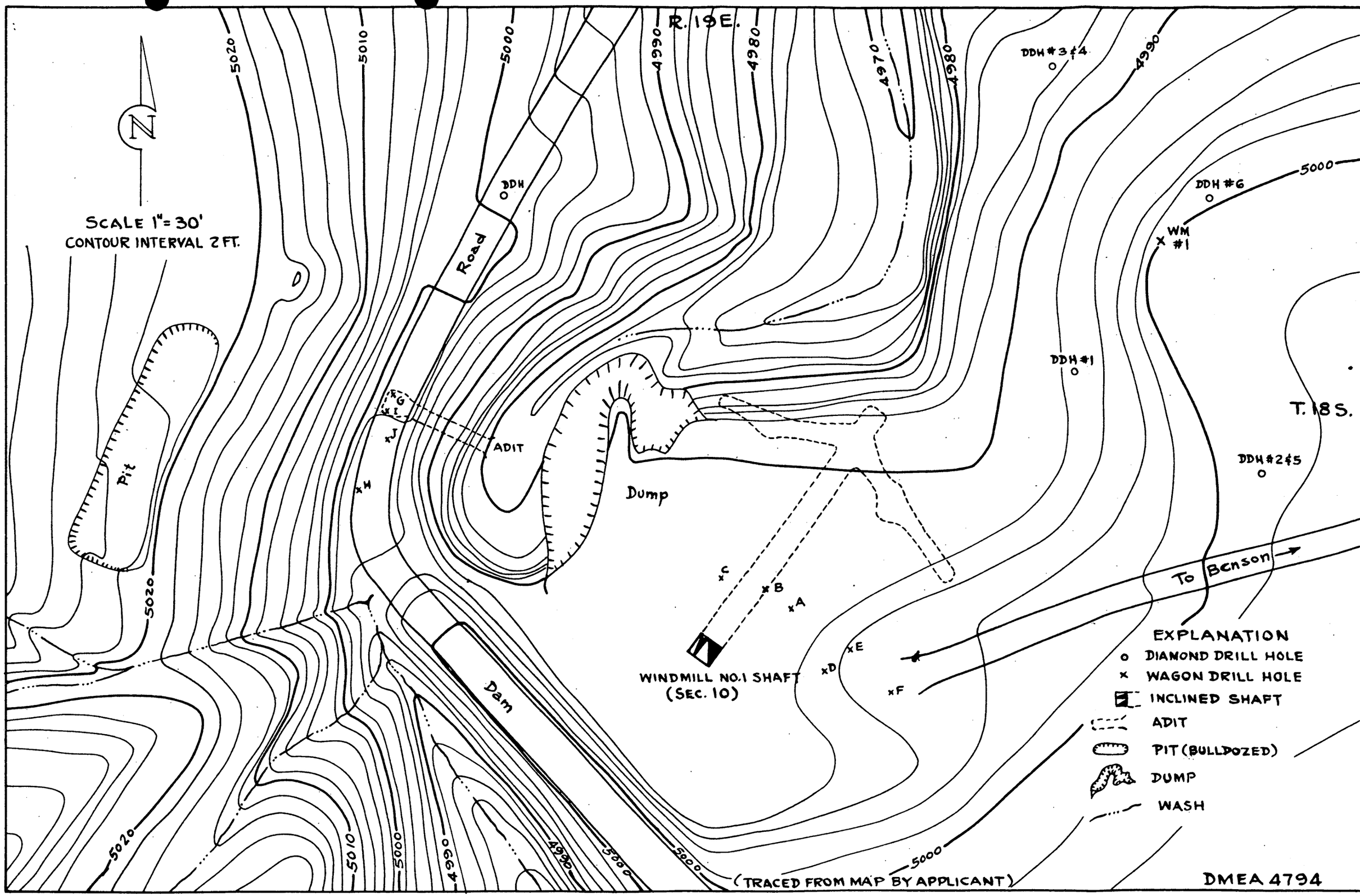

FIGURE 3.- TOPOGRAPHY AT WINDMILL NO. 1 SHAFT, SMITH-ROYSTON CO., WINDMILL CLAIMS, COCHISE COUNTY, ARIZONA.

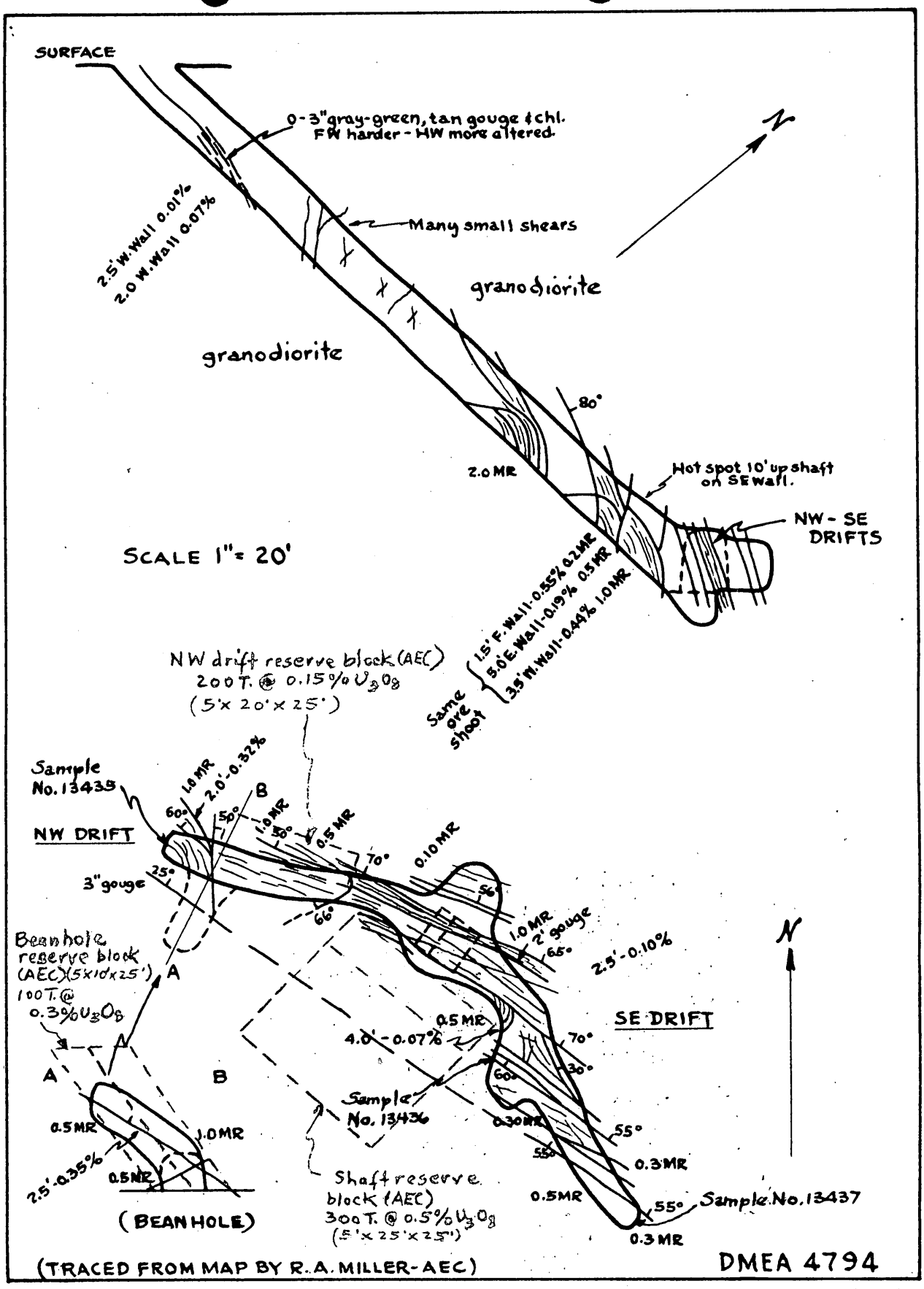

FIGURE 4.- GEOLOGY, ASSAYS, AND RADIOMETRIC SURVEY OF INCLINED SHAFT AND DRIFTS, SMITH-ROYSTON CO., WINDMILL NO. 1 CLAIM, COCHISE COUNTY, ARIZONA.

along the strike beyond the Windmill No. 1 shaft (Fig. 3). In a limited area immediately adjacent to the Windmill No. 1 shaft, the shear zone attains a width of about 40 feet but appears to narrow down to the northwest and southeast in relatively short distances along the strike. Miller[1/], of the AEC, indicated that the shear zone pinched and swelled within short distances and that "developments have showed that the radioactive zone is limited to the immediate area of the discovery." Underground the shear zone is exposed as a mesh of parallel, branching, and crosscutting slips and fractures enclosing crushed and altered lenses of granodiorite. The slips and fractures carry a clay gouge ranging in thickness from fractions of an inch to 2 or 3 inches. Slickensides and grooves mark some of the clay-gouge surfaces. The slips and fractures also pinch and swell and are probably discontinuous strikewise as well as down the dip. Other small and localized structures similar in pattern to this shear zone have been reported in the granodiorite of the area.

Mineralization appears to be confined to the clay gouge along some of the major fractures in the shear zone. The examining team obtained its highest geiger counter readings -- about 2X background -- at places in the clayey gouge of the larger fractures.

1/ Miller, R. A., Unpublished file report, 1956.

The radioactive zone of the clay gouge appeared in places to be only a surface film. Below this surface film, the remaining clay gouge registered no better than background on the geiger counter. Material of highest radioactivity was associated with iron along the slips and fractures. The applicant declared the presence of radon in the underground workings and had eliminated much of it by blower prior to the examination. In using the geiger counter underground the field examiners recognized the probable unreliability of the instrument. It was found that reliability of the instrument decreased markedly after about 2 hours exposure.

To the field examiners the mineralization appeared to be erratic and not present in significant amounts in the shear zone. This condition was apparent to Miller[2/], of the AEC, for he states: "The mineralization within the shear zone is too scattered to make a shipping grade ore. The sheared granite pulverizes when blasted, which would make a difficult selective mining program should ore grade mineralization ever be found."

The mineralized shear zone has been explored with the Windmill No. 1 shaft and drifts (Figs. 3 and 4) and by a short adit and winze (Figs. 3 and 5) about 90 feet northwest of the No. 1 shaft. On the surface ten or more wagon drill holes (Fig. 3) and six diamond drill holes (Fig. 3) were drilled in the shear zone area. No core

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2/ Miller, R. A., Supplement to preliminary reconnaissance report, November 15, 1955.

was recovered from the diamond drill holes and the probe readings obtained in the holes could not be checked chemically. Sampling by the applicant in the adit and winze northwest of the shaft did not indicate any unusual grades of radioactive material. Sampling in the Windmill No. 1 shaft by the applicant did not show any ore grade material until a depth of about 88 feet was reached, and sampling in the southeast drift did not indicate any radioactive material above 0.13 percent cU_3O_8.

A study of the assays and radiometric survey made by Miller[3/] of the AEC on Figure 4 seems to indicate that the M/R readings obtained in the survey do not necessarily indicate ore grade material. The unreliability of instrument readings, owing to the presence of radon accumulations in the drifts, may be suspected. Radon might possibly be responsible for some of the higher readings obtained in the survey. Miller's map (Fig. 4) shows higher M/R readings on the whole in the northwest drift than in the southeast drift. No ore grade material was calculated for the southeast drift. Footages of ore grade material appear to point specifically toward the stronger gouge-filled fractures, and the assays would not, therefore, be reliable if used to represent total mining widths.

The field examiners sampled mineralized fractures registering most favorably on the geiger counter in relation to surrounding

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3/ Miller, R. A., Unpublished file report, 1956.

rock registering essentially nothing significant. The results of three samples (Fig. 4) taken in favorable iron-stained gouge or in rock material in the Windmill No. 1 drifts by the field examiners are shown below. The radiometric and chemical determinations of U_3O_8 were made by LaMar Evans, geologist, of the U. S. Bureau of Mines, Tucson, Arizona.

	Percent			
Sample No.	*eU_3O_8	*rU_3O_8	*cU_3O_8	Location
13435	0.11	0.14	0.19	1.4-foot channel sample across iron-stained shear zone at face of west drift. High iron-bearing material on footwall of shear.
13436	0.11	0.15	0.11	1.5-foot channel sample across iron-stained shear zone at west side of face in stub drift in East drift. High iron-stained material.
13437	0.01	0.01	-	3.5-foot channel sample across shear zone in face of East drift.

*Equivalent U_3O_8-e-Based on the natural radioactivity of the sample as compared to the radioactivity exhibited by a standard uranium source in equilibrium under the same geometry.

r-Equilibrium method - Uranium content calculated from the ratio of the beta and gamma counts.

c-Chemical U_3O_8.

The uranium mineral in the deposit has been tentatively identified as uraninite. R. A. Miller[4/], of the AEC, obtained a microscopic examination of a sample by LaMar Evans, Geologist, U. S. Bureau of Mines, Tucson, Arizona, which stated: "Microscopic examination reveals that the sample is an altered coarse-grained granitic rock composed of oligoclase, quartz, microcline, chlorite, muscovite, calcite, clay, biotite, and small amounts of pyrite, hematite, manganese oxides, zircon and apatite. The uranium occurs as sooty stains which have been tentatively identified as uraninite. The sample also contains some water soluble uranium. The fracture planes throughout the sample are filled with the uraninite and calcite. In some fragments the calcite coats the uraninite stains and in others the uraninite is deposited over the calcite. The uraninite occurs in such a fine-grained state that it does not concentrate by heavy-liquid fractionation." It was further stated by Miller that the sulphides could not be distinguished in hand specimens and that there were no secondary uranium minerals present.

Alteration in the shear zone, in the form of chloritization and kaolinization, occurs more intensely along some of the fracture zones than along others. Intensity of ferrugination, involving either hematite or limonite or both, is marked in the shear zone by color tones. The alteration, according to Miller, seems to bear no relation to the presence of the uraninite. The altered zones carrying the best uraninite mineralization are believed to have been enriched by hydrothermal solutions.

4/ Miller, R. A., Unpublished file report, 1956.

ORE RESERVES

Miller, of the AEC, and the field examiners are agreed that the ore reserves of this deposit are not significant. Miller[5/], under date of July 30, 1956, estimated ore reserves in the Windmill No. 1 shaft and drifts at a total of 600 tons of indicated ore averaging 0.3 percent U_3O_8, and 600 tons of inferred ore averaging 0.3 percent U_3O_8. The 600 tons of indicated ore came from three small blocks in the mine as follows (See Fig. 4): 300 tons of ore averaging 0.5 percent U_3O_8 from the "Beanhole" at the southwest end of the northwest drift; 100 tons of ore averaging 0.3 percent U_3O_8 from the shear zone at the bottom of the shaft; and 200 tons, averaging 0.15 percent U_3O_8 from the northwest or hanging wall side of the northwest drift.

We agree that the only present ore grade mineralization is confined to the three reserve blocks of Miller's estimate. However, production data, the most reliable criteria for estimating reserves in a deposit of this type, where mineralization is erratic, shows that his reserves are optimistically high both as to tonnages and grade. It appears from the following information that a few spotty high assays have been influential in assigning grades to his total tonnages.

5/ Miller, R. A., AEC Unpublished file report, 1956.

Field evidence shows that more than 1/3 of the rock in Miller's three reserve blocks has been mined out by the shaft and drift. This resulted in the production of 16 tons of selectively mined ore averaging 0.13 percent U_3O_8, all of which, according to the applicant, was recovered from the bottom 10 feet of the shaft and the first 30 feet of the west drift. On this basis, the remaining 2/3 of rock in the 3 blocks would be expected to yield about 30 tons of similar grade ore. Thus our estimated reserves of indicated ore before mining would be about 50 tons of ore containing 0.13 percent U_3O_8, or about 2 tons per foot of depth. Our inferred reserves are necessarily confined to a depth extension of the productive zone. As the indicated reserves are insignificant, and the degree and extent of mineralization cannot be expected to increase with depth, it follows that inferred reserves also are insignificant.

CONCLUSIONS AND RECOMMENDATIONS

Anomalous radioactivity on the Windmill claims appears to be confined to a small portion of a shear zone in granodiorite at mine workings that underlie a surface drainage wash. The shear zone attains a width of about 40 feet and appears to narrow along the strike within a few tens of feet in both directions from the shaft. Uranium mineralization appears to be erratically distributed as films of sooty uraninite on the clay gouge of slips and fractures.

Explorations to date have failed to indicate the presence of significant amounts of ore grade material. Furthermore, the small amount of ore that may be present in the developed zone would have to be selectively mined in heavy ground by the expensive square set timbering method.

Denial of the requested aid is recommended because further exploration in the known mineralized zone cannot be expected to find significant amounts of uranium ore.

OFFICIAL FILE COPY DMEA RECEIVED AUG 15 1957		
DATE	INITIALS	CODE
8/15	Q	220
"	~~FEK~~	700

224 New Customhouse
Denver 2, Colorado

August 12, 1957

Memorandum

To: W. L. Emerick, DMEA/TUC } w/copy of Items 1-3

From: DMEA Field Team, Region III

Subject: Docket DMEA-4794 (Uranium) Smith-Royston Co. (Windmill claims) Cochise County, Arizona

Enclosed is the following material relating to the subject docket:

1. Sketch of mine workings, Windmill claims.

2. Claim map of Windmill Group of claims with accompanying standard U. S. Geological Survey topographic map (15 minute series) Benson, Arizona.

3. Letter, dated August 9, 1957, from Applicant, transmitting Items 1 and 2 to this office.

Original signed by
E. N. HARSHMAN

E. N. Harshman
Acting Executive Officer

Enclosures

MMM:jy

cc: Sec. Op. Comm. (2)
Harshman
Docket 4794
Chron.

LAW OFFICES
THOMPSON, ROYSTON & MOSS
433 SOUTH SPRING STREET
LOS ANGELES 13, CALIFORNIA
MADISON 6-4387

August
Ninth
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Mr. C. O. Mittendorf, Administrator
United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMEA-4794 (Uranium)
Windmill Claims,
Cochise County, Arizona.

Dear Mr. Mittendorf:

Enclosed are the following items in connection with the above docketed application:

1. Survey map of the Claims which are the subject of this application, to which is attached a copy of the quadrangle map covering the area.

2. Sketch showing the location of the Claims, present workings thereon and the proposed additional work which is the subject of the application.

Three copies of these items have been forwarded to Mr. King in Denver.

Also enclosed are five copies of the Consent to Lien and Subordination Agreement, all of which have been executed by the persons other than applicant having an interest in these Claims. In the event a project is approved, I assume the Government will require a current abstract of title. We hold an abstract of title covering the property to the date of our acquisition of the Claims, which abstract can be brought down to date at any time you desire.

If anything further is desired, we shall be very pleased to supply it.

Sincerely yours,

Clifford E. Royston

Clifford E. Royston

CER:DP
Enclosures.

Maps submitted in folder

LAW OFFICES
THOMPSON, ROYSTON & MOSS

433 SOUTH SPRING STREET
LOS ANGELES 13

August
Ninth
1957

DMEA
RECEIVED
CODE

Mr. William H. King
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado.

Re: Docket No. DMEA-4794 (Uranium)
Windmill Claims
Cochise County, Arizona.

Dear Mr. King:

In accordance with Mr. Mittendorf's letter of July 26, 1957, there are enclosed herewith three copies of the following items:

1. Survey map of the Claims which are the subject of this application, to which is attached a copy of the quadrangle map covering the area.

2. Sketch showing the location of the Claims, present workings thereon and the proposed additional work which is the subject of the application.

One additional copy of the foregoing has been forwarded to Washington for filing.

If any further information is desired, we shall be very pleased to supply it.

Very truly yours,

Clifford E. Royston

CER:DP
Enclosures.

COPY

LAW OFFICES
THOMPSON, ROYSTON & MOSS
433 SOUTH SPRING STREET
LOS ANGELES 13, CALIFORNIA
MADISON 6-4387

OFFICIAL FILE COPY
DMEA
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August First 1957

Mr. C. O. Mittendorf, Administrator
United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMEA-4794 (Uranium)
Windmill Claims
Cochise County, Arizona.

Dear Mr. Mittendorf:

Thank you for your letter of July 26, 1957 respecting the above application. In accordance with your instructions copies of maps showing the required information will be forwarded promptly.

The Consent to Lien and Subordination Agreement has been forwarded for execution by the parties in interest and will be forwarded to you as soon as it has been executed.

A copy of this letter is being sent to Mr. William H. King in Denver for his information.

Sincerely yours,

Clifford E. Royston

Clifford E. Royston

CER:DP
cc - Mr. William H. King
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado.

OFFICIAL FILE COPY DMEA RECEIVED AUG 2 1957		
DATE	INITIALS	CODE
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"	~~PLC~~	700

224 New Customhouse
Denver 2, Colorado

July 30, 1957

Memorandum

To: W. L. Emerick } M/ey of Items 1-6
DMEA/TUC } " " "

From: DMEA Field Team, Region III

Subject: Docket DMEA 4794 (Uranium) Smith-Royston Co. (Windmill Claims) Cochise County, Arizona

Enclosed is the following material relating to the subject docket:

1. Copy of application for Government assistance in exploration work under the DMEA program.
2. Memorandum of Review by James Paone, USBM.
3. Memorandum of Review by N. E. Nelson, USGS.
4. Letter of transmittal of the foregoing to this office, dated July 26, 1957, from the Acting Chairman, Operating Committee, DMEA.
5. Routing Control Sheet
6. Letter dated July 26, 1957, from the Administrator, DMEA, to the Applicant.

A field examination of the property and a joint report of findings and recommendations pertaining to the Applicant's work proposal are requested.

By Item 6, you will note that the Administrator sent the Applicant a set of Consent to Lien Forms which are to be executed in the event a project is approved. At the same time, the Applicant was requested to provide this and the Washington Office with additional information necessary before an examination can be made. You will be furnished with this information as soon as it becomes available to us.

If the field examiners recommend Government participation in the proposed exploration program, please submit eleven extra copies of each map used in the joint report which show the land to be subordinated and the location and extent of recommended work, relative to property boundaries.

The Bureau of Mines' copy of the application should not be returned to this office but is to be kept for the Examining Engineer's file. The Routing Control Sheet, however, is to be completed, detached from the application, and forwarded to the Executive Officer with the Joint Examination Report. The Survey's copy of the application is to be returned to Mr. Harshman's office.

E. N. HARSHMAN

E. N. Harshman
Acting Executive Officer

Enclosures

MMMieh

cc: Sec. Op. Comm. (2)
Harshman W/enclosures, Items 2, 3, 4 & 6
DMEA/DFC
Docket
Chron

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
7/25	Kappa	700
7/25	Ellis	700
7/26	Martin	130
"	Johnson	110
"	Butterbrey	100
		~~110~~
		~~100~~
7/26	C	220
		700

JUL 26 1957

Mr. William H. King
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-4794 (Uranium)
Smith-Royston Co.
Windmill Claims
Cochise County, Arizona

Dear Mr. King:

The captioned application is referred to Region III Field Team for investigation, a field examination if deemed advisable, and recommendations. We have requested the Applicant to forward to you three copies of a map showing the claims, workings on the property, and proposed work.

Enclosed are copies of memoranda, dated July 23, 1957, from James Paone, USBM, and N. E. Nelson, USGS, relating to the proposed project. Also enclosed are two copies of the application with attachments for the use of the Field Team.

If the Field Team recommends an exploration project, we will require, in addition to the usual information, a Consent to Lien and Subordination Agreement signed by Sherwood B. Owen covering all the claims listed in the application.

Sincerely yours,

W. S. Martin

Enclosures

ACTING Chairman, Operating Committee (JLB)

APPROVED:

Frank D. Lamb (JLB)
Member, Bureau of Mines

Thor H. Kiilsgaard (JLB)
Member, Geological Survey

FLKnouse/gla/izm 7-25-57

cc to: Mr. Knouse
Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
7/25	Voyel	700
7/25	Ellis	700
7/26	Martin	130
7/26	Lamb	130
7/26	Kilgoard	130
"	Johnson	110
"	Mittendorf	100
		220
		700

JUL 26 1957

Mr. Clifford E. Royston
Smith-Royston Co.
c/o Thompson, Royston & Moss
433 South Spring Street
Los Angeles 13, California

Re: Docket No. DMEA-4794 (Uranium)
Windmill Claims
Cochise County, Arizona

Dear Mr. Royston:

The application for assistance in exploring your claims, under the captioned docket number, has been reviewed by the Division of Rare and Miscellaneous Metals of the Defense Minerals Exploration Administration. It has been referred to:

Mr. William H. King
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

In the meantime, to speed the processing of your application, you should furnish a map, or sketch drawn to scale, which shows the locations of (1) all the claims listed in your application, (2) the workings on your property, and (3) the proposed work. You should send three copies of the map to Mr. King at the above address and one copy to this office.

In the event a project is approved for the subject property, it will be necessary for you to furnish the required Consent to Lien and Subordination Agreement form (five copies) properly signed, dated, and the addresses of the interested parties shown. An early submission of these forms may save time. Six copies of Form MF-205 are enclosed for this purpose.

The Regional Office will contact you in regard to your project if additional information is required.

Sincerely yours,

C. O. Mittendorf
(esf)
Administrator

FLKnouse/izm 7-25-57
cc to: FLKnouse
Admr.'s Reading File
DMEA FT Reg. 3 (2)

Enclosures

8623

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Washington 25, D. C.

Date July 23, 1957

DMEA Docket No. 4794
DMEA Contract No.
Commodity Uranium
Name of applicant Smith-Royston Co.
Name of property
Location of property Cochise County, Arizona
Estimated cost of project $55,600/00

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: James Paone, Bureau of Mines Member JP
Uranium Commodity Committee

Subject: Review of Application
(Application, Field Team Report, etc.)

1. Date of subject document: 7/22/57. 2. Date received by reviewer: 7/23/57

3. Prior reports on this property known to reviewer: Yes ☐ No ☐

4. Prior reports on nearby properties known to reviewer: Yes ☐ No ☐

5. Information available on past production: Yes ☐ No ☐

6. Other pertinent factors known to reviewer: Yes ☐ No ☐

7. Explain items marked yes above:

8. Factors needing special consideration:
   a. Location ☐
   b. Ownership ☐
   c. Evidence of mineralization ☐
   d. Geology ☐
   e. Proposed exploration method ☐
   f. Alternate exploration method ☐
   g. Costs ☐
   h. ☐

9. Action advised:
   a. Obtain information from applicant ☐
   b. Refer to Field Team ☒
   c. Denial ☐
   d. Agree with Field Team ☐
   e. Disagree with Field Team ☐
   f. Suggest alternate plan ☐
   g. Request another examination ☐
   h. Approval ☐
   i. Consult with Mr. _____ at _____ AEC office.

10. Remarks: (Use back of page if necessary)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

OFFICIAL FILE COPY
DMEA
IN REPLY REFER TO:
RECEIVED JUL 24 1957

DATE	INITIALS	CODE
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Complete		

July 23, 1957
Re: DMEA 4794
Smith-Royston Co.
Windmill Mine
Cochise County, Ariz.
$55,600.00 - Uranium

Memorandum

To: E. W. Ellis, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of application

The applicant requests assistance in exploring, by shaft sinking, 200 feet and drifting, 600 feet, a fault zone in granite.

A shaft has already been sunk 107 feet and drifting has been done at the 100-foot level. Six diamond drill holes have been drilled of which five were completed and probed. Three holes probed by A.E.C. or under A.E.C. supervision, and two probed by the applicant, showed ore grade or near ore grade material, at depths of from 90 feet to 220 feet measured on the dip of the fault. In addition, shallow wagon drill holes were drilled. Results indicated the fault zone is radioactive but no specific information was secured.

Sampling in the shaft and drifts show the mineralization is spotty and not enough and systematic sampling was done to indicate the average grade. Probably the grade is low, though some ore grade material was saved.

Referral of the application to the Field Team is recommended.

N. E. Nelson

N. E. Nelson

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

July 22, 1957

Smith-Royston Co.
c/o Thompson, Royston & Moss
433 South Spring Street
Los Angeles 13, California

Subject: DMEA 4794

Gentlemen:

Your application for exploration assistance, dated July 19, 1957 submitted to our office at Washington, D.C. has been assigned Docket Number 4794 and referred to the Division of Rare & Miscellaneous Metals in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Director
Operations Control and
Statistics Division

Copy to:
Region III

Smith-Royston Co.
433 South Spring Street
Los Angeles 13, California

As can be seen from the foregoing photographs the zone contains numerous slip planes which traverse the zone in a variety of angles. The material in the zone in general appears when in place to be relatively solid and unfractured. It is, however, so completely crushed that upon removal a typical sample can readily be crumbled in the hand.

Mineralization at the one hundred seven foot level consists of fine-grained uraninite (or pitchblende) without any indication of secondary uranium mineralization. A few samples have shown trace indications of bornite or other copper minerals. These are, however, generally absent. Accessory mineralization consists primarily of hematite, small amounts of illite and relatively large amounts of the clay minerals, particularly along the slip planes. In simplicity of accessory mineralization, this property is similar to the deposits along the St. Louis fault in the Beaverlodge area of Canada (Nininger, Minerals for Atomic Energy, 2nd ed., p. 49).

A series of holes were drilled from the end of both drifts along the strike of the zone and along the drifts toward the footwall and the hanging wall. These underground holes indicate a continuation of mineralization both to the east and to the west. The holes driven toward the footwall and hanging wall indicate that mineralization is frequently general throughout the sheer zone (a width of approximately twenty-five feet) but with a great variation in degree from place to place. The average grade of mineralization of all of the material removed from the drifts was approximately .10% c U_3O_8. No attempt was made to remove material from the drifts in a selective manner. One test shipment of twenty skiploads (approximately sixteen tons) taken from the west drift was sent to the buying station at Cutter. This shipment ran .13% c U_3O_8.

Mineralization in the drifts is much higher in grade along and under slip planes than through the zone generally.

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433 South Spring Street
Los Angeles 13, California

ore grade prior to having been leached. This conclusion was subsequently confirmed in the exploration shaft. At shallow depths, channel and bulk samples uniformly assayed chemically low in relationship to radiometric readings.

The primary significance of the drilling results lies chiefly in the fact that they appear to establish that the area of mineralization is of considerable thickness and width. As yet its extent, both along the zone and down dip, has not been determined.

EXPLORATION WINZE

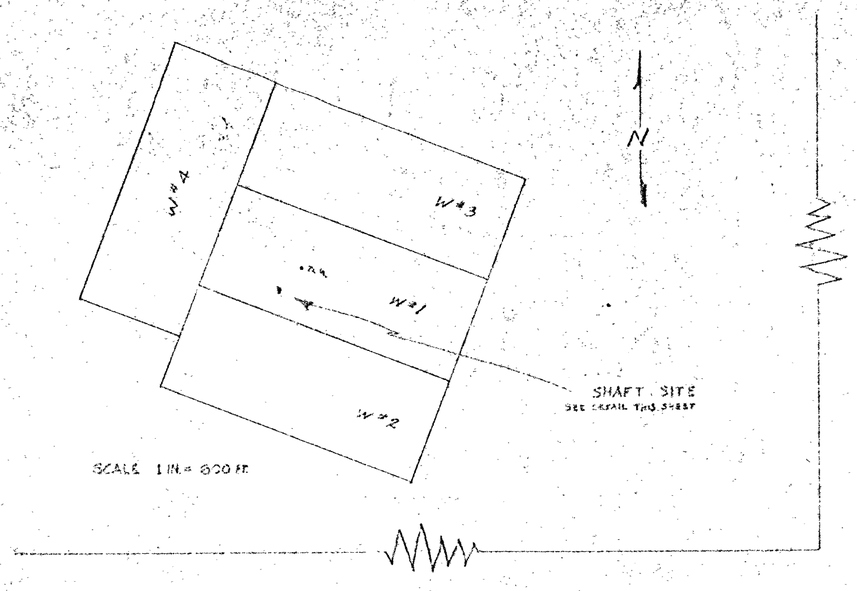
On the western side of the wash a thirty-five foot tunnel was driven into the hillside from the end of which a winze was sunk to a depth of eighteen feet. A. E. C. assays (see sample map No. 1 attached) assayed. 11% c U_3O_8 and .12% c U_3O_8.

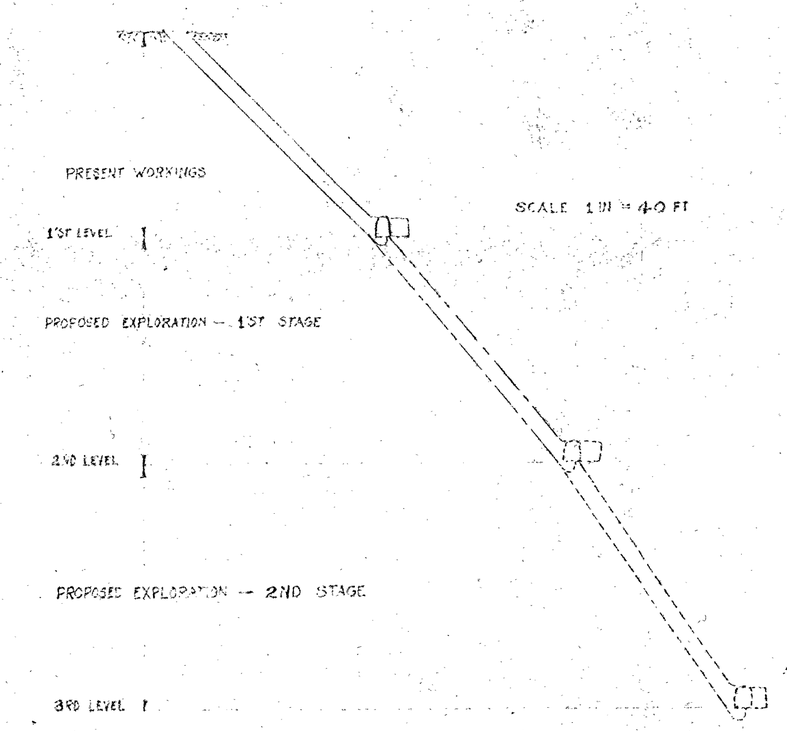
EXPLORATION SHAFT

Based upon the foregoing surface work and drilling an exploration shaft was commenced. This shaft is on an incline of approximately 45° and has been designed to stay within the fault zone in order to gain the maximum possible information per foot of sinking. This shaft has been sunk to an incline depth of one hundred seven feet, at which point drifts extend approximately forty-five feet southeasterly and a similar distance northwesterly along the zone. Sample Map No. 2 attached contains representative examples of the degree of mineralization encountered. Colored photographs taken in the west drift are attached.

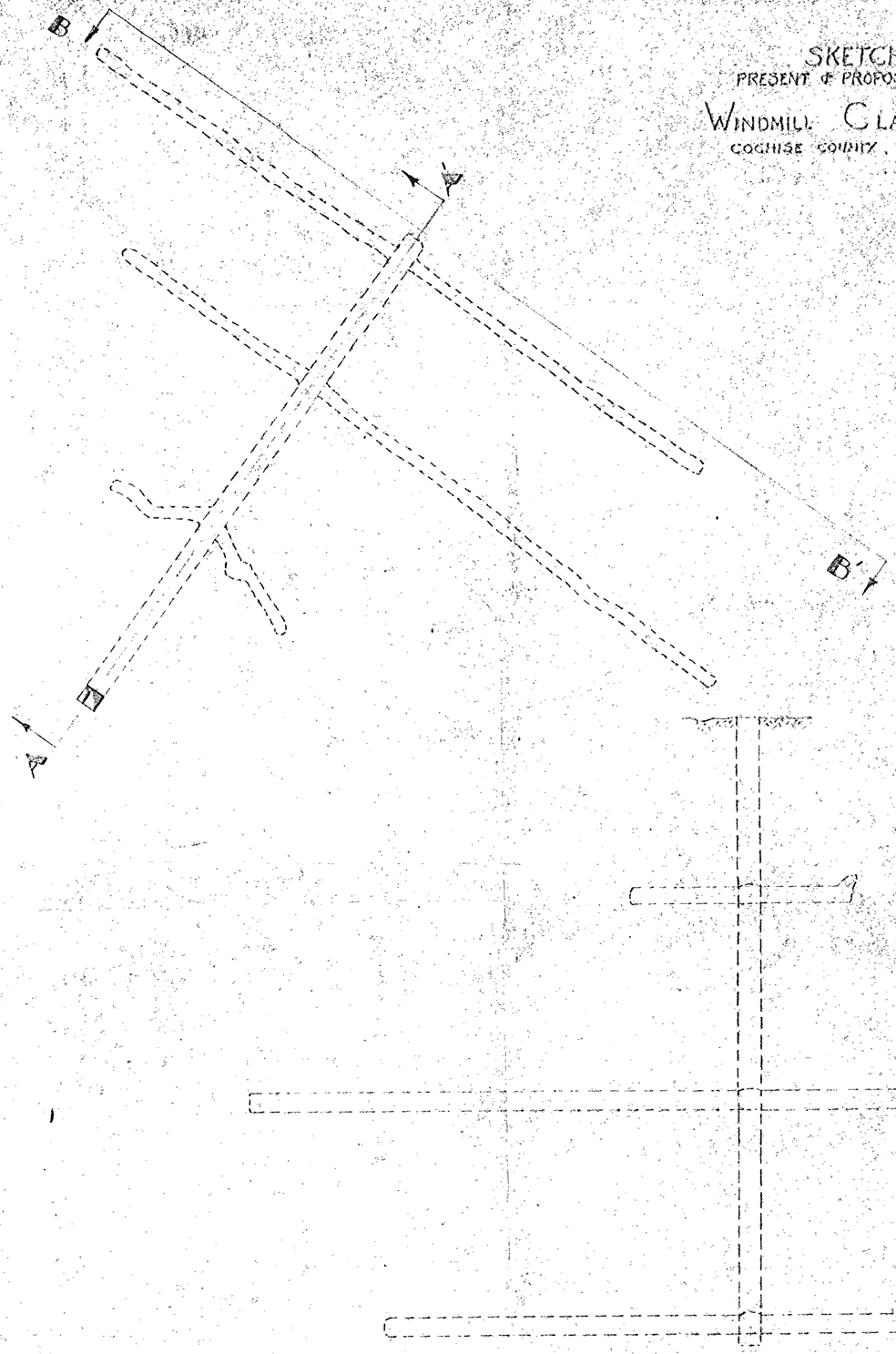
SKETCH
PRESENT & PROPOSED WORK

WINDMILL CLAIMS
COCHISE COUNTY, ARIZ.

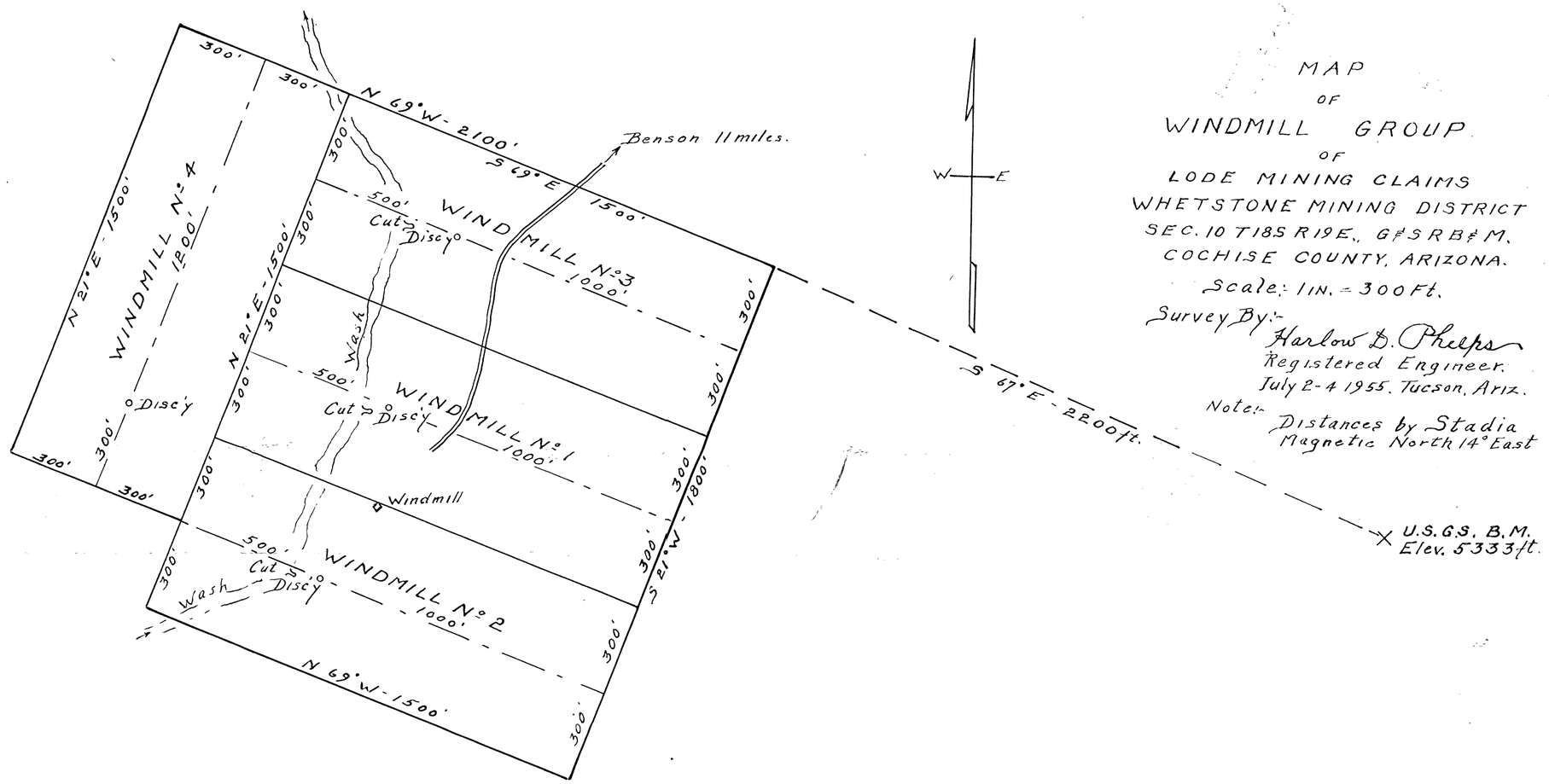




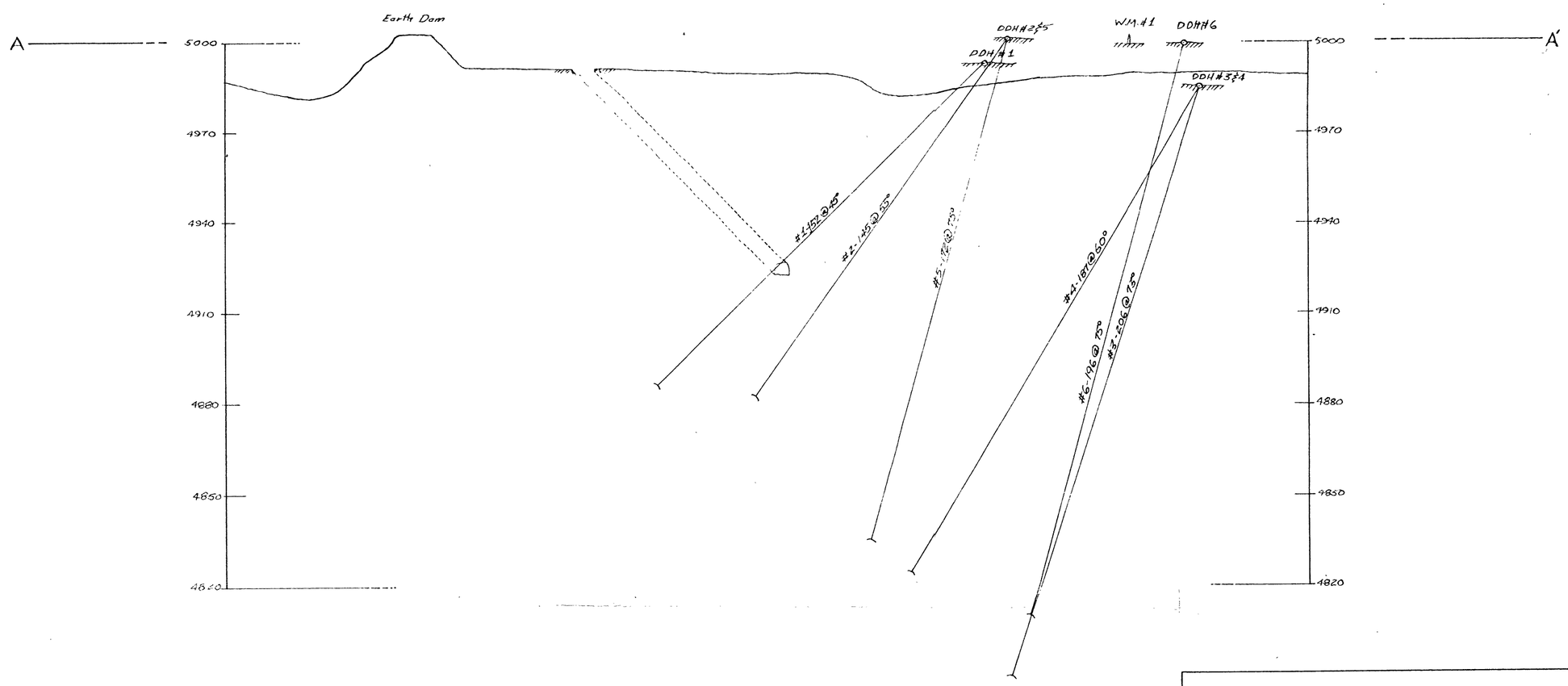
SECTION AA'



SECTION BB'


MAP
OF
WINDMILL GROUP
OF
LODE MINING CLAIMS
WHETSTONE MINING DISTRICT
SEC. 10 T18S R19E., G&SRB&M.
COCHISE COUNTY, ARIZONA.
Scale:- 1IN. = 300Ft.
Survey By:-
Harlow D. Phelps
Registered Engineer.
July 2-4 1955. Tucson, Ariz.
Note:- Distances by Stadia
Magnetic North 14° East
Benson 11 miles.
W
E
N 69°W - 2100'
S 69°E
1500'
S 67°E - 2200ft.
U.S.G.S. B.M.
Elev. 5333ft.
WINDMILL No 4
N 21°E - 1500'
1200'
WINDMILL No 3
1000'
WINDMILL No 1
1000'
WINDMILL No 2
1000'
N 21°E - 1500'
S 21°W - 1800'
N 69°W - 1500'
500'
Cut & Disc'y
Wash
Windmill
300'

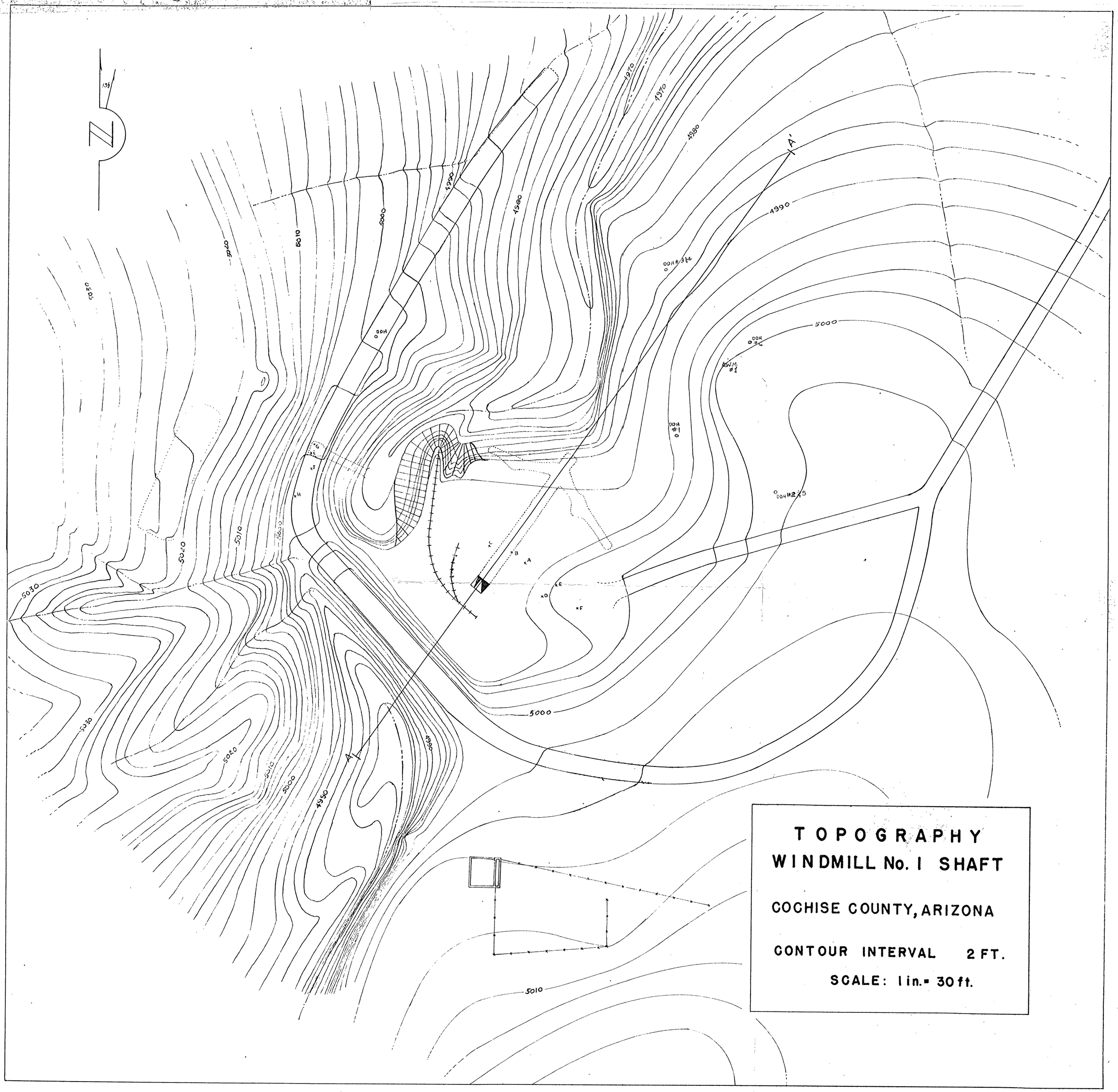
Mail
8-9-57



SECTION A-A'
WINDMILL No.1 SHAFT

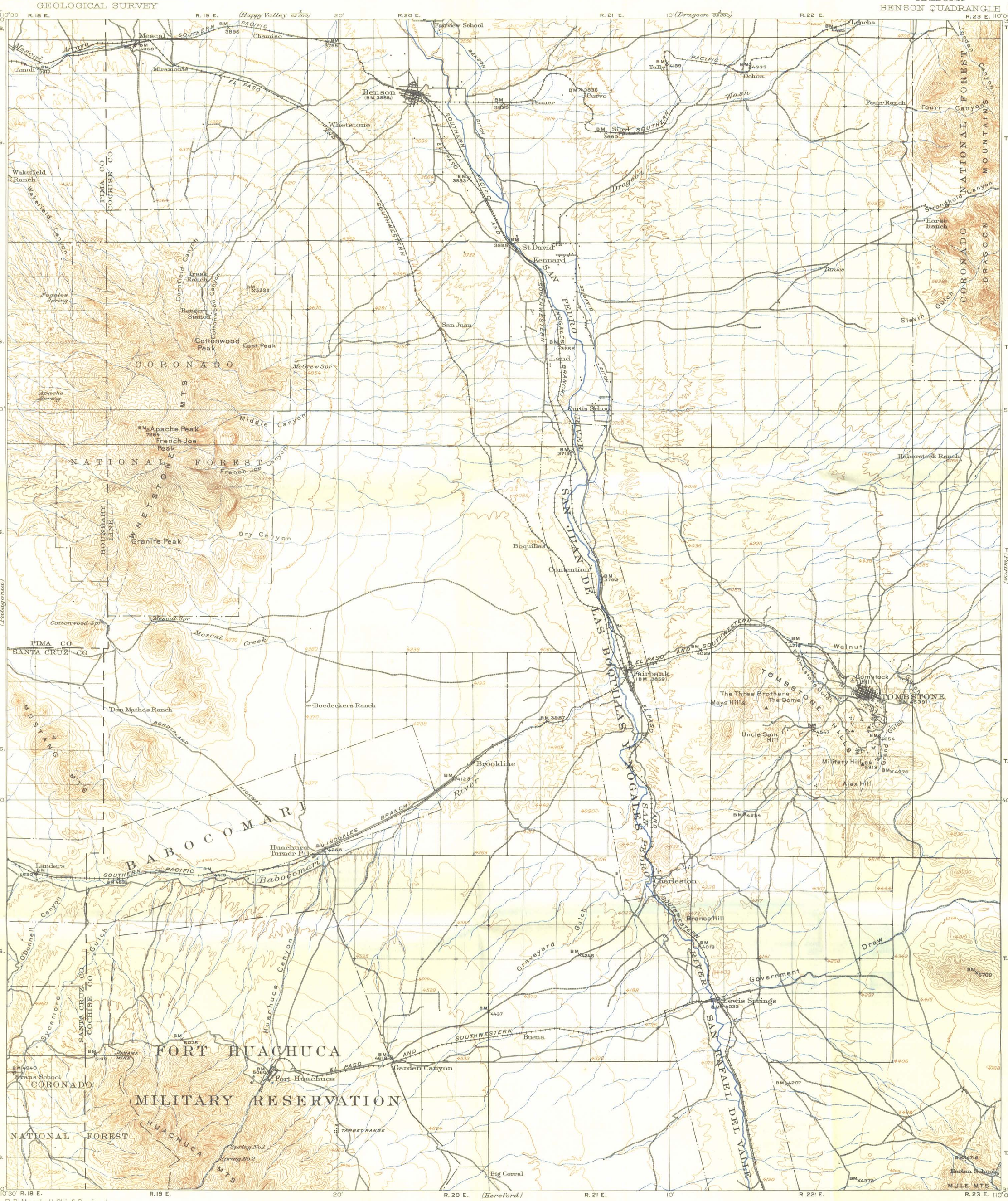
COCHISE COUNTY, ARIZ.

HORIZONTAL & VERTICAL
SCALE: 1" = 30'


N
TOPOGRAPHY
WINDMILL No. 1 SHAFT
COCHISE COUNTY, ARIZONA
CONTOUR INTERVAL 2 FT.
SCALE: 1 in. = 30 ft.
A
A'
DDH #3
DDH #1
DDH #2
W.M. #1
5000
5010
5020
5030
4990
4980
4970
4960
A
B
C
D
E
F
G
H

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ARIZONA
BENSON QUADRANGLE



R. B. Marshall, Chief Geographer.
Geo. R. Davis, Geographer in charge.
Topography by H. W. Peabody, C. C. Holder.
C. P. McKinley, Cornelius Schnurr, and L. B. Glasgow.
Control by T. M. Bannon, W. A. E. Holt, T. A. Green,
Chester Irvine, and M. S. Bright.
Surveyed in 1912-1913.

Maps of the Tombstone Special area, scale 1:24,000, contour interval 50 feet, and Tombstone Mining area, scale 1:6,000, contour interval 10 feet, from more detailed surveys of the regions adjacent, are available.

Scale 1/125000

1 ½ 0 1 2 3 4 5 6 7 8 9 Miles

3000 1500 0 3000 6000 9000 12000 Yards

5000 0 5000 10000 15000 20000 25000 Feet

1 0 1 2 3 4 5 6 Kilometers

Contour interval 100 feet

Datum is mean sea level

TRUE NORTH
MAGNETIC NORTH
13°
APPROXIMATE MEAN DECLINATION 1913.

DIAGRAM OF TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Edition of Jan. 1915, reprinted 1948
Polyconic projection.

ARIZ.
BENSON
N3130—W11000/30